# ARCS V

## Remedial Activities at Uncontrolled Hazardous Waste Sites in Region V

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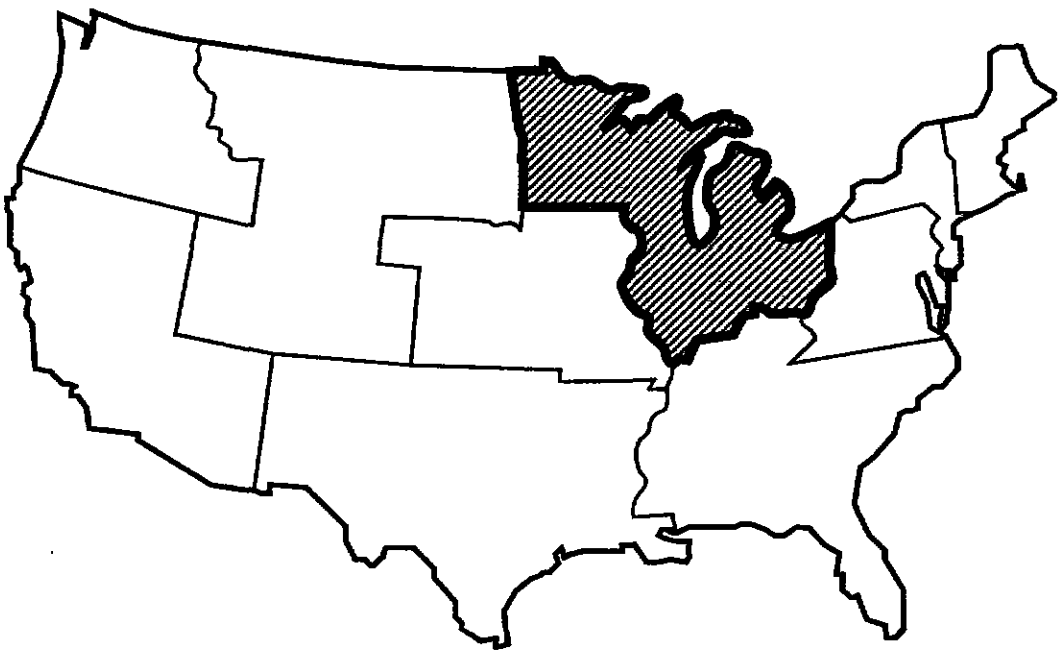
EPA United States Environmental Protection Agency



CH2M HILL

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**Remedial Investigation**
**RSR Corporation Superfund Site**
**Operable Unit No. 3**
**Volume 1 of 3**
**Report**

**ARCS Contract No. 68-W8-0040**
**EPA Work Assignment No. 82-6P7K**
**CH2M HILL Master Project No. 111432**

**February 1996**

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**Prepared for**

**U.S. Environmental Protection Agency**

**Prepared by**

**CH2M HILL**

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| | |
|---|---|
| HPLC | high performance liquid chromatography |
| HQ | Hazard Quotient |
| LOAELS | Lowest Observed Adverse Effect Level |
| $\mu$g/dl | micrograms per deciliter |
| $\mu g/m^3$ | micrograms per cubic meter |
| $\mu$g/kg | micrograms per kilogram |
| $\mu$g/l | micrograms per liter |
| mg/kg | milligrams per kilogram |
| mg/l | milligrams per liter |
| mph | miles per hour |
| MS/MSD | matrix spike/matrix spike duplicate |
| MSL | mean sea level |
| NAAQS | National Ambient Air Quality Standard |
| NCP | National Contingency Plan |
| NOAELS | No Observed Adverse Effect Level |
| NPL | National Priorities List |
| OU | Operable Unit |
| PAH | polynuclear aromatic hydrocarbons |
| PCB | polychlorinated biphenyl |
| PM10 | particulate matter 10 microns or less in diameter |
| ppb | parts per billion |
| ppm | parts per million |
| PQL | Practical Quantitation Limit |
| QA/QC | quality assurance/quality control |
| QAPP | Quality Assurance Project Plan |
| RCRA | Resource Conservation and Recovery Act |
| RD | Remedial Design |
| RFA | RCRA Facility Assessment |
| RFI | RCRA Facility Investigation |
| RI | Remedial Investigation |
| RI/FS | Remedial Investigation/Feasibility Study |
| RME | Reasonable Maximum Exposure |

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# OU No. 3 Acronyms

| | |
|---|---|
| AA | atomic absorption |
| ACM | asbestos-containing material |
| AG | Attorney General |
| AHERA | Asbestos Hazard Emergency Response Act |
| AOC | Administrative Order on Consent |
| ATSDR | Agency for Toxic Substances and Disease Registry |
| BCF | bioconcentration factor |
| bgs | below ground surface |
| BTEX | benzene, toluene, ethylbenzene, xylene |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CLP | contract laboratory program |
| COD | chemical oxygen demand |
| COPC | chemicals of potential concern |
| DBC | Boy's Club Air Monitoring Station |
| DCK | Chalk Hill Road Air Monitoring Station |
| DEA | Amelia Earhart School Air Monitoring Station |
| DFW | Dallas/Fort Worth |
| DHA | Dallas Housing Authority |
| E&E | Ecology and Environment |
| EE/CA | Engineering Evaluation/Cost Analysis |
| EM | electromagnetic |
| EPA | U.S. Environmental Protection Agency |
| ERA | Ecological Risk Assessment |
| FSP | Field Sampling Plan |
| FTC | Federal Trade Commission |
| GC/MS | gas chromatography/mass spectrometry |
| HHRA | Human Health Risk Assessment |
| GPS | Global Positioning System |
| HI | hazard index |

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|---|---|
| RPD | relative percent difference |
| SACM | Superfund Accelerated Cleanup Model |
| SCS | Soil Conservation Service |
| SWMU | Solid Waste Management Unit |
| TAC | Texas Administrative Code |
| TAL | target analyte list |
| TCL | target compound list |
| TCLP | Toxicity Characteristic Leaching Procedure |
| TDH | Texas Department of Health |
| TDS | total dissolved solids |
| TDWR | Texas Department of Water Resources |
| TNRCC | Texas Natural Resource Conservation Commission |
| TOC | total organic carbon |
| TPH | total petroleum hydrocarbon |
| TSS | total suspended solids |
| TU | Texas Utilities |
| TWC | Texas Water Commission |
| TWDB | Texas Water Development Board |
| UST | underground storage tank |
| UTL | upper tolerance limit |
| VOA | Volatile Organic Analysis |
| XRF | X-ray Fluorescence |
| °F | degrees Fahrenheit |

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# Chapter 1
# Introduction

# Chapter 1
# Introduction

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This Remedial Investigation (RI) report presents the activities undertaken and the results of an RI conducted pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund), **42 USC §960 et seq.** and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), **40 C.F.R. Part 300**, at Operable Unit (OU) No. 3 of the RSR Corporation Superfund Site (RSR Site). The RSR Site encompasses a residential/industrial area approximately 13.6 square miles in size located west of downtown Dallas, Texas. Contamination of the RSR Site reportedly originated from the operation of a secondary lead smelter facility located near the center of the RSR Site. Disposal of blast furnace slag and battery casing chips on the smelter facility properties and in surrounding areas throughout many years of the smelter's operation also contributed to the RSR Site's contamination. Available data originally indicated that the principal contaminants of concern were lead, arsenic, and cadmium, all listed as hazardous substances as defined by Section 101(14) of the CERCLA (**42 U.S.C. § 9601(14)** and **40 C.F.R. § 302.4**). As a result of potential threats to human health and the environment from contaminated site media, the RSR Site was included on the Superfund National Priorities List (NPL) of uncontrolled hazardous waste sites on September 29, 1995 (**60 Federal Register 50435, EPA, 1995l**). The RSR Site is currently divided into five operable units (OUs) composed of the smelter properties, residential areas, and municipal landfill and surface dumping areas.

In accordance with CERCLA, the U.S. Environmental Protection Agency (EPA) in 1994 authorized the initiation of a Remedial Investigation/Feasibility Study (RI/FS), an Ecological Risk Assessment (ERA), and a baseline Human Health Risk Assessment (HHRA) for three areas within the RSR Site where landfilling and surface dumping of smelter-related waste appear to have occurred. These three areas comprise OU No. 3.

To begin these studies, project plans, which included a Work Plan (**EPA, 1994a**), Field Sampling Plan (FSP) (**EPA, 1994b**), and Quality Assurance Project Plan (QAPP) (**EPA,**

1994c) were developed. These documents outlined the process and rationale for RI data collection activities. This RI report has been prepared for OU No. 3 in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the National Contingency Plan (NCP), and in accordance with the project plans developed for OU No. 3. The baseline HHRA, ERA, and FS reports for OU No. 3 are provided under separate cover. A summary of the baseline HHRA and the ERA for OU No. 3 are presented in Chapters 10 and 11, respectively, of this document.

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## 1.1 Project Requirements

CERCLA, as amended by SARA through Executive Order 12316, gives the EPA authority to conduct investigations and response activities when (1) there is an actual or potential threat of release of hazardous substances into the environment, or (2) there is a release or potential threat of release into the environment of any pollutant or contaminant that may present an imminent and substantial danger to public health or welfare (42 U.S.C. § 9604(a)(1)). The NCP was established pursuant to Section 105 of CERCLA (42 U.S.C. § 9605) and Section 311(d) of the Clean Water Act (33 U.S.C. § 1321(d)) to provide procedures and criteria for responding to releases of hazardous substances. Subpart E of the NCP (40 C.F.R. §§ 300.400 - 300.440) outlines the procedures for determining the nature and extent of contamination at a Superfund site and the selection of a remedy for that site, if needed.

This report summarizes the findings of the RI at OU No. 3 of the RSR Site. OU No. 3 was originally comprised of four sites, three of which are located in the south-central and western portions of the RSR Site (Sites 1, 3, and 4). Site 2 is located within the boundaries of OU No. 5 (a battery-wrecking facility property associated with the smelter operation). As described in the Conceptual Work Plan (CWP) for this RI (EPA, 1993), the OU No. 3 sites originally were identified as containing slag and battery casing chips thought to be associated with smelter operations. Remediation for Site 2 is being

addressed by EPA under the remedial activities conducted for OU No. 5 (EPA, 1995a), and the OU No. 3 RI/FS is focused on Sites 1, 3, and 4.

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The overall RI objectives, as defined in the Conceptual RI/FS Work Plan (EPA, 1993) are as follows:

- Evaluate the nature and extent of contamination at each OU No. 3 Site addressed by this investigation (Sites 1, 3, and 4).

- Present analytical results of the RI in sufficient detail to support the baseline HHRA and ERA.

- Assess contaminant migration pathways and identify transport mechanisms and media.

Information presented in this RI report will be used to support the HHRA, the ERA, subsequent decision documents, and in the design and implementation of remedial actions at OU No. 3, if necessary.

## 1.2 Project History

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The following historical information of the RSR Site and smelter operations is based on information available to EPA at the time of this RI report. From approximately 1936 until 1971, the lead smelting facility, located at 2820 North Westmoreland Road in Dallas, and an associated industrial property located across the street (also on Westmoreland Road), were owned and operated by Murph Metals, Inc., and its predecessors, corporate affiliates, and lessees. In 1971, RSR Corporation (RSR) acquired the lead smelting facilities and continued to operate the facility under the name Murph Metals. The facility continued to operate under RSR/Murph until March 1984 when a Federal Trade Commission (FTC) divestiture order resulted in the acquisition of the facility by the current owner, Murmur Corporation. Although Murmur intended to continue operation of the smelter, the City of Dallas declined to renew the smelter's operating permit based on City zoning ordinance restrictions and the facility's historical operating practices. As a result, the smelter closed in 1984. The Murmur Corporation facility presently consists of various buildings associated with the secondary lead smelter as well as the smelter itself (now known as OU No. 4). In addition, Murmur owns the northern portion of the associated industrial property across Westmoreland Road, now known as OU No. 5, upon which exists a disassembled battery wrecking facility and an operating lead manufacturing and fabricating facility. RSR currently owns the undeveloped southern portion of OU No. 5.

During approximately 50 years of operation, contamination of the RSR Site with inorganic constituents such as lead and arsenic resulted from operational activities of the smelter, from smelter stack emissions, the use of lead slag and battery casing chips as fill in nearby residential yards and driveways, and disposal of smelter waste in landfills and on other non-residential properties within the RSR Site. On September 29, 1995 (60

Federal Register 50435), EPA listed the RSR Site on the NPL of Superfund sites based on the soil exposure pathway.

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The RSR Site encompasses several single-family residential neighborhoods, multi-family private and public housing residential neighborhoods, schools, churches, day care centers, industrial and commercial facilities, and waste disposal areas and landfills. Because of the large size of the RSR Site and the different characteristics of the various areas within the site, EPA has divided the RSR Site into five OUs, each being investigated and responded to separately. As of the date of this report, numerous investigations and response actions have been conducted at the RSR Site (EPA, 1993 and 1994a) and RIs have been completed at OU Nos. 1, 2, 4, and 5.

## 1.3 Report Organization

This RI report consists of the following twelve chapters:

- Chapter 1, Introduction, provides an overview of the project's requirements and objectives.

- Chapter 2, Site Description and History, describes each of the five RSR Site OUs, and summarizes the history of the RSR facility and each of the OU No. 3 sites addressed by this RI.

- Chapter 3, Site Investigations, provides additional detail about previous a recently conducted investigations performed at OU No. 3.

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- Chapter 4, Site Characteristics, describes the physical and environmental characteristics of the Site (topography, climate, soils, demographics, and land use).

- Chapter 5, Remedial Investigation Quality Assurance/Quality Control, describes the quality assurance and quality control procedures followed during the RI sample collection and analysis activities, and supports the acceptability of the RI sample analytical results.

- Chapter 6, Nature and Extent of Contamination at Site 1, discusses the type and horizontal and vertical extent of contamination identified within sampled environmental media at OU No. 3, Site 1.

- Chapter 7, Nature and Extent of Contamination at Site 3, discusses the type and horizontal and vertical extent of contamination identified within sampled environmental media at OU No. 3, Site 3.

- Chapter 8, Nature and Extent of Contamination at Site 4, discusses the type and horizontal and vertical extent of contamination identified within sampled environmental media at OU No. 3, Site 4.

- Chapter 9, Contaminant Fate and Transport, examines various routes of migration for OU No. 3 contaminants.

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- Chapter 10, Baseline Human Health Risk Assessment (HHRA), presents a brief description of the subject report, which is presented under separate cover.

- Chapter 11, Ecological Risk Assessment (ERA), presents a brief description of the subject report, which is presented under separate cover.

- Chapter 12, Summary of Findings, summarizes the nature and extent of contamination and contaminant fate and transport determined through RI activities.

- Chapter 13 provides references for this report.

Supporting information for the RI is provided in a series of appendices associated with this document as well as a collection of technical memoranda prepared during the course of the investigation which describe, in detail, the procedures followed and results of historic information analysis and field investigation tasks of the RI. Rather than repeating all details of the investigation in the RI report, the reader is referred to the technical memoranda for particular details as appropriate.

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# Chapter 2
# Site Description and History

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# Chapter 2
# Site Description and History

This chapter describes the location and the background of the RSR Site. Specific investigations mentioned in this section that are relevant to the OU No. 3 RI are discussed in greater detail in Chapter 3, and investigation results are presented in Chapter 5.

## 2.1 General Site Description

The RSR Site is located in west Dallas, Texas, just south and west of the Trinity River, and is characterized by residential, commercial and light industrial areas. **Figure 2-1** illustrates the RSR Site area. The properties comprising the smelter facilities are located near the center of this area. Throughout the smelter's period of operation, the surrounding area received airborne deposition from smelter stack emissions. In addition, slag, battery casing chips, and other waste associated with smelter operation have been identified on the facility and at various locations within the RSR Site.

Because of the large size of the RSR Site and the different characteristics of the various areas within the RSR Site, and to facilitate timely remediation, EPA divided the Site into five OUs, as shown in **Figure 2-1**:

- OU No. 1 - Residential Property
- OU No. 2 - Dallas Housing Authority (DHA) Property
- OU No. 3 - Landfills and Slag Piles
- OU No. 4 - Murmur/RSR Smelter (Tract I)
- OU No. 5 - Battery Breaking Facility and other Murmur/RSR Industrial Property

The following paragraphs describe each of these OUs and summarize the current status of remediation.

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### 2.1.1 OU No. 1 (Residential Property)

OU No. 1 consists primarily of single- and multi-family housing, and some commercial and retail establishments, as well as schools, churches, parks, recreation facilities, and day care centers. The RI for OU No. 1 included an in-home sampling effort conducted by the EPA, the City of Dallas, and the Agency for Toxic Substances and Disease Registry (ATSDR). This investigation included blood-lead testing of young children between the ages of 6 months and 6 years. Concurrently, the EPA conducted environmental media sampling (i.e., soil, dust, paint, and tap water) in these same households. The RI Report for OU No. 1, which summarizes previous investigations and initial removal activities completed within OU No. 1 and describes results from the in-home investigation, was issued for public notice and comment on November 18, 1994. Also on that date, EPA issued a Proposed Plan for OU No. 1 recommending that no further remedial action was necessary. After consideration of all public comments, EPA signed, on May 9, 1995, the Record of Decision (ROD) for OU No. 1 stating that no further remedial action was necessary for protection of human health and the environment.

### 2.1.2 OU No. 2 (DHA Property)

OU No. 2 includes single- and multi-family public housing units under the jurisdiction of DHA. DHA entered into an Administrative Order on Consent (AOC) with EPA to perform demolition and removal actions and a RI/FS for OU No. 2. On November 18, 1994, EPA issued the RI Report and Proposed Plan recommending no further remedial action was necessary after the removal/demolition activities, which were performed by DHA and completed in May 1995. Upon approval of DHA's activities and after consideration of public comments, EPA signed, on May 9, 1995, the ROD for OU No. 2

stating that no further action was necessary for protection of human health and the environment.

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### 2.1.3 OU No. 3 (Landfills/Slag Piles)

OU No. 3, which is the subject of this RI, consists of separate properties where slag, battery casing chips and/or other smelter waste have been disposed. These sites were identified by the Texas Water Commission (TWC, formerly the Texas Department of Water Resources [TDWR], now the Texas Natural Resource Conservation Commission [TNRCC]), and were subsequently designated as Sites 1 through 4. Detailed descriptions of the current condition of each of the sites covered by this RI are provided in the Available Data Analysis and Site Reconnaissance Technical Memorandum (**EPA, 1995b**), including a discussion of observations and photographs of each site.

#### *2.1.3.1 OU No. 3, Site 1*

Site 1, also known as the Westmoreland Road Property, is located on the west side of the 1000 block of Westmoreland Road, just north of Ft. Worth Avenue in the south-central portion of the RSR Site. According to the title search information compiled for EPA, Site 1 encompasses approximately 50 acres and is comprised of five (5) privately-owned properties (**DPRA, 1993**). Site 1 is bounded on the northeast by the western boundary of the A. W. Britain subdivision, on the southeast by Westmoreland Road, on the south by Ft. Worth Avenue, on the west by property formerly used as a cement plant, and on the north by the southern boundary of property owned by Dallas County Mental Health/Mental Retardation (MHMR) Center (**DPRA, 1993**). The location of Site 1, approximate property boundaries, and observable features are illustrated on **Figure 2-2**.

Portions of the eastern side of Site 1 (between Westmoreland Road and a northward-flowing creek that essentially bisects the entire site) appear to have been used for surface dumping of slag, battery casing chips, and other household and municipal debris (**EPA,**

1938-1992; EPA, 1995b). The area where most of the slag is located is partially enclosed by a chain link fence (Figure 2-2). Several large piles of construction debris mixed with slag also are located north of the fenced area, just west of Westmoreland Road. Records reviewed and observations made during this RI indicate this site has not been subjected to landfilling.

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### *2.1.3.2 OU No. 3, Site 2*

Site 2 is a disposal area physically located within the OU No. 5 property. As a result, this site has been included with the OU No. 5 RI/FS, and is addressed in the OU No. 5 RI/FS documents (EPA, 1995a).

### *2.1.3.3 OU No. 3, Site 3*

Site 3, also known as the Walton Walker Property, is located northwest of the Loop 12 (Walton Walker Boulevard)-Davis Street intersection, in the far western portion of the RSR Site. According to title search information compiled for EPA (DPRA, 1993), Site 3 encompasses approximately 130 acres of privately-owned property. Site 3 is bounded, in general, on the east by the southbound service road for Loop 12, on the south by Davis Street, on the west by Mountain Creek, and on the north by a railroad right-of-way. The location of Site 3, approximate property boundaries, and observable features are illustrated on Figure 2-3. The site boundary illustrated on this figure differs somewhat from the boundary illustrated on site maps included with the OU No. 3 field investigation technical memoranda. The updated Site 3 boundary takes into account the results of a property boundary verification conducted by the civil surveyor for this investigation, the results of which were received recently and incorporated into this document.

Records indicate the City of Dallas leased the properties which comprise Site 3 and successively operated three separate municipal landfills on these properties from the mid-1960s through the late 1970s and early 1980s (EPA, 1993). The Dahlstrom Landfill is a

33.3-acre tract of land at the northern end of Site 3. The 20-acre TXI Landfill is located south of the Dahlstrom Landfill, and the West Davis Landfill comprises approximately 50 acres of southern Site 3. After landfilling activities were completed and the land had been released back to the property owners, the northernmost landfill property was brought to grade and converted into an auto salvage business and trucking operation; the central and southern landfill properties were not developed.

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Presently on Site 3, landfill material is visible along the banks of Mountain Creek and drainage ditches found throughout the site. In addition, slag, battery casings, and battery casing chips can be observed over much of the ground surface of the undeveloped landfill properties (EPA, 1995b).

### *2.1.3.4 OU No. 3, Site 4*

Site 4, also known as the Claibourne Boulevard Property, is located at the northern terminus of Claibourne Boulevard, in the northwest corner of the RSR Site. Encompassing approximately 60 acres of privately-owned land, Site 4 is bounded, in general, on the west and southwest by the Old Channel of the West Fork of the Trinity River, on the north by the Trinity River Levee, on the northeast by a small drainage channel, on the east by Iroquois Street, and on the south by Nomas Street (DPRA, 1993). Jaycee Park is an adjacent Site 4 property which is bounded, in general, by Singleton Boulevard to the south, Clymer Street to the west, Gabe P. Allen Elementary School to the north, and Tumalo Trail and Bernal Street to the east. The location of Site 4, approximate property boundaries, and observable features are illustrated on **Figure 2-4**.

Records indicate the City of Dallas leased this land during the 1950s and 1960s, and operated four separate sanitary municipal landfills over various time periods until the mid-1970s (EPA, 1993), including one on the Jaycee Park property, which was landfilled to bring it to grade (EPA, 1993). The Vilbig Landfill is a 24-acre tract of land in the northeast portion of Site 4. The 3.2-acre Nomas Landfill is located on the east side of

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the northern end of Claibourne Boulevard, and the West Dallas Landfill is a 28-acre tract comprising the western half of Site 4. In the late 1950s, the Dallas Park Board purchased the Jaycee Park property and received approval from the City to landfill the area to bring it to grade (EPA, 1993). After landfilling activities were completed and the various properties had been released back to the property owners, the contiguous portion was subdivided. Some of the lots were sold, but this area was never developed. The separate Jaycee Park property was the only one developed.

Presently on Site 4, uncontrolled surface dumping of municipal-type debris is evident in the undeveloped landfill areas. Slag and battery casing chips were observed on the ground surface of the central and western portions of this area (EPA, 1995b).

### 2.1.4 OU No. 4 (Murmur/RSR Smelter)

OU No. 4 is the secondary lead smelter property located at 2820 North Westmoreland Road, southeast of its intersection with Singleton Boulevard. The smelter facilities at OU No. 4 once included furnaces, refinery kettles, casting equipment, a batch house, warehouses, repair shops, a laboratory, offices, lunch/locker rooms, storage facilities, docks, mobile equipment, baghouses, water treatment equipment, and a truck and trailer fleet. Currently, all buildings have been abandoned and are in disrepair. Several buildings are unstable as evidenced by collapsing roofs and other structural deficiencies. Several pieces of equipment and piping have been removed by the property owners from the smelter building and surrounding areas. Except for the northeast corner, the majority of the property is covered with concrete pavement and building structures. The RI/FS for OU No. 4 has been completed.

### 2.1.5 OU No. 5 (Battery Wrecking Facility and other Murmur/RSR Industrial Property)

OU No. 5, also located on Westmoreland Road (southwest of its intersection with Singleton Boulevard), consists of the Former Battery Wrecking Facility and other

industrial tracts of land associated with the former smelter. The northern portion of OU No. 5 is owned by the Murmur Corporation, and the southern portion by the RSR Corporation. Currently, Murmur Corporation operates lead fabricating and manufacturing facilities that are not considered part of OU No. 5 and have been excluded from RI/FS activities. The RI/FS OU No. 5 has been completed.

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## 2.2 Smelter Facility Complex

This section presents a summary of information about the history of the secondary lead smelter at the RSR Site, based upon information and documentation compiled from various sources in the possession of EPA and TNRCC. The facility complex encompasses both OU No. 4, which consists of the inactive smelter, and OU No. 5, which consists of other associated properties, including the disassembled battery wrecking facility. Because past smelter-related operations at OU Nos. 4 and 5 could be considered potential sources of contamination present on OU No. 3 sites, both properties are described in this section.

### 2.2.1 Facility Operational and Regulatory History

On October 1, 1929, D.H. Murph and two business partners opened the Superior Lead Company for reclaiming and refining lead oxide from old battery plates (**OU No. 4 Final Work Plan, EPA, 1994d**). The operation was moved to its present location in West Dallas in the mid-1930s. Throughout its early history, the company changed names several times, ultimately becoming known as "Murph Metals, Inc." in 1969. Several times during that period, operations were managed by various parties, either as owners or lessees. In 1971, the operation was sold to RSR Corporation, which had been acquiring capital stock in secondary smelting operations across the country.

In 1974, RSR Corporation was required to pay fines and to install pollution abatement equipment at the facility as a result of a court-ordered settlement based on violations of the City of Dallas' clean air ordinance for lead, which had been established by the city in 1968. That same year, RSR Corporation was charged with an antitrust violation. RSR defended and lost their case in 1975, and subsequently appealed the decision three times, the last time to the Supreme Court, where their appeal was summarily denied in 1981. As part of the settlement, RSR was required to divest the assets of several of their facilities, including their Dallas facility.

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Throughout the 1970s and 1980s, the City of Dallas conducted blood lead screenings in the West Dallas area. An indication of elevated blood lead concentrations in some children was noted. In the early 1980s, EPA Region 6 authorized soil lead sampling around several smelters in the region, including the West Dallas Facility.

In April 1983, the Texas Air Control Board (a predecessor of TNRCC) and the City of Dallas brought suit against RSR Corporation and Murph Metals, Inc., alleging operation of the smelter had caused soil contamination and air pollution. This suit apparently came about as a result of various activities conducted in the West Dallas area in the early 1980s:

- Results of blood-lead screening conducted by the City of Dallas in the West Dallas area, indicated high blood-lead concentrations in some children

- Results of EPA-authorized soil sampling around several smelters in the region (including the RSR facility) indicated average soil-lead levels up to 3,000 milligrams per kilogram (mg/kg) in residential areas around the smelter

- Ambient air monitoring around the RSR smelter, also authorized by EPA Region 6, traced elevated lead levels to emissions from the RSR smelter stack.

RSR Corporation initially denied the suit's allegation, but ultimately entered into a CERCLA Administrative Order on Consent in the 95th Judicial District Court in October 1983 to fund soil clean-up activities in residential areas surrounding the smelter and implement steps to reduce fugitive emissions from the facility.

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In early 1984, after informing the Court in early February that it could not comply with the court-ordered improvements in air pollution control, RSR Corporation ceased operations. The City of Dallas Planning & Zoning Commission had also declined to renew RSR's operating permit based on city zoning ordinance restrictions and on RSR Corporation's inability to comply with the Court Order. As a result, smelting operations at the facility were ceased.

On May 23, 1984, the assets of RSR Corporation's Dallas facility were transferred to Murmur Corporation under the 1981 divestiture order, with the exception of a leaded lubricant formulation operation and an undeveloped portion of the battery wrecking facility property, to which RSR retained the title. Murmur subsequently entered into an agreement with the Court which allowed them to operate all lead production facilities except the blast furnace, the drying kiln, and the battery shredder, as long as they remained in compliance with the provisions and requirements of RSR's Court Order.

Beginning in 1984, a number of enforcement actions related to the battery wrecking facility were initiated by TWC against Murmur Corporation regarding violations of hazardous waste shipping regulations and loss of the facility's interim status under the Resource Conservation and Recovery Act (RCRA) for failing to certify compliance with the financial assurance and groundwater monitoring requirements. In June 1986, TWC approved a closure plan for the battery wrecking facility as part of a settlement agreement between TWC, the City of Dallas, and Murmur. By 1988, Murmur had substantially completed the closure but failed to submit the required certification of final closure. An October 1990 TWC inspection of the surface impoundment and battery wrecking facility concluded that site conditions had deteriorated to the point where additional remedial actions would be required prior to closure certification.

On June 3, 1991, the Texas Attorney General (AG) referred the Murmur case to the TWC Superfund program for assessment, citing the failure of attempted RCRA remedies and lack of progress through litigation.

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In mid-1991, TWC began receiving complaints from residents alleging that slag and battery casing chips originating from the former RSR Corporation smelter facility had been improperly disposed on their properties. EPA subsequently initiated a soil sampling program in the residential areas (OU No. 1). Later that year, EPA began an emergency removal action in the residential area adjacent to the smelter, and DHA commissioned an investigative study of its 460-acre West Dallas Public Housing Development (OU No. 2) located across from the smelter. In support of EPA's activities at OU No. 1, TWC conducted a door-to-door residential survey and sampling investigation of the West Dallas area in July 1992 to visually locate and sample residential areas where battery casing chips and/or slag were used as fill material.

### 2.2.2 Facility Processes and Operations

The location within the RSR Site where secondary lead smelting operations occurred between the early 1930s and 1984 has been designated by EPA as OU No. 4 (the lead smelter property). The basic inputs into the smelting process were lead scrap, smelting and refining wastes (from both the RSR facility and outside sources), and lead from scrapped batteries. Other alloying and refining elements added to the smelting process included antimony, arsenic, bismuth, cadmium, calcium, copper, silver, sulfur, and tin.

During the smelting process, the lead was separated from the scrap materials. Lead from the smelter furnaces was further refined to produce soft pure lead or specialty alloys and a variety of fabricated lead products. An additional waste product, called dross, also was produced. Most lead dross produced by the smelting and refining processes was recycled back into the smelter. Most of the pure lead and lead alloys were sold to major battery

manufacturers; the fabricated lead products were sold to the users of lead sheets, shot, solder, and pipe.

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The location within the RSR Site where batteries were disassembled (the first step in the lead recycling process) has been designated as OU No. 5. The battery breaking operation consisted of a combined process of breaking the batteries into small pieces using a hammer-mill, and producing output streams of hard lead (called "grids and posts"), oxide and sulfate sludge, plastic, and rubber using flotation-type separator. The lead grids, posts, and oxide sludge were sent to the secondary smelter across the street (what is now OU No. 4), and the plastic and rubber pieces were transported offsite for disposal.

EPA believes that the contamination of the RSR Site and offsite areas occurred during smelting when stack and fugitive emissions containing metallic contaminants were carried out over surrounding areas by the wind, and subsequently deposited. In addition, slag was used as fill material on the smelter facility property (primarily OU No. 5) and battery casing chips and lead slag were disposed or used as fill material on nearby residential and other properties (OU No. 1), and were disposed of in sanitary municipal landfills and at surface dumping areas near the smelter (OU No. 3).

## 2.3 Operable Unit No. 3 Site Development History

This section summarizes the changes in the development and appearance of each site, as interpreted from historical aerial photographs (**EPA, 1938-1992**) and landfill records obtained from the City of Dallas through EPA.

### 2.3.1 Site 1 Development History

According to available records, no landfilling activities occurred on the property comprising Site 1. Historical aerial photographs (**EPA, 1942-1992**) show that, by 1942,

several houses along Westmoreland Road constituted the only development on the site. By 1950, the southern portion of the site (now occupied by the sign company on the west and the mobile home park on the east) also had been developed. This area, particularly just north of the building that now houses the sign company office, appeared to have been the site of surface dumping beginning around 1972. Likewise, as the eastern portion of Site 1 became more developed, signs of increased surface dumping activity are visible beginning with the 1972 aerial photograph, particularly in what is now the fenced area of Site 1, located directly north of the mobile home park. The road that leads to the approximate center of the northern portion of Site 1 also had been developed by 1950. Subsequent development activity (i.e., buildings constructed on the property by 1956) is evident in the aerial photographs through 1984.

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### 2.3.2 Site 3 Development History

The area that comprises Site 3 extends over three former City of Dallas municipal landfills (West Davis, Texas Industries, Inc. [TXI], and Dahlstrom). Historical aerial photographs from 1938 and 1942 **(EPA, 1938-1992)** show that the area that is now Site 3 comprised a portion of the floodplain of Mountain Creek. These photographs indicate that the diversion of the Mountain Creek Channel to the west side of the site had begun by 1938. Most of the floodplain terraces were cultivated at that time. The following sections describe the development of Site 3, by landfill area, from the 1950s through 1992. **Figure 2-3** illustrates the location of each Site 3 landfill.

#### *2.3.2.1 West Davis Landfill*

The 42.439 acres comprising the West Davis Landfill is located on the north side of U.S. Highway 80 (Davis Street) along the east bank of Mountain Creek, approximately 1/2 mile west of Loop 12 **(DPRA, 1993)**. City of Dallas records indicate that, prior to 1964, this area was the site of uncontrolled surface dumping of municipal-type debris and building debris; in addition, the property owners also filled part of the southern portion

of the property. Aerial photographs from 1950, 1956, and 1964 show apparent surface dumping in the former creek bed at the southern end of this property, and along a road leading from Loop 12 to the north side of this tract (**Figure 2-3**).

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According to City records, on March 9, 1964, the owners entered into a sanitary landfill agreement with the City of Dallas for the entire acreage. The agreement was approved by the City Council on March 16, 1964. On March 24, 1964, the City requested that the City drainage engineers evaluate the site, several depressions in particular. Subsequently, notice was given to several waste haulers (the City of Cockrell Hill and Texas Industrial Disposal Company among others) that the West Davis Landfill would begin accepting municipal solid waste in April 1964.

The central portion of the property had been filled by February 1968, when it was purchased by a local real estate company. The previous owners' landfill agreement with the City was released on March 2, 1970; it is assumed that a new landfill agreement was executed with the new property owner, although no documentation to support this assumption was identified in the records reviewed for this RI. However, aerial photographs indicate that the landfill was active until 1973. In addition, private hauler records for the West Davis Landfill (which includes hauling activity by RSR Corporation) indicate activity up to December 1981. Aerial photographs from 1972 indicate that active landfill operations in the north cell of this landfill only; subsequent photos through 1992 show increased re-vegetation of the site, and what appears to be periodic surface dumping in isolated areas. Additional information (**Rudnicki, Personal Communication, 1996**) reports that materials accepted at this landfill included household wastes, construction/demolition debris, industrial wastes, tires, agricultural wastes, and brush.

### *2.3.2.2 TXI Landfill*

By December 1972, the 23.6 acres of property owned by a local industrial company, located north of the West Davis Landfill, was one of two properties being considered as a

replacement site for the West Davis Landfill. A sanitary landfill agreement between the property owner and the City of Dallas was signed on March 16, 1973, for the western 19.936 acres of the property to be used. The landfill permit application was submitted on May 21, 1973, and approved by the State of Texas on June 28, 1973. On July 31, 1973, the State gave notice to the City to proceed with construction of a levee around the western portion of the landfill. Construction began on August 3, 1973, and was completed on November 2, 1973. No documentation was found, in the records reviewed, to indicate when the landfill began accepting waste. Documentation of waste hauler activity (i.e., copies of manifests or other records) was not available for this landfill in the records reviewed. Available information **(Rudnicki, Personal Communication, 1996)** indicates that materials accepted at this landfill include household wastes, construction/demolition debris, tires, and brush.

TXI landfilling activities ceased sometime between March 1976 and October 1977 (based on a March 1976 aerial photograph that indicates some activity on this property which was not evident in the 1977 photograph). Field inspections were conducted by the property owner and the City of Dallas on June 21, 1977, and by the Texas Department of Health (TDH) on July 6, 1977, to ensure compliance with the TDH municipal solid waste management regulations. The property was released to the property owner on August 24, 1977. Post-1972 aerial photographs indicate that the landfill was nearly closed by October 1977, and the area was re-vegetated by 1992.

### *2.3.2.3 Dahlstrom Landfill*

On January 13, 1975, a sanitary landfill agreement between the owner of the northern 60.743 acres comprising Site 3 and the City of Dallas was signed for use of the western 33.34 acres of this tract to receive approximately 350 tons of municipal solid waste per day. Prior to this agreement, a portion of the site had been filled by the property owner (historical aerial photographs of Site 3 indicate that, by 1972, this property was no longer cultivated).



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In July 1975, prior to submitting a permit application, the City authorized a soil boring program on the property. City records indicate that the permit was approved around October 1975. A formal request for a public hearing to the State, and an application for construction of a levee project around the landfill, were submitted in December 1975. The Texas Water Development Board (TWDB) recommended approval of the project on February 17, 1976, and the public hearing was held the following day. The levee construction project was approved by TWDB on March 9, 1976, and Permit No. 146 was issued by TDH on April 6, 1976. Landfill construction began on April 12 and was completed on/or around July 1976 (which is supported by a 1976 aerial photograph of Site 3). The landfill began accepting municipal solid waste on April 24, 1976. Documentation of waste hauler activity (i.e., copies of manifests or other records) was not available for this landfill. After November 1, 1980, private haulers (which according to City of Dallas documentation include Texas Industrial Disposal, Inc., American Container Service, Moore Industrial Disposal, Inc., and BFI Waste Systems) were no longer allowed to dispose of waste at the landfill. The date for estimated completion of the landfill was extended as the filling continued, and the original landfill agreement was amended to update the landfill's expiration date from January 1980 to December 1981.

Landfill operations were completed on December 16, 1981 (which is supported by the 1981 aerial photograph). Records indicate grading and site restoration were completed on June 20, 1982, and the TDH closing inspection was performed the following day. The release of the sanitary landfill agreement was signed by the current property owner on August 31, 1982.

The property owner, in conjunction with the City of Dallas, subsequently received approval from the TDH in September 1982 to spread waste sludge (records indicate 15.3% solids by weight and 40.3% solids by volume) over approximately 40 acres of the final landfill cover on the subject property (Figure 2-3). However, no records were identified during this RI that document this activity.



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The Dahlstrom Landfill was officially closed on December 16, 1982. During the first year after closure, Dahlstrom Landfill site operators periodically inspected the site and corrected any problems associated with erosion, vegetative growth, leachate, and/or methane migration, and subsidence or standing water on the site. TDH representatives last inspected the site on August 2, 1983, and approved post-closure maintenance.

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Site 3 historical aerial photographs support the existing documentation related to the history of this landfill. Construction activities observed on the Dahlstrom Landfill property in a 1984 aerial photograph of Site 3 appear to be associated with re-grading of the ground surface in preparation for construction of the auto salvage yard which is now located on the western half of the property, and a trucking operation which currently occupies the eastern half.

### 2.3.3 Site 4 Development History

The area bounded by Site 4 extends over four former City of Dallas sanitary landfills (West Dallas, Vilbig, Nomas, and Jaycee Park). **Figure 2-4** illustrates the location of each Site 4 landfill. Historical aerial photographs (**EPA, 1938-1992**) show that the area that is now Site 4 comprised a portion of the floodplain of the Trinity River. Construction of the Trinity River levee had begun by 1938. Most of the area that is now Site 4 appeared to be used for sand and gravel mining up through approximately 1956. The following sections describe the development of Site 4, by landfill area, from the 1950s through 1992.

#### *2.3.3.1 West Dallas Landfill*

On August 19, 1952, a sanitary landfill agreement was signed between the owner of the 28.4 acres comprising the West Dallas Landfill, and the City of Dallas. No documentation was found concerning the status of the landfill (dates of operation) between 1952 and 1966. Records show that beginning on April 8, 1972, industrial

wastes were accepted at this landfill (**Rudnicki, Personal Communication, 1996**). In addition, reported wastes accepted at this landfill include household wastes, construction/demolition debris, tires, agricultural wastes, and brush. Copies of manifests or other records identifying specific wastes were not available for this landfill. The landfill reportedly was completed in April 1975, and the property released to the owners in December 1975. Historical aerial photographs indicate that this landfill was in operation by 1956 and closed by 1976. Surface dumping activity was evident on the 1986 aerial photograph.

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### *2.3.3.2 Vilbig Landfill*

Existing City of Dallas documentation indicates in May 1956 the 24.05-acre Vilbig property was being considered as a replacement for the West Dallas Landfill. Reportedly, in mid-1956, a lease agreement was executed between the property owners and the City of Dallas, and the site was prepared to begin accepting waste. However, similar to the West Dallas Landfill, the status of the Vilbig property between 1956 and 1964 is unknown. Historical aerial photographs of Site 4 indicate that remnants of sand and gravel mining (but no evidence of landfilling activity) were visible on the Vilbig property until 1956; the area appeared to have been filled and graded by the time the 1964 photo was taken. A March 3, 1964, memorandum stated that some landfilling activity had taken place between 1956 and 1964, and that the landfill had adequate capacity to continue operations. At the owners' request, the landfill agreement was renewed in August 1965 but, according to documentation dated September 1970, landfill operations were not re-commenced on this site until 1969. The landfill reportedly was closed in 1970, and the property was released to the owners in January 1972. Aerial photographs of the site taken after 1972 show sporadic surface dumping along a road which travels across the Vilbig Landfill property. Documentation of waste hauler activity (i.e., copies of manifests) was not identified in records reviewed for this landfill. Available information (**Rudnicki, Personal Communication, 1996**) indicates that wastes

accepted at this landfill include household wastes, construction/demolition debris, tires and brush.

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### *2.3.3.3 Nomas Landfill*

No documentation in City of Dallas records pertaining to a City of Dallas landfill agreement was found for this 3.2-acre property. However, existing documentation (including private hauler records) indicates that the Nomas Landfill began accepting waste, including industrial wastes (**Rudnicki, Personal Communication, 1996**), in February 1967. According to **Rudnicki**, wastes accepted at this landfill included household wastes, construction/demolition debris, industrial wastes, tires, and brush. Historical aerial photographs indicate that the Nomas property possibly had been used for surface dumping (1956 photo) and an automobile lot (1964 photo). Although City records show that the landfill's final cover was completed in September 1970, and the 1972 aerial photograph does not show any activity, two pieces of evidence indicate that the landfill was in operation until at least the mid-1970s: (1) a November 14, 1973, landfill inspection by the TDH (to ensure that the Nomas Landfill operation was being conducted in accordance with state regulations), and (2) private hauler records for the Nomas Landfill, dating to March 1975. Aerial photographs indicate that surface dumping on the Nomas landfill occurred between 1976 and 1992.

### *2.3.3.4 Jaycee Park Landfill*

Historical aerial photographs indicate that the area now comprising Jaycee Park generally was undeveloped prior to 1956, by which time several houses and the Allen Elementary School had been built (see **Figure 2-4**). The ground surface of the remaining property at that time appeared to be uneven and eroded. City records indicate that, in the 1950s, the Dallas Park Board purchased several lots comprising this block for the construction of a park. The Board subsequently sought and received approval from the City in June 1959 to landfill the property beginning in July 1959. A July 31, 1959, letter of complaint to

the City from a West Dallas resident appears to be the only existing documentation indicating that landfilling activity took place during this period; documentation of was hauler activity (i.e., copies of manifests or other records) was not available for this landfill. However, aerial photographs indicate that by 1964 the area had been brought grade, and a baseball diamond and recreation center building had been constructed on t park property. By 1976, additional park facilities (tennis court, swimming pool, baseball diamonds) had been built.

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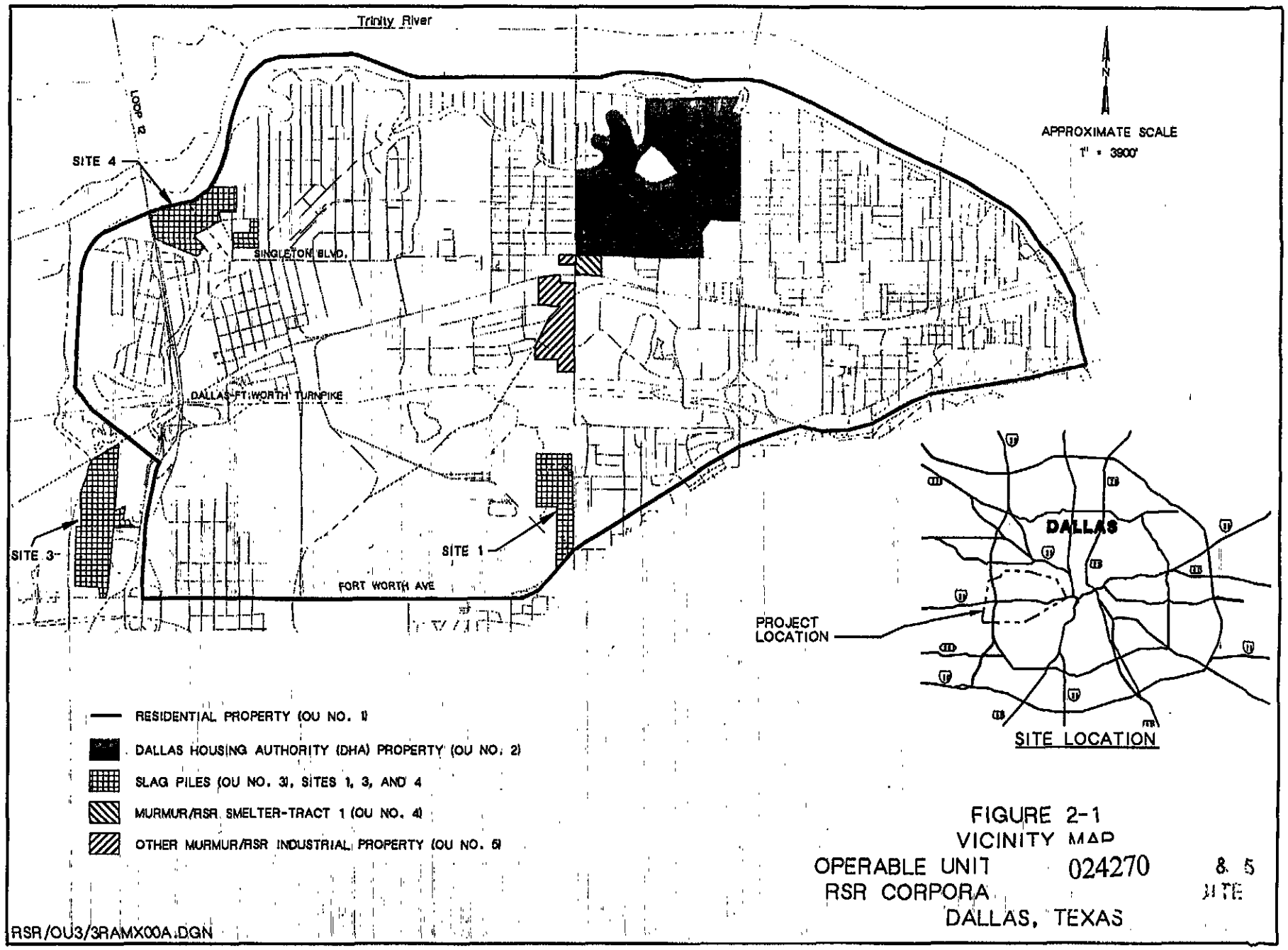


FIGURE 2-1
VICINITY MAP
OPERABLE UNIT 3 & 5
RSR CORPORATE SITE
DALLAS, TEXAS

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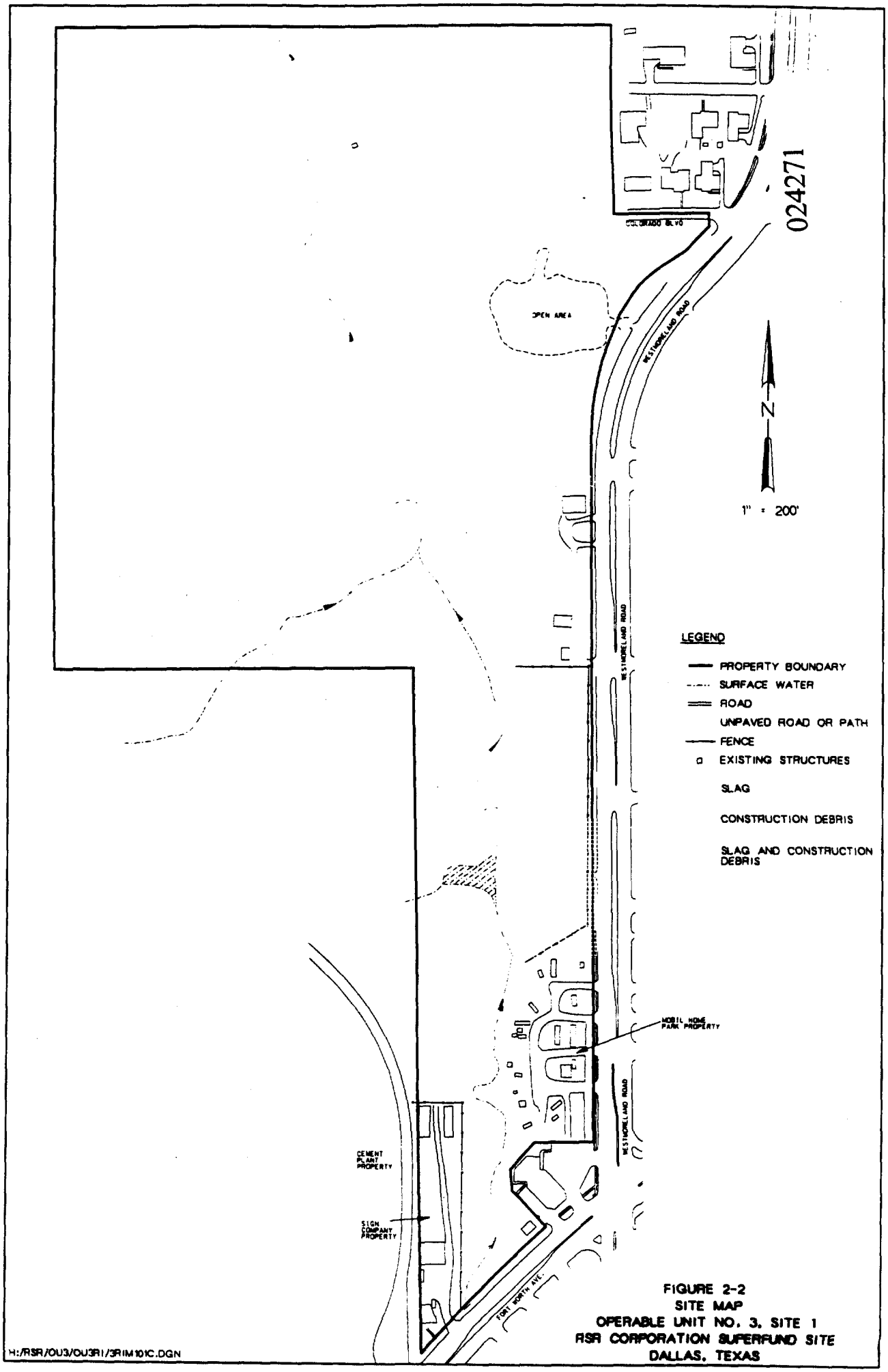


FIGURE 2-2
SITE MAP
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

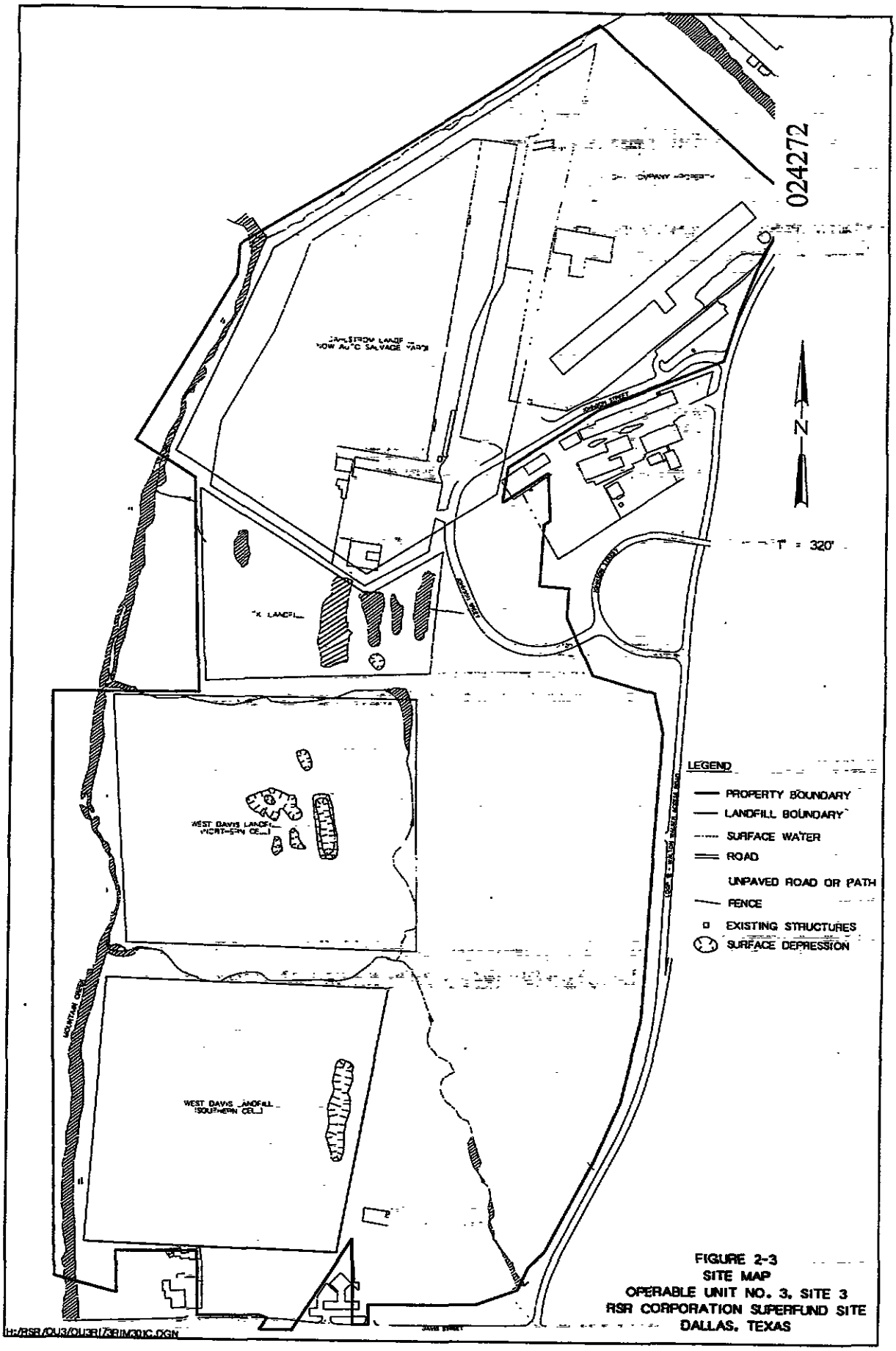


FIGURE 2-3
SITE MAP
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

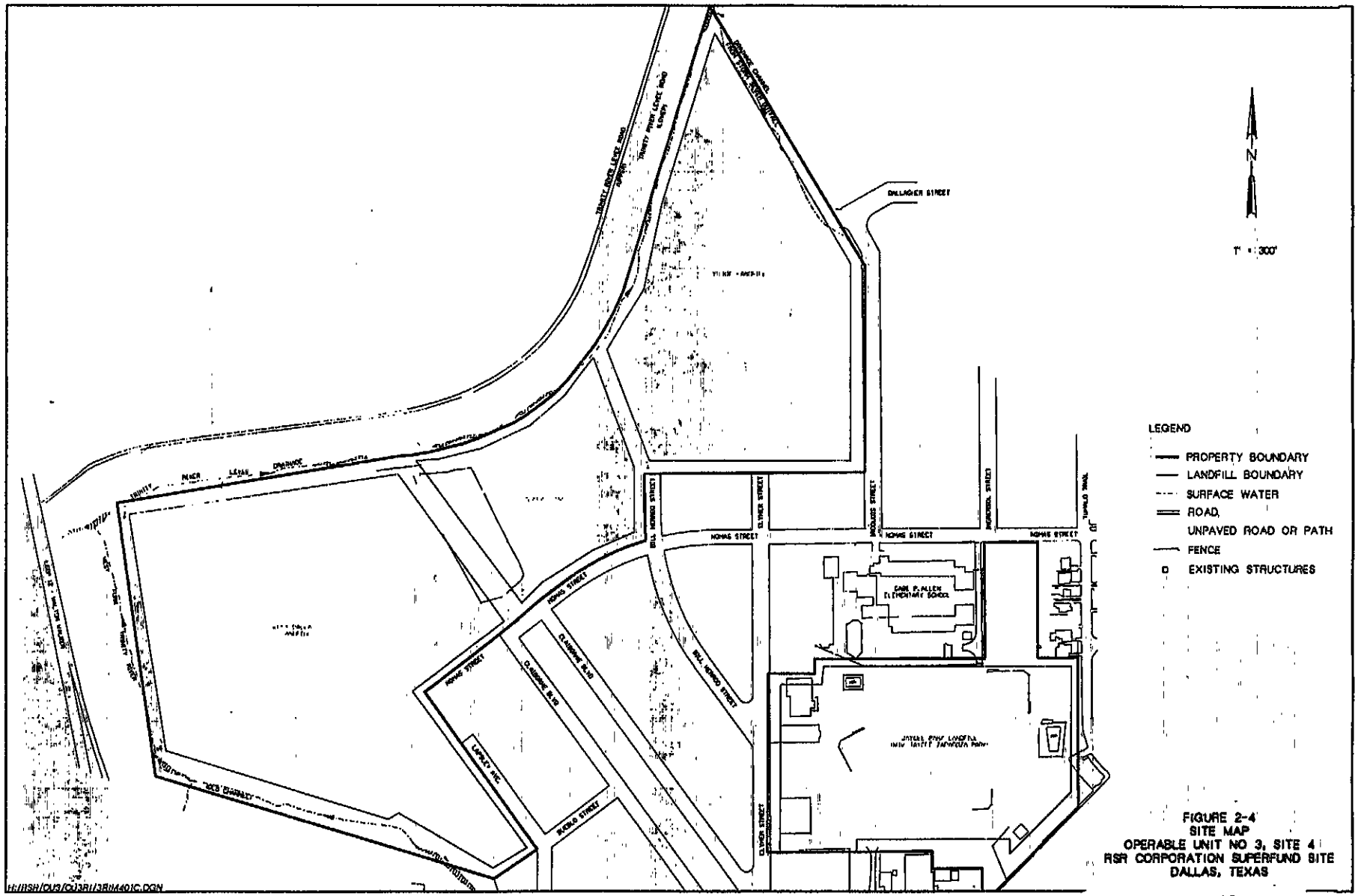


FIGURE 2-4
SITE MAP
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

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# Chapter 3
# Site Investigations

# Chapter 3
# Site Investigations

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This chapter describes the activities conducted during the data gathering and field investigation tasks associated with the OU No. 3 RI. These tasks were conducted by EPA to satisfy the data quality objectives and the data needs identified in the RI/FS Work Plan **(EPA, 1993)** relevant to OU No. 3. The objectives and procedures for each of these tasks, originally set forth in the OU No. 3 RI FSP **(EPA, 1994b)**, are summarized in this chapter. Technical Memoranda prepared at the conclusion of each activity are referenced in each section as a source of more detailed descriptions of activities. Modifications made to the FSP specifications during the course of the RI are provided in the TMs. Results of each task are described in the appropriate subsequent chapters of this RI report.

When planning the RI/FS, EPA determined that the RSR Site is a high-priority Superfund Site within Region 6, and that this work would therefore be completed as a Superfund Accelerated Cleanup Model (SACM) pilot project. The SACM approach is an innovative process initiated by EPA to speed the investigation and cleanup of contamination at designated high-priority Superfund sites. In keeping with this approach, EPA's first task, prior to commencing field activities, was to review available information and environmental data obtained from various sources and from previous studies of the OU No. 3 study area. This information was used to help focus the field investigation tasks of the RI. **Table 3-1** summarizes the data quality objectives associated with each medium sampled during this RI.

## 3.1 Sample Designation Procedure and Analytical Parameters

This section describes the nomenclature used for sample identification and the constituents analyzed in the samples collected for the RI.

### 3.1.1 Sample Designation Procedure

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To simplify performance of the RI activities described in this chapter, the sites were conceptually subdivided into geographically-distinct areas, referred to as 1A through 1F for Site 1, 3A through 3K for Site 3, and 4A through 4F (plus 4H) for Site 4. A description of each of these areas is provided in **Table 3.1-1**.

Locations to be sampled were then assigned unique location numbers based on the following format: "#%-%###", with "#" symbolizing a number and "%" symbolizing an alpha character **(EPA, 1994b)**. The codes used to assign location numbers are provided in **Table 3.1-2**. An example would be "4A-S030", where "4A" indicates the sampling location (Area A on Site 4), "S" indicates the investigation or type of sampling being conducted (soil and/or groundwater), and "030" indicates the number of the sample location (30). Location numbers are unique to each location sampled, remaining constant for that location regardless of the numbers or types of samples collected at that location. For example, if a surface soil sample were collected, then a subsurface boring drilled, and a well installed at the same location, all samples associated with that location would be referred to by the same location number.

Labeling of each sample was then accomplished by using the location number described above with an extension indicating the type of media sampled and the general method used for sample analysis. The codes used to assign sample numbers are also provided in **Table 3.1-2**. For example, the designation "4A-S030 SX02" would indicate an XRF analysis of the second surface soil sample collected from location 4A-S030, where the "S" indicates the sample medium (surface soil), "X" indicates the analysis method (XRF), and "02" indicates that is the second sample collected from this location for XRF analysis. A surface soil sample subsequently collected from this same location (4A-S030) for laboratory analysis would have the extension "SL01", where "S" indicates the sample medium (surface soil), "L" indicates the general analysis method (laboratory), and "01" indicates that this is the first soil sample collected from this location for laboratory

analysis. A soil sample collected during the ecological investigation from the same location would have the extension "EL01", where "E" indicates the sample medium (ecological surface soil), "L" indicates the general analysis method (laboratory), and "01" indicates that this is the first ecological soil sample collected from this location.

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### 3.1.2 Analytical Parameters

Lead is the primary constituent of concern at battery recycling and secondary lead smelting facilities. Therefore, lead concentrations were measured in all environmental media sampled during the OU No. 3 RI, in addition to the other parameters listed below:

- other Target Analyte List (TAL) inorganic constituents, including arsenic and cadmium.
- Target Compound List (TCL) organics.
- TCLP inorganics, volatiles, semi-volatiles, and pesticides.
- total organic carbon (TOC) in soil.
- general geochemical parameters (soil pH, CEC, sulfate).
- general geotechnical parameters (particle size, moisture content, bulk density).
- general water chemistry (TOC, total dissolved solids (TDS), total suspended solids (TSS), alkalinity, chloride, fluoride, nitrate, sulfate, total phosphorus).

These were measured to provide additional information about the characteristics of the environmental media, and the nature and extent of contamination at OU No. 3. The analyses and associated parameters are listed in **Appendix B-1**. Of the inorganics, the antimony concentrations measured in certain samples exhibiting unusually high lead concentrations may be the result of positive wavelength interference and therefore may not be representative of site-related contamination. In addition, certain TCL organic analytes, including acetone, 2-butanone, and phthalate compounds, are considered by EPA to be common laboratory contaminants; therefore, the detected concentrations of these analytes may not be representative of site contamination.

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## 3.2 EPA Available Data Analysis and Site Reconnaissance

The analysis of available data and the site reconnaissance activities were conducted to provide a basis for RI field investigations. The review of available sources of information directly associated with OU No. 3, combined with the visual observations of the current conditions of each of the three sites, served to focus the field activities on areas most likely to have been affected by landfilling and/or surface dumping of site-related waste.

**Available Data Analysis.** The following describes the various sources of existing information reviewed during this task:

- Information collected prior to November 1993 as part of State and EPA regulatory efforts, summarized in the RSR Site Conceptual RI/FS Work Plan **(EPA, 1993)**.

- City of Dallas files were reviewed for maps and lease agreements pertaining to municipal landfills operated on Sites 3 and 4 during the mid-1950s through the early 1980s **(EPA, 1993)**.

- Texas Natural Resource Conservation Commission (TNRCC; formerly the Texas Water Commission, or TWC) files provided correspondence and laboratory results of slag, battery chip, sediment, and surface water sampling conducted on OU No. 3 in 1991. The sampling event was conducted in response to a complaint received by TNRCC from the Dallas Times Herald, which had received information about the OU No. 3 properties from local residents **(TNRCC, 1991)**.

- Historical aerial photographs of the three OU No. 3 sites were reviewed **(EPA, 1938-1992)**, and more recent aerial photographs of each site were obtained from local aerial photography companies **(Dallas Aerial Surveys, 1990; Metropolitan Aerial Surveys, 1987 and 1994)**. These photographs were used to assist with the identification of past dumping and landfilling areas, and to identify access routes and determine sampling locations for the RI field activities.

- Copies of title search records developed for EPA **(DPRA, 1993)** were used to assist in identifying OU No. 3 property owners and establishing approximate locations of property boundaries for site reconnaissance and subsequent field efforts. During the civil surveying task of the RI, as described in the FSP **(EPA, 1994b)**, deed records were verified and property boundaries were identified in the field by the civil surveying subcontractor for production of OU No. 3 RI base maps.

The information obtained from these sources was evaluated prior to, and on an ongoing basis during, the RI field activities to revise assumptions as necessary and to continuously refine the rationale used to develop the scope of activities.

**Site Reconnaissance.** Site reconnaissance visits were conducted at each of the three OU No. 3 sites to verify information acquired during the available data analysis and to finalize selection of media-specific sampling locations. To accomplish this task, site



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visits were conducted on several occasions between August 1994 and January 1995. During the initial site visits in August and September 1994, heavy vegetative growth prevented access to most parts of the sites and thereby limited the preliminary information-gathering efforts. The sites were physically cleared of heavy brush and undergrowth in November and December 1994. Subsequently, more thorough observations of the OU No. 3 sites were conducted in December 1994 and January 1995.

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During each site visit, notations were made regarding both natural features (topography, vegetation, surface water bodies) and man-made features (buildings, utilities) of each site. Evidence of surface dumping (particularly slag and battery casing chips) and landfilling, in addition to other unusual features or evidence of past activity that could have resulted in potential contamination of the site, were also noted. Photographs were taken to record the site conditions at the times of the site visits, and a short video record of each site was produced in December 1994. Field logbooks were used to record observations during each site visit **(EPA, 1994-1995)**.

A detailed description of the activities conducted and the information obtained during the available data analysis and the site reconnaissance activities is provided in the Available Data Analysis and Site Reconnaissance Technical Memorandum **(EPA, 1995b)**. This information is incorporated into the descriptions of site characteristics, nature and extent of contamination, and fate and transport of contaminants provided in Chapter 4 and Chapters 6 through 9, respectively.

## 3.3 Surface Water and Groundwater Users Survey

The surface water and groundwater users survey was conducted to provide data to identify potential human receptor populations within a three-mile radius of the three OU No. 3 sites that may be exposed to site contaminants through contact with area surface

water or groundwater. The objectives of the surface water/groundwater users survey were to:

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- Identify surface water intakes and groundwater users within the defined study areas around Sites 1, 3, and 4 of OU No. 3.

- Verify the sources from which local residents and industries within 3 miles of each OU No. 3 site withdraw water for domestic and industrial use, and irrigation.

- Document construction data for any known water supply well(s) within a three-mile radius of each OU No. 3 site.

- Develop the necessary plans for sampling such water supplies, if deemed necessary.

This task was accomplished by reviewing existing project data from OU Nos. 1, 2, 4, and 5 and by accessing existing agency files to obtain the following information:

- Location of groundwater wells within a three-mile radius of each OU No. 3 site.

- Well construction information (including total depth, yield, and depth to groundwater) for any groundwater wells identified, if available.

- Location and use of surface water intakes, if present, along the Trinity River and Mountain Creek, three miles upstream and three miles downstream of each OU No. 3 site.

Readily available information does not indicate whether recorded wells are still active. Several shallow and deep wells and surface water intakes were identified in the area.

Detailed information on each well and surface water intake obtained from public records is presented in the Surface Water and Groundwater Users Survey Technical Memorandum **(EPA, 1995c)**. This information is incorporated into the descriptions of site characteristics and fate and transport discussion in Chapters 4 and 9, respectively.

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## 3.4 Civil Surveying, Mapping, and Aerial Photography

A local civil surveyor conducted the survey of the three OU No. 3 sites. This section details the survey methodology, equipment employed, Quality Assurance/Quality Control (QA/QC) measures, and a summary of the data collected.

### 3.4.1 Methodology

The civil surveyor utilized the following procedures in forming primary and secondary survey controls for each site. Primary control was established by geodetic survey using Global Positioning System (GPS). A Trimble 4000 SE receiver was used to collect the data for all three sites, based on NAD 83. Secondary control was established using conventional surveying methods, which consisted of running a closed traverse around each site and adjusting the accumulated error out of each traverse. Elevations were established on primary and secondary control points based on City of Dallas benchmarks located at or near each site, and verified with the elevations established by GPS. All monitoring wells and sample points were located both horizontally and vertically from the primary and secondary control points. Using the horizontal and vertical data based on the primary and secondary control points, electronically-formatted topographic maps of each site were produced from aerial photographs of the sites. Ownership deed information **(DPRA, 1993)** was input into an AutoCAD drawing to compose a base ownership map. Missing ownership records were obtained through research of the County Clerk's and Dallas Appraisal District's files. All data collected were incorporated into a single AutoCAD drawing file.

The civil surveyor utilized the following equipment for conducting the field surveys on each site: Topcon total stations (models GTS-301 and GTS-302); Topcon automatic levels (to transfer elevations from existing benchmarks and establish elevations for monitoring well and soil sample locations); Hewlett-Packard hand-held calculators (models 48SX and 48GX); and Tripod Data Systems, Inc. data collection software (for electronic collection and recording of field data). The GTS-301 is a direct reading instrument with a horizontal and vertical angle accuracy of one second. Three Trimble 4000 SE receivers were used: one as a stationary base; the other two as portable receivers. A Cessna turbocharged 206 airplane equipped with a Wild RC8 camera and Kodak film was used to take the aerial photographs. A Wild model BC1 analytical stereo plotter was used with a Kork system interactive graphic data compiler. Plotting was conducted on a Calcomp electronic plotter.

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### 3.4.2 QA/QC

The civil surveyor employed the following QC measures during field surveying to ensure accurate data collection. The horizontal angles turned, the slope and horizontal distances between the primary and secondary control points, and each of the monitoring wells, were measured and electronically recorded twice at each location. All of the traverses were processed and checked for accuracy before any monitoring wells or soil sample locations were processed into the computer and AutoCAD drawing. Before any soil sample locations were processed and incorporated into the computer file and drawing, all traverses had an error of closure better than one part in 250,000 and were balanced to mathematically close. Elevations were recorded by conventional levelling methods and verified through trigonometric levels. Deed information **(DPRA, 1993)** was input into an AutoCAD file and assembled into an overall ownership map, which included references to state plane coordinates and a bearing system. Deed information obtained through additional research was incorporated into the main computer file and AutoCAD drawing in relation to the location of street rights-of-way and ownership lines, as determined by

the field data. This procedure then was used to combine the electronic file with the topographic map based on aerial information.

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The data processing and mapping were reviewed by a registered professional land surveyor for completeness and accuracy. Locations of surface soil samples, direct push and soil borings, surface water and sediment samples, storm sewer samples, and monitoring wells were visually checked with maps and sample lists.

### 3.4.3 Data Deliverables

Data collected by the civil surveyor was compiled into tables providing elevations of sample locations, soil borings, and monitoring wells (which included elevations of the inner casing, outer casing, and survey control markers); computer point numbers; X-, Y-, and Z-coordinates; and descriptions of the field points at each site. An electronic file (in an AutoCAD Version 12.0 format) and original vellum drawings of each site also were prepared.

## 3.5 Geophysical Investigation

Shallow near-surface geophysical surveys were conducted at the three OU No. 3 sites to meet the following objectives:

- To define the locations of areas where subsurface material had been buried or disturbed.
- To identify and assess the extent of documented landfills.
- To identify the locations of possible underground utilities.

- To aid in selecting locations for subsequent soil boring and well installation activities.

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Electromagnetic ground conductivity (EM) and magnetometer geophysical methods were used to delineate the approximate lateral boundaries of landfills and disturbed subsurface areas on the three sites. EM measures the ground's electrical conductivity using the principles of electromagnetic induction; results of this type of survey are used to identify subsurface anomalies and to detect ferrous and non-ferrous metal. EM methods were selected at OU No. 3 to evaluate the potential location for buried utilities, metal, and slag. Magnetometer survey methods were used in conjunction with EM to assist in the identification of disturbed subsurface areas and buried metal. Magnetometer methods measure anomalies in the earth's magnetic field that are due to buried ferromagnetic metals. Although magnetometer data (which consist of total magnetic field data and vertical magnetic gradient data) by itself can not be used to identify the existence of a burial or dumping site, it can provide an indication of the relative metal content at such a site. EM data evaluated in conjunction with magnetometer data can be used to delineate the extent and relative thickness of disturbed materials. Areas yielding the most anomalous readings are assumed to correspond to the greatest thickness of disturbed material.

**Site 1.** EM and magnetometer surveys were conducted over one of four possible dumping areas identified on Site 1; heavy vegetation prevented establishment of survey grids over the other three proposed areas (which included the area where most of the slag on Site 1 was observed over much of the ground surface). A survey grid with a 20-foot line spacing was established in an open field (one of the four dumping areas) just off Westmoreland Road in the northern portion of Site 1 **(Figure 3.5-1)**. The data show that no buried material is present in this area, most likely due to the fact that bedrock is very close to the ground surface at this location.

**Site 3.** Three documented City of Dallas landfills are known to exist on Site 3 (Dahlstrom, TXI, and West Davis). Although trenches and berms, believed to be

indicative of former landfilling activity, and landfill material in stream channel cuts in some areas of the site were observed during reconnaissance visits to Site 3, the extent of buried waste was not entirely known prior to the RI field activities. EM and magnetometer surveys were originally proposed to be conducted over these landfills, with the exception of the Dahlstrom Landfill (due to potential interference from a high-voltage fence that surrounds this property, which is now the site of an auto salvage yard). Because results of geophysical surveys conducted on RSR OU Nos. 4 and 5 indicated that trenches and landfill extent could be identified in similar soils using the magnetometer method, however, EM surveys were not conducted on Site 3. Magnetometer survey grids with 100-foot line spacings were established over the property comprising the TXI Landfill and the north and south cells of the West Davis Landfill (**Figure 3.5-2**). The data indicate several trenches, some of which are visible from the ground surface, primarily in the western portions of the TXI Landfill and the north cell of the West Davis Landfill, and more haphazard dumping in the eastern portions of these landfills and on the south cell of the West Davis Landfill.

024286

**Site 4.** Four documented City of Dallas landfills are known to exist on Site 4 (Vilbig, Nomas, West Dallas, and Jaycee Park). Although trenches and berms, believed to be indicative of former landfilling activity, were observed on the surface of the Nomas and West Dallas Landfills during reconnaissance visits to Site 4, the extent of buried waste was not entirely known prior to the RI field activities being conducted. EM and magnetometer surveys were originally proposed to be conducted over these landfills. Because results of geophysical surveys conducted on RSR OU Nos. 4 and 5 indicated that trenches and landfill extent could be identified in similar soils using the magnetometer method, however, EM surveys were not conducted on Site 4. Magnetometer survey grids with 100-foot line spacings were established over the Vilbig, Nomas, and West Dallas Landfills, and at a 50-foot line spacing over the Jaycee Park Landfill (**Figure 3.5-3**). The data indicate haphazardly buried metal over the entire Vilbig Landfill property, in the eastern portion of the West Dallas Landfill, and over portions of the Jaycee Park Landfill. In addition, landfill trenches, many visible from the ground surface, were indicated by data from the Nomas Landfill, the central and western portions of the West

Dallas Landfill, and many portions of the Jaycee Park Landfill. The location of underground electric utility lines, known to exist beneath the park, also were identified.

024287

The activities and findings for the OU No. 3 geophysical survey are discussed in greater detail in the Technical Memorandum prepared for this task (EPA, 1995e). The findings were incorporated into the site characterization information presented in Chapter 4.

## 3.6 Storm Sewer, Drainageway, and Pipeline Investigation

This investigation was conducted to evaluate the presence and condition of storm sewers, drainageways, and/or pipelines (i.e., natural gas pipelines, water lines) on each OU No. 3 site. The objectives of this investigation are listed below:

- Determine if storm sewers, drainageways, or other pipeline or utility structures are present onsite.
- If these structures are present onsite, determine, if possible, their condition and structural integrity.
- If possible, identify areas of contamination either within or in the matrix surrounding these structures.
- Determine potential contaminant transport through these structures or within the matrix surrounding these structures.
- Collect adequate data to support baseline human health and ecological risk assessments and to evaluate potential remedial alternatives.

Available reference maps, aerial photographs, and the site reconnaissance activities were utilized to identify locations of storm and sanitary sewer lines located at each of the OU No. 3 sites. In addition, utility representatives were met in the field to verify the presence and location of utilities on or near the sites. Locations of visible utility structures (i.e. storm sewers and open drainageways) were surveyed by a civil surveyor; the exact location and alignment of most underground lines could not be determined precisely and therefore were estimated for the RI report base maps. Field activities included visual inspection of sewer lines, and sampling of water and sediment at various locations on each site.

024288

**Site 1.** On Site 1, the stormwater drainage system along Westmoreland Road and Fort Worth Avenue was found to discharge at several locations to the creek that begins at the Fort Worth Avenue outfall at the southern end of Site 1, and flows north through the center of the site. Three stormwater utility structures were identified: (1) an inlet located along Westmoreland just south of Colorado Blvd; (2) an inlet located along Westmoreland Road a few hundred yards north of Fort Worth Avenue; and (3) an outfall located along Fort Worth Avenue that is the origin of the Site 1 creek. Stormwater that enters the second inlet listed above is transported into Site 1, where it is discharged into an open concrete channel, which subsequently drains into the creek. **Figure 3.6-1** illustrates the locations of these structures, as well as the stormwater and sediment sample locations. Four (4) locations were selected during the site reconnaissance for sampling of stormwater and sediment, but flow volume sufficient for collection of water samples was observed in only two (2) of these locations, and sediment was observed in only one (1) of the four (4) locations. **Table 3.6-1** describes the sample locations and analyses conducted. Surface water/sediment samples also were collected from the creek as part of the Surface Water and Sediment Investigation (**Section 3.7**).

**Site 3.** Runoff collected by a storm sewer system located near the intersection of Loop 12 and Davis Street appears to be the primary source of recharge for a creek that flows north and west through Site 3 and splits into several smaller branches before discharging to Mountain Creek (which is the western boundary of Site 3). Samples were not

collected from the storm sewer structure due to an insufficient amount of sample media. However, several surface water and sediment samples were collected from the creek near the outfall and farther downstream, and from Mountain Creek, as part of the Surface Water and Sediment Investigation (**Section 3.7**). In addition, a 12-inch underground sanitary sewer line traverses Site 3 on its way to a nearby wastewater treatment plant. A manhole for this line, located on the west side of the West Davis Landfill (shown on **Figure 3.6-2**), had been proposed for sampling during the site reconnaissance, but it could not be sampled due to difficulties in accessing this structure.

024289

**Site 4.** Several stormwater systems were identified along the streets bounding Jaycee Zaragoza Park (Jaycee Park) on Site 4. One (1) above-ground drainage channel (on the park property) and several below-ground lines converge at a point just north of the Gabe P. Allen Elementary School, and extend north, underground, along Iroquois Street to an outfall located at the corner of Iroquois and Gallagher Streets. The stormwater discharges to a drainage channel (which is the northeastern boundary of Site 4) and flows north into another drainage channel on the south side of the Trinity River Levee, which flows east and eventually discharges into the Trinity River. The locations of these stormwater structures are shown on **Figure 3.6-3**, as are the sample collection locations. Six (6) water samples and four (4) sediment samples were collected from several of the stormwater structures described above. **Table 3.6-1** describes the sample locations and the analyses conducted. As part of the surface water and sediment investigation (**Section 3.7**), water samples also were collected from locations downstream of the outfall at Iroquois and Gallagher Streets.

The activities and findings for the Storm Sewer, Drainageway, and Pipeline Investigation for OU No. 3 are discussed in greater detail in the Technical Memorandum prepared for this task (**EPA, 1995f**). Analytical results of the samples collected are detailed in **Chapters 6** through **8**, and the presence of the storm sewers incorporated into the fate and transport discussion in **Chapter 9**.

## 3.7 Surface Water and Sediment Investigation

024290

This investigation was conducted to evaluate the conditions of surface water bodies on OU No. 3. The objectives of this investigation are listed below:

- Identify surface water bodies present onsite.
- If surface water bodies are present onsite, determine, if possible, their condition (i.e., visible signs of contamination, direction of flow, point of termination).
- Collect samples from upstream, within, and downstream of site boundaries to assess the distribution and extent of contamination concentrations in surface water and sediment.
- To the extent possible, determine potential contaminant transport within these surface water systems.
- Collect adequate data to support baseline human health and ecological risk assessments and to evaluate potential remedial alternatives.

Available reference maps, aerial photographs, and the site reconnaissance activities were utilized to identify locations of creeks, drainageways, ponds, marshes, and seeps at the three OU No. 3 sites. The approximate locations of these features were documented in the field, and later tied to a state plane coordinate system with aerial photography.

**Site 1.** The primary surface water body on Site 1 is a creek that flows north through the middle of the site from an outfall located on Fort Worth Avenue (just west of the intersection with Westmoreland Road). As it flows through the site, the creek is fed by surface runoff, seeps, stormwater from outfalls located on the east side of the site, and a

second creek that originates on an adjacent property west of the site. Approximately 0.75 miles north of Site 1, the creek flows into a series of drainage ditches along I-30, which discharge to the Trinity River at locations approximately 2 miles north of Site 1. **Figure 3.7-1** illustrates the location of this creek on Site 1, as well as locations where surface water and sediment samples were collected. Eleven (11) surface water samples and eleven (11) sediment samples were collected during this investigation, from various locations along the creek (from just downstream of the Fort Worth Avenue outfall to the farthest downstream location accessible to the field crews, and also from the tributary creek and the seeps). **Table 3.7-1** describes the sample locations and the analyses conducted. Water and sediment samples also were collected from associated storm sewer structures as part of the Storm Sewer, Drainageway, and Pipeline Investigation **(Section 3.6)**.

024291

**Site 3.** One of the major surface water bodies on Site 3 is a creek that flows northwest from a storm sewer outfall at the Loop 12 - Davis Street intersection as shown on **Figure 3.7-2.** The creek divides into two branches, which are recharged further by surface runoff and seeps. The creeks flow west between landfill cells and discharge to Mountain Creek. Mountain Creek, which bounds the western side of Site 3, flows north approximately 1.5 miles and discharges to the West Fork of the Trinity River. In addition, several areas of shallow standing water on the TXI Landfill appear to be recharged by surface runoff from the Dahlstrom Landfill property. Twenty (20) surface water samples and twenty-one (21) sediment samples were collected during this investigation, from various locations along the creek (from just downstream of the Loop 12 - Davis Street outfall to the farthest downstream location accessible to the field crews, and also from the seeps and areas of standing water). These sample locations are also shown on **Figure 3.7-2**, and described on **Table 3.7-1**.

**Site 4.** Site 4 is bounded on three sides by surface water. Two surface water drainages (the Old Channel of the West Fork of the Trinity River, and a drainage downstream of a storm sewer outfall located at the corner of Iroquois and Gallagher Streets) bound the southwest/west and northeast sides of the site, respectively **(Figure 3.7-3)**. These flow

north to join a drainage channel located on the south side of the Trinity River Levee. This drainage flows east along the north side of Site 4, and discharges to the Trinity River approximately 3 miles east of the site. Seven (7) surface water samples and seven (7) sediment samples were collected during this investigation, from various locations along these three drainage channels (**Figure 3.7-3** and **Table 3.7-1**). As part of the Storm Sewer, Drainageway, and Pipeline Investigation, water and sediment samples also were collected from several associated storm sewer structures on Site 4 which discharge at the outfall located at the north end of Iroquois Street (**Section 3.6**).

024292

Because flow in most of the drainages of the OU No. 3 sites is intermittent and can be extremely variable throughout the year, cross-sectional channel and flow measurements proposed in the FSP (**EPA, 1994b**) were not conducted because these measurements taken from a single sampling event would not be considered representative of the flow rate over a given period of time.

The activities and findings for the Surface Water and Sediment Investigation for OU No. 3 are discussed in greater detail in the Technical Memorandum prepared for this task (**EPA, 1995g**). Analytical results of the samples collected are detailed in **Chapters 6** through **8**, and the presence of surface water bodies incorporated into the fate and transport discussion of **Chapter 9**.

## 3.8 Ecological Investigation

A field investigation was performed to provide data for the description of potential ecological exposure pathways and proposed exposure and effects techniques in support of an Ecological Risk Assessment (ERA) for OU No. 3. The scope of work and objectives of this investigation are described below:

- Identify potential and occurring ecological receptors.

- Conduct appropriate abiotic media sampling to characterize exposure conditions for these receptors.

- Identify potential exposure pathways relevant to the occurring ecological receptors.

- Evaluate the potential risk posed to the OU No. 3 ecology as a result of exposure to site-related contamination.

024293

Field investigation activities associated with the ERA, some of which were conducted concurrently with similar activities for other remedial investigation tasks, include site reconnaissance and review of historical aerial photography, ecological population inventory, and sampling of soil, surface water, and sediment. The data obtained from these samples is included with data from samples collected for the soil; surface water and sediment; and storm sewer, drainageway, and pipeline investigations in this RI. Historical aerial photographs of each OU No. 3 site were reviewed in order to assess past site characteristics to determine historic habitat types and potential occurring receptors. The current ecological condition of OU No. 3 was assessed by conducting onsite surveys of the terrestrial ecology through the use of live traps. Abiotic media sampling activities were conducted in conjunction with the soil, surface water, and sediment sampling activities for the RI. **Chapter 11** provides an overview of the results of this investigation; the ERA is provided in full under separate cover **(EPA, 1995h)**.

## 3.9 Landfill Gas Investigation

A landfill gas investigation was conducted in conjunction with the direct push subtask of the soil investigation. The objectives of the landfill gas investigation included:

- Identify areas at each site that pose fire and explosion hazards during field investigation and potential remedial activities.

- Identify areas that may pose inhalation hazards due to the presence of toxic or irritating compounds.

- Assist in the preliminary delineation of the boundaries of contaminated subsurface areas.

024294

The FSP proposed that the landfill gas survey be conducted on grids established over the two OU No. 3 sites where documented landfilling activities were known to have occurred (i.e., Sites 3 and 4). The survey would assist in the selection of locations for soil borings by avoiding, where possible, areas where landfill gas may be encountered during direct push or drilling activities. However, the scope of this investigation was reduced for several reasons. First, the results of the historical aerial photography review **(EPA, 1938-1992)** and geophysical survey **(Section 3.5)** allowed an increased degree of certainty in the selection of boring locations outside probable landfill areas. Also, by the time direct push activities began on Site 4, the readings from continuous air monitoring (which had been conducted around the borehole and in the breathing zone for all direct push borings at Sites 1 and 3) generally could be correlated with elevated soil vapor levels. *Subsequently, extensive landfill gas testing was determined to be unnecessary at Site 4.*

In addition, modifications were made to the sampling procedures outlined in the FSP **(EPA, 1994b)**. The soil vapor sampling was conducted by the direct push subcontractor; the direct push rig was capable of reaching the desired sampling depths and obtaining samples more quickly and efficiently than driving sample points and collecting samples by hand. The subcontractor also utilized a mobile gas chromatograph (GC) to analyze the samples for volatile organic compounds and methane immediately after collection. Analytical results were available within approximately one (1) hour of sample collection, allowing more effective decision-making by the field crews during direct push activities.

Sixteen (16) soil vapor samples were collected from twelve (12) locations throughout the three OU No. 3 sites: four (4) samples were collected from Site 1, ten (10) samples from Site 3, and two (2) from Site 4. **Figures 3.9-1, 3.9-2** and **3.9-3** illustrate the locations of direct push borings on Sites 1, 3, and 4, respectively, from which soil vapor samples were collected. Descriptions of sample locations and the analyses conducted are provided in **Table 3.9-1.** The proposed locations for subsequent borings and monitoring wells were modified based on the results of the landfill gas investigation on Site 3. Levels of methane, constituting up to 25% of the sample in five (5) samples collected from direct push boring locations on Areas 3A (Dahlstrom Landfill) and 3B (TXI Landfill) were considered to pose an explosivity risk, and these borings subsequently were abandoned.

024295

The activities and findings for the Landfill Gas Investigation for OU No. 3 are discussed in greater detail in the Technical Memorandum prepared for this task **(EPA, 1995i).**

## 3.10 Soil Investigation

The soil investigation was conducted to collect data for evaluation of the nature and extent of surface and subsurface soil contamination at each of the three OU No. 3 sites. The investigation was divided into subtasks, each of which is described below, to meet the following objectives:

- Characterize the surface and subsurface soil at the three OU No. 3 sites.
- Evaluate the nature and extent of surface and subsurface soil contamination at the three OU No. 3 sites.
- Collect adequate data to support baseline human health and ecological risk assessments and to evaluate potential remedial alternatives.

The subtasks conducted include an in-situ XRF survey, surface soil sampling program, and a subsurface boring investigation (conducted using both direct push and conventional drilling methods). The activities and findings of the soil investigation for OU No. 3 are discussed in greater detail in the TM prepared for this task **(EPA, 1995j)**. Site-specific stratigraphic information developed from logging of subsurface borings is incorporated into the site characterization provided in **Chapter 4**, and analytical results of the samples collected are detailed in **Chapters 6** through **8**.

024296

### 3.10.1 Surface Soil Investigation

XRF analysis of surface soils and subsequent soil sampling was performed on several grids established on the ground surface at each OU No. 3 site. The location and extent of the grids and the spacing of the grid nodes were determined after evaluation of information obtained during the available data analysis and site reconnaissance efforts **(EPA, 1995b)**. Grids generally were situated in areas that demonstrated the presence of observable surface debris (particularly slag and/or battery casing chips) and that were accessible to field crews. **Table 3.10-1** provides a description of the XRF grids and grid node sample identifications. Generally, XRF analyses were performed at each grid location. Soil samples also were collected for laboratory analysis of TAL inorganics at a subset of those locations, at a minimum of one (1) per every ten (10) grid nodes and/or at locations where the XRF analysis results for lead, arsenic, or cadmium concentrations exceeded ten times the corresponding standard deviation (see the Surface and Subsurface Soil Investigation TM for a detailed description of this approach **[EPA, 1995j]**).

**Site 1.** The locations of the grid nodes within the two (2) grids on Site 1 are illustrated on **Figure 3.10-1.** Due to the heavy vegetation and terrain of Site 1, the surface soil sampling activities were limited to these two (2) relatively isolated locations. In-situ XRF analyses were performed at eighty-nine (89) surface soil locations on Site 1. Twenty-five (25) soil samples, plus four (4) background samples, were collected for laboratory analysis of TAL inorganics. Three (3) of these samples also were analyzed for TCLP

and TOC. In addition, three (3) samples, including one (1) background sample, were analyzed for TCL organics. Descriptions of the laboratory sample locations, and analyses conducted on samples collected from each location are provided in **Table 3.10-2.**

024297

**Site 3.** The locations of the nodes within each of the four (4) grid areas on Site 3 are illustrated on **Figure 3.10-2.** These grids were established across each of the accessible landfill areas (TXI Landfill, the north and south cells of the West Davis Landfill, and an area east of the northern cell of the West Davis Landfill). A grid was not established over the Dahlstrom Landfill (now an auto salvage yard) due to the presence of automobiles and buildings on the property and the lack of evidence of observable surface contamination such as battery chips or slag. In-situ XRF analyses were performed at three-hundred six (306) surface soil locations within the Site 3 grids. Sixty-four (64) soil samples were collected, including three (3) background samples, for laboratory analysis of TAL inorganics. Nine (9) of the soil samples also were analyzed for TCLP and TOC, and three (3) samples, including one (1) background sample, were submitted for TCL organics analysis. Descriptions of the sample locations and analyses conducted on samples collected from each location are provided in **Table 3.10-3.**

**Site 4.** The locations of the grid nodes within each of the four (4) grid areas on Site 4 are illustrated on **Figure 3.10-3.** These grids were established across each of the landfill areas (Nomas, Vilbig, West Dallas, and Jaycee Park). In-situ XRF analyses were performed at three-hundred forty-two (342) surface soil locations on Site 4. Eighty-one (81) soil samples were collected, including three (3) background samples, for laboratory analysis of TAL inorganics. Eleven (11) of the soil samples also were analyzed for TCLP, and ten (10) were analyzed for TOC. Two (2) samples, including one (1) of the background samples, also were analyzed for TCL organics. Descriptions of the sample locations and analyses conducted on samples collected from each location are provided in **Table 3.10-4.**

### 3.10.2 Subsurface Soil Investigation

024298

The subsurface soil investigation was completed using two different intrusive methods: direct push boring and conventional (auger) drilling. Boring locations were chosen based on surface soil XRF analysis results, locations where groundwater was likely to be encountered, and drill rig accessibility. Activities conducted as part of this investigation included identification of the occurrence of, and depth to, groundwater, evaluation of subsurface stratigraphy, XRF analysis of subsurface soil for inorganics, and collection of subsurface soil samples for laboratory analysis for various constituents.

The direct push method was utilized first at each site as a simple and economical alternative to conventional (auger) drilling for subsurface coring and sampling of soil, groundwater, and soil vapor. Generally, areas where battery casing chips or slag were observed on the ground surface, or grid nodes where XRF analysis of surface soil resulted in lead, arsenic, or cadmium concentrations exceeding ten times the corresponding standard deviation, were targeted for direct push activities. Direct push locations also were selected at optimum locations for obtaining stratigraphic information and depth to groundwater. Depths achievable with the direct push method at the OU No. 3 sites ranged from 1 foot below ground surface (bgs) at Site 1 to 31.5 feet (bgs at Site 3); refusal at these depths generally was a result of encountering bedrock (at Sites 1 and 4) or tight clays (at Site 3). Conventional (auger) drilling was used to supplement the direct push activities at all three sites. Boring logs for all direct push and conventional (auger) borings are provided in **Appendix A**. Detailed descriptions of the boring location selection process is provided in the Surface and Subsurface Soil Investigation TM **(EPA, 1995j)**.

**Site 1.** The locations of the seventeen (17) borings (twelve (12) direct push and five (5) conventional auger borings) advanced on Site 1 are illustrated on **Figure 3.10-4.** As indicated on this figure, two (2) direct push borings and two (2) auger borings were advanced at the same locations. These borings were advanced where elevated XRF

concentrations had been exhibited by surface soils (at four (4) locations by direct push methods) and to assist with evaluation of subsurface conditions and installation of groundwater monitoring wells. **Table 3.10-5** provides descriptions of each of the Site 1 borings. Descriptions of the subsurface soil samples collected from these borings and the analyses conducted on each of these samples are provided in **Table 3.10-6**. In-situ XRF analyses were performed at fourteen (14) subsurface soil locations on Site 1, and five (5) soil samples were collected for laboratory analysis of TAL inorganics.

024299

**Site 3.** The locations of the twenty-seven (27) borings advanced on Site 3 are illustrated on **Figure 3.10-5.** As indicated on this figure, six (6) of these were advanced by direct push, eleven (11) were advanced using conventional (auger) drilling methods, and ten (10) were advanced using both methods. These borings generally were advanced along the perimeters of the Site 3 landfills. **Table 3.10-7** provides descriptions of each of the Site 3 borings. Descriptions of the subsurface soil samples collected from these borings and analyses conducted on each of these samples are provided in **Table 3.10-8**. In-situ XRF analyses were performed on subsurface cores from twenty-five (25) borings, and soil samples were collected from twenty-one (21) borings at specified depths for TAL inorganics analyses.

**Site 4.** The locations of the twenty-four (24) borings advanced on Site 4 are illustrated on **Figure 3.10-6.** As indicated on this figure, ten (10) of these were advanced by direct push, five (5) were advanced using conventional (auger) drilling methods, and nine (9) were advanced using both methods. These borings generally were installed along the perimeters of the Site 4 landfills. **Table 3.10-9** provides descriptions of each of the Site 4 borings. Descriptions of the subsurface soil samples collected from these borings and analyses conducted on each of these samples are provided in **Table 3.10-10**. In-situ XRF analyses were performed on subsurface cores from twenty-three (23) borings, and soil samples were collected from twenty-two (22) borings at specified depths for TAL inorganics analyses.

## 3.11 Groundwater Investigation

024300

The groundwater investigation was conducted to collect data for evaluation of the nature of groundwater present at each of the three OU No. 3 sites. The investigation was divided into subtasks to meet the following objectives:

- Identify the types and suspected sources of contaminants in the shallow groundwater-bearing zone(s).
- Identify the direction of groundwater flow immediately beneath the three (3) sites.
- Evaluate the quality of groundwater where it begins flowing beneath each OU No. 3 site.
- Define the nature and extent of the contaminated groundwater, if contamination is determined to exist.
- Measure parameters (i.e., water-bearing zone characteristics, spatial variations in contaminant concentrations) necessary to evaluate potential remedial alternatives.
- Collect adequate data to support the baseline human health and ecological risk assessments and to evaluate potential remedial alternatives.

Groundwater monitoring wells were installed in thirty-three (33) borings in which groundwater was encountered during the soil investigation. Monitoring well completion depths ranged from 13 to 72 feet bgs across all three (3) sites. **Table 3.11-1** summarizes well completion details of each well installed for all three (3) sites, and a brief description of the shallow aquifer materials in which each well was screened. Well

construction diagrams are included in **Appendix A-1** through **A-3**. With the exception of eight (8) wells installed in what are believed to be perched water-bearing zones on Site 3, all wells were completed in a saturated sand or gravel stratigraphic unit, or a weathered bedrock zone, generally on top of consolidated Eagle Ford Shale. Groundwater samples were collected from these wells, and also from direct push boring locations during the soil investigation described in **Section 3.10**. Prior to well sampling, which was conducted in May 1995, the wells were developed and groundwater levels in each well were measured.

024301

The activities and findings of the groundwater investigation for OU No. 3 are discussed in greater detail in the TM prepared for this task **(EPA, 1995k)**. Groundwater elevation data and general water quality information determined from this investigation is incorporated into the site characterization provided in **Chapter 4**, and analytical results of the samples collected are detailed in **Chapters 6** through **8**.

**Site 1.** The locations of the two (2) wells installed on Site 1 are illustrated on **Figure 3.11-1.** One (1) of these wells is located at grid node 1A-S022, close to the creek bank on the western side of Area 1A, where slag was found over much of the ground surface. At this location, groundwater was encountered at 22 feet bgs in weathered Austin Chalk above the Eagle Ford Shale. Monitoring well 1A-S083 was installed near a direct push boring location where slag had been observed within the top three feet bgs, and where significant XRF lead concentrations had been measured in surface and subsurface soil. A summary of the groundwater samples collected from these wells is provided in **Table 3.11-2.**

**Site 3.** The locations of the eighteen (18) wells installed on Site 3 are illustrated on **Figure 3.11-2**, in addition to the direct push locations where groundwater was sampled. Eight (8) of the wells were installed around the perimeter of the Site 3 landfills in what appears to be perched water-bearing zones in landfill debris or coarse-grained alluvial material (encountered at depths generally less than 20 feet bgs). The remaining ten (10) wells were installed around the perimeter of the landfills at depths up to 72 feet bgs in

sand or gravel zones above bedrock. A summary of the groundwater samples collected from these wells and selected direct push borings is provided in **Table 3.11-3.**

024302

**Site 4.** The locations of the thirteen (13) wells installed on Site 4 are illustrated on **Figure 3.11-3.** The wells were installed at depths equal to or less than 26 feet bgs around the perimeter of the Site 4 landfills in the alluvial sand and gravel, and in some instances, landfill debris, directly above bedrock. A summary of the groundwater samples collected from these wells and selected direct push borings is provided in **Table 3.11-4.**

**Table 3-1**
**Data Quality Objectives**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**



024303

| Medium | Activity | Analytical Level and Data Types | Data Needs | Data Uses |
|---|---|---|---|---|
| Surface Soil | Sample surface soils (0-2" bgs)[a] | Level III - TAL[b], TCL[c], Full TCLP[d], TOC[e] Level I - XRF[f] | Obtain information on the extent and nature of contamination | -Identify areas of contamination -Evaluate potential remedial action alternatives -Collect data for human health and ecological risk assessment |
| Subsurface Soil | Collect soil samples from direct push borings | Level III - TAL Level II - mobile lab; organics | Obtain information on the horizontal and vertical extent and nature of contamination | -Site characterization -Collect data for human health risk assessment |
| | Collect soil samples from soil borings and monitor well borings | Level III - TAL TCL, Full TCLP, TOC | Obtain information on the horizontal and vertical extent and nature of contamination | -Site characterization -Collect data for human health risk assessment |
| Groundwater | Collect groundwater samples from direct push borings | Level II - mobile lab; organics Level III - TAL, TCL | Obtain information on vertical and horizontal groundwater flow patterns and the nature and extent of contamination | -Identify sources of contamination -Define nature and extent of any contaminated groundwater |
| | Collect groundwater samples from monitor wells | Level III - TAL, TCL, Wet Chemistry[g] | Obtain information on the nature and extent of contamination | -Identify sources of contamination -Define nature and extent of any contaminated groundwater |

**Table 3-1**
**Data Quality Objectives**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024304



| Medium | Activity | Analytical Level and Data Types | Data Needs | Data Uses |
|---|---|---|---|---|
| Stormwater and Surface Water | Collect stormwater runoff and surface water samples | Level III - TAL, TCL, wet chemistry | Obtain information on the offsite migration of contamination | -Determine contaminant transport |
| Sediment | Collect samples of accumulated sediments in storm water structures and surface water bodies | Level III - TAL, TCL, Full/TCLP | Obtain information on the presence/absence of contamination and toxicity potential | -Identify sources of contamination<br>-Determine contaminant transport |

[a]bgs - below ground surface
[b]TAL - Target Analyte List
[c]TCL - Target Compound List
[d]TCLP - Toxicity Characteristic Leaching Procedure
[e]TOC - Total Organic Carbon
[f]XRF - X-ray Fluorescence Testing
[g]wet chemistry - includes Total Dissolved Solids, Total Suspended Solids, etc. (see Appendix A).

**Table 3.1-1**
**Sample Designation Areas**
**Operable Unit No. 3, Sites 1, 3, and 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024305

| *Area* | *Description* |
|---|---|
| | **SITE 1** |
| 1A | area partially enclosed by a fence and bounded by Westmoreland Road to the east, trailer park property to the south, creek to the west, and property containing building structures to the north |
| 1B | area in the immediate vicinity of the slag/debris pile in the north part of Site 1, northwest of the old building structures |
| 1C | creek flowing north through Site 1, from storm sewer outfall at Ft. Worth Avenue to confluence with creek from cement plant property |
| 1D | creek flowing east from cement plant property onto Site 1 |
| 1E | creek flowing north through Site 1, downstream of confluence with creek from cement plant property |
| 1F | miscellaneous sample locations within Site 1 boundaries, but not within Areas 1A through 1E |
| | **SITE 3** |
| 3A | area comprising the Dahlstrom Landfill, bounded by Loop 12 service road to the east, the TXI Landfill to the south, Mountain Creek to the west, and railroad right-of-way to the north |
| 3B | area comprising the TXI Landfill, bounded by Johnson St. service road to the east, an unnamed drainage channel to the south, Mountain Creek to the west, and Dahlstrom Landfill to the north |
| 3C | area comprising the north cell of the West Davis Landfill, bounded by unnamed drainage channels to the east, south, and north, and Mountain Creek to the west |
| 3D | area comprising the south cell of the West Davis Landfill, bounded by an overhead right-of-way to the east, Davis Street to the south, Mountain Creek to the west, and an unnamed drainage channel to the north |
| 3E | Mountain Creek, west of Site 3 |
| 3F | creek located between the northern and southern cells of the West Davis Landfill that flows north and east from a storm sewer outfall (located at the Loop 12 and Davis Street intersection) to Mountain Creek |
| 3G | creek located between the TXI Landfill and the northern cell of the West Davis Landfill that flows north and east to Mountain Creek |

**Table 3.1-1**
**Sample Designation Areas**
**Operable Unit No. 3, Sites 1, 3, and 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024306

| *Area* | *Description* |
|---|---|
| 3H | creek that flows west from a seep on the west side of the TXI Landfill to Mountain Creek |
| 3I | creek that flows west into Mountain Creek, along the north side of the Dahlstrom Landfill |
| 3J | miscellaneous sample locations within Site 3 boundaries, but not within the other areas |
| 3K | small area east of the north cell of the West Davis Landfill |
| | **SITE 4** |
| 4A | area comprising the Vilbig Landfill, bounded by an unnamed drainage channel to the northeast, and Iroquois Street to the east, privately-owned residential property to the south, Nomas Landfill to the west, and an unnamed drainage channel south of the Trinity River levee to the west |
| 4B | area comprising the Nomas Landfill, bounded by Vilbig Landfill to the east, Nomas street to the south, Claibourne Boulevard to the west, and an unnamed drainage channel south of the Trinity River levee to the north |
| 4C | area comprising the West Dallas Landfill, bounded by Claibourne Boulevard to the east, the Old Channel of the West Fork of the Trinity River to the south and west, and an unnamed drainage channel south of the Trinity River levee to the north |
| 4D | area comprising the Jaycee Park Landfill, bounded by Tumalo Trail to the east, Bernal Street to the southeast, privately-owned commercial property to the south, Clymer Street to the west, and the Gabe P. Allen Elementary School to the north |
| 4E | drainage on the south side of the Trinity River Levee that flows east along the north side of Site 4 |
| 4F | Old Channel of the West Fork of the Trinity River that flows north along the southwest and west sides of Site 4 |
| 4H | miscellaneous sample locations within Site 4 boundaries, but not within the other areas |

**Table 3.1-2**
**Sample Designations and Identifiers[1]**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Site - "S" | Site - "A" | Location Type - "L" | | Media Type Sampled - "Y" | | Field Sampling Method - "Z" | |
|---|---|---|---|---|---|---|---|
| | | Name | Code | Description | Code | Description | Code |
| 1, 3, or 4 | A, B, C, etc. | Soil/Groundwater | S | Surface Soil | S | Laboratory | L |
| | | | | | | XRF Reading | X |
| | | | | Ecological Investigation Surface Soil | E | Laboratory | L |
| | | | | Subsurface Soil | U | Laboratory | L |
| | | | | | | XRF Reading | X |
| | | | | Groundwater | G | Direct Push | D |
| | | | | | | Monitoring Well | W |
| | | Surface Water/Sediment | A | Surface Water | W | Laboratory | L |
| | | | | Sediment | D | Laboratory | L |
| | | Storm Sewer/Pipeline | P | Surface Water | W | Laboratory | L |
| | | | | Sediment | D | Laboratory | L |
| | | Trip Blank | Sampling Date[3] | Trip Blank | T | Laboratory | L |

[1]Note: Sample identification format: *SA-L### YZ##*

| | | | |
|---|---|---|---|
| S = | Site number | A = | Area letter |
| L = | Location Type letter | ### = | Sample Location number |
| Y = | Media Type letter | Z = | Field Sampling Method letter |
| ## = | Sample number | | |

i.e.; 3A-S101 GW01 is sample #1 collected from groundwater monitoring well #101 on Site 3, Area A.

[2]See Table 3.1-1 for a description of the Areas per Site.

[3]Trip blanks are identified by the date the blank was submitted to the lab, using the format "MMDD".
i.e., 3A-0521 TL01 is a trip blank submitted on May 21.

024307

**Table 3.6-1**
**Summary of Stormwater/Sediment Samples**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024308

| *Location Number* | *Location Description* | *Media* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| | | | **SITE 1** | |
| **1A-P002** | open concrete drainage channel within fenced area on Site 1 | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **1F-P001** | curb inlet near northwest corner of Westmoreland Road and Ft. Worth Avenue | | | |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| | | | **SITE 4** | |
| **4A-P001** | drop inlet near northwest corner of Iroquois and Gallagher Streets | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | TCLP Organics and Inorganics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **4A-P002** | drop inlet on west side of Iroquois Street, south of Gallagher Street | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | TCLP Organics and Inorganics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |

**Table 3.6-1**
**Summary of Stormwater/Sediment Samples**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024309

| *Location Number* | *Location Description* | *Media* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 4D-P001 | drop inlet at Jaycee Park, southwest of Allen School | | | |
| | | Sediment | DL01 | TCLP Organics and Inorganics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 4D-P002 | drop inlet at Jaycee Park, southeast of Allen School (approx. 300' east of 4D-P001) | | | |
| | | Sediment | DL01 | TCLP Organics and Inorganics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 4D-P003 | open concrete drainage channel on the south side of Jaycee Park | | | |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 4D-P004 | curb inlet along Tumalo Trail on the east side of Jaycee Park | | | |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |

**Table 3.7-1**
**Summary of Surface Water/Sediment Samples**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024310

| *Location Number* | *Location Description* | *Media* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| | | | **SITE 1** | |
| **1A-A002** | seep on east bank of creek that flows north through Site 1 | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **1A-A003** | seep on east bank of creek that flows north through Site 1 | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | TCLP Organics and Inorganics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **1C-A001** | creek that flows north through Site 1, approximately 100' downstream of open concrete drainage channel | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **1C-A002** | creek that flows north through Site 1, approximately 10' upstream of open concrete drainage channel | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |

Table 3.7-1
Summary of Surface Water/Sediment Samples
Operable Unit No. 3
RSR Corporation Superfund Site
Dallas, Texas

024311

| *Location Number* | *Location Description* | *Media* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 1C-A003 | creek that flows north through Site 1, approximately 100' upstream of location 1C-A002 | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 1C-A004 | creek that flows north through Site 1, downslope of fence line (between fenced area and trailer park) | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 1C-A005 | creek that flows north through Site 1, just downstream of storm sewer culvert/inlet on Ft. Worth Avenue | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 1D-A001 | creek that flows east from the cement plant, approximately 25' upstream of confluence with creek that flows north through Site 1 | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |

**Table 3.7-1**
**Summary of Surface Water/Sediment Samples**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024312

| *Location Number* | *Location Description* | *Media* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 1E-A001 | creek that flows north through Site 1, just upstream from a washed-out bridge of road leading to a former structure | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 1E-A002 | creek that flows north through Site 1, 200-300' downstream of confluence with creek that flows east from the cement plant | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 1E-A003 | creek that flows north through Site 1, approximately 25' downstream of confluence with creek that flows east from the cement plant | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |

**Table 3.7-1**
**Summary of Surface Water/Sediment Samples**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024313

| *Location Number* | *Location Description* | *Media* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| | | | **SITE 3** | |
| **3B-A001** | seep on west side of TXI Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | TCLP Organics and Inorganics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **3B-A002** | pond located near the north-central portion of TXI Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **3B-A003** | pond located near the center of TXI Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **3B-A004** | pond located near the eastern portion of TXI Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |

**Table 3.7-1**
**Summary of Surface Water/Sediment Samples**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024314

| *Location Number* | *Location Description* | *Media* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| **3D-A001** | seep on west side of southern cell of West Davis Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **3E-A001** | Mountain Creek, downstream of confluence with drainage channel located north of Dahlstrom Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **3E-A002** | Mountain Creek, downstream of confluence of drainage channel located near north side of TXI Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **3E-A003** | Mountain Creek, approximately 50' downstream of confluence with drainage channel that flows between TXI Landfill and the northern cell of West Davis Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |

**Table 3.7-1**
**Summary of Surface Water/Sediment Samples**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024315

| *Location Number* | *Location Description* | *Media* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| | | Water | WL01 | Total Organic Carbon |
| 3E-A004 | Mountain Creek, approximately 50' downstream of confluence with drainage channel that flows between northern and southern cells of West Davis Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 3E-A005 | Mountain Creek, approximately mid-point of the southern cell of West Davis Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 3E-A006 | Mountain Creek, at Davis Street bridge | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 3F-A001 | drainage channel that flows between northern and southern cells of West Davis Landfill, approximately 100' upstream of confluence with Mountain Creek | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | TCLP Organics and Inorganics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |

Table 3.7-1
Summary of Surface Water/Sediment Samples
Operable Unit No. 3
RSR Corporation Superfund Site
Dallas, Texas

024316

| Location Number | Location Description | Media | Sample Number | Analysis |
|---|---|---|---|---|
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 3F-A002 | seep on south bank of drainage channel that flows between northern and southern cells of West Davis Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| 3F-A003 | drainage channel that flows between northern and southern cells of West Davis Landfill, upstream of site boundary | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 3F-A004 | drainage channel that flows between northern and southern cells of West Davis Landfill, upstream of site boundary, approximately 50' downstream of storm sewer outfall | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 3G-A001 | drainage channel that flows between TXI Landfill and the northern cell of West Davis Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |

**Table 3.7-1**
**Summary of Surface Water/Sediment Samples**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024317

| *Location Number* | *Location Description* | *Media* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| **3G-A002** | seep on south bank of drainage channel that flows between TXI Landfill and the northern cell of West Davis Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **3G-A003** | seep on south bank of drainage channel that flows between TXI Landfill and the northern cell of West Davis Landfill, upstream of seep at 3G-A002 | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **3G-A004** | drainage channel that flows between TXI Landfill and the northern cell of West Davis Landfill, upstream of site boundary | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| **3H-A001** | drainage channel located near north side of TXI Landfill, approximately 25' upstream of confluence with Mountain Creek | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |

**Table 3.7-1**
**Summary of Surface Water/Sediment Samples**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024318

| *Location Number* | *Location Description* | *Media* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| | | Water | WL01 | Total Organic Carbon |
| 3I-A001 | drainage channel located north of Dahlstrom Landfill, approximately 100' upstream of confluence with Mountain Creek | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| | **SITE 4** | | | |
| 4E-A001 | Old Channel of the Trinity River, downslope of the southwest corner of West Dallas Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 4E-A002 | Old Channel of the Trinity River, approximately mid-point of the southern boundary of West Dallas Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | TCLP Organics and Inorganics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 4E-A003 | Old Channel of the Trinity River, approximately 200' downstream of Singleton Blvd. bridge | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |

**Table 3.7-1**
**Summary of Surface Water/Sediment Samples**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024319

| *Location Number* | *Location Description* | *Media* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 4F-A001 | drainage channel south of Trinity River Levee, approximately 25' downstream of confluence with drainage channel originating at storm sewer outfall (north end of Iroquois Street) | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 4F-A002 | drainage channel south of Trinity River Levee, approximately mid-point of Vilbig Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |
| 4F-A003 | drainage channel south of Trinity River Levee, approximately mid-point of West Dallas Landfill | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |

**Table 3.7-1**
**Summary of Surface Water/Sediment Samples**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024320

| *Location Number* | *Location Description* | *Media* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| **4F-A004** | drainage channel south of Trinity River Levee, just downstream of confluence with Old Channel of the Trinity River | | | |
| | | Sediment | DL01 | TAL Total Inorganics |
| | | Sediment | DL01 | TCL Organics |
| | | Sediment | DL01 | TCLP Organics and Inorganics |
| | | Sediment | DL01 | Total Organic Carbon |
| | | Water | WL01 | TAL Total Inorganics |
| | | Water | WL01 | TAL Dissolved Inorganics |
| | | Water | WL01 | TCL Organics |
| | | Water | WL01 | Total Dissolved Solids |
| | | Water | WL01 | Total Suspended Solids |
| | | Water | WL01 | Total Organic Carbon |

**Table 3.9-1**
**Summary of Soil Vapor Samples**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024321

| *Location Number* | *Location Description* | *Depth ('bgs)* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| | | **SITE 1** | | |
| **1A-S001** | southeast corner of Area 1A, XRF grid node #1 | | | |
| | | 0.0- 6.0 | UV01 | Field Volatiles, TPH, and Methane |
| **1A-S020** | near southwest corner of Area 1A, XRF grid node #20 | | | |
| | | 0.0- 3.0 | UV01 | Field Volatiles, TPH, and Methane |
| **1A-S052** | close to the tire pile near center of Area 1A, XRF grid node #52 | | | |
| | | 0.0- 6.0 | UV01 | Field Volatiles, TPH, and Methane |
| **1F-S003** | Area 1F, just north of Area 1A, between the two sheds | | | |
| | | 0.0- 2.0 | UV01 | Field Volatiles, TPH, and Methane |
| | | **SITE 3** | | |
| **3A-S001** | northernmost portion of Area 3A, outside fence surrounding auto salvage yard | | | |
| | | 10.0-10.0 | UV01 | Field Volatiles, TPH, and Methane |
| | | 20.0-20.0 | UV02 | Field Volatiles, TPH, and Methane |
| **3A-S002** | northeast corner of Area 3A, outside fence surrounding auto salvage yard | | | |
| | | 8.0- 8.0 | UV01 | Field Volatiles, TPH, and Methane |
| **3A-S003** | near center of east side of Area 3A, outside fence surrounding auto salvage yard | | | |
| | | 15.0-15.0 | UV01 | Field Volatiles, TPH, and Methane |

Table 3.9-1
Summary of Soil Vapor Samples
Operable Unit No. 3
RSR Corporation Superfund Site
Dallas, Texas

024322

| *Location Number* | *Location Description* | *Depth ('bgs)* | *Sample Number* | *Analysis* |
|---|---|---|---|---|
| 3B-S024 | west of center of north side of Area 3B, XRF grid node #24 | | | |
| | | 12.0-12.0 | UV01 | Field Volatiles, TPH, and Methane |
| | | 20.0-20.0 | UV02 | Field Volatiles, TPH, and Methane |
| 3B-S055 | east side of road that parallels the eastern edge of Area 3B | | | |
| | | 17.0-17.0 | UV01 | Field Volatiles, TPH, and Methane |
| 3D-S073 | south side of Area 3D, on landfill edge just inside treeline, XRF grid node #73 | | | |
| | | 20.0-20.0 | UV01 | Field Volatiles, TPH, and Methane |
| 3J-S001 | north of convenience store parking lot (located on Davis Street, just west of Loop 12) | | | |
| | | 10.0-10.0 | UV01 | Field Volatiles, TPH, and Methane |
| | | 20.0-20.0 | UV02 | Field Volatiles, TPH, and Methane |
| | SITE 4 | | | |
| 4C-S110 | west of entrance to the Site 4 fenced area, XRF grid node #110 | | | |
| | | 10.0-10.0 | UV01 | Field Volatiles, TPH, and Methane |
| | | 20.0-20.0 | UV02 | Field Volatiles, TPH, and Methane |

**Table 3.10-1**
**Summary of Surface Soil XRF Grids**
**Operable Unit No. 3, Sites 1, 3, and 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024323

| *Grid Area* | *Description* | *Sample Locations** |
|---|---|---|
| | **SITE 1** | |
| 1A | area partially enclosed by a fence and bounded by Westmoreland Road to the east, trailer park property to the south, creek to the west, and property containing building structures to the north | 1A-S001 through S014<br>1A-S016 through S082 |
| 1B | area in the immediate vicinity of the slag/debris pile in the north part of Site 1, northwest of the old building structures | 1B-S001 through S008 |
| | **SITE 3** | |
| 3B | area comprising the TXI Landfill, bounded by Johnson St. service road to the east, an unnamed drainage channel to the south, Mountain Creek to the west, and Dahlstrom Landfill to the north | 3B-S001 through S037<br>3B-S039 through S044<br>3B-S046 through S054 |
| 3C | area comprising the north cell of the West Davis Landfill, bounded by unnamed drainage channels to the east, south, and north, and Mountain Creek to the west | 3C-S001 through S115 |
| 3D | area comprising the south cell of the West Davis Landfill, bounded by an overhead right-of-way to the east, Davis Street to the south, Mountain Creek to the west, and an unnamed drainage channel to the north | 3D-S001 through S124 |
| | **SITE 4** | |
| 4A | area comprising the Vilbig Landfill, bounded by an unnamed drainage channel to the northeast, and Iroquois Street to the east, privately-owned residential property to the south, Nomas Landfill to the west, and an unnamed drainage channel south of the Trinity River levee to the west | 4A-S001 through S094 |

** laboratory samples were collected from a subset of these locations*

Table 3.10-1
Summary of Surface Soil XRF Grids
Operable Unit No. 3, Sites 1, 3, and 4
RSR Corporation Superfund Site
Dallas, Texas

024324

| *Grid Area* | *Description* | *Sample Locations** |
|---|---|---|
| 4B | area comprising the Nomas Landfill, bounded by Vilbig Landfill to the east, Nomas street to the south, Claibourne Boulevard to the west, and an unnamed drainage channel south of the Trinity River levee to the north | 4B-S001 through S042 |
| 4C | area comprising the West Dallas Landfill, bounded by Claibourne Boulevard to the east, the Old Channel of the West Fork of the Trinity River to the south and west, and an unnamed drainage channel south of the Trinity River levee to the north | 4C-S001 through S112<br>4C-S114 through S128 |
| 4D | area comprising the Jaycee Park Landfill, bounded by Tumalo Trail to the east, Bernal Street to the southeast, privately-owned commercial property to the south, Clymer Street to the west, and the Gabe P. Allen Elementary School to the north | 4D-S001 through S079 |

** laboratory samples were collected from a subset of these locations*

Table 3.10-2
Summary of Surface Soil Samples
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024325

| Area Designation | Location and Sample Number | Analysis |
|---|---|---|
| 1A | 1A-S010 SL01 | TAL Total Inorganics |
| | 1A-S017 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 1A-S020 SL01 | TAL Total Inorganics |
| | 1A-S023 EL01 | TAL Total Inorganics |
| | 1A-S030 SL01 | TAL Total Inorganics |
| | 1A-S042 SL01 | TAL Total Inorganics |
| | 1A-S043 EL01 | TAL Total Inorganics |
| | 1A-S045 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 1A-S050 SL01 | TAL Total Inorganics |
| | 1A-S052 EL01 | TAL Total Inorganics |
| | 1A-S055 SL01 | TAL Total Inorganics |
| | 1A-S066 SL01 | TAL Total Inorganics |
| | 1A-S072 SL01 | TAL Total Inorganics |
| | 1A-S075 SL01 | TAL Total Inorganics |
| | 1A-S078 SL01 | TAL Total Inorganics |
| | 1A-S079 SL01 | TAL Total Inorganics |
| | 1A-S080 SL01 | TAL Total Inorganics |
| | 1A-S082 SL01 | TAL Total Inorganics |
| | 1A-S503 EL01 | TAL Total Inorganics |
| | EL01 | TCL Organics |
| 1B | 1B-S004 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 1B-S006 SL01 | TAL Total Inorganics |
| | 1B-S500 EL01 | TAL Total Inorganics |

Table 3.10-2
Summary of Surface Soil Samples
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024326

| Area Designation | Location and Sample Number | Analysis |
|---|---|---|
| 1B | 1B-S500 EL01 | TCL Organics |
| | 1B-S501 EL01 | TAL Total Inorganics |
| | 1B-S502 EL01 | TAL Total Inorganics |
| | 1B-S503 EL01 | TAL Total Inorganics |
| 1F | 1F-S500 EL01 | TAL Total Inorganics |
| | EL01 | TCL Organics |
| | 1F-S501 EL01 | TAL Total Inorganics |
| | 1F-S502 EL01 | TAL Total Inorganics |
| | 1F-S503 EL01 | TAL Total Inorganics |

Table 3.10-3
Summary of Surface Soil Samples
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024327

| Area Designation | Location and Sample Number | Analysis |
|---|---|---|
| 3B | 3B-S003 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 3B-S008 SL01 | TAL Total Inorganics |
| | 3B-S010 SL01 | TAL Total Inorganics |
| | 3B-S016 SL01 | TAL Total Inorganics |
| | 3B-S021 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 3B-S039 SL01 | TAL Total Inorganics |
| | 3B-S041 SL01 | TAL Total Inorganics |
| | 3B-S053 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 3B-S500 EL01 | TAL Total Inorganics |
| | 3B-S501 EL01 | TAL Total Inorganics |
| | 3B-S502 EL01 | TAL Total Inorganics |
| 3C | 3C-S010 SL01 | TAL Total Inorganics |
| | 3C-S020 SL01 | TAL Total Inorganics |
| | 3C-S027 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 3C-S030 SL01 | TAL Total Inorganics |
| | 3C-S038 SL01 | TAL Total Inorganics |
| | 3C-S040 SL01 | TAL Total Inorganics |
| | 3C-S050 SL01 | TAL Total Inorganics |
| | 3C-S060 SL01 | TAL Total Inorganics |
| | 3C-S070 SL01 | TAL Total Inorganics |
| | 3C-S079 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |

Table 3.10-3
Summary of Surface Soil Samples
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024328

| Area Designation | Location and Sample Number | Analysis |
|---|---|---|
| 3C | 3C-S079 SL01 | Total Organic Carbon |
| | 3C-S084 SL01 | TAL Total Inorganics |
| | 3C-S086 SL01 | TAL Total Inorganics |
| | 3C-S090 SL01 | TAL Total Inorganics |
| | 3C-S092 SL01 | TAL Total Inorganics |
| | 3C-S100 SL01 | TAL Total Inorganics |
| | 3C-S109 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 3C-S113 SL01 | TAL Total Inorganics |
| | 3C-S500 EL01 | TAL Total Inorganics |
| | EL01 | TCL Organics |
| | 3C-S501 EL01 | TAL Total Inorganics |
| | 3C-S502 EL01 | TAL Total Inorganics |
| | 3C-S503 EL01 | TAL Total Inorganics |
| 3D | 3D-S004 SL01 | TAL Total Inorganics |
| | 3D-S009 SL01 | TAL Total Inorganics |
| | 3D-S017 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 3D-S028 SL01 | TAL Total Inorganics |
| | 3D-S029 SL01 | TAL Total Inorganics |
| | 3D-S032 SL01 | TAL Total Inorganics |
| | 3D-S036 SL01 | TAL Total Inorganics |
| | 3D-S039 SL01 | TAL Total Inorganics |
| | 3D-S050 SL01 | TAL Total Inorganics |
| | 3D-S056 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |

Table 3.10-3
Summary of Surface Soil Samples
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024329

| Area Designation | Location and Sample Number | Analysis |
|---|---|---|
| 3D | 3D-S060 SL01 | TAL Total Inorganics |
| | 3D-S067 SL01 | TAL Total Inorganics |
| | 3D-S070 SL01 | TAL Total Inorganics |
| | 3D-S073 SL01 | TAL Total Inorganics |
| | 3D-S080 SL01 | TAL Total Inorganics |
| | 3D-S087 SL01 | TAL Total Inorganics |
| | 3D-S090 SL01 | TAL Total Inorganics |
| | 3D-S092 SL01 | TAL Total Inorganics |
| | 3D-S094 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 3D-S106 SL01 | TAL Total Inorganics |
| | 3D-S117 SL01 | TAL Total Inorganics |
| | 3D-S500 EL01 | TAL Total Inorganics |
| | EL01 | TCL Organics |
| | 3D-S501 EL01 | TAL Total Inorganics |
| | 3D-S502 EL01 | TAL Total Inorganics |
| | 3D-S503 EL01 | TAL Total Inorganics |
| 3J | 3J-S500 EL01 | TAL Total Inorganics |
| | EL01 | TCL Organics |
| | 3J-S501 EL01 | TAL Total Inorganics |
| | 3J-S502 EL01 | TAL Total Inorganics |
| 3K | 3K-S002 SL01 | TAL Total Inorganics |
| | 3K-S005 SL01 | TAL Total Inorganics |
| | 3K-S014 SL01 | TAL Total Inorganics |
| | 3K-S015 SL01 | TAL Total Inorganics |

**Table 3.10-4**
**Summary of Surface Soil Samples**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024330

| Area Designation | Location and Sample Number | Analysis |
|---|---|---|
| 4A | 4A-S004 SL01 | TAL Total Inorganics |
| | 4A-S010 SL01 | TAL Total Inorganics |
| | 4A-S020 SL01 | TAL Total Inorganics |
| | 4A-S030 SL01 | TAL Total Inorganics |
| | 4A-S037 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 4A-S040 SL01 | TAL Total Inorganics |
| | 4A-S041 EL01 | TAL Total Inorganics |
| | 4A-S047 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 4A-S050 SL01 | TAL Total Inorganics |
| | 4A-S055 EL01 | TAL Total Inorganics |
| | 4A-S060 SL01 | TAL Total Inorganics |
| | 4A-S065 EL01 | TAL Total Inorganics |
| | 4A-S070 SL01 | TAL Total Inorganics |
| | 4A-S077 SL01 | TAL Total Inorganics |
| | 4A-S080 SL01 | TAL Total Inorganics |
| | 4A-S090 SL01 | TAL Total Inorganics |
| 4B | 4B-S002 SL01 | TAL Total Inorganics |
| | 4B-S003 SL01 | TAL Total Inorganics |
| | 4B-S008 SL01 | TAL Total Inorganics |
| | 4B-S009 SL01 | TAL Total Inorganics |
| | 4B-S013 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 4B-S017 EL01 | TAL Total Inorganics |

Table 3.10-4
Summary of Surface Soil Samples
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024331

| Area Designation | Location and Sample Number | Analysis |
|---|---|---|
| 4B | 4B-S020 SL01 | TAL Total Inorganics |
| | 4B-S025 EL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 4B-S027 SL01 | TAL Total Inorganics |
| | 4B-S030 SL01 | TAL Total Inorganics |
| | 4B-S039 SL01 | TAL Total Inorganics |
| | 4B-S040 SL01 | TAL Total Inorganics |
| 4C | 4C-S005 SL01 | TAL Total Inorganics |
| | 4C-S007 SL01 | TAL Total Inorganics |
| | 4C-S010 SL01 | TAL Total Inorganics |
| | 4C-S016 SL01 | TAL Total Inorganics |
| | 4C-S020 SL02 | TAL Total Inorganics |
| | 4C-S021 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 4C-S026 EL01 | TAL Total Inorganics |
| | 4C-S027 SL01 | TAL Total Inorganics |
| | 4C-S028 SL01 | TAL Total Inorganics |
| | 4C-S030 SL01 | TAL Total Inorganics |
| | 4C-S036 SL01 | TAL Total Inorganics |
| | 4C-S040 SL01 | TAL Total Inorganics |
| | 4C-S042 SL01 | TAL Total Inorganics |
| | 4C-S048 EL01 | TAL Total Inorganics |
| | 4C-S050 SL01 | TAL Total Inorganics |
| | 4C-S052 SL01 | TAL Total Inorganics |
| | 4C-S057 SL01 | TAL Total Inorganics |

Table 3.10-4
Summary of Surface Soil Samples
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024332

| Area Designation | Location and Sample Number | Analysis |
|---|---|---|
| 4C | 4C-S059 SL01 | TAL Total Inorganics |
| | 4C-S060 SL01 | TAL Total Inorganics |
| | 4C-S061 SL01 | TAL Total Inorganics |
| | 4C-S065 SL01 | TAL Total Inorganics |
| | 4C-S070 SL01 | TAL Total Inorganics |
| | 4C-S074 SL01 | TAL Total Inorganics |
| | 4C-S075 SL01 | TAL Total Inorganics |
| | 4C-S076 SL01 | TAL Total Inorganics |
| | 4C-S077 EL01 | TCL Organics |
| | SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 4C-S078 SL01 | TAL Total Inorganics |
| | 4C-S079 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | 4C-S080 SL01 | TAL Total Inorganics |
| | 4C-S081 SL01 | TAL Total Inorganics |
| | 4C-S086 SL01 | TAL Total Inorganics |
| | 4C-S087 SL01 | TAL Total Inorganics |
| | 4C-S090 SL01 | TAL Total Inorganics |
| | 4C-S093 SL01 | TAL Total Inorganics |
| | 4C-S099 SL01 | TAL Total Inorganics |
| | 4C-S104 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 4C-S105 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 4C-S110 SL01 | TAL Total Inorganics |
| | 4C-S112 SL01 | TAL Total Inorganics |

Table 3.10-4
Summary of Surface Soil Samples
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024333

| Area Designation | Location and Sample Number | Analysis |
|---|---|---|
| 4C | 4C-S120 SL01 | TAL Total Inorganics |
| 4D | 4D-S017 SL01 | TAL Total Inorganics |
| | 4D-S027 SL01 | TAL Total Inorganics |
| | 4D-S030 SL01 | TAL Total Inorganics |
| | 4D-S045 SL01 | TAL Total Inorganics |
| | 4D-S051 SL01 | TAL Total Inorganics |
| | 4D-S056 SL01 | TAL Total Inorganics |
| | 4D-S059 SL01 | TAL Total Inorganics |
| | 4D-S066 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 4D-S073 SL01 | TAL Total Inorganics |
| | SL01 | TCLP Organics and Inorganics |
| | SL01 | Total Organic Carbon |
| | 4D-S075 SL01 | TAL Total Inorganics |
| 4H | 4H-S500 EL01 | TAL Total Inorganics |
| | EL01 | TCL Organics |
| | 4H-S501 EL01 | TAL Total Inorganics |
| | 4H-S502 EL01 | TAL Total Inorganics |

Table 3.10-5
Description of Subsurface Borings
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024334

| Location Number | Boring Depth ('bgs) | Direct Push Depth ('bgs) | Well Installed (Y/N) | Description |
|---|---|---|---|---|
| 1A-S001 | | 6.0 | N | southeast corner of Area 1A, XRF grid node #1 |
| 1A-S020 | | 3.0 | N | near southwest corner of Area 1A, XRF grid node #20 |
| 1A-S022 | 26.0 | | Y | near southwest corner of Area 1A, XRF grid node #22 |
| 1A-S052 | | 3.0 | N | close to the tire pile near center of Area 1A, XRF grid node #52 |
| 1A-S083 | 26.5 | 24.0 | Y | close to the tire pile near center of Area 1A, between XRF grid nodes #54 and #55 |
| 1F-S001 | | 1.0 | N | southwest corner of Area 1F, in front of sign company office |
| 1F-S002 | | 5.0 | N | southeast portion of Area 1F, north end of trailer park |
| 1F-S003 | 29.0 | 2.0 | N | Area 1F, just north of Area 1A, between the two sheds |
| 1F-S004 | | 1.0 | N | Area 1F, just north of Area 1A, north of the two sheds |
| 1F-S005 | | 1.7 | N | Area 1F, north of Area 1A, between the sheds and the house |
| 1F-S006 | | 2.0 | N | Area 1F, north of Area 1A, between the sheds and the house |
| 1F-S007 | | 2.0 | N | southeast portion of Area 1F, north end of trailer park |
| 1F-S008 | | 3.5 | N | southeast portion of Area 1F, north end of trailer park |
| 1F-S009 | 32.5 | | N | southeast portion of Area 1F, south end of the trailer park |
| 1F-S010 | 29.0 | | N | west portion of Area 1F, in open field behind sign company property |

**Table 3.10-6**
**Summary of Subsurface Soil Samples**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024335

| *Area Desig-nation* | *Location and Sample Number* | | *Type* | *Sample Depth ('bgs)* | *Analysis* |
|---|---|---|---|---|---|
| 1A | 1A-S001 | UX01 | Direct Push | 0.0- 1.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 1.0- 2.0 | X-Ray Florescence |
| | 1A-S020 | UX01 | Direct Push | 0.0- 1.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 1.0- 2.0 | X-Ray Florescence |
| | 1A-S022 | UL01 | Auger Boring | 11.0-12.5 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 11.0-12.5 | TCL Organics |
| | | UX01 | Auger Boring | 0.0- 2.0 | X-Ray Florescence |
| | 1A-S052 | UL01 | Direct Push | 0.0- 0.5 | TAL Total Inorganics |
| | | UX01 | Direct Push | 0.0- 0.5 | X-Ray Florescence |
| | | UX02 | Direct Push | 0.5- 1.5 | X-Ray Florescence |
| | 1A-S083 | UL01 | Direct Push | 0.0- 2.0 | TAL Total Inorganics |
| | | UX01 | Direct Push | 0.0- 2.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 2.0- 3.0 | X-Ray Florescence |
| | | UX03 | Direct Push | 21.0-22.0 | X-Ray Florescence |
| | | UL02 | Auger Boring | 20.0-22.0 | TAL Total Inorganics |
| | | UL02 | Auger Boring | 20.0-22.0 | TCL Organics |
| 1F | 1F-S002 | UX01 | Direct Push | 0.0- 2.0 | X-Ray Florescence |
| | 1F-S003 | UL01 | Direct Push | 0.0- 2.0 | TCLP Organics and Inorganics |
| | | UL01 | Direct Push | 0.0- 2.0 | Total Organic Carbon |
| | | UL01 | Direct Push | 0.0- 2.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL01 | Direct Push | 0.0- 2.0 | pH, Sulfate, and Cation Exchange Capacity |
| | | UX01 | Direct Push | 0.0- 0.5 | X-Ray Florescence |
| | | UX02 | Direct Push | 0.5- 1.5 | X-Ray Florescence |
| | 1F-S004 | UX01 | Direct Push | 0.0- 1.0 | X-Ray Florescence |
| | 1F-S005 | UX01 | Direct Push | 0.0- 1.0 | X-Ray Florescence |
| | 1F-S006 | UX01 | Direct Push | 0.0- 1.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 1.0- 2.0 | X-Ray Florescence |
| | 1F-S007 | UX01 | Direct Push | 0.0- 1.0 | X-Ray Florescence |
| | 1F-S008 | UX01 | Direct Push | 0.0- 1.0 | X-Ray Florescence |
| | 1F-S009 | UX01 | Auger Boring | 0.0- 2.0 | X-Ray Florescence |
| | 1F-S010 | UL01 | Auger Boring | 0.0- 2.0 | TAL Total Inorganics |
| | | UX01 | Auger Boring | 0.0- 2.0 | X-Ray Florescence |

**Table 3.10-7**
**Description of Subsurface Borings**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024336

| *Location Number* | *Boring Depth ('bgs)* | *Direct Push Depth ('bgs)* | *Well Installed (Y/N)* | *Description* |
|---|---|---|---|---|
| 3A-S001 | 72.0 | 15.0 | Y | northernmost portion of Area 3A, outside fence surrounding auto salvage yard |
| 3A-S002 | | 20.0 | N | northeast corner of Area 3A, outside fence surrounding auto salvage yard |
| 3A-S003 | | 20.0 | N | near center of east side of Area 3A, outside fence surrounding auto salvage yard |
| 3A-S004 | 16.0 | | Y | northernmost point of Area 3A, outside fence surrounding auto salvage yard |
| 3A-S005 | 18.5 | | Y | center of west side of property east of auto salvage yard |
| 3A-S006 | 32.0 | | Y | northeast corner of property east of auto salvage yard |
| 3B-S003 | 57.0 | 21.0 | Y | southwest corner of Area 3B, downslope from top of landfill, XRF grid node #3 |
| 3B-S009 | 35.0 | | Y | near center of west side of Area 3B, XRF grid node #9 |
| 3B-S024 | | 12.0 | N | west of center of north side of Area 3B, XRF grid node #24 |
| 3B-S041 | 72.5 | 28.0 | Y | east of center of south side of Area 3B, XRF grid node #41 |
| 3B-S047 | 46.0 | 26.0 | N | east of center of north side of Area 3B, XRF grid node #47 |
| 3B-S055 | | 4.0 | N | east side of road that parallels the eastern edge of Area 3B |
| 3B-S056 | 17.0 | | Y | west side of road that parallels the eastern edge of Area 3B |
| 3B-S057 | 53.0 | | N | east side of road that parallels the eastern edge of Area 3B |
| 3C-S006 | 13.0 | 9.0 | Y | near center of west side of Area 3C, XRF grid node #6 |
| 3C-S053 | | 20.0 | N | near center of north side of Area 3C, XRF grid node #53 |

**Table 3.10-7**
**Description of Subsurface Borings**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024337

| *Location Number* | *Boring Depth ('bgs)* | *Direct Push Depth ('bgs)* | *Well Installed (Y/N)* | *Description* |
|---|---|---|---|---|
| 3C-S084 | 47.0 | 27.0 | Y | east of center of south side of Area 3C, XRF grid node #84 |
| 3C-S116 | 40.5 | 12.0 | Y | near northeast corner of Area 3C, between XRF grid nodes #112 and #113 |
| 3C-S117 | 60.5 | | Y | near center of west side of Area 3C, XRF grid node #6 |
| 3D-S073 | 62.0 | 31.5 | Y | south side of Area 3D, on landfill edge just inside treeline, XRF grid node #73 |
| 3D-S107 | 32.0 | | Y | near northeast corner of Area 3D, XRF grid node #107 |
| 3D-S125 | | 12.0 | N | south of landfill on Area 3D, just off Davis Street, XRF grid node #125 |
| 3D-S126 | 16.0 | | Y | near surface seep north of west-central side of Area 3D |
| 3D-S127 | 29.0 | | Y | south of west-central side of Area 3D |
| 3J-S001 | 57.0 | 15.0 | Y | north of convenience store parking lot (located on Davis Street, just west of Loop 12) |
| 3K-S002 | 47.0 | 16.0 | N | southwest portion of Area 3K, XRF grid node #2 |
| 3K-S016 | 56.0 | | Y | south side of road leading up onto landfill (Area 3C), between Area 3C and XRF grid for Area 3K |

Table 3.10-8
Summary of Subsurface Soil Samples
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024338

| Area Designation | Location and Sample Number | | Type | Sample Depth ('bgs) | Analysis |
|---|---|---|---|---|---|
| 3A | 3A-S001 | UL01 | Direct Push | 6.0- 7.0 | Field Volatiles and TRPH |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UL02 | Auger Boring | 66.0-67.0 | TAL Total Inorganics |
| | | UL02 | Auger Boring | 66.0-67.0 | TCL Organics |
| | | UX02 | Auger Boring | 66.0-67.0 | X-Ray Florescence |
| | 3A-S004 | UX01 | Auger Boring | 10.0-12.0 | X-Ray Florescence |
| | 3A-S005 | UL01 | Auger Boring | 6.0- 8.0 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 6.0- 8.0 | TCL Organics |
| | | UX01 | Auger Boring | 0.5- 2.0 | X-Ray Florescence |
| | | UX02 | Auger Boring | 6.0- 8.0 | X-Ray Florescence |
| | 3A-S006 | UL01 | Auger Boring | 13.0-16.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL01 | Auger Boring | 13.0-16.0 | pH, Sulfate, and Cation Exchange Capacity |
| | | UL02 | Auger Boring | 26.0-28.0 | TAL Total Inorganics |
| | | UL02 | Auger Boring | 26.0-28.0 | TCL Organics |
| | | UL03 | Auger Boring | 29.0-32.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL03 | Auger Boring | 29.0-32.0 | pH, Sulfate, and Cation Exchange Capacity |
| | | UX01 | Auger Boring | 0.7- 2.0 | X-Ray Florescence |
| | | UX02 | Auger Boring | 26.0-28.0 | X-Ray Florescence |
| 3B | 3B-S003 | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UL01 | Auger Boring | 19.0-20.0 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 19.0-20.0 | TCL Organics |
| | | UL02 | Auger Boring | 27.0-35.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL02 | Auger Boring | 27.0-35.0 | pH, Sulfate, and Cation Exchange Capacity |
| | | UL03 | Auger Boring | 39.0-41.0 | TAL Total Inorganics |
| | | UL03 | Auger Boring | 39.0-41.0 | TCL Organics |
| | | UL03 | Auger Boring | 39.0-41.0 | TCLP Organics and Inorganics |
| | | UL03 | Auger Boring | 39.0-41.0 | Total Organic Carbon |
| | 3B-S009 | UL01 | Auger Boring | 3.0- 6.0 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 3.0- 6.0 | TCL Organics |
| | | UL03 | Auger Boring | 6.0- 8.0 | TCLP Organics and Inorganics |
| | | UX01 | Auger Boring | 0.0- 2.0 | X-Ray Florescence |
| | | UX02 | Auger Boring | 4.0- 6.0 | X-Ray Florescence |
| | 3B-S024 | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | 3B-S041 | UX01 | Direct Push | 3.0- 6.0 | X-Ray Florescence |
| | | UL01 | Auger Boring | 68.0-71.0 | Bulk Density, Particle Size, and Moisture Content |

**Table 3.10-8**
**Summary of Subsurface Soil Samples**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024339

| *Area Designation* | *Location and Sample Number* | | *Type* | *Sample Depth ('bgs)* | *Analysis* |
|---|---|---|---|---|---|
| 3B | 3B-S041 | UL01 | Auger Boring | 68.0-71.0 | Sulfate, and Cation Exchange Capacity |
| | | UL02 | Auger Boring | 45.0-47.0 | TAL Total Inorganics |
| | | UL02 | Auger Boring | 45.0-47.0 | TCL Organics |
| | | UL03 | Auger Boring | 49.0-52.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL03 | Auger Boring | 49.0-52.0 | pH, Sulfate, and Cation Exchange Capacity |
| | 3B-S047 | UX01 | Direct Push | 3.0- 6.0 | X-Ray Florescence |
| | | UL01 | Auger Boring | 0.0- 2.0 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 0.0- 2.0 | TCL Organics |
| | 3B-S055 | UX01 | Direct Push | 0.0- 1.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 1.0- 2.0 | X-Ray Florescence |
| | 3B-S056 | UL01 | Auger Boring | 0.0- 2.0 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 0.0- 2.0 | TCL Organics |
| | | UX01 | Auger Boring | 0.0- 2.0 | X-Ray Florescence |
| | 3B-S057 | UL01 | Auger Boring | 0.0- 2.0 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 0.0- 2.0 | TCL Organics |
| | | UX02 | Auger Boring | 0.0- 2.0 | X-Ray Florescence |
| 3C | 3C-S006 | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 7.0- 8.0 | X-Ray Florescence |
| | | UL01 | Auger Boring | 7.0- 8.0 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 7.0- 8.0 | TCL Organics |
| | 3C-S053 | UL01 | Direct Push | 17.0-18.0 | TAL Total Inorganics |
| | | UL01 | Direct Push | 17.0-18.0 | TCL Organics |
| | | UL01 | Direct Push | 17.0-18.0 | Field Volatiles and TRPH |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 17.0-18.0 | X-Ray Florescence |
| | 3C-S084 | UL01 | Direct Push | 0.0- 3.0 | TAL Total Inorganics |
| | | UL02 | Direct Push | 9.0-12.0 | TCLP Volatiles |
| | | UL02 | Direct Push | 9.0-12.0 | TCLP Semi-volatiles, Pesticides, and Inorganics |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UL03 | Auger Boring | 29.0-30.0 | TAL Total Inorganics |
| | | UL03 | Auger Boring | 29.0-30.0 | TCL Organics |
| | | UL04 | Auger Boring | 38.0-41.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL04 | Auger Boring | 38.0-41.0 | pH, Sulfate, and Cation Exchange Capacity |
| | 3C-S116 | UL01 | Direct Push | 6.0- 9.0 | TAL Total Inorganics |
| | | UL01 | Direct Push | 6.0- 9.0 | Field Volatiles and TRPH |

Table 3.10-8
Summary of Subsurface Soil Samples
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024340

| Area Designation | Location and Sample Number | | Type | Sample Depth ('bgs) | Analysis |
|---|---|---|---|---|---|
| 3C | 3C-S116 | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 6.0- 9.0 | X-Ray Florescence |
| | | UL01 | Auger Boring | 7.0- 9.0 | TCL Organics |
| | 3C-S117 | UL02 | Auger Boring | 25.0-30.5 | Bulk Density, Particle Size, and Moisture Content |
| | | UL02 | Auger Boring | 25.0-30.5 | pH, Sulfate, and Cation Exchange Capacity |
| | | UL03 | Auger Boring | 52.0-56.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL03 | Auger Boring | 52.0-56.0 | pH, Sulfate, and Cation Exchange Capacity |
| | | UL04 | Auger Boring | 50.0-52.0 | TAL Total Inorganics |
| | | UX01 | Auger Boring | 52.0-54.0 | X-Ray Florescence |
| 3D | 3D-S073 | UL01 | Direct Push | 0.0- 3.0 | TCLP Organics and Inorganics |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UL02 | Auger Boring | 58.0-60.0 | TAL Total Inorganics |
| | | UL02 | Auger Boring | 58.0-60.0 | TCL Organics |
| | | UX02 | Auger Boring | 58.0-59.0 | X-Ray Florescence |
| | 3D-S107 | UL01 | Auger Boring | 0.0- 0.5 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 0.0- 0.5 | TCL Organics |
| | | UL02 | Auger Boring | 0.6- 1.2 | TCLP Organics and Inorganics |
| | | UL02 | Auger Boring | 0.6- 1.2 | Total Organic Carbon |
| | | UX01 | Auger Boring | 0.0- 0.5 | X-Ray Florescence |
| | 3D-S125 | UL01 | Direct Push | 0.2- 1.0 | TCLP Organics and Inorganics |
| | | UX01 | Direct Push | 0.0- 1.0 | X-Ray Florescence |
| | 3D-S126 | UL01 | Auger Boring | 0.0- 2.0 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 0.0- 2.0 | TCL Organics |
| | | UX01 | Auger Boring | 0.0- 2.0 | X-Ray Florescence |
| | 3D-S127 | UL01 | Auger Boring | 14.0-16.0 | TCLP Organics and Inorganics |
| | | UL01 | Auger Boring | 14.0-16.0 | Total Organic Carbon |
| | | UL02 | Auger Boring | 1.0- 1.5 | TCLP Organics and Inorganics |
| | | UL03 | Auger Boring | 23.0-26.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL03 | Auger Boring | 23.0-26.0 | pH, Sulfate, and Cation Exchange Capacity |
| | | UL04 | Auger Boring | 51.0-54.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL04 | Auger Boring | 51.0-54.0 | pH, Sulfate, and Cation Exchange Capacity |
| | | UL05 | Auger Boring | 50.0-51.0 | TAL Total Inorganics |
| | | UL05 | Auger Boring | 50.0-51.0 | TCL Organics |
| | | UX01 | Auger Boring | 0.0- 1.0 | X-Ray Florescence |
| | | UX02 | Auger Boring | 1.0- 1.5 | X-Ray Florescence |

**Table 3.10-8**
**Summary of Subsurface Soil Samples**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024341

| *Area Desig-nation* | *Location and Sample Number* | *Type* | *Sample Depth ('bgs)* | *Analysis* |
|---|---|---|---|---|
| 3D | 3D-S127 UX03 | Auger Boring | 1.5- 2.5 | X-Ray Florescence |
| 3J | 3J-S001 UL01 | Direct Push | 0.0- 3.0 | TCLP Organics and Inorganics |
| | UL01 | Direct Push | 0.0- 3.0 | Total Organic Carbon |
| | UL01 | Direct Push | 0.0- 3.0 | Bulk Density, Particle Size, and Moisture Content |
| | UL01 | Direct Push | 0.0- 3.0 | pH, Sulfate, and Cation Exchange Capacity |
| | UL01 | Direct Push | 9.0-12.0 | Field Volatiles and TRPH |
| | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | UX02 | Direct Push | 9.0-12.0 | X-Ray Florescence |
| | UL02 | Auger Boring | 11.0-12.0 | TAL Total Inorganics |
| | UL02 | Auger Boring | 11.0-12.0 | TCL Organics |
| | UL03 | Auger Boring | 46.0-49.0 | Bulk Density, Particle Size, and Moisture Content |
| | UL03 | Auger Boring | 46.0-49.0 | pH, Sulfate, and Cation Exchange Capacity |
| | UL04 | Auger Boring | 51.0-53.0 | TAL Total Inorganics |
| | UL04 | Auger Boring | 51.0-53.0 | TCL Organics |
| | UX03 | Auger Boring | 51.0-53.0 | X-Ray Florescence |
| 3K | 3K-S002 UL01 | Direct Push | 0.0- 3.0 | TAL Total Inorganics |
| | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | UL02 | Auger Boring | 15.0-18.0 | Bulk Density, Particle Size, and Moisture Content |
| | UL02 | Auger Boring | 15.0-18.0 | pH, Sulfate, and Cation Exchange Capacity |
| | 3K-S016 UL01 | Auger Boring | 51.0-52.0 | TAL Total Inorganics |
| | UL01 | Auger Boring | 51.0-52.0 | TCL Organics |
| | UX01 | Auger Boring | 0.0- 2.0 | X-Ray Florescence |

Table 3.10-9
Description of Subsurface Borings
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024342

| Location Number | Boring Depth ('bgs) | Direct Push Depth ('bgs) | Well Installed (Y/N) | Description |
|---|---|---|---|---|
| 4A-S012 | 16.0 | 15.0 | Y | west-central side of Area 4A, XRF grid node #12 |
| 4A-S030 | 17.5 | 17.0 | Y | west-northwestern side of Area 4A, XRF grid node #30 |
| 4A-S047 | 17.5 | 17.0 | Y | south-central side of Area 4A, XRF grid node #47 |
| 4A-S060 | | 17.0 | N | near center of northeast side of Area 4A, XRF grid node #60 |
| 4A-S080 | 19.0 | | Y | south end of northeast side of Area 4A, XRF grid node #80 |
| 4A-S095 | | 17.0 | N | near center of east side of Area 4A, between XRF grid nodes #85 and #90 |
| 4B-S001 | 25.5 | | Y | northwest corner of Area 4B, XRF grid node #1 |
| 4B-S003 | | 21.0 | N | next to Claibourne Boulevard extension, near center of west side of Area 4B, XRF grid node #3 |
| 4B-S023 | 19.0 | | Y | near center of south side of Area 4B, XRF grid node #23 |
| 4B-S036 | | 18.0 | N | southeast corner of Area 4B, XRF grid node #36 |
| 4C-S009 | | 24.0 | N | near center of west side of Area 4C, XRF grid node #9 |
| 4C-S016 | | 27.0 | N | near center of west side of Area 4C, XRF grid node #16 |
| 4C-S021 | 19.0 | 26.0 | Y | west of center of southwest side of Area 4C, XRF grid node #21 |
| 4C-S057 | 26.5 | 24.0 | Y | east of center of north side of Area 4C, XRF grid node #57 |
| 4C-S093 | 24.0 | 9.0 | N | near southernmost point of Area 4C, XRF grid node #93 |
| 4C-S105 | | 24.0 | N | center of east side of Area 4C, XRF grid node #105 |

**Table 3.10-9**
**Description of Subsurface Borings**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

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| *Location Number* | *Boring Depth ('bgs)* | *Direct Push Depth ('bgs)* | *Well Installed (Y/N)* | *Description* |
|---|---|---|---|---|
| **4C-S110** | 24.0 | 22.5 | Y | west of entrance to the Site 4 fenced area, XRF grid node #110 |
| **4C-S113** | 14.0 | 11.0 | Y | southernmost point of Area 4C, downslope from top of landfill |
| **4C-S117** | 22.0 | | Y | near northwest corner of Area 4C, XRF grid node #117 |
| **4D-S009** | 20.0 | 18.0 | Y | west side of Area 4D, near park playground, XRF grid node #9 |
| **4D-S080** | | 7.0 | N | center of south side of Area 4D, south of open concrete drainage channel |
| **4D-S081** | | 20.0 | N | north side of recreation center on Area 4D |
| **4D-S082** | | 17.0 | N | near center of open field east of elementary school |
| **4D-S083** | 18.0 | | Y | northwest corner of open field east of elementary school |

Table 3.10-10
Summary of Subsurface Soil Samples
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

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| Area Designation | Location and Sample Number | | Type | Sample Depth ('bgs) | Analysis |
|---|---|---|---|---|---|
| 4A | 4A-S012 | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UL01 | Auger Boring | 8.0-10.0 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 8.0-10.0 | TCL Organics |
| | | UX02 | Auger Boring | 8.0-10.0 | X-Ray Florescence |
| | 4A-S030 | UL01 | Direct Push | 9.0-12.0 | TAL Total Inorganics |
| | | UL01 | Direct Push | 9.0-12.0 | TCL Organics |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 9.0-12.0 | X-Ray Florescence |
| | | UL04 | Auger Boring | 12.0-15.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL04 | Auger Boring | 12.0-15.0 | pH, Sulfate, and Cation Exchange Capacity |
| | 4A-S047 | UL01 | Direct Push | 6.0- 9.0 | TAL Total Inorganics |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 6.0- 9.0 | X-Ray Florescence |
| | | UL01 | Auger Boring | 7.0- 9.0 | TCL Organics |
| | 4A-S060 | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | 4A-S080 | UL01 | Auger Boring | 0.0- 2.0 | TAL Total Inorganics |
| | | UL02 | Auger Boring | 16.0-18.0 | TAL Total Inorganics |
| | | UL02 | Auger Boring | 16.0-18.0 | TCL Organics |
| | | UL03 | Auger Boring | 12.0-15.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL03 | Auger Boring | 12.0-15.0 | pH, Sulfate, and Cation Exchange Capacity |
| | | UX01 | Auger Boring | 0.0- 2.0 | X-Ray Florescence |
| | | UX02 | Auger Boring | 16.0-18.0 | X-Ray Florescence |
| | 4A-S095 | UL01 | Direct Push | 13.0-15.0 | TAL Total Inorganics |
| | | UL01 | Direct Push | 13.0-15.0 | TCL Organics |
| | | UX01 | Direct Push | 0.0- 1.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 1.0- 2.5 | X-Ray Florescence |
| | | UX03 | Direct Push | 13.0-15.0 | X-Ray Florescence |
| 4B | 4B-S001 | UL01 | Auger Boring | 2.0- 3.0 | TCLP Organics and Inorganics |
| | | UL02 | Auger Boring | 8.0-12.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL02 | Auger Boring | 8.0-12.0 | pH, Sulfate, and Cation Exchange Capacity |
| | | UL03 | Auger Boring | 12.0-14.0 | TAL Total Inorganics |
| | | UL04 | Auger Boring | 3.0- 5.0 | TAL Total Inorganics |
| | | UX01 | Auger Boring | 0.0- 2.0 | X-Ray Florescence |
| | 4B-S003 | UL01 | Direct Push | 0.0- 3.0 | TCLP Organics and Inorganics |
| | | UL03 | Direct Push | 3.0- 5.0 | TAL Total Inorganics |
| | | UL04 | Direct Push | 11.0-12.0 | TAL Total Inorganics |

**Table 3.10-10**
**Summary of Subsurface Soil Samples**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

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| Area Desig-nation | Location and Sample Number | | Type | Sample Depth ('bgs) | Analysis |
|---|---|---|---|---|---|
| 4B | 4B-S003 | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 11.0-12.0 | X-Ray Florescence |
| | 4B-S023 | UL01 | Auger Boring | 9.0-12.0 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 9.0-12.0 | TCL Organics |
| | | UL03 | Auger Boring | 0.0- 2.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL03 | Auger Boring | 0.0- 2.0 | pH, Sulfate, and Cation Exchange Capacity |
| | | UX01 | Auger Boring | 0.0- 2.0 | X-Ray Florescence |
| | | UX02 | Auger Boring | 9.0-10.0 | X-Ray Florescence |
| | 4B-S036 | UL01 | Direct Push | 9.0-10.0 | TAL Total Inorganics |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 9.0-10.0 | X-Ray Florescence |
| 4C | 4C-S009 | UL01 | Direct Push | 22.0-23.0 | TAL Total Inorganics |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 22.0-23.0 | X-Ray Florescence |
| | 4C-S016 | UL01 | Direct Push | 0.0- 3.0 | TAL Total Inorganics |
| | | UL02 | Direct Push | 23.0-26.0 | TAL Total Inorganics |
| | | UL02 | Direct Push | 23.0-26.0 | TCL Organics |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | 4C-S021 | UL01 | Direct Push | 0.0- 1.0 | TAL Total Inorganics |
| | | UX01 | Direct Push | 0.0- 1.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 1.0- 2.0 | X-Ray Florescence |
| | | UX03 | Direct Push | 2.0- 3.0 | X-Ray Florescence |
| | | UL02 | Auger Boring | 12.0-14.0 | TAL Total Inorganics |
| | | UL02 | Auger Boring | 12.0-14.0 | TCL Organics |
| | | UX04 | Auger Boring | 12.0-14.0 | X-Ray Florescence |
| | 4C-S057 | UL01 | Direct Push | 0.0- 3.0 | TAL Total Inorganics |
| | | UL02 | Direct Push | 21.0-23.0 | TAL Total Inorganics |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 21.0-23.0 | X-Ray Florescence |
| | | UL03 | Auger Boring | 5.0- 7.0 | TCLP Organics and Inorganics |
| | | UL04 | Auger Boring | 15.0-17.0 | TAL Total Inorganics |
| | 4C-S093 | UL01 | Direct Push | 0.0- 1.0 | TAL Total Inorganics |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | 4C-S105 | UL01 | Direct Push | 0.0- 3.0 | TAL Total Inorganics |
| | | UL02 | Direct Push | 21.0-24.0 | TAL Total Inorganics |
| | | UL03 | Direct Push | 3.0- 5.0 | TAL Total Inorganics |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 21.0-24.0 | X-Ray Florescence |

Table 3.10-10
Summary of Subsurface Soil Samples
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

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| Area Designation | Location and Sample Number | | Type | Sample Depth ('bgs) | Analysis |
|---|---|---|---|---|---|
| 4C | 4C-S110 | UL01 | Direct Push | 0.0- 3.0 | TAL Total Inorganics |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 15.0-18.0 | X-Ray Florescence |
| | | UL02 | Auger Boring | 15.0-16.0 | TAL Total Inorganics |
| | | UL02 | Auger Boring | 15.0-16.0 | TCL Organics |
| | 4C-S113 | UL01 | Direct Push | 0.0- 3.0 | TCLP Organics and Inorganics |
| | | UL01 | Direct Push | 0.0- 3.0 | Total Organic Carbon |
| | | UL01 | Direct Push | 0.0- 3.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL01 | Direct Push | 0.0- 3.0 | pH, Sulfate, and Cation Exchange Capacity |
| | | UX01 | Direct Push | 0.0- 1.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 1.0- 2.0 | X-Ray Florescence |
| | | UX03 | Direct Push | 9.0-10.0 | X-Ray Florescence |
| | | UL02 | Auger Boring | 8.0- 9.0 | TAL Total Inorganics |
| | | UL02 | Auger Boring | 8.0- 9.0 | TCL Organics |
| | | UL03 | Auger Boring | 10.5-12.5 | Bulk Density, Particle Size, and Moisture Content |
| | | UL03 | Auger Boring | 10.5-12.5 | pH, Sulfate, and Cation Exchange Capacity |
| | | UL04 | Auger Boring | 12.0-15.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL04 | Auger Boring | 12.0-15.0 | pH, Sulfate, and Cation Exchange Capacity |
| | | UL05 | Auger Boring | 10.0-13.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL05 | Auger Boring | 10.0-13.0 | pH, Sulfate, and Cation Exchange Capacity |
| | 4C-S117 | UL01 | Auger Boring | 15.0-16.0 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 15.0-16.0 | TCL Organics |
| | | UX01 | Auger Boring | 0.0- 2.0 | X-Ray Florescence |
| | | UX02 | Auger Boring | 15.0-16.0 | X-Ray Florescence |
| 4D | 4D-S009 | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | | UX02 | Direct Push | 12.0-15.0 | X-Ray Florescence |
| | | UL01 | Auger Boring | 13.0-14.0 | TAL Total Inorganics |
| | | UL01 | Auger Boring | 13.0-14.0 | TCL Organics |
| | | UL02 | Auger Boring | 17.5-20.0 | Bulk Density, Particle Size, and Moisture Content |
| | | UL02 | Auger Boring | 17.5-20.0 | pH, Sulfate, and Cation Exchange Capacity |
| | 4D-S080 | UL01 | Direct Push | 0.0- 3.0 | TAL Total Inorganics |
| | | UL01 | Direct Push | 0.0- 3.0 | TCL Organics |
| | | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | 4D-S081 | UL01 | Direct Push | 9.0-12.0 | TAL Total Inorganics |

Table 3.10-10
Summary of Subsurface Soil Samples
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

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| Area Designation | Location and Sample Number | Type | Sample Depth ('bgs) | Analysis |
|---|---|---|---|---|
| 4D | 4D-S081 UL01 | Direct Push | 9.0-12.0 | TCL Organics |
| | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | UX02 | Direct Push | 9.0-12.0 | X-Ray Florescence |
| | 4D-S082 UL01 | Direct Push | 9.0-12.0 | TAL Total Inorganics |
| | UL01 | Direct Push | 9.0-12.0 | TCL Organics |
| | UX01 | Direct Push | 0.0- 3.0 | X-Ray Florescence |
| | UX02 | Direct Push | 9.0-12.0 | X-Ray Florescence |

**Table 3.11-1**
**Description of Groundwater Monitoring Wells and Direct Push Locations**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

| *Location Number* | *Type* | *Total Depth ('bgs)* | *Screened Interval ('bgs)** | *Sample Interval ('bgs)*** | *Zone Tapped* | *Location Description* |
|---|---|---|---|---|---|---|
| | | | | | **SITE 1** | |
| 1A-S022 | Well | 26.0 | 15.0-25.0 | - | Weathered Chalk | near southwest corner of Area 1A, XRF grid node #22 |
| 1A-S083 | Well | 26.0 | 16.0-26.0 | - | Weathered Chalk | close to the tire pile near center of Area 1A, between XRF grid nodes #54 and #55 |
| | | | | | **SITE 3** | |
| 3A-S001 | Direct Push | 15.0 | - | 13-15 | Landfill Debris | northernmost portion of Area 3A, outside fence surrounding auto salvage yard |
| | Well | 72.0 | 62.0-72.0 | - | Native Alluvial | |
| 3A-S004 | Well | 16.0 | 6.0-16.0 | - | Landfill Debris | northernmost point of Area 3A, outside fence surrounding auto salvage yard |
| 3A-S005 | Well | 18.5 | 8.0-18.0 | - | Landfill Debris/Native Alluvial | center of west side of property east of auto salvage yard |
| 3A-S006 | Well | 30.5 | 20.5-30.5 | - | Native Alluvial | northeast corner of property east of auto salvage yard |
| 3B-S003 | Direct Push | 21.0 | - | 19-21 | Native Alluvial | southwest corner of Area 3B, downslope from top of land[illegible] |

** Screened Interval applies to monitoring wells only* *** Sample Interval applies to di[illegible]*

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Table 3.11-1
Description of Groundwater Monitoring Wells and Direct Push Locations
Operable Unit No. 3
RSR Corporation Superfund Site
Dallas, Texas

| *Location Number* | *Type* | *Total Depth ('bgs)* | *Screened Interval ('bgs)** | *Sample Interval ('bgs)*** | *Zone Tapped* | *Location Description* |
|---|---|---|---|---|---|---|
| 3B-S003 | Well | 28.0 | 18.0-28.0 | - | Native Alluvial | southwest corner of Area 3B, downslope from top of landfill, XRF grid node #3 |
| 3B-S009 | Well | 17.0 | 7.0-17.0 | - | Landfill Debris | near center of west side of Area 3B, XRF grid node #9 |
| 3B-S041 | Direct Push | 28.0 | - | 26-28 | Native Alluvial | east of center of south side of Area 3B, XRF grid node #41 |
| | Well | 55.0 | 45.0-55.0 | - | Native Alluvial | |
| 3B-S047 | Direct Push | 20.0 | - | 18-20 | Landfill Debris/Native Alluvial | east of center of north side of Area 3B, XRF grid node #47 |
| 3B-S056 | Well | 15.0 | 5.0-15.0 | - | Landfill Debris | west side of road that parallels the eastern edge of Area 3B |
| 3C-S006 | Direct Push | 9.0 | - | 7- 9 | Landfill Debris/Native Alluvial | near center of west side of Area 3C, XRF grid node #6 |
| | Well | 13.5 | 3.0-13.0 | - | Landfill Debris/Native Alluvial | |
| 3C-S053 | Direct Push | 20.0 | - | 18-20 | Native Alluvial | near center of north side of Area 3C, XRF grid node #53 |
| 3C-S084 | Direct Push | 27.0 | - | 15-27 | Landfill Debris/Native Alluvial | east of center of south side of Area 3C, XRF grid node #84 |
| | Well | 34.0 | 24.0-34.0 | - | Native Alluvial | |

** Screened Interval applies to monitoring wells only* *** Sample Interval applies to direc*

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**Table 3.11-1**
**Description of Groundwater Monitoring Wells and Direct Push Locations**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

| *Location Number* | *Type* | *Total Depth ('bgs)* | *Screened Interval ('bgs)** | *Sample Interval ('bgs)*** | *Zone Tapped* | *Location Description* |
|---|---|---|---|---|---|---|
| 3C-S116 | Direct Push | 12.0 | - | 10-12 | Landfill Debris/Native Alluvial | near northeast corner of Area 3C, between XRF grid nodes #112 and #113 |
| | Well | 40.5 | 30.0-40.0 | - | Landfill Debris/Native Alluvial | |
| 3C-S117 | Well | 60.0 | 50.0-60.0 | - | Native Alluvial | near center of west side of Area 3C, XRF grid node #6 |
| 3D-S073 | Well | 60.0 | 55.0-60.0 | - | Native Alluvial | south side of Area 3D, on landfill edge just inside treeline, XRF grid node #73 |
| 3D-S107 | Well | 15.0 | 5.0-15.0 | - | Landfill Debris | near northeast corner of Area 3D, XRF grid node #107 |
| 3D-S126 | Well | 15.0 | 5.0-15.0 | - | Landfill Debris/Native Alluvial | near surface seep north of west-central side of Area 3D |
| 3D-S127 | Well | 60.0 | 50.0-60.0 | - | Native Alluvial | south of west-central side of Area 3D |
| 3J-S001 | Direct Push | 15.0 | - | 13-15 | Native Alluvial | north of convenience store parking lot (located on Davis Street, just west of Loop 12) |
| | Well | 55.0 | 50.0-55.0 | - | Native Alluvial | |
| 3K-S016 | Well | 55.0 | 50.0-55.0 | - | Native Alluvial | south side of road leading up onto landfill (Area 3C), between Area 3C |

** Screened Interval applies to monitoring wells only* *** Sample Interval applies to dir*

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Table 3.11-1
Description of Groundwater Monitoring Wells and Direct Push Locations
Operable Unit No. 3
RSR Corporation Superfund Site
Dallas, Texas

| *Location Number* | *Type* | *Total Depth ('bgs)* | *Screened Interval ('bgs)** | *Sample Interval ('bgs)*** | *Zone Tapped* | *Location Description* |
|---|---|---|---|---|---|---|
| | | | | | | and XRF grid for Area 3K |
| | | | | | SITE 4 | |
| 4A-S012 | Well | 15.0 | 5.0-15.0 | - | Native Alluvial | west-central side of Area 4A, XRF grid node #12 |
| 4A-S030 | Well | 17.0 | 7.0-17.0 | - | Native Alluvial | west-northwestern side of Area 4A, XRF grid node #30 |
| 4A-S047 | Well | 17.0 | 7.0-17.0 | - | Landfill Debris/Native Alluvial | south-central side of Area 4A, XRF grid node #47 |
| 4A-S080 | Well | 19.0 | 9.0-19.0 | - | Landfill Debris/Native Alluvial | south end of northeast side of Area 4A, XRF grid node #80 |
| 4B-S001 | Well | 24.5 | 14.5-24.5 | - | Native Alluvial | northwest corner of Area 4B, XRF grid node #1 |
| 4B-S023 | Well | 17.0 | 7.0-17.0 | - | Native Alluvial | near center of south side of Area 4B, XRF grid node #23 |
| 4C-S021 | Well | 20.0 | 10.0-20.0 | - | Native Alluvial | west of center of southwest side of Area 4C, XRF grid node #21 |
| 4C-S057 | Well | 26.0 | 16.0-26.0 | - | Landfill Debris/Native Alluvial | east of center of north side of Area 4C, XRF grid node #57 |

** Screened Interval applies to monitoring wells only* *** Sample Interval applies to dire*

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**Table 3.11-1**
**Description of Groundwater Monitoring Wells and Direct Push Locations**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

| *Location Number* | *Type* | *Total Depth ('bgs)* | *Screened Interval ('bgs)** | *Sample Interval ('bgs)*** | *Zone Tapped* | *Location Description* |
|---|---|---|---|---|---|---|
| 4C-S110 | Well | 22.0 | 12.0-22.0 | - | Native Alluvial | west of entrance to the Site 4 fenced area, XRF grid node #110 |
| 4C-S113 | Well | 13.0 | 3.0-13.0 | - | Native Alluvial | southernmost point of Area 4C, downslope from top of landfill |
| 4C-S117 | Well | 21.5 | 11.5-21.5 | - | Landfill Debris/Native Alluvial | near northwest corner of Area 4C, XRF grid node #117 |
| 4D-S009 | Well | 17.5 | 8.0-18.0 | - | Landfill Debris/Native Alluvial | west side of Area 4D, near park playground, XRF grid node #9 |
| 4D-S083 | Well | 17.0 | 7.0-17.0 | - | Native Alluvial | northwest corner of open field east of elementary school |

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** Screened Interval applies to monitoring wells only* *** Sample Interval applies to direct push borings only*

**Table 3.11-2**
**Summary of Groundwater Samples**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024353

| *Area Desig-nation* | *Location and Sample Number* | | *Type* | *Analysis* |
|---|---|---|---|---|
| 1A | 1A-S022 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |
| | | GW01 | Monitoring Well | Total Suspended Solids |
| | | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | | GW01 | Monitoring Well | Oil and Grease |
| | | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 1A-S083 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |
| | | GW01 | Monitoring Well | Total Suspended Solids |
| | | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | | GW01 | Monitoring Well | Oil and Grease |
| | | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |

Table 3.11-3
Summary of Groundwater Samples
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024354

| Area Designation | Location and Sample Number | Type | Analysis |
|---|---|---|---|
| | WELLS SCREENED IN THE LANDFILL WATER-BEARING ZONE | | |
| 3A | 3A-S005 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| 3B | 3B-S009 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 3B-S056 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| 3C | 3C-S006 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 3C-S116 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |

**Table 3.11-3**
**Summary of Groundwater Samples**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024355

| Area Designation | Location and Sample Number | | Type | Analysis |
|---|---|---|---|---|
| 3D | 3D-S107 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |
| | | GW01 | Monitoring Well | Total Suspended Solids |
| | | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | | GW01 | Monitoring Well | Oil and Grease |
| | | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 3D-S126 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |
| | | GW01 | Monitoring Well | Total Suspended Solids |
| | | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | | GW01 | Monitoring Well | Oil and Grease |
| | | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| **WELLS SCREENED IN THE ALLUVIAL WATER-BEARING ZONE** | | | | |
| 3A | 3A-S001 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |
| | | GW01 | Monitoring Well | Total Suspended Solids |
| | | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | | GW01 | Monitoring Well | Oil and Grease |
| | | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 3A-S006 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |
| | | GW01 | Monitoring Well | Total Suspended Solids |
| | | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | | GW01 | Monitoring Well | Oil and Grease |
| | | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| 3B | 3B-S003 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |
| | | GW01 | Monitoring Well | Total Suspended Solids |
| | | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | | GW01 | Monitoring Well | Oil and Grease |
| | | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |

**Table 3.11-3**
**Summary of Groundwater Samples**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024356

| *Area Desig-nation* | *Location and Sample Number* | *Type* | *Analysis* |
|---|---|---|---|
| 3C | 3C-S117 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| 3D | 3D-S073 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Volatiles |
| | GW01 | Monitoring Well | TCL Semi-Volatiles and Pesticides |
| | 3D-S127 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| 3J | 3J-S001 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| 3K | 3K-S016 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |

Table 3.11-4
Summary of Groundwater Samples
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024357

| Area Designation | Location and Sample Number | | Type | Analysis |
|---|---|---|---|---|
| 4A | 4A-S012 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |
| | | GW01 | Monitoring Well | Total Suspended Solids |
| | | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | | GW01 | Monitoring Well | Oil and Grease |
| | | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 4A-S030 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |
| | | GW01 | Monitoring Well | Total Suspended Solids |
| | | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | | GW01 | Monitoring Well | Oil and Grease |
| | | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 4A-S047 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |
| | | GW01 | Monitoring Well | Total Suspended Solids |
| | | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | | GW01 | Monitoring Well | Oil and Grease |
| | | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 4A-S080 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |
| | | GW01 | Monitoring Well | Total Suspended Solids |
| | | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | | GW01 | Monitoring Well | Oil and Grease |
| | | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| 4B | 4B-S001 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |
| | | GW01 | Monitoring Well | Total Suspended Solids |
| | | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | | GW01 | Monitoring Well | Oil and Grease |
| | | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 4B-S023 | GW01 | Monitoring Well | TAL Total Inorganics |
| | | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | | GW01 | Monitoring Well | TCL Organics |
| | | GW01 | Monitoring Well | Total Dissolved Solids |

**Table 3.11-4**
**Summary of Groundwater Samples**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024358

| Area Designation | Location and Sample Number | Type | Analysis |
|---|---|---|---|
| 4B | 4B-S023 GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| 4C | 4C-S021 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 4C-S057 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 4C-S110 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 4C-S113 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 4C-S117 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |

**Table 3.11-4**
**Summary of Groundwater Samples**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024359

| *Area Desig-nation* | *Location and Sample Number* | *Type* | *Analysis* |
|---|---|---|---|
| 4D | 4D-S009 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |
| | 4D-S083 GW01 | Monitoring Well | TAL Total Inorganics |
| | GW01 | Monitoring Well | TAL Dissolved Inorganics |
| | GW01 | Monitoring Well | TCL Organics |
| | GW01 | Monitoring Well | Total Dissolved Solids |
| | GW01 | Monitoring Well | Total Suspended Solids |
| | GW01 | Monitoring Well | Cations, Anions, and Alkalinity |
| | GW01 | Monitoring Well | Oil and Grease |
| | GW01 | Monitoring Well | Sulfate, Nitrate, and Phosphate |

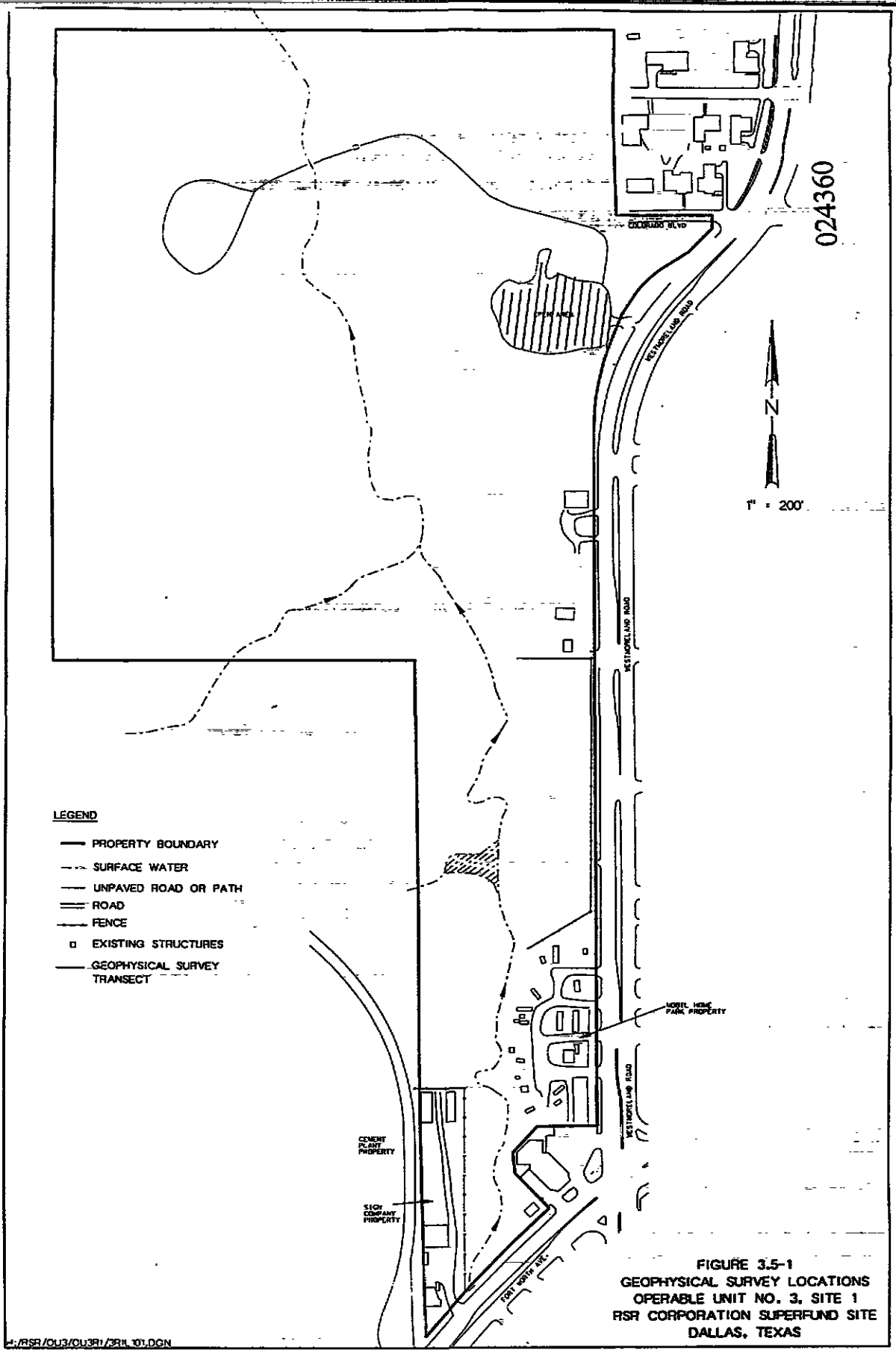


FIGURE 3.5-1
GEOPHYSICAL SURVEY LOCATIONS
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

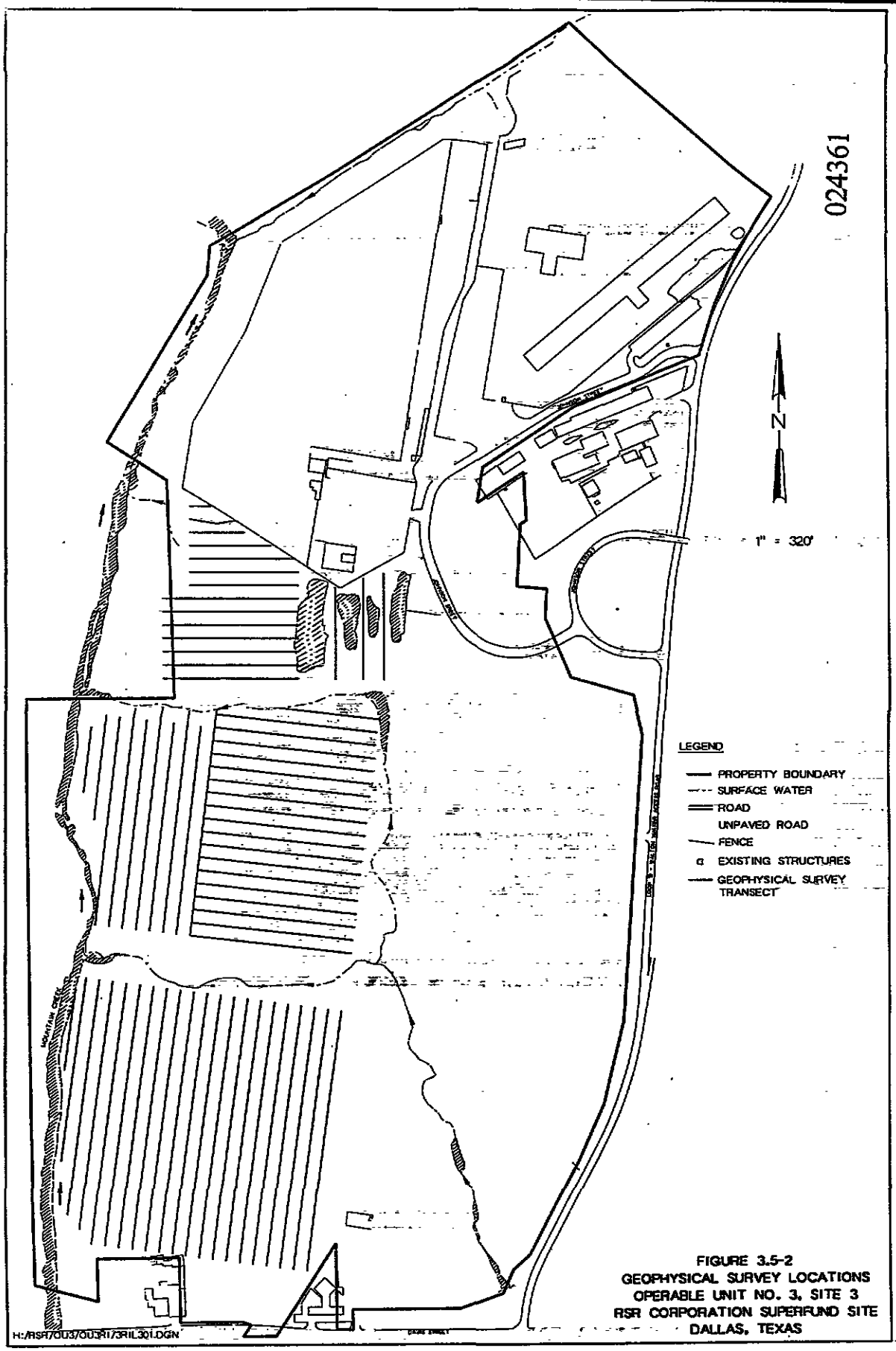


FIGURE 3.5-2
GEOPHYSICAL SURVEY LOCATIONS
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

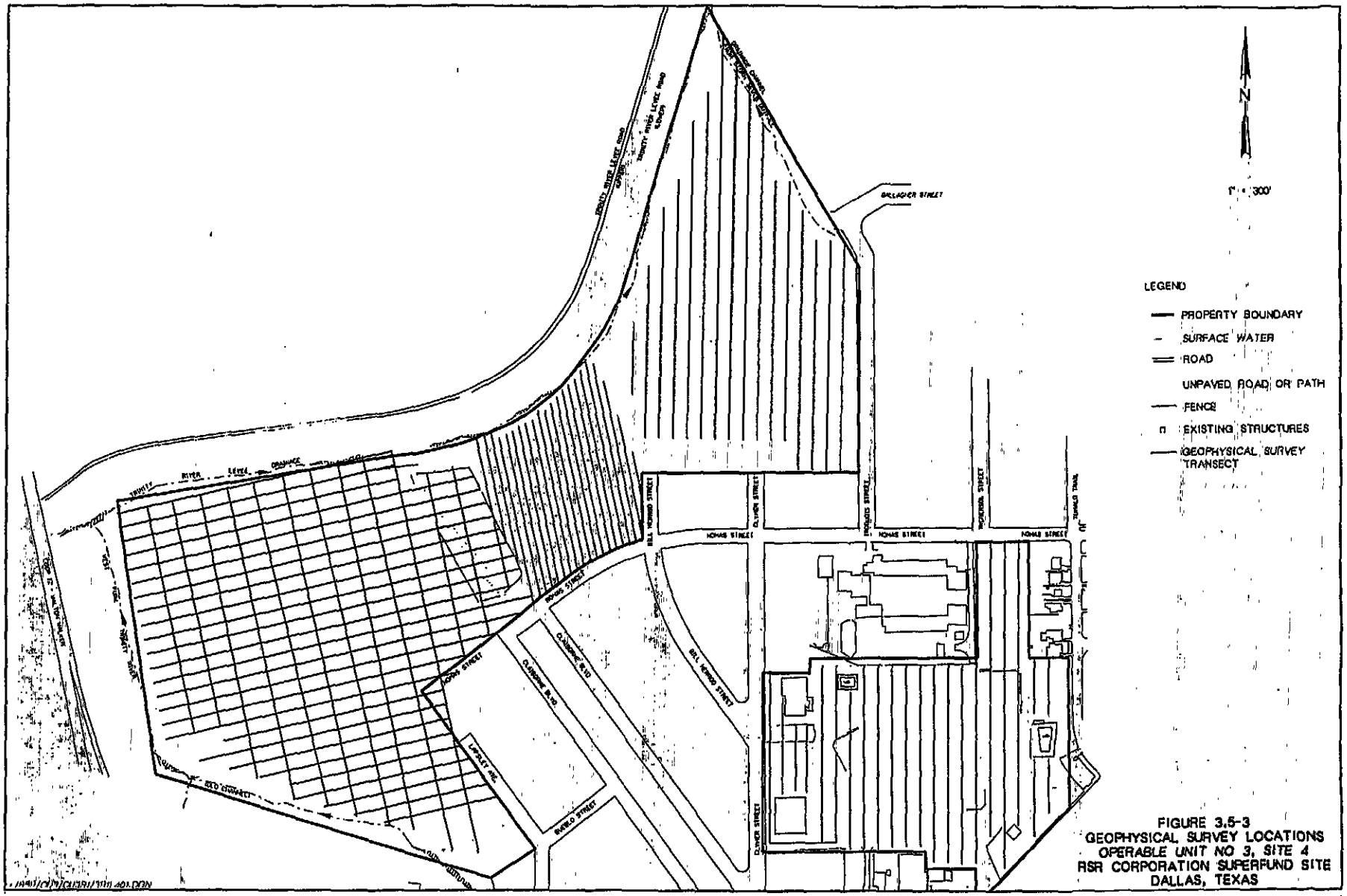


FIGURE 3.5-3
GEOPHYSICAL SURVEY LOCATIONS
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

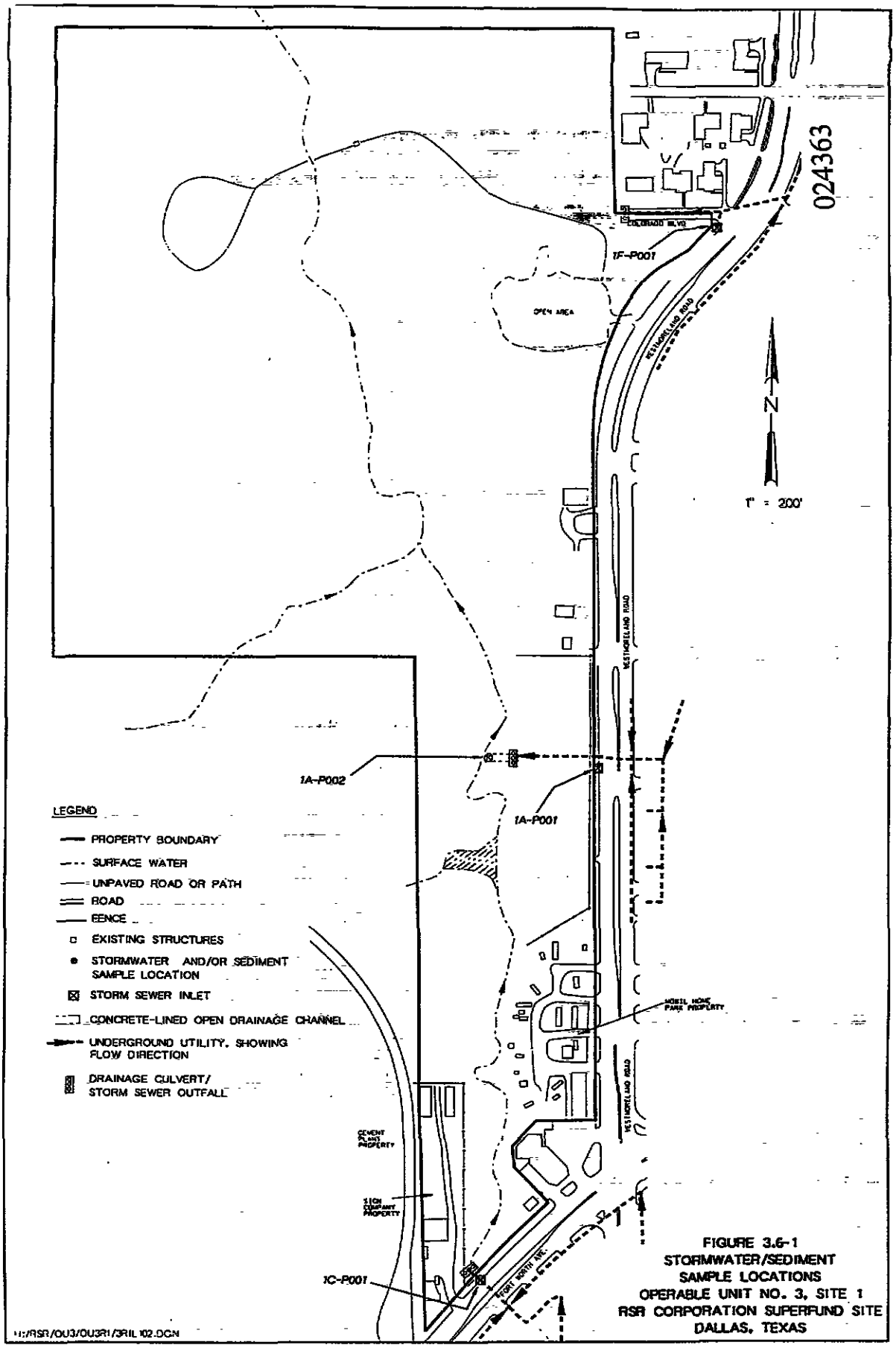


FIGURE 3.6-1
STORMWATER/SEDIMENT
SAMPLE LOCATIONS
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

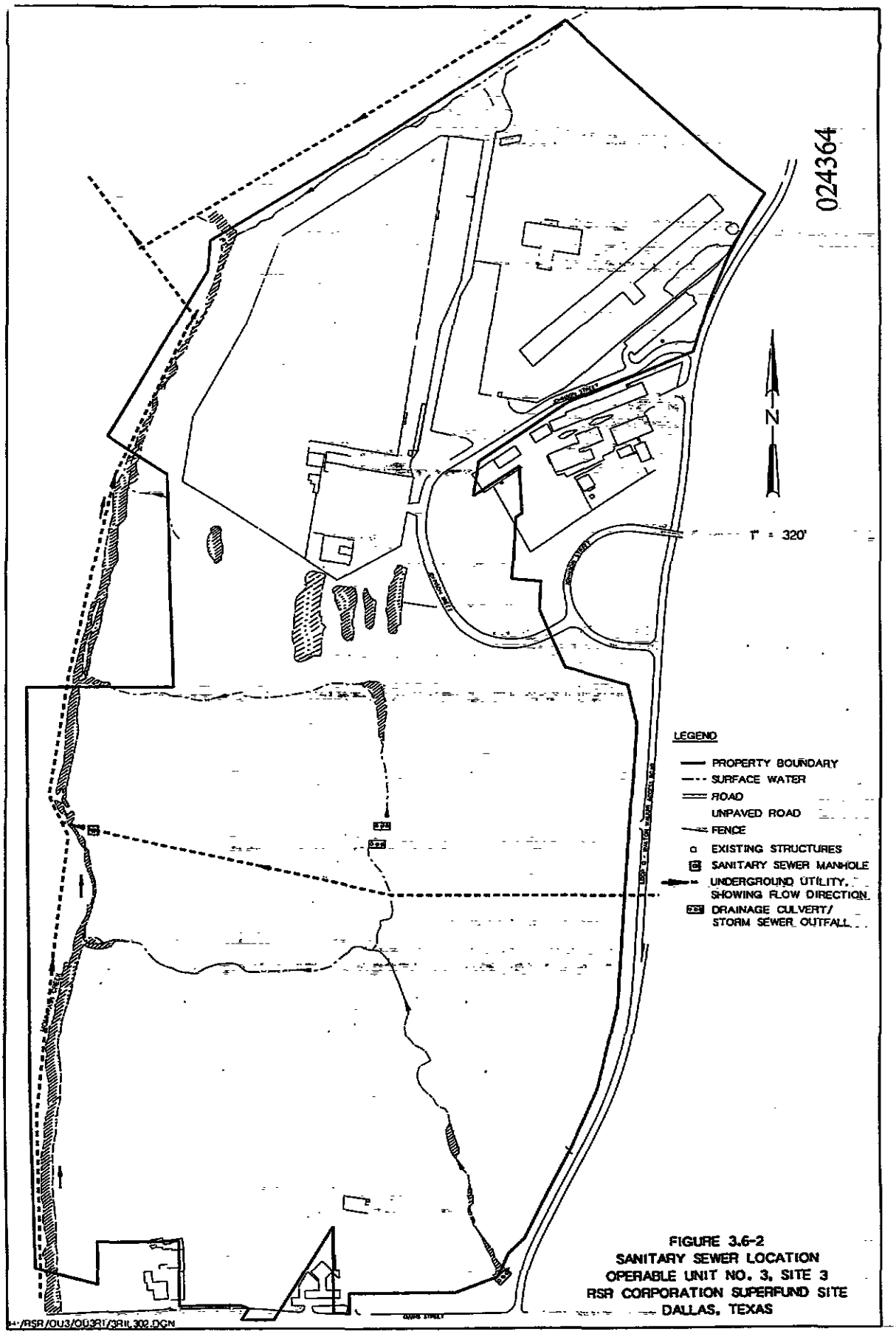


FIGURE 3.6-2
SANITARY SEWER LOCATION
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

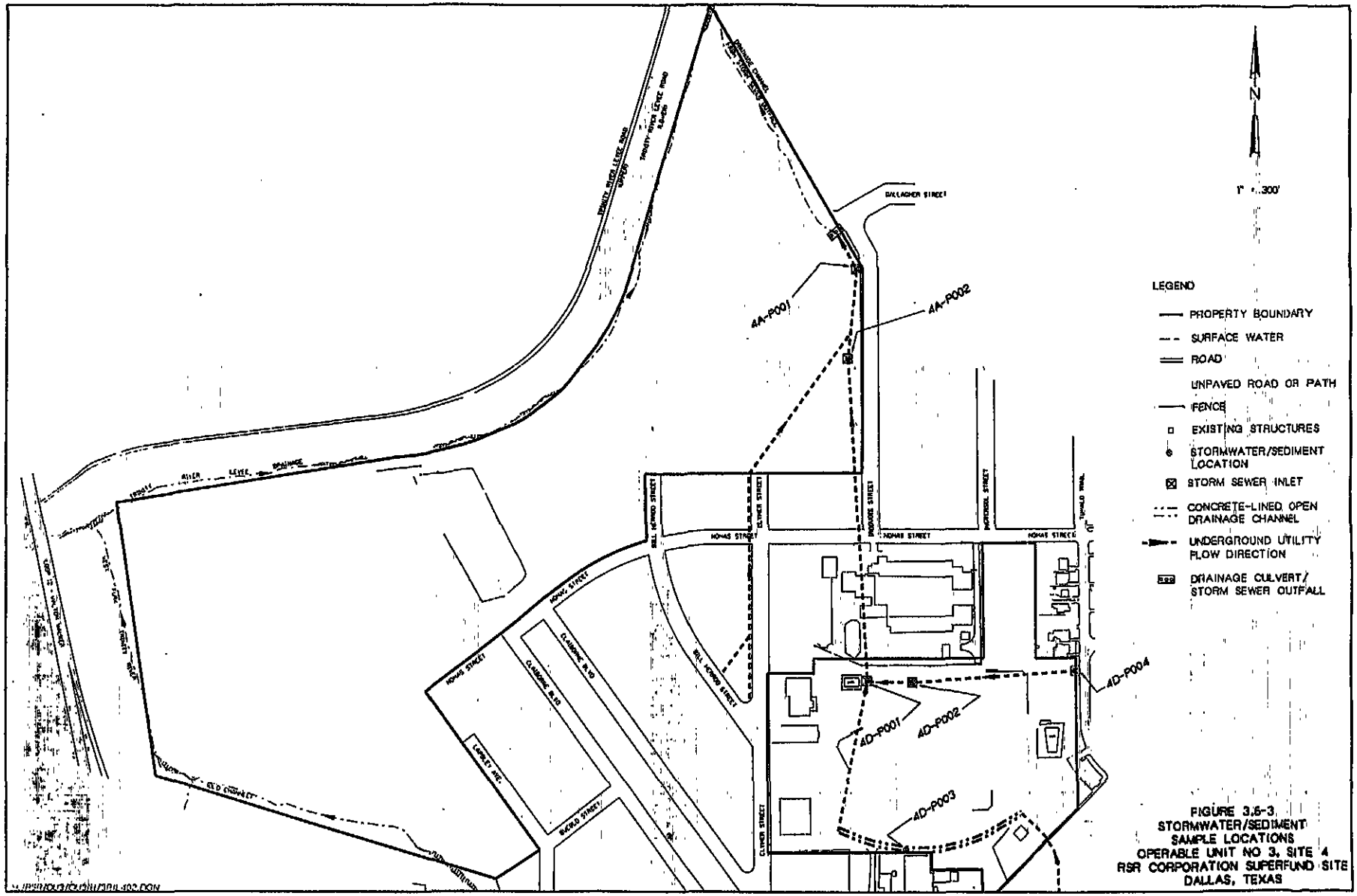


FIGURE 3.6-3
STORMWATER/SEDIMENT
SAMPLE LOCATIONS
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

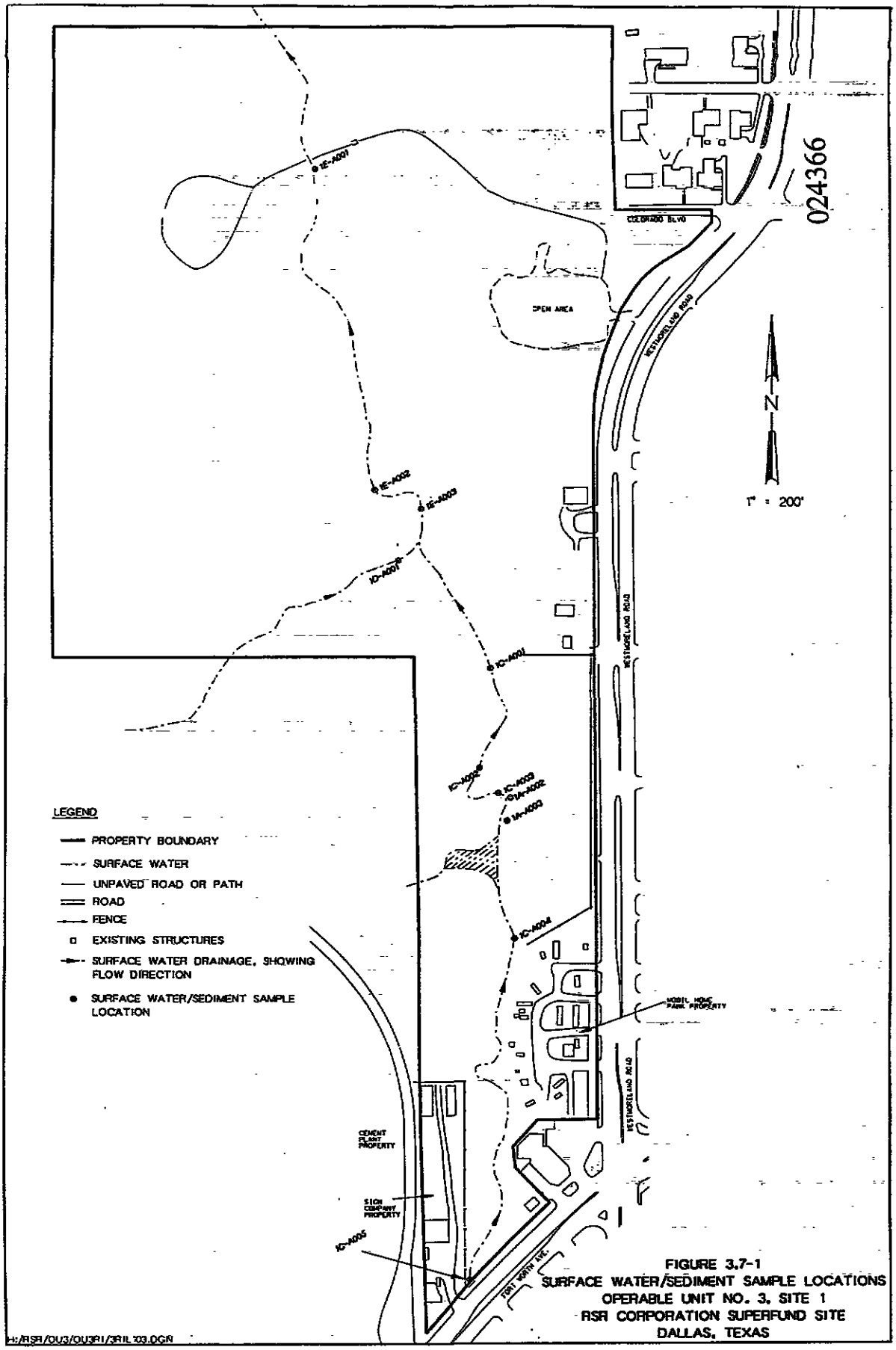


FIGURE 3.7-1
SURFACE WATER/SEDIMENT SAMPLE LOCATIONS
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

H:/RSR/OU3/OU3RI/3RIL103.DGN

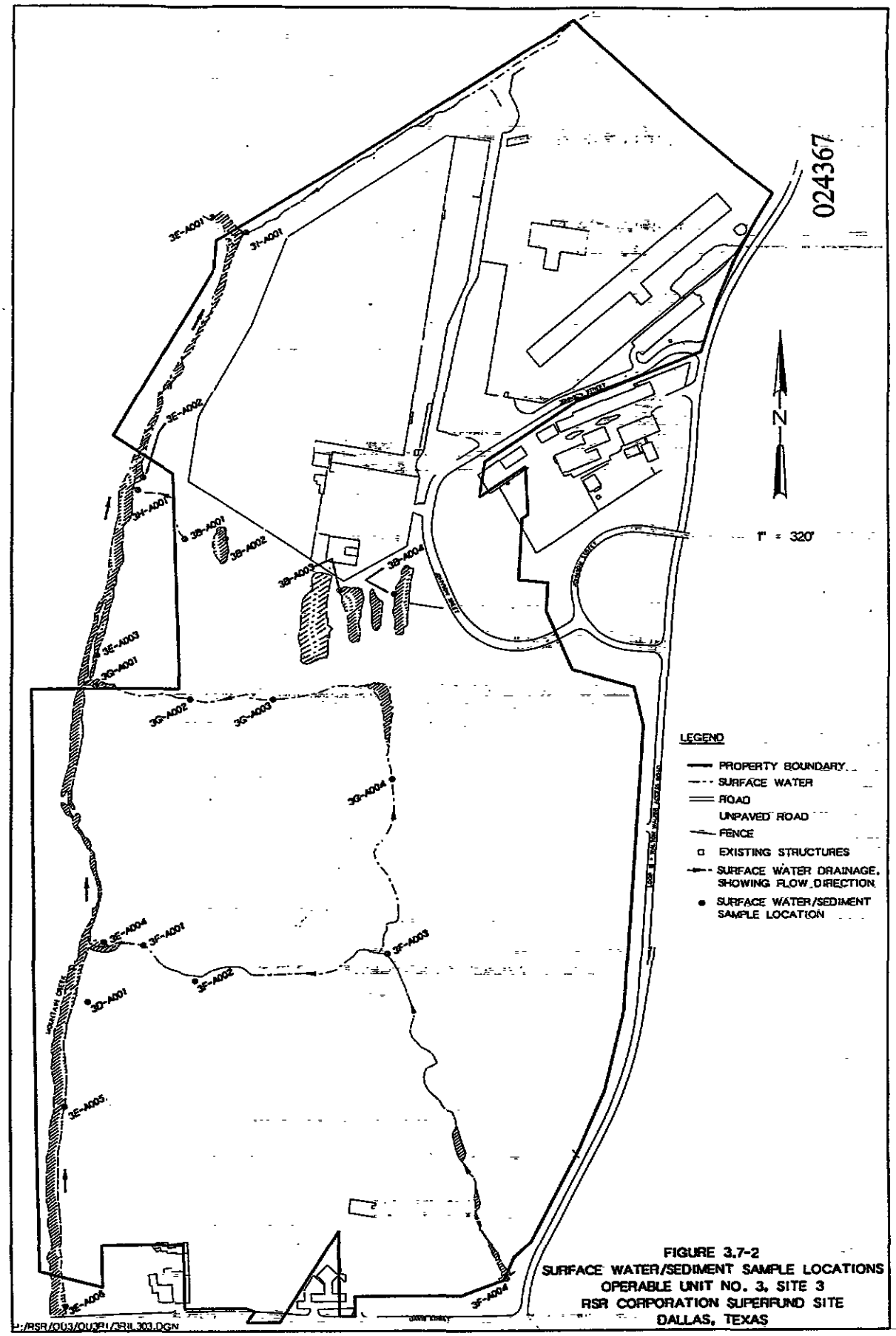


FIGURE 3.7-2
SURFACE WATER/SEDIMENT SAMPLE LOCATIONS
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

P:/RSR/003/OU3FI/3RIL303.DGN

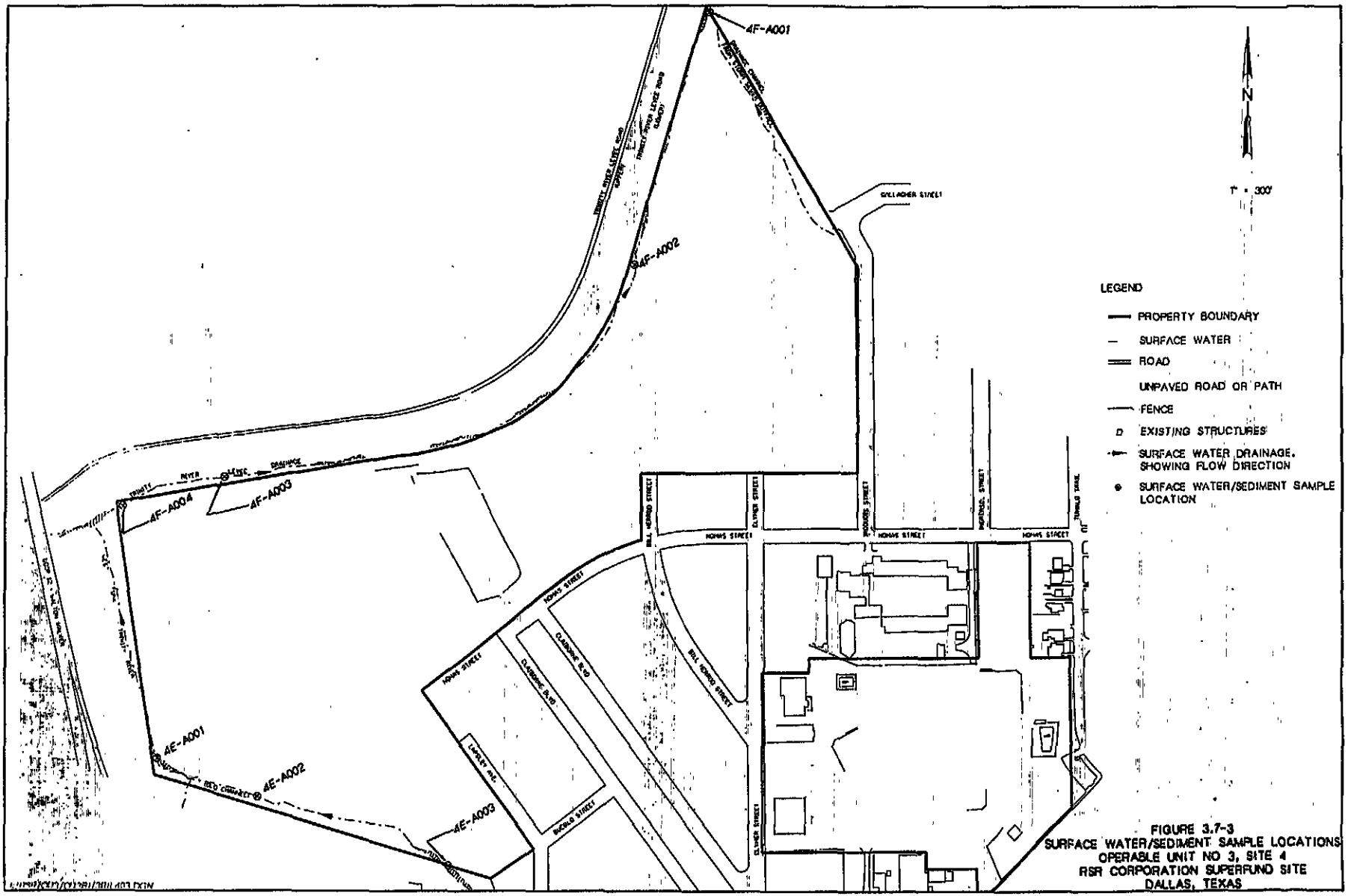


FIGURE 3.7-3
SURFACE WATER/SEDIMENT SAMPLE LOCATIONS
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

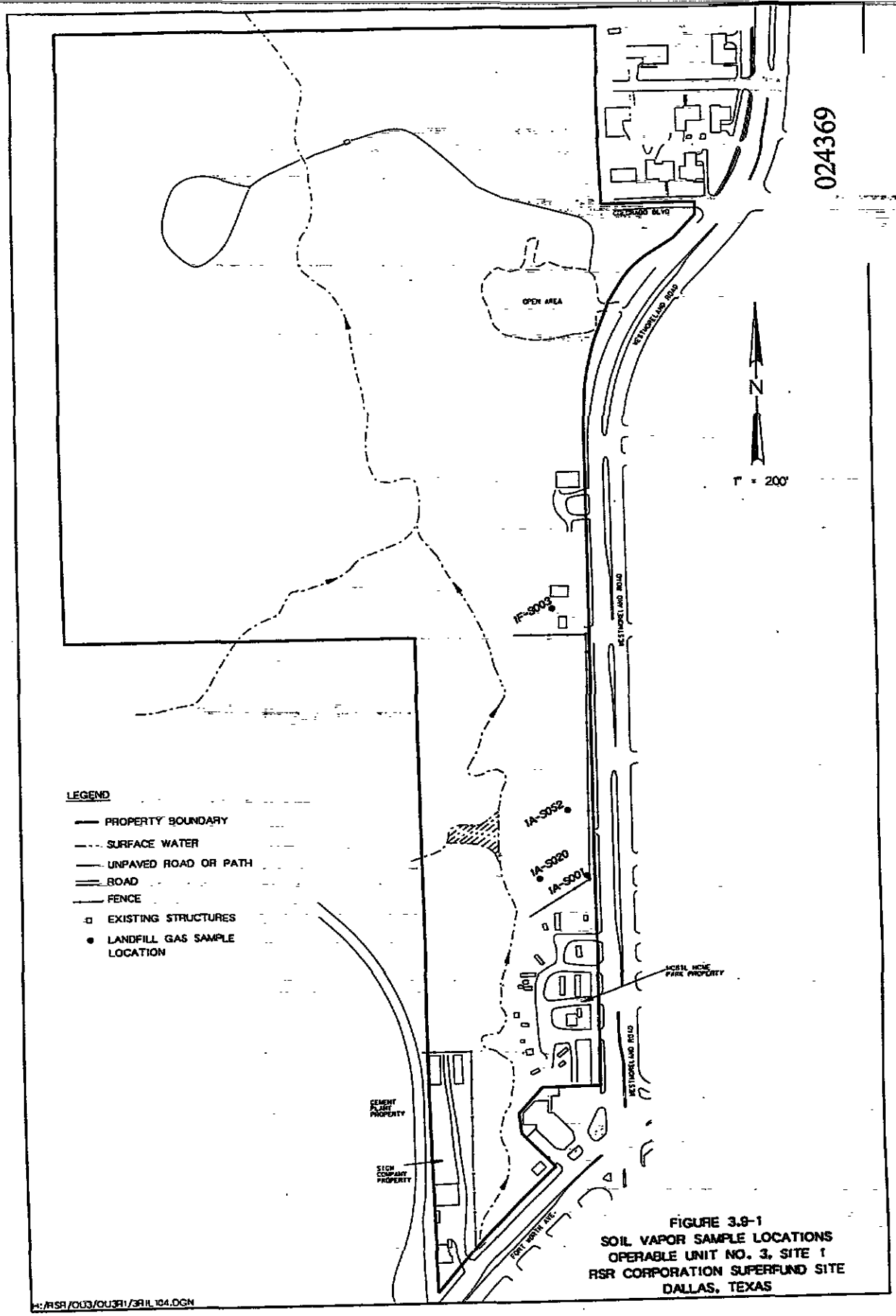


FIGURE 3.9-1
SOIL VAPOR SAMPLE LOCATIONS
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

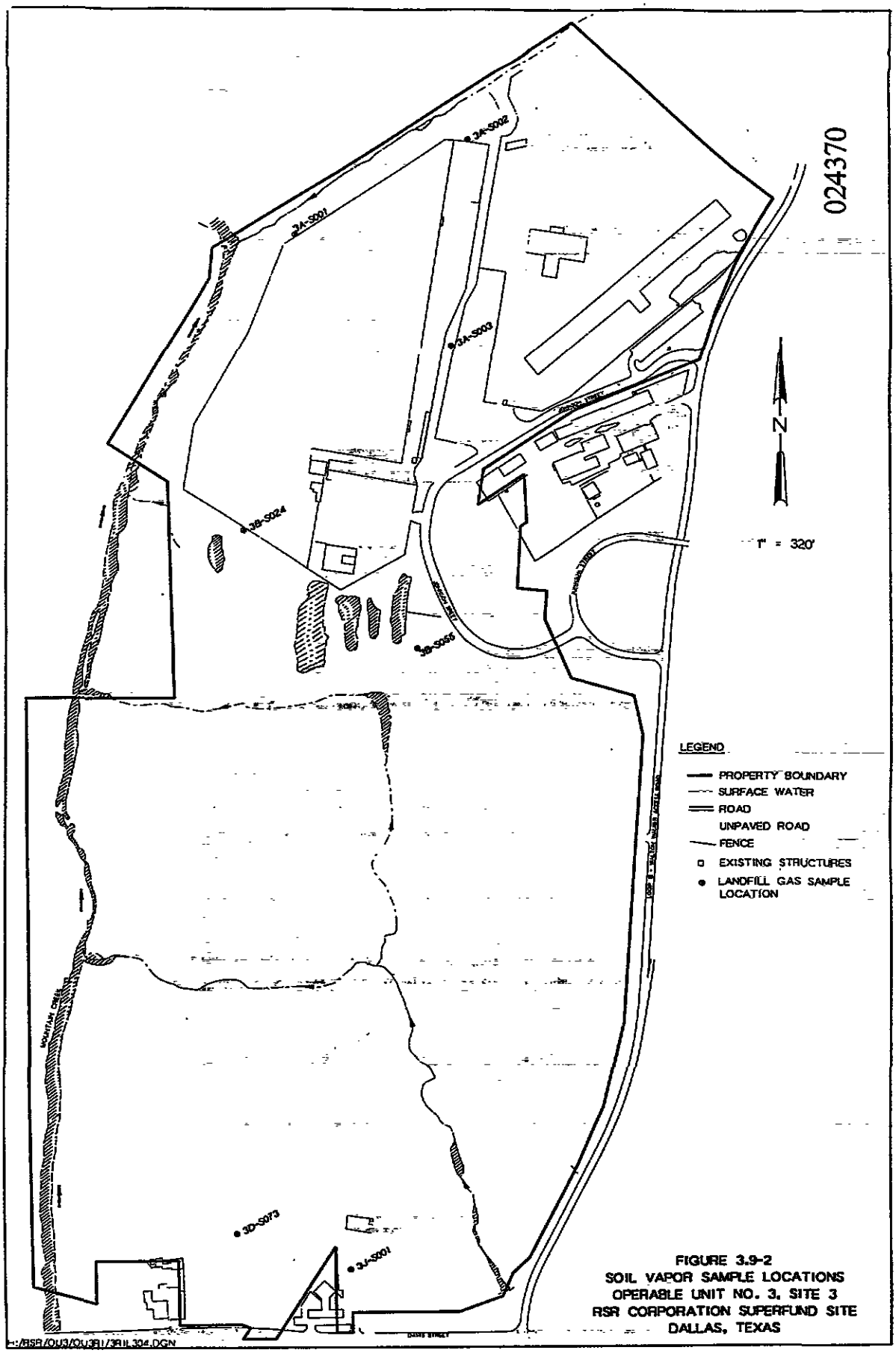


FIGURE 3.9-2
SOIL VAPOR SAMPLE LOCATIONS
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

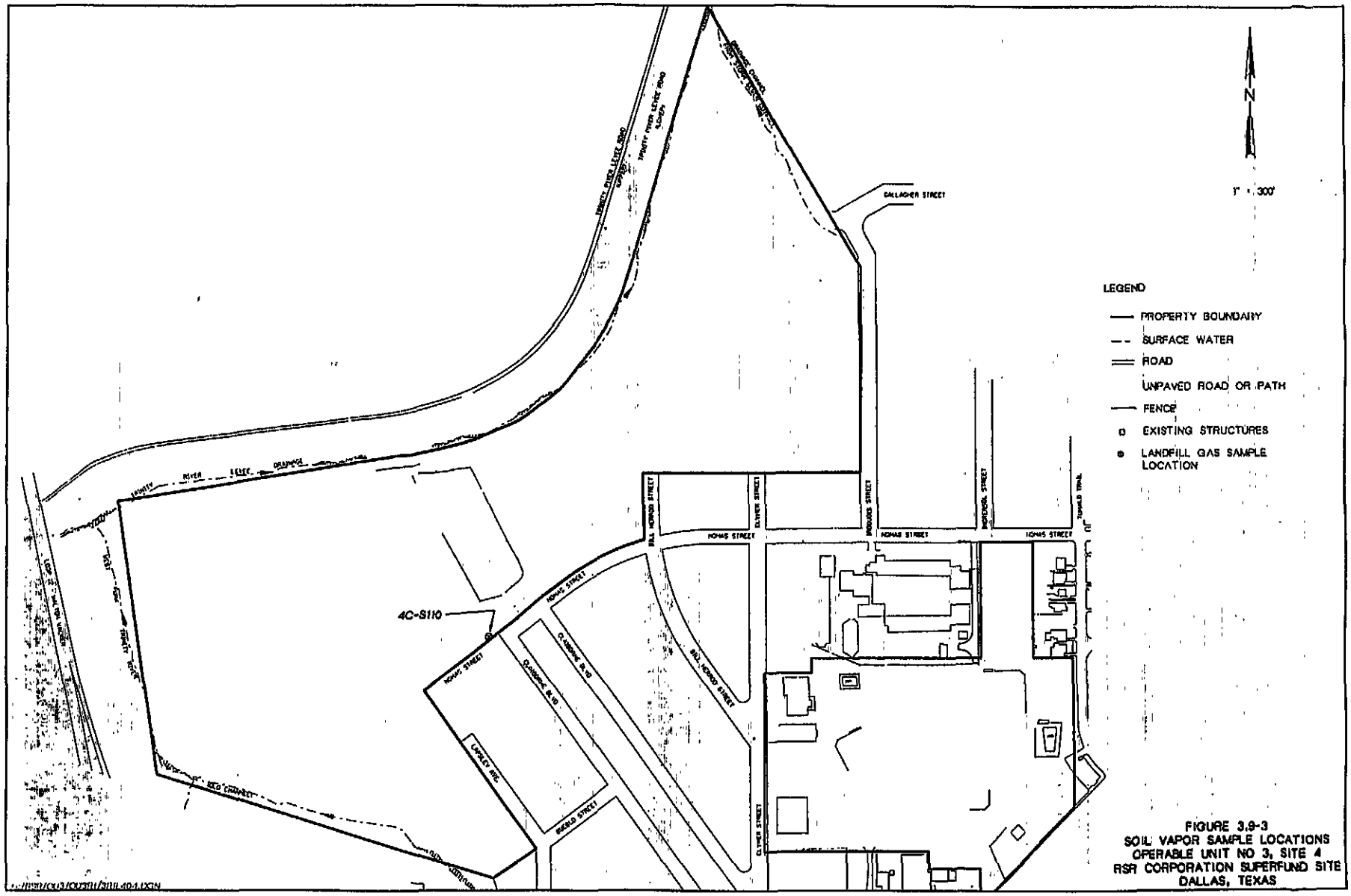


FIGURE 3.9-3
SOIL VAPOR SAMPLE LOCATIONS
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

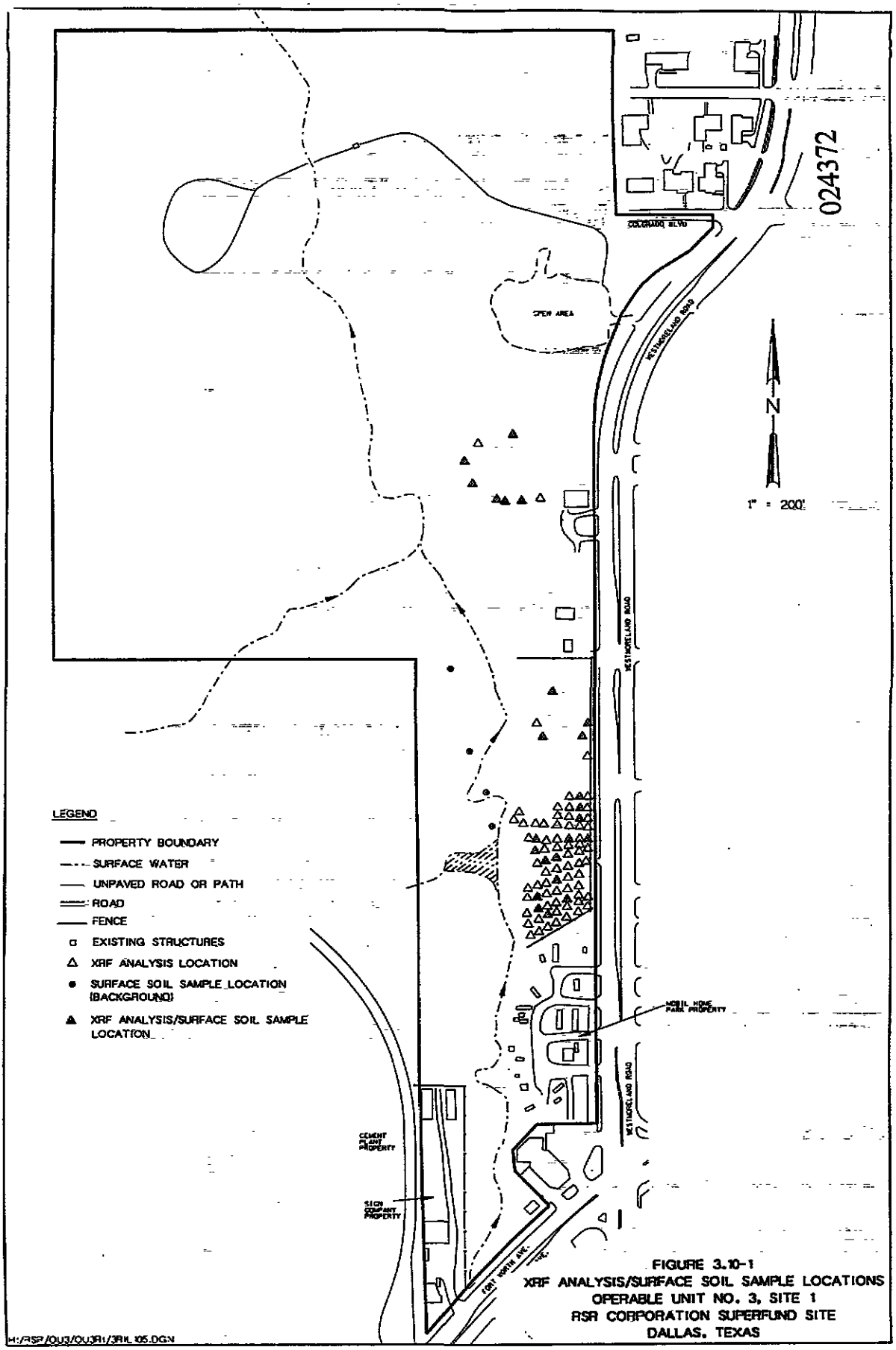


FIGURE 3.10-1
XRF ANALYSIS/SURFACE SOIL SAMPLE LOCATIONS
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

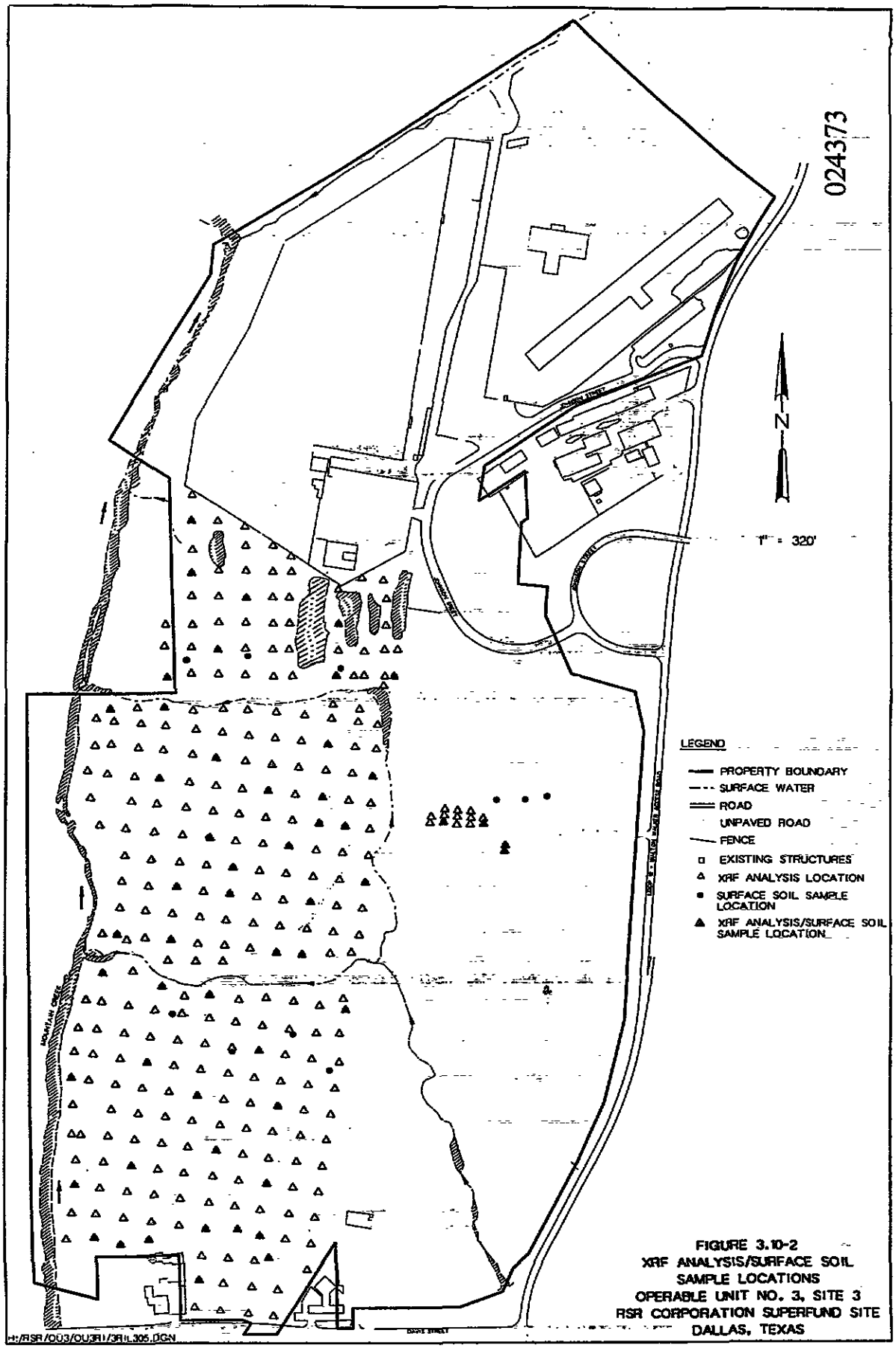


FIGURE 3.10-2
XRF ANALYSIS/SURFACE SOIL SAMPLE LOCATIONS
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

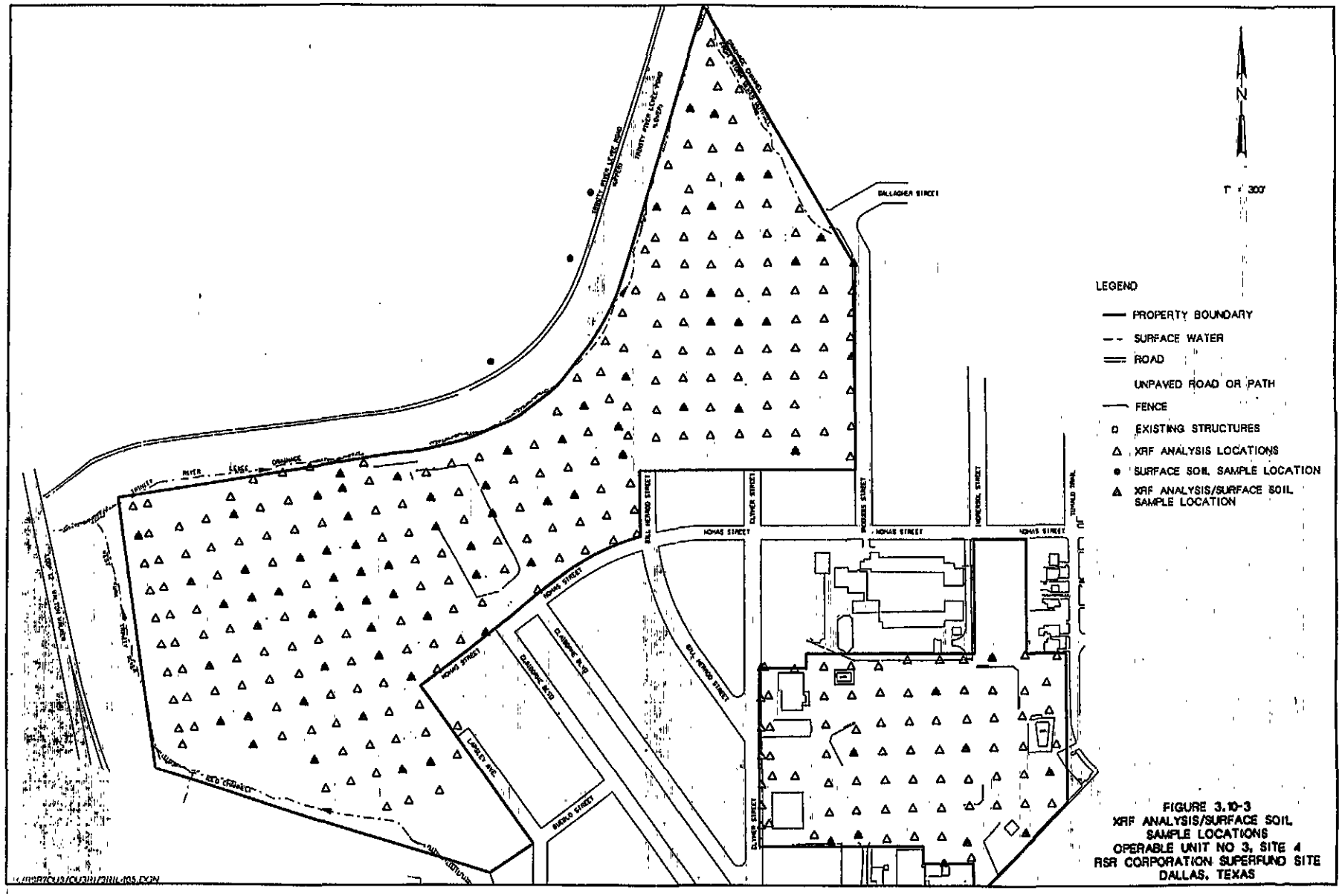


FIGURE 3.10-3
XRF ANALYSIS/SURFACE SOIL
SAMPLE LOCATIONS
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

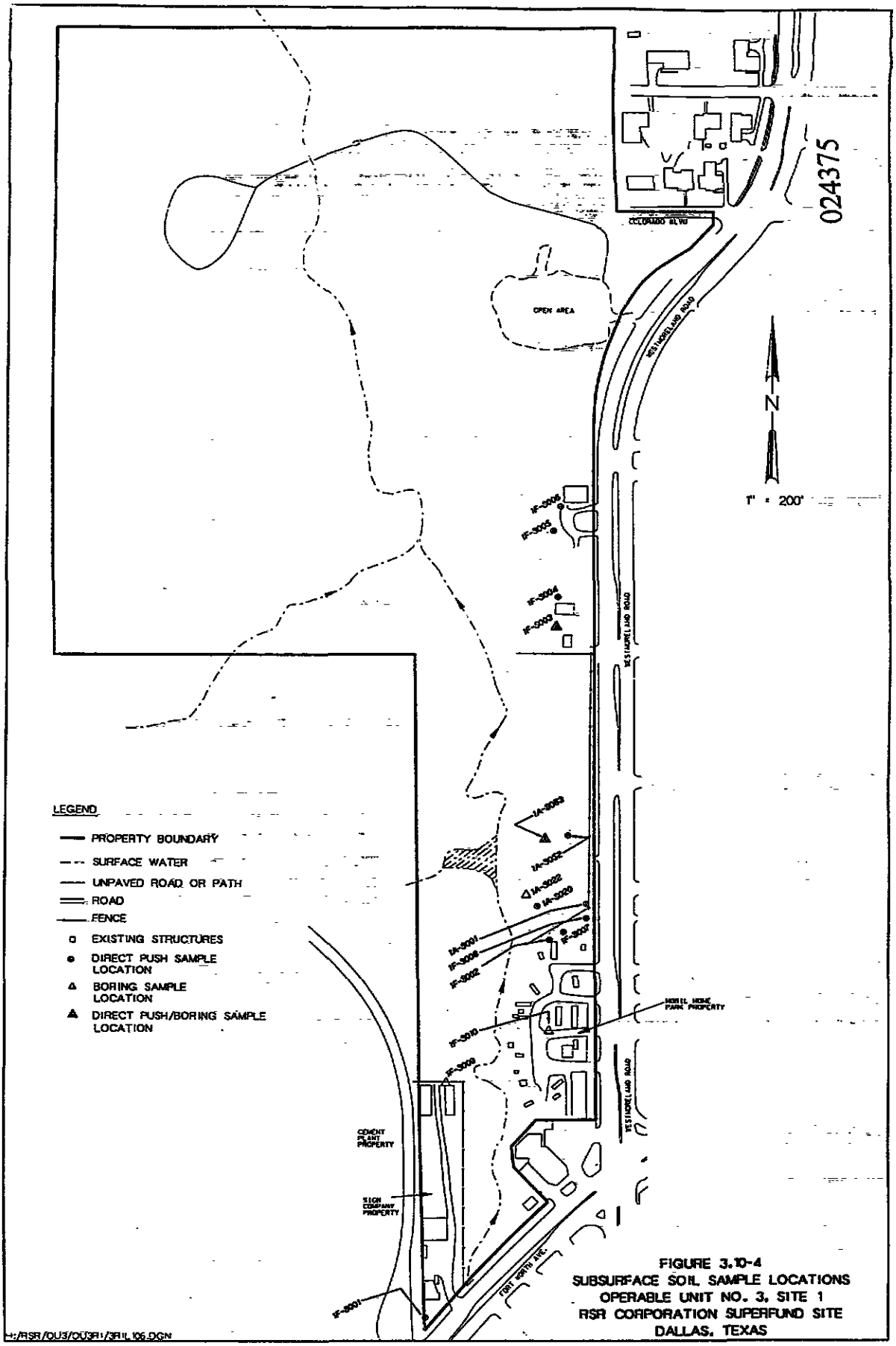


FIGURE 3.10-4
SUBSURFACE SOIL SAMPLE LOCATIONS
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

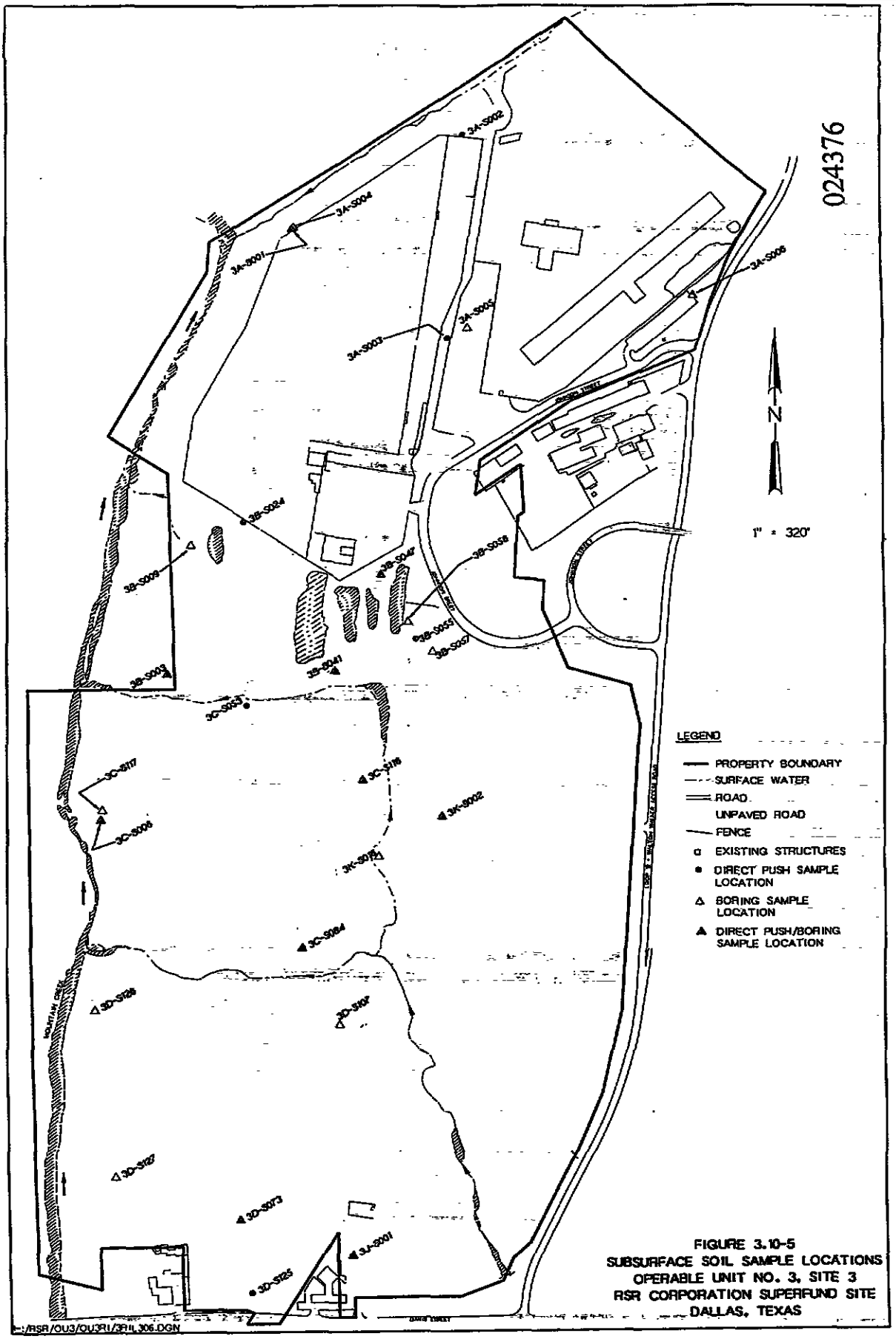


FIGURE 3.10-5
SUBSURFACE SOIL SAMPLE LOCATIONS
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

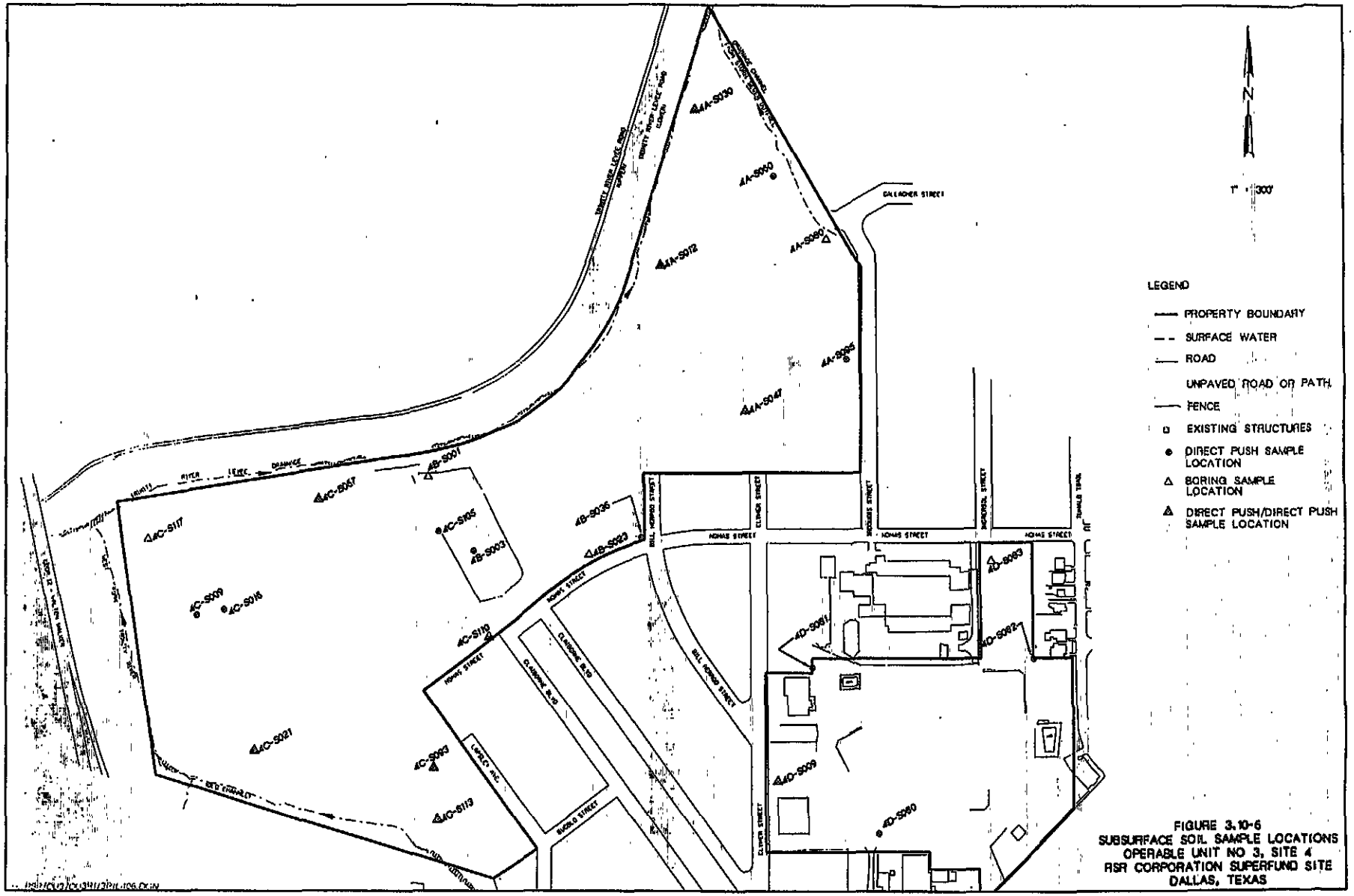


FIGURE 3.10-6
SUBSURFACE SOIL SAMPLE LOCATIONS
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024377

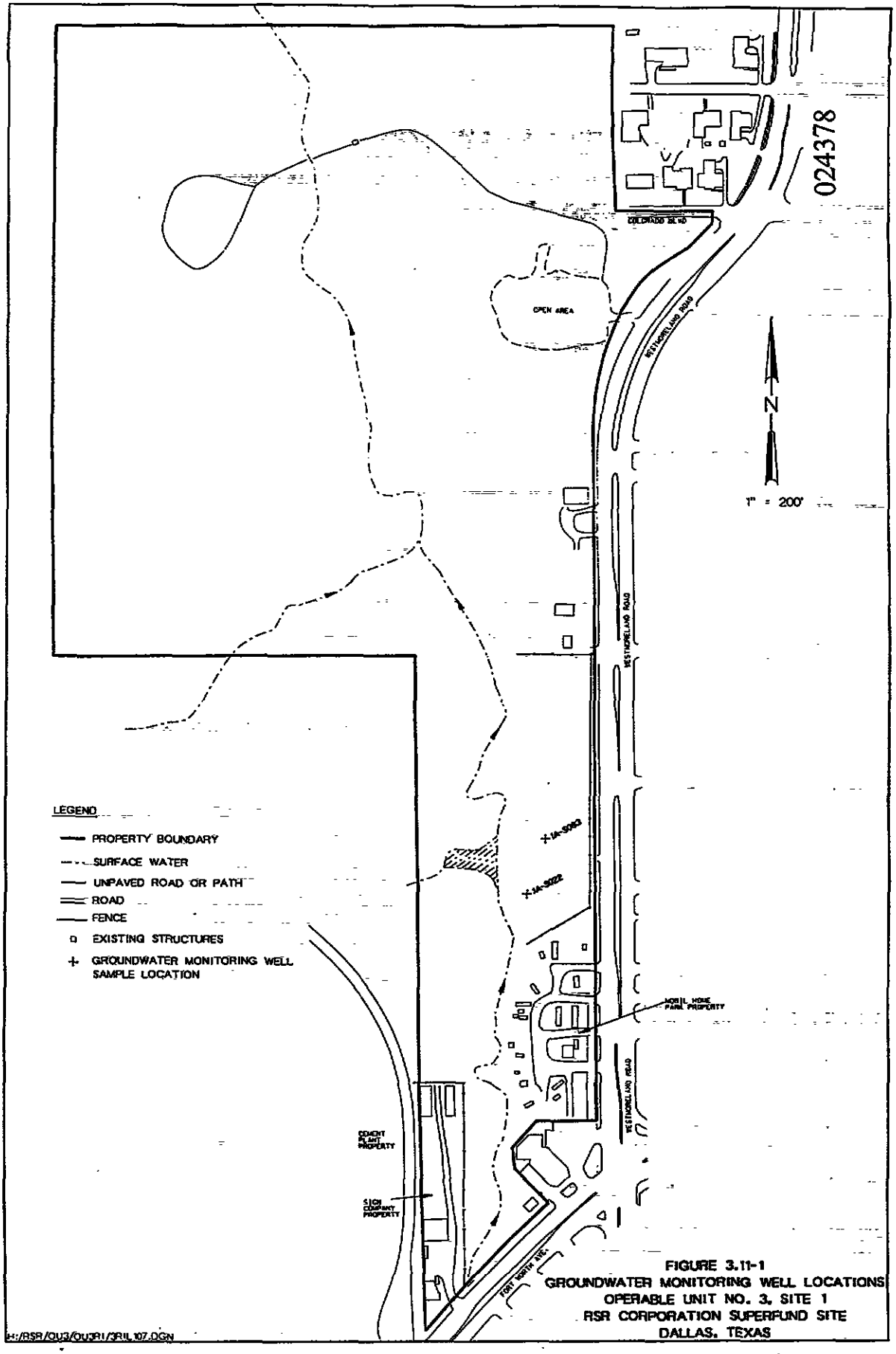


FIGURE 3.11-1
GROUNDWATER MONITORING WELL LOCATIONS
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

H:/RSR/OU3/OU3RI/3RIL107.DGN

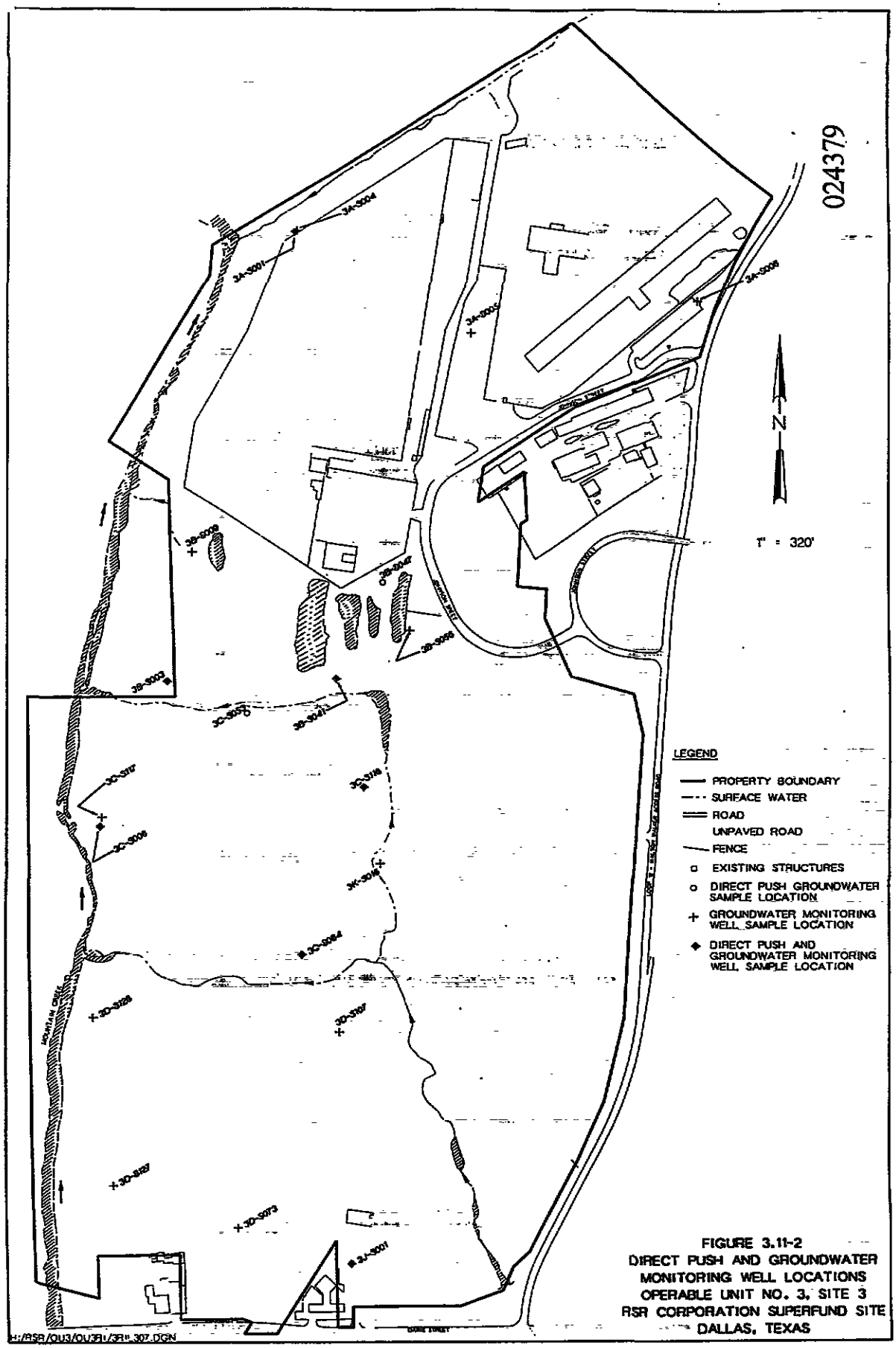


FIGURE 3.11-2
DIRECT PUSH AND GROUNDWATER MONITORING WELL LOCATIONS
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

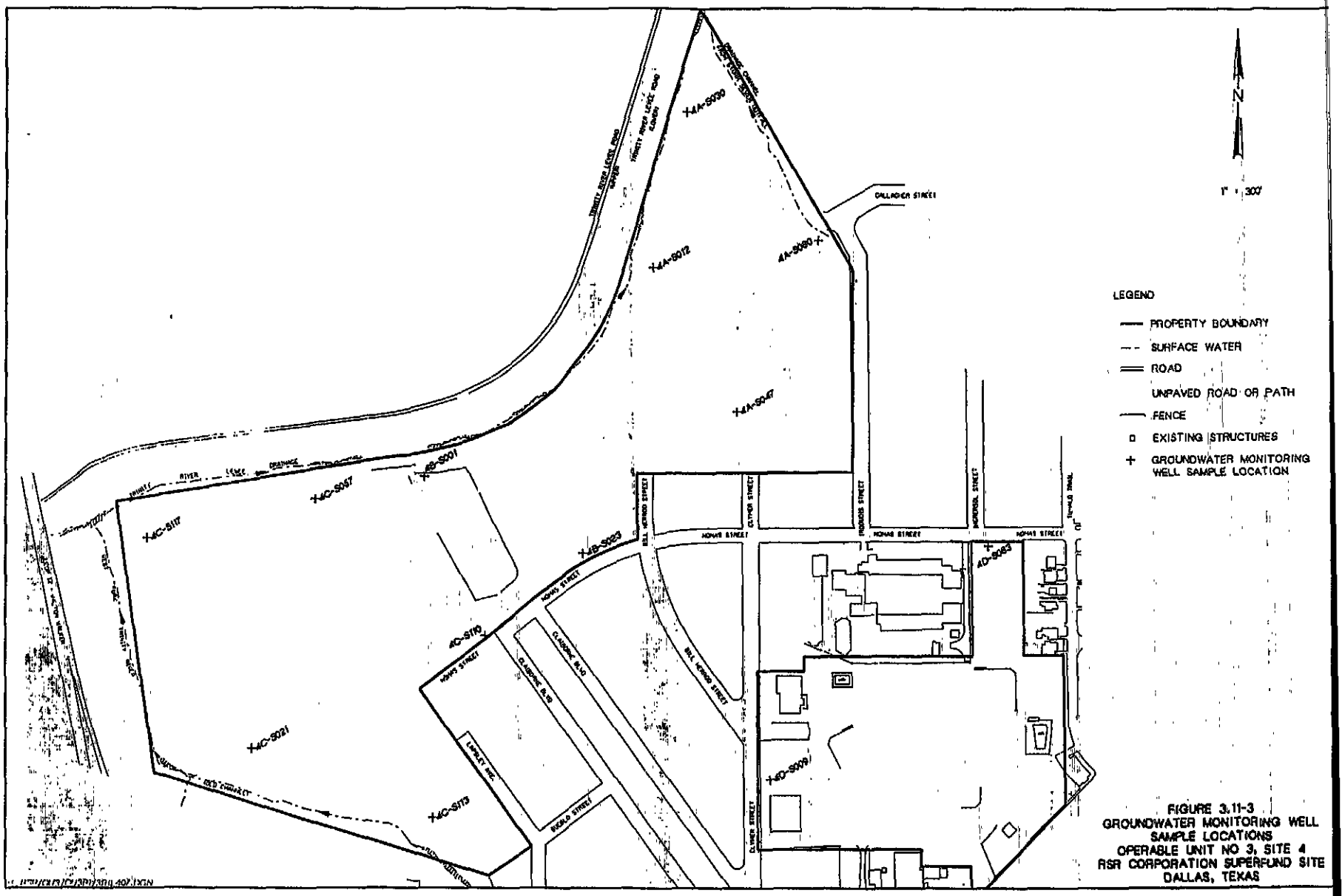


FIGURE 3.11-3
GROUNDWATER MONITORING WELL
SAMPLE LOCATIONS
OPERABLE UNIT NO. 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024380

024381

# Chapter 4
# Site Characteristics

# Chapter 4
# Site Characteristics

024382

This chapter describes the topography, climate, geology, hydrogeology, surface water, demography, and land use of the three (3) sites comprising OU No. 3 of the RSR Site. This information was developed from existing literature sources and supplemented with site-specific information obtained during the RI activities. The sections in this chapter are subdivided by sites when appropriate; discussions of certain characteristics are discussed in terms of the RSR Site study area rather than individual OU No. 3 sites. The potential behavior of the site contaminants of interest with respect to these characteristics is discussed in **Chapter 9** (Contaminant Fate and Transport).

## 4.1 Topography

The RSR Site is located on the margin between two physiographic provinces: the Blackland Prairie to the east and the Eastern Cross Timbers to the west **(TDWR, 1982)**. The Blackland Prairie was formed on sediments of the Taylor Marl, the Austin Chalk, and the Eagle Ford Shale Formations; the physiographic province is characterized by poorly drained soil, and relatively flat to moderately undulating surfaces that slope to the east. The Eastern Cross Timbers physiographic province coincides with the Woodbine Formation outcrop (sandstone) and is characterized by low, rounded, wooded hills along its western margin and gentle slopes along its eastern margin. Most of the northeastern and northwestern portions of the RSR Site is located on a floodplain terrace of the Trinity River, and most of the western portion is located within the floodplain of Mountain Creek. The following paragraphs describe the topography of each of the three sites comprising OU No. 3.

### 4.1.1 Site 1 Topography

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The topography of Site 1 reflects the local geology. The site is located near the top of the White Rock Escarpment, which is the most western outcrop of the relatively resistant Austin Chalk Formation. The Austin Chalk outcrop trends in a general north-south orientation through Central Texas and Dallas County **(Bureau of Economic Geology (BEG), 1987, Dallas Geological Society, 1992)**. The eastern portion of Site 1 (i.e., along Westmoreland Road), directly underlain by Austin Chalk, is relatively flat, and the western portion is characterized by topography typical of stream incision into the Austin, which outcrops along the creek bank at several locations. At one location along the creek, the Eagle Ford Shale Formation (which unconformably underlies the Austin) also is exposed.

The topographic features of Site 1 observable from aerial photography of the site are illustrated in **Figure 4.1-1**, which shows the surveyed topography of non-vegetated areas only. The ground surface elevation of Site 1 decreases from an elevation of 580 feet above mean sea level (MSL) in the southern portion of the site (near the mobile home park) to 560 feet MSL in the northern part of the site (near the house along Westmoreland Road).

### 4.1.2 Site 3 Topography

Historical aerial photographs **(EPA, 1938-1992)** indicate that the area that is now Site 3 appeared to be a part of the Mountain Creek floodplain prior to the creek's diversion to its present location. The diversion appears to have been completed by the mid-1940s. The topography of the site since has been affected by City of Dallas landfilling activities conducted in this area from about the 1960s through the 1980s **(EPA, 1993)**.

Topographic features visible on recent aerial photographs of Site 3 **(EPA, 1938-1992; Dallas Aerial Surveys, Inc., 1990)** and the topographic map of the site produced as part

of the OU No. 3 RI (illustrated on **Figure 4.1-2**) were confirmed during the RI site reconnaissance activities: the landfill areas are elevated and moderately flat. The ground surface of the Dahlstrom Landfill is approximately 438 to 440 feet MSL. The surfaces of the TXI and West Davis Landfills are slightly lower (approximately 430 to 438 feet MSL) and characterized by moderate-gradient berms and trenches believed to be remnants of former landfilling activities. The TXI Landfill is characterized by standing water in some of the trench areas. The ground surface of the property along Mountain Creek (areas that were not landfilled) is relatively flat (approximately 424 to 426 feet MSL) and slopes steeply at the stream channel to approximately 410 feet MSL.

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### 4.1.3 Site 4 Topography

The area that is now Site 4 appears to be part of the Trinity River floodplain; the earliest aerial photograph available from EPA indicates levee construction was in progress as early as 1938 **(EPA, 1938-1992)**. The topography of the site has since been affected by City of Dallas landfilling activities conducted in this area from the 1950s through the 1970s **(EPA, 1993)**.

Topographic features visible on recent aerial photographs of Site 4 **(EPA, 1938-1992)** and the topographic map of the site produced as part of the OU No. 3 RI (illustrated on **Figure 4.1-3**) were confirmed during site reconnaissance: the ground surface of each of the different landfill areas range from elevated and bermed to moderately flat, depending upon the type of activity that has occurred in each area and any development in the area after landfilling had been completed. The West Dallas Landfill ground surface is between approximately 423 and to 426 feet MSL and is characterized by moderate-gradient berms and trenches that extend across the landfill. The grade of the area bordering the landfilled area is approximately 418 feet MSL and relatively level, and drops sharply near each of the drainages. The Nomas Landfill area berms and trenches are slightly more defined than those on the West Dallas Landfill; elevations range from approximately 424 feet MSL to approximately 416 feet MSL on the southern end of the

landfill. An elevated portion of the landfill that runs from east to west through the middle of the landfill is believed to be the remnant of a road which was observed on historical aerial photographs (**EPA, 1938-1992**). The northern portion of the Vilbig Landfill shows some topographic evidence of berming and trenching and localized areas of mounding. Elevations range from approximately 414 to 417 feet MSL over the majority of the landfill; the elevation drops sharply at the drainages which border the landfill on the north and east sides. The surface of Jaycee Park Landfill is virtually level (approximately 416 feet MSL), with a slight gradient toward a drainage channel located across the southern portion of the park.

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## 4.2 Climate

The climate in Dallas County is temperate to hot (**National Climatic Data Center, 1991**). During the winter, cold surges of air cause the moderate temperature to drop, thereby producing cool winters with occasional snow. Rainfall throughout the county is relatively consistent throughout the year, usually with a slight increase during the spring months.

Climatological data for 1992 and 1993 were obtained for the Dallas-Fort Worth (DFW) area from the meteorological station at DFW International Airport (**National Climatic Data Center, 1993**). Total annual precipitation (as rainfall) in 1993 was 32.83 inches. Mean monthly rainfall for 1993 was 2.74 inches, with the highest total amount falling in February (5.78 inches) and the lowest in July (0.0 inches). Snowfall in 1993 did not exceed 1 inch for the entire year, although the average annual snowfall in the DFW area between 1974 and 1991 was 3.15 inches, and it exceeded 18 inches in 1978. Annual evaporation for 1993 was estimated at 35 inches, which indicates a tendency for yearly rainfall to approximately equal evaporation.

The average daily temperature of the DFW area for 1993 was 65.4 degrees Fahrenheit (°F), with average daily high and low temperatures of 75.3°F and 55.5°F, respectively.

During the winter months, the average daily temperature was 52.6°F, with an average low of 43°F. Twenty-eight days were below 32°F. In contrast, approximately 103 days were above 90°F, mostly during summer months, when the daily temperature averaged 85.5°F, and the average daily high was 95.6°F.

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Wind direction is primarily from the south-southeast **(Dallas Love Field, 1961-1973)**. In the DFW area, the average annual wind speed for 1992 was 9.9 miles per hour (mph).

## 4.3 Geology, Hydrogeology, and Surface Water

The following sections describe the geologic and hydrologic characteristics, and surface water resources of the RSR Site, including the three (3) sites comprising OU No. 3.

### 4.3.1 Geology

Throughout Dallas County, the geology and landscape are interrelated. The predominant geologic units in this area are of Upper Cretaceous Age. In the vicinity of the RSR Site study area, the formations consist of (in descending order) the Austin Chalk Formation, the Eagle Ford Shale Formation, the Woodbine Sandstone Formation, and the Grayson Marl and Main Street Limestone Formations. The geologic units making up the Cretaceous system in north-central Texas form a southeastward-thickening wedge extending into the East Texas Embayment. This sedimentary wedge ranges in thickness from zero feet in the west to nearly 7,500 feet in the southeast. Regional dip is to the east and southeast at 15 to 40 feet per mile, but increases as much as 300 feet per mile on the flanks of the Preston Anticline, located in Grayson County, north of Dallas **(Dallas Geological Society, 1992)**.

Review of geologic maps of the area indicates that the surface expression of the contact between the top of the Eagle Ford Shale Formation and the overlying Austin Chalk

Formation is present within the RSR Site study area (**Bureau of Economic Geology (BEG), 1987**). **Figure 4.3-1** provides a generalized geologic map of the formations outcropping within the RSR Site. The base of the Austin Chalk outcrops only on Site 1. As documented by logs of deep wells in the area, the full thickness of the Eagle Ford Shale Formation, which overlies the Woodbine Formation, is expected to be present beneath all three OU No. 3 sites.

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The Eagle Ford Formation is composed primarily of dark shales with occasional thin strata of sandstone, limestone, and bentonite. This formation has two members: the upper is the Arcadia Park Member, and the lower is the Britton Member. The Arcadia Park is described as a basal blue clay twenty (20) feet thick, beneath one to three feet of thin limestone flags, overlain by approximately seventy-five (75) feet of blue shale with calcareous concretions. The Arcadia Park member is unconformably overlain by the Austin Chalk Formation. The upper beds of the Arcadia Park Member are believed to be present in the surface soils in portions of each of the OU No. 3 sites. The underlying Britton Member is typically 250 to 300 feet thick and consists mostly of blue clay and shale. The Eagle Ford Formation is commonly referred to as an aquitard overlying the Woodbine Formation.

The Woodbine Formation is composed of sands, silts, clays, and sandy clay-shales. The sand layers are water-bearing with varying storage and transmissivity. Although commonly referred to as the shallowest aquifer in the DFW area, the Woodbine generally is not recognized as a viable public drinking water supply source. The Woodbine Formation, in full section, is typically 300 feet thick. The Woodbine Formation's surface exposure in Dallas County is limited to a small area along the county's western margin, north of the Trinity River floodplain. This formation is discussed in more detail in **Section 4.3.2.**

### *4.3.1.1 Site 1 Geology*

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The shallow subsurface geology of Site 1 generally begins at the surface with an organic clay soil (0.5 to 5 feet thick) overlying the eroded Austin Chalk Formation. At the Site 1 boring locations, the Austin chalk is approximately 20 to 25 feet thick, and is characterized by weathered zones containing interbedded laminations of sand, clay, and organic matter. The Austin Chalk unconformably overlies the Eagle Ford Shale. **Figures 4.3-2** and **4.3-3** provides a conceptual geologic cross-section of the subsurface identified during the subsurface soil investigation described in **Section 3.10**.

### *4.3.1.2 Site 3 Geology*

The shallow subsurface geology of Site 3 generally consists of silty clay, ranging in thickness from 15 to 25 feet, underlain by a gravelly clay (with some fine sand) between 1 and 6 feet thick. Underlying this unit is a silty clay which grades into a silty sand. This interval ranges in thickness from 10 to 35 feet. At borings advanced on the far west side of Site 3 (relatively close to Mountain Creek or within what is believed to be the historical floodplain of Mountain Creek), a discontinuous, water-bearing sandy gravel approximately 0.5 to 1 foot thick was found to exist unconformably over the Eagle Ford Shale. At borings advanced on the east side of Site 3 there appeared to be less alluvial deposition, and the transmissive interval described above was either less defined or did not exist above the Eagle Ford Shale. Landfill debris was observed, primarily in the shallow subsurface, in borings advanced on the Site 3 landfill cells (toward the center of the site). The thickness of the landfill debris varied greatly over the site (ranging from 3 to 39 feet); it is presumed that landfilling was not conducted uniformly over the entire site. **Figures 4.3-4** through **4.3-8** provide conceptual geologic cross-sections of the subsurface encountered during the soil investigation described in **Section 3.10**.

### *4.3.1.3 Site 4 Geology*

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At Site 4, the shallow subsurface geology generally begins at the surface with a sandy organic clay, approximately 1 to 3 feet thick. The underlying unit is a silty clay to clayey silt, approximately 10 to 25 feet thick, which grades to a silty sand, approximately 1 to 6 feet thick. The silty sand overlies a water-bearing gravelly sand, which was encountered at thicknesses between 0.5 and 3 feet. This general increase in grain size with depth is indicative of an alluvial (sand fining upward to silt and clay) to fluvial (coarse sand and gravel) depositional environment **(Dott, H.D., and R.L. Batten, 1981)**. The sand and gravel unconformably overlies the Eagle Ford Shale, the top 0.5 to 3 feet of which was observed to be weathered. **Figures 4.3-9** through **4.3-14** provide conceptual geologic cross-sections of the subsurface encountered during the subsurface soil investigation described in **Section 3.10**.

## 4.3.2 Hydrogeology

In north-central Texas, the two most important water-bearing stratigraphic units are the Woodbine Group, a minor aquifer, and the Trinity Group, a major aquifer (shown on **Figures 4.3-15** and **4.3-16**, respectively). As defined by the Texas Department of Water Resources (TDWR), a minor aquifer is defined as one which yields large quantities of water in small areas, or relatively small quantities of water in large areas of the State, and a major aquifer is defined as one which yields large quantities of water in a comparatively large area of the State. **Table 4.3-1** describes the various aquifer classifications utilized by the TNRCC and EPA. Both the Trinity Group and Woodbine aquifers provide municipal, domestic, industrial, and some irrigation supplies to the north-central portion of the State. Water for Dallas residents, including those within the RSR Site study area, is provided by the City of Dallas water system, which draws its water from surface reservoirs many miles from the RSR Site.

The shallow Quaternary alluvial deposits also contain small amounts of water in this area, although they are not classified as major or minor aquifers by the State. The shallow groundwater in the vicinity of OU No. 3 is not generally considered a water supply source due to its overall low yield and slightly saline quality. The monitoring wells installed as part of the OU No. 3 RI generally were completed in the alluvial material overlying the Eagle Ford Shale, which is not believed to be hydraulically connected to the deeper Woodbine aquifer due to the presence of the Eagle Ford Shale at thicknesses of up to 300 feet beneath the site **(TWC, 1988)**.

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The Woodbine Aquifer is of Upper Cretaceous age and is composed of sand and sandstone. The nearest outcrop of the Woodbine Formation to the study area is in far northwestern Dallas County and eastern Tarrant County, a minimum of 10 miles from OU No. 3 **(BEG, 1987)**. Groundwater flow within the Woodbine is generally to the east. In the vicinity of the study area, the depth to the Woodbine from the ground surface is approximately 200 to 250 feet **(TDWR, 1982)**.

The Trinity Group Aquifer is comprised of Lower Cretaceous age formations (the Paluxy, Glen Rose, Twin Mountains, and Antlers) which are older and encountered at greater depths than the Woodbine and other geologic units present in the study area. These geologic units were deposited in fluvial, deltaic, and shallow marine depositional environments, and are typically comprised of sands interbedded with clays, limestone, dolomite, gravel, conglomerate, and evaporates (the latter are present in the upper Glen Rose). Outcrops of the Trinity Group formations are found in Parker County, approximately 60 miles west of Dallas County. Within the study area, the depth to the top of the Paluxy Formation of the Trinity Group Aquifer is approximately 1,300 to 1,500 feet below ground surface (bgs) and the depth to the Twin Mountains Formation of the Trinity Group Aquifer is approximately 2,500 feet bgs **(TDWR, 1982)**.

The following subsections describe the recharge to the Quaternary alluvial, Woodbine, and Trinity Group aquifers, general water quality characteristics, the wells screened in

these aquifers within a 3-mile radius of OU No. 3, and the estimated hydraulic characteristics of the alluvial deposits.

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### *4.3.2.1 Recharge*

The primary source of recharge for both the Trinity Group and Woodbine Aquifers is considered to be precipitation on outcrop surfaces. Recharge from streams flowing across the outcrops, and surface water seepage from lakes, streams, and ponds are considered secondary sources. No primary recharge areas are located within five miles of any of the three OU No. 3 sites. As stated previously, the outcrop surfaces for the Woodbine and Trinity Group formations are located a minimum distance of 10 miles to the west of the study area.

Surface water runoff contributes to the water encountered in the alluvial deposits; this shallow aquifer is believed to be hydraulically connected to surface water features in the area.

### *4.3.2.2 Groundwater Quality*

As shown on **Table 4.3-1**, recommended secondary drinking water standards specified by the TNRCC include 300 mg/l for sulfate, 300 mg/l for chloride, and 1,000 mg/l for TDS **(30 TAC §290.113)**. Also shown on **Table 4.3-1** are the State's aquifer categories **(TNRCC, 1994)** and EPA's general groundwater classifications **(EPA, 1988)**, which are considered guidelines for evaluating the appropriate amount of remediation for Superfund sites.

In the Dallas area, the general quality of groundwater from the Trinity Group Aquifer ranges from 500 to 3,000 mg/l total dissolved solids (TDS), which indicates fresh to slightly saline water **(Table 4.3-1)**. Sulfate and chloride concentrations do not exceed TNRCC's recommended secondary drinking water standards of 300 mg/l. Increasingly

poor quality water from this aquifer in parts of the DFW area in recent years has been attributed to over-pumping of the aquifer and high levels of TDS **(TDWR, 1982)**.

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Only the lower part of the Woodbine Aquifer (i.e., the upper sand unit encountered at depths between approximately 750 and 850 feet) is considered to be suitable for development; water in the rest of the aquifer is characterized by high iron concentrations **(TDWR, 1982)**. In the Dallas area, groundwater from various units of the Woodbine Aquifer is in the 1,000 to 3,000 mg/l range for TDS (slightly saline), and sulfate concentrations generally exceed TNRCC's recommended secondary drinking water limit of 300 mg/l. Wells completed on or near the outcrop tend to produce higher quality groundwater. The primary uses of water derived from the Woodbine are for domestic livestock and public supply. However, due to (1) an increasing dependence on surface water for public supplies, (2) historically large withdrawals of water from the Woodbine, and (3) low permeabilities of the Woodbine's water-bearing zones, this aquifer is no longer used as a primary source of drinking water for Dallas County, and is not used by the City of Dallas.

In April and May 1995, general water quality parameters were measured in groundwater sampled from the shallow alluvial aquifers at OU No. 3 as part of the groundwater investigation activities for the RI. **Table 4.3-2** presents the results for selected parameters compared to primary and secondary drinking water quality standards. These results indicate the water in the alluvial deposits beneath the OU No. 3 sites would therefore be classified as slightly saline to moderately saline under the State's aquifer categories **(Table 4.3-1)**.

### *4.3.2.3 Well Inventory*

The well inventory portion of the surface water/groundwater users survey (conducted to provide data for the identification of potential human receptor populations within a three-mile radius of the OU No. 3 sites) was accomplished by reviewing existing

information from OU No. 3 project files, and by accessing Banks Petroleum/Environmental Services, Inc. (BP/ES) to compile existing agency information about the location of groundwater wells within a three-mile radius of each of the sites, and well construction information (including well use, total depth, yield, and depth to groundwater), if available (**EPA, 1995c**). The scope of work did not include field verification of well locations, current status of wellheads (including provision wellhead protection), nor was contact made with owners to determine whether or not the recorded wells are still active.

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BP/ES reported one hundred fourteen (114) wells within a three-mile radius of the OU No. 3 sites. Details of the locations, usages, and owners of these wells are summarized in **Table 4.3-3**. The location of each well is illustrated on **Figure 4.3-17**. Sixty-four (64) wells identified by BP/ES had not been physically located or verified by the TDWR, but were plotted onto an OU No. 3 base map by BP/ES using information from sketches provided by the drilling contractor. The identification numbers for these particular wells include either a single digit in the last field or a single digit followed by an alpha character (e.g., 33-09-5 or 33-17-1d). Of the one-hundred fourteen (114) wells identified in the survey:

- Thirty-two (32) were reported as plugged, destroyed, capped, abandoned or no longer used.

- Thirty-five (35) were identified by TDWR for **domestic usage**, eighteen (18) of which are reportedly screened in Quaternary alluvium to a maximum depth of 60 feet bgs. One (1) of these eighteen (18) domestic wells is located within one (1) mile of the OU No. 3 sites.

- Eleven (11) were designated for **industrial usage**, with total depths reportedly ranging from 475 to 2,600 feet bgs (with the exception of well number 33-10-506, which is reported to be 50 feet deep).

- Ten (10) were designated as **irrigation wells.**

- Eight (8) were designated as **public supply wells**, reportedly ranging in depth from 405 to 2,667 feet bgs.

- Four (4) wells were designated as **piezometers** for the City of Irving, reportedly ranging in depth from 31 to 37 feet bgs.

- Four (4) additional wells were identified as **monitoring wells**; three (3) of these (ranging in depth from 20 to 21 feet bgs) are owned by the City of Irving, and one (1) (total depth of 48 feet bgs) is owned by Dal-Worth Industries.

- The BP/ES report indicated that four (4) wells (with depths ranging from 50 to 534 feet bgs) have no indication of "type of usage" listed on the well documentation records.

- BP/ES reported missing records for six (6) wells.

Nearest to Site 1 are three (3) industrial wells (numbers 22, 23, and 24), ranging in depth from 1,500 to 2,600 feet (in the Paluxy and Twin Mountains Formations). They are located on the cement plant property west of Site 1. Well number 23 apparently has been plugged. Due to the depth of these wells and the confining nature of the stratigraphy between these aquifers and any groundwater encountered at shallower depths, the likelihood of groundwater in these wells being affected by surface or shallow groundwater contamination from Site 1 is considered to be minimal.

Seven (7) wells (well numbers 29, 30, 31, 35, 37, 38, and 39) are reported to be located on or near Site 3. Two (2) of these (numbers 37 and 38) are domestic wells, apparently located at the southern end of Site 3 (upgradient), at depths of 500 feet and 515 feet deep, respectively (in the Woodbine aquifer). The remaining five (5) wells, all located



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within one (1) mile of Site 3 and screened in the Woodbine, are or have been used for industrial, domestic, and/or public supply. Well number 31, a former public supply well, is presumably no longer used. The use of well number 35 is unknown. A 60-foot deep domestic well (number A35 on **Figure 4.3-17**) is located approximately one (1) mile west of Site 3 on the south side of Davis Street, upgradient of Site 3.

024395

Well numbers 3, 4, 5, and 6 are within approximately one (1) mile of Site 4. Wells 4, 5, and 6 were former public supply wells, ranging in depth from 728 to 1,325 feet (in the Woodbine and Twin Mountains aquifers), but have been either plugged or taken out of use. Well number 3 (a 48-foot deep monitoring well) is located approximately 3/4 mile southwest of Site 4, on the south side of the old Channel of the West Fork of the Trinity River.

### *4.3.2.4 Estimated Hydraulic Characteristics of the Alluvial Deposits*

Measured groundwater elevations in onsite monitoring wells evaluated during the RI ranged from approximately 548 feet MSL in the Site 1 wells, 383 to 441 feet MSL in the Site 3 wells, and from 403 to 414 feet MSL in the Site 4 wells. **Table 4.3-4** lists the top of casing, the date of the measurement of depth to water, the depth to water as measured, and the corresponding groundwater elevation for each OU No. 3 monitoring well. This information, combined with related information such as the location of surface seeps and creeks, was used to evaluate groundwater flow directions at each site. **Figures 4.3-18, 4.3-19, and 4.3-20** provide the groundwater elevations measured at each well.

As shown in **Figure 4.3-18**, only two locations were available on Site 1 to determine groundwater elevations, which by themselves, cannot be used to estimate gradients (a minium of three points are required). When observed in conjunction with the ground surface elevations at nearby surface seeps and at the creek, however, the shallow groundwater encountered in weathered limestone on the east side of the creek at Site 1 appears to be flowing west and recharging the creek **(Figure 4.3-18)**.

024396

In reviewing the geologic and hydrogeologic information from Site 3, it appears that shallow groundwater is present in both shallow water-bearing landfill debris zones and in water-bearing alluvium (primarily sand and gravel, and generally directly above bedrock). The depositional environment of the materials above bedrock in this area is presumed to have ranged from alluvial to fluvial. Some of the elevations shown on **Figure 4.3-19** represent the elevations of water encountered in the landfill debris zones, which are not correlative to groundwater elevations in the water-bearing alluvial materials, also shown on **Figure 4.3-19**. Due to the presence of the landfill debris zones and surface water drainages intercepting groundwater flow in the alluvial materials, groundwater flow contours could not be developed. It can be assumed, however, that groundwater in the alluvial materials generally migrates toward Mountain Creek, and toward the nearby drainages. Due to the nature of deposition of these materials, some intervals may not transmit groundwater along a direct route.

The shallow subsurface geology and presumed depositional environment of Site 4 is similar to that of Site 3, and the groundwater gradient at Site 4 is to the west and to the north, toward the surface water drainages bounding the site, as shown on **Figure 4.3-20**.

A 1988 TWC RCRA Facility Assessment (RFA) of the RSR smelter property (OU No. 4) documented a range of groundwater gradients in the vicinity of OU No. 4 between 0.032 to less than 0.01 feet per foot, with an assumed direction of flow toward the northwest **(TWC, 1988)**. The RFA also estimated the permeability of the alluvial deposits to range from less than $1 \times 10^{-9}$ centimeters per second to $1 \times 10^{-6}$ centimeters per second, and groundwater flow velocities at 0.001 to 10.0 feet per year, although the report also indicated that the average groundwater flow rate was expected to be closer to 1 foot per year due to the presence of silts and clays in the shallow deposits **(TWC, 1988)**. These estimates are consistent with estimates based solely on the character of the alluvial deposits (silts, clays, and silty clays) observed during soil boring activities conducted during the OU No. 3 RI. The monitoring wells installed at Site 1 and several of the wells at Sites 3 and 4 demonstrated relatively low yield, and several of the wells were pumped dry during well purging associated with the groundwater sampling activities.

Although it has not been quantified by in-place aquifer testing, the yield of the alluvial deposits encountered in the shallow subsurface at the OU No. 3 sites is likely to be less than one (1) gallon per minute in most places.

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Due to the presence of the Trinity River north of the RSR Site and other surface drainage channels in the area (i.e., the creek on Site 1 and Mountain Creek adjacent to Site 3), it is likely that groundwater in the alluvial system eventually migrates to surface water and thereafter to the Trinity River. It is also likely, based on the character of the shallow alluvial deposits and their depositional environment, and the presence of landfill debris at various depths in the subsurface at Sites 3 and 4, the groundwater migration path will not be direct. The presence of sandy channel deposits intermingled with clays and silts will likely create preferential flow paths for the groundwater.

### 4.3.3 Surface Water

The Trinity River and its tributaries are the only major surface water bodies in the vicinity of the three (3) OU No. 3 sites, as shown on **Figure 4.3-17**; smaller drainage systems flowing through or past these sites eventually discharge to the Trinity River **(EPA, 1995c and 1995d)**. The Texas Water Code specified all segments of the Trinity River Basin for recreational use under TAC §307.10. None of the river segments are specified for domestic water supply.

On Site 1, an ephemeral creek flows north from a storm sewer outfall (on Fort Worth Avenue at Westmoreland Road), through the site, and discharges to a series of drainage ditches along I-30 approximately 0.75 mile north of the site. These drainage ditches transmit water generally north and discharge to the Trinity River at the Hampton Road pumping station.

In addition to areas of shallow standing water on the landfills within Site 3, other surface water bodies on the site include a series of ephemeral creeks recharged by a storm sewer

outfall at the Loop 12-Davis Street intersection. These creeks flow across the site and discharge to Mountain Creek, which flows north along the western boundary of Site 3 and discharges to the West Fork of the Trinity River at a location approximately 1-1/2 miles north of the site. The West Fork flows east-northeast and joins the Elm Fork of the Trinity at a location approximately 1-1/4 miles downstream of Site 4.

024398

The Old Channel of the West Fork of the Trinity River and a drainage channel originating at a storm sewer outfall located at the corner of Iroquois and Gallagher Streets bound the southwest/west and northeast sides of Site 4, respectively. These channels flow generally north and discharge to a drainage channel located on the south side of the Trinity River Levee, which flows east along the north side of Site 4, and discharges to the Trinity River at the Hampton Road pumping station, located approximately three (3) miles east of Site 4.

A total of seven (7) surface water intakes and surface water rights were identified within three (3) miles of each OU No. 3 site from information obtained from the Surface Water Monitoring Section of the TNRCC. Details of the location and usage of these intakes are provided in **Table 4.3-5**, and their locations are illustrated on **Figure 4.3-17**. Surface water intake number 41 is located on the west side of Mountain Creek (across from Site 3) and is permitted to the Sunset Golf Center for irrigation. Surface water intake number 42 is located on the north side of the West Fork of the Trinity River, across from Site 4, and is permitted to the City of Irving's Twin Wells Golf Course for irrigation.

Three (3) surface water gaging stations have been identified in the vicinity of West Dallas and the RSR Site:

- Station # 08051000 is a continuous stream flow station near Mountain Creek in Grand Prairie (shown in **Figure 4.3-17**). A continuous stream flow station is a permanent gage from which a continuous record of stage is obtained, and from which stage-discharge relationships are developed **(USGS, 1986)**.

- Station # 08057000, a continuous flow station, is located in Dallas near the Trinity River at Commerce Street (shown in **Figure 4.3-17) (USGS, 1986).**

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- Station # 08057055 monitors continuous stream flow, as well as continuous water quality (specific conductance, temperature, dissolved oxygen, and pH), and periodic chemical quality (between 2 and 10 samples are collected each year and analyzed for major inorganics and related constituents). This station is located near the Trinity River at Cedar Crest Boulevard in Dallas, approximately three (3) miles south of the RSR Site (not shown on **Figure 4.3-17) (USGS, 1986).**

## 4.4 Soils

The soil survey of Dallas County, Texas, issued in February 1980 by the USDA Soil Conservation Service (SCS), was used to identify the major soil types on the three sites comprising OU No. 3. A number of area-specific complexes were identified.

### 4.4.1 Site 1 Soils

Four soil types are found on Site 1. The **Eddy-Urban land complex**, found at the south end of Site 1 (in the vicinity of the sign company and mobile home park) is comprised of well-drained soils (clay loam overlying weathered limestone inter-laminated with clay loam), typically formed at depths up to 12 inches on gently sloping limestone surfaces and areas of urban land.

The **Eddy-Brackett complex**, found on both steep sides of the creek that flows north through the site, near its origin, is a well-drained soil (clay loam, increasing in gravel content) typically formed at depths up to 20 inches on strongly sloping to moderately

steep limestone slopes, and usually has a dense cover of trees, shrubs, grasses, and woody plants.

024400

The **Ferris-Heiden complex** is comprised of deep (up to 78 inches) well-drained soils typically formed on gently rolling to rolling hillsides, and is found farther downstream on the creek through Site 1. The Ferris soil (light clay grading to a dark shaly clay) is formed on the steeper slopes, whereas the Heiden soil (dark clay grading to a mottled shaly clay) is formed in valleys and on lower slopes and ridge tops.

The **Trinity Clay**, a deep (up to 68 inches), somewhat poorly drained soil (dark gray to grayish brown clay) typically formed in nearly level, frequently flooded areas, is found along the low creek floodplain in the northern portion of Site 1.

With distance downstream in the drainage basin, soil permeability decreases from moderately slow (in the Eddy-Urban land complex) to very slow (in the Trinity Clay), whereas available water capacity increases from very low to very high. All soil types except the Trinity Clay are characterized by rapid runoff and severe erosion hazard potential.

### 4.4.2 Site 3 Soils

Two soil types are found on Site 3. **Ovan clays**, found within the former Mountain Creek drainage basin and in the vicinity of the Dahlstrom Landfill property, are deep (up to 80 inches), moderately well-drained clay soils (dark to very dark grayish brown to olive brown clay) formed in nearly level areas that are frequently flooded. The unit is characterized by very slow permeability, high available water capacity, slow runoff, and slight erosion hazard potential. These soils have the highest potential for use as pasture and cropland, and very low potential for urban use.

The **Arents loamy soils** formed in areas previously mined for sand and gravel (i.e., Wes Davis Landfill property), where discarded overburden and/or soil have been used to fill borrow pits. The resultant land surface generally is lower than surrounding landscape, with 1 to 5% slopes and no uniform soil layers. These soils may be described as sandy clay loam, clay loam, loam, or fine sandy loam in the upper 80 inches of soil horizon; quartz pebbles are common, and organic matter content is low. They are characterized by moderate permeability.

024401

### 4.4.3 Site 4 Soils

The entire Site 4 landfill area is characteristic of **Arents loamy soils**, which formed in areas previously mined for sand and gravel, where discarded overburden and/or soil have been used to fill borrow pits. The resultant land surface generally is lower than surrounding landscape, with 1 to 5% slopes and no uniform soil layers. These soils may be described as sandy clay loam, clay loam, loam, or fine sandy loam in the upper 80 inches of soil horizon; quartz pebbles are common, and organic matter content is low. They are characterized by moderate permeability, and have medium potential for pasture and urban use.

### 4.4.4 Regional Background Soil Concentrations

Literature sources were reviewed to determine expected background concentrations of selected inorganics in soil for comparison to concentrations of inorganics detected in OU No. 3 soil and sediment samples described in subsequent **Chapters 6, 7, and 8. Table 4.4-1** lists these typical regional concentrations, as well as the arithmetic mean, standard deviation, number of samples on which the data was based, and a calculation of the arithmetic mean plus two standard deviations. It is the arithmetic mean plus two standard deviations (also referred to as the upper tolerance limit or UTL) that is compared to the inorganic concentrations exhibited by the soil and sediment samples. This value provides

a good estimate of the likely range of concentrations which may be expected in regional soils.

024402

## 4.5 Land Use

The distribution of land uses within the RSR Site is shown on the zoning map presented in **Figure 4.5-1 (City of Dallas, 1992-1994)**. The land use of the areas comprising the three OU No. 3 sites are discussed in the following sections.

### 4.5.1 Site 1 Land Use

The southwestern portion of Site 1 presently is zoned for light industrial use, which includes wholesale distribution and storage. Historical aerial photographs **(EPA, 1938-1992)** indicate the 2.3-acre southwestern tract, which has been occupied by a sign company since 1977, has been developed since approximately 1950.

The rest of the site is zoned for multi-family residential use. Aerial photographs show that the mobile home park on the 2.8-acre tract in the southeastern corner of Site 1 (north of the gas station on the corner of Westmoreland Road and Ft. Worth Avenue) has been in existence since at least 1950. North of the trailer park is a 1.2-acre right-of-way for an overhead power line, which extends from the cement plant property east across Site 1 to Westmoreland Road. North of this right-of-way are two privately-owned properties, described below.

Information obtained from site reconnaissance activities indicates that a house and two small sheds are the only structures located on the more southern of these two privately-owned properties **(EPA, 1995b)**. Historical aerial photographs indicate several structures once were located on the more northern property; concrete foundations and other miscellaneous structures observed during site reconnaissance activities provide

further evidence of former habitation of this area. The remainder of Site 1 is undeveloped, and is characterized by heavy vegetation.

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### 4.5.2 Site 3 Land Use

The three landfills comprising Site 3 (Dahlstrom, TXI, and West Davis) were originally identified to contain slag and/or battery casing chips thought to be associated with smelter operations. The Dahlstrom and TXI Landfill properties presently are zoned for agricultural use; historical aerial photographs indicate that the Dahlstrom property was cultivated until the mid-1960s (EPA, 1938-1992). The West Davis Landfill property is zoned for light industrial use. When City of Dallas landfilling operations ceased in the late 1970s to early 1980s, the Dahlstrom property was graded and converted to an auto salvage yard and trucking operation. The remaining properties were never developed.

### 4.5.3 Site 4 Land Use

The four landfills comprising Site 4 (Vilbig, Nomas, West Dallas, and Jaycee Park) originally were identified to contain slag and/or battery casing chips thought to be associated with smelter operations. The Vilbig and Nomas properties presently are zoned for mobile homes, and the West Dallas and Jaycee Park properties are zoned for single-family residential dwellings. When City of Dallas landfilling operations ceased in the early- to mid-1970s, some of the property comprising the Vilbig, Nomas, and West Dallas Landfills was subdivided after being released to the property owners. These properties were never developed. EPA, in coordination with TNRCC, is presently working with the City of Dallas to change the zoning for the Vilbig, Nomas, and West Dallas Landfills to non-residential land use. The Jaycee Park property is now the site of Jaycee Zaragoza Park and associated recreational facilities.

024404

**Table 4.3-1**
**Aquifer Classification Descriptions - State and Federal**



| | | |
|---|---|---|
| **Texas Natural Resource Conservation Commission** | | |
| Major Aquifer (TDWR, 1987) | Defined as an aquifer yields large quantities of water in a comparatively large area of the State | |
| Minor Aquifer (TDWR, 1987) | Defined as an aquifer which yields large quantities of water in small area, or relatively small quantities of water in large areas of the State | |
| Recommended Secondary Drinking Water Standards (30 TAC §290.113) | Sulfate | 300 mg/L |
| | Chloride | 300 mg/L |
| | Total Dissolved Solids (TDS) | 1,000 mg/L |
| Aquifer categories (TNRCC, 1994) | Fresh (for drinking & all other uses) | <1,000 mg/L TDS |
| | Slightly saline (drinking if fresh unavailable, livestock watering, irrigation, industrial, mineral extraction, oil & gas production) | 1,000-3,000 mg/L TDS |
| | Moderately saline (potential/future drinking and limited livestock watering and irrigation if fresh or slightly saline is unavailable; industrial, mineral extraction, oil & gas production) | 3,000-10,000 mg/L TDS |
| | Brine (mineral extraction, oil & gas production) | >10,000 mg/L TDS |
| **U.S. Environmental Protection Agency** | | |
| Groundwater classification (EPA, 1988) | Class I (*special groundwater*) | 1. highly vulnerable to contamination based on hydrological characteristics; and<br>2. either irreplaceable as a drinking water source or ecologically vital |
| | Class II (*current and potential sources of drinking water and water having other beneficial uses*) | 1. Class IIA, groundwater that is currently used; or<br>2. Class IIB, groundwater that is potentially available for drinking water, agriculture, or other beneficial use |
| | Class III (*groundwater not considered a potential source of drinking water and of limited beneficial use*) This groundwater has either:<br>1. TDS greater than 10,000 mg/l; or<br>2. is otherwise contaminated by naturally-occurring constituents or human activity not associated with a particular waste disposal activity | 1. Class IIIA, groundwater that is interconnected to surface water or adjacent groundwater that potentially could be used for drinking water; or<br>2. Class IIIB, groundwater that has no interconnection to surface water or adjacent aquifers |

**Table 4.3-2**
**General Water Quality Parameters[1]**
**Operable Unit No. 3**



024405

| Parameter | Minimum | Maximum | Average | Texas Recommended Drinking Water Standard[2] | Federal Drinking Water Standard (MCL) |
|---|---|---|---|---|---|
| pH | 5.8 | 7.1 | – | | |
| Alkalinity | 236 mg/l | 1,850 mg/l | 863 mg/l | | |
| Total Dissolved Solids (TDS) | 472 mg/l | 12,000 mg/l | 2,366 mg/l | 1,000 mg/l | 500 mg/L[3] |
| Total Suspended Solids (TSS) | 70 mg/l | 8,700 mg/l | 2,109 mg/l | | |
| Chloride | 7 mg/l | 1,130 mg/l | 258 mg/l | 300 mg/l | 250 mg/L[3] |
| Sulfate | not detected | 15,600 mg/l | 1,155 mg/l | 300 mg/l | 250 mg/L[4] |

[1]General water quality parameters measured in OU No. 3 monitoring wells during the RI groundwater investigation
[2]Texas Recommended Secondary Drinking Water Standard (30 TAC §290.113)
[3]Federal Secondary Drinking Water Standard (40 CFR Part 141)
[4]Federal Primary Drinking Water Standard (40 CFR Part 143)

Table 4.3-3
Registered Groundwater Wells
Operable Unit No. 3
RSR Corporation Superfund Site



| Mapped Location # | State Identification # | Owner | Well Use | Completion Date | Total Depth (feet) | Aquifer* | Depth to Groundwater (feet)** |
|---|---|---|---|---|---|---|---|
| 1 | 33-09-511 | Dr. Harry Levi, Jr. Shady Oaks Trailer Park | Public Supply | 1969 | 405 | Kgw | 182 [1969] |
| 2 | 33-09-801 | Trinity River Authority | Industrial | 1973 | 475 | Kgw | 290 [1973] |
| 3 | 33-09-8D | Dal-Worth Industries | Monitor | 1977 | 48 | Qal | 13 [1977] |
| 4 | 33-09-906 | Independent Water Co. | Public Supply (Not Used) | 1947 | 787 | Kgw | — |
| 5 | 33-09-905 | Independent Water Co. | Public Supply (Not Used) | 1946 | 728 | Kgw | — |
| 6 | 33-09-904 | Independent Water Co. | Public Supply (Plugged) | 1950 | 1,325 | Kcpa | — |
| 7 | 33-09-9A | Murph Metals | Monitor | 1976 | 39 | Qal | — |
| 8 | 33-09-911 | Texaco, Inc. | Industrial (Destroyed) | 1929 | 1,392 | Kcpa | 135 [1929] |
| 9 | 33-09-909 | Texaco, Inc. | Industrial (Destroyed) | 1913 | 2,372 | Kctm | 124.7 [1939] |
| 10 | 33-10-702 | GAF Corporation | Industrial | 1953 | 2,525 | Kctm | 222 [1953] |
| 11 | 33-10-701 | City of Dallas | Public Supply (Capped) | 1952 | 2,540 | Kctm | 643 [1956] |
| 12 | 33-10-703 | Lone Star Cement Co. | Industrial (Plugged) | 1953 | 2,544 | Kctm | 200 [1953] |

Table 4.3-3
Registered Groundwater Wells
Operable Unit No. 3
RSR Corporation Superfund Site



| Mapped Location # | State Identification # | Owner | Well Use | Completion Date | Total Depth (feet) | Aquifer* | Depth to Groundwater (feet)** |
|---|---|---|---|---|---|---|---|
| 13 | 33-10-506 | Lone Star Industries | Industrial | | 50 | Qal | — |
| 14 | 33-10-821 | Gifford-Hill & Co. | Industrial | 1973 | 830 | Kgw | 330 [1973] |
| 15 | 33-10-403 | St. Paul's Hospital | Public Supply (Plugged) | 1938 | 920 | Kgw | — |
| 16 | 33-10-404 | City of Dallas | Public Supply (Not Used) | 1910 | 1,405 | Kcpa | — |
| 17 | 33-10-822 | City of Dallas | Public Supply (Plugged) | 1924 | 2,700 | Kctm | 82 [1941] |
| 18 | 33-10-7B | Southwest Industrial Gas, Inc. | Irrigation | 1978 | 57 | Qal | 14 [1978] |
| 19 | 33-09-910 | Texaco, Inc. | Industrial (Destroyed) | 1923 | 2,485 | Kcpa Kctm | 149 [1942] |
| 20 | 33-09-907 | Trinity Portland Cement | Industrial (Destroyed) | 1908 | 1,550 | Kcpa | 220 [1942] |
| 21 | 33-09-901 | General Portland Cement | Industrial (Capped) | 1940 | 1,500 | Kcpa | — |
| 22 | 33-09-908 | General Portland Cement | Industrial | 1965 | 1,514 | Kcpa | 534 [1965] |
| 23 | 33-09-902 | General Portland Cement | Industrial (Plugged) | 1950 | 2,597 | Kctm | 300 [1952] |
| 24 | 33-09-903 | General Portland Cement | Industrial | 1957 | 2,601 | Kctm | 563 [1957] |

024407

Table 4.3-3
Registered Groundwater Wells
Operable Unit No. 3
RSR Corporation Superfund Site



| Mapped Location # | State Identification # | Owner | Well Use | Completion Date | Total Depth (feet) | Aquifer* | Depth to Groundwater (feet)** |
|---|---|---|---|---|---|---|---|
| 25 | 33-10-7A [same well as 33-09-908] | General Portland Cement | Industrial | 1965 | 1,514 | Kcpa | 534 [1965] |
| 26 | 33-10-706 | Stevens Plaza Apartments | Public Supply | 1964 | 829 | Kgw | 405 [1964] |
| 27 | 33-10-705 | City of Dallas | Public Supply (Capped) | 1930 | 2,634 | Kctm | 464.7 [1956] |
| 28 | 33-18-101 | City of Dallas | Not Used (Abandoned) | 1927 | 2,652 | Kctm | — |
| 29 | 33-17-205 | Hill Pet Shop | Industrial & Domestic | 1969 | 534 | Kgw | — |
| 30 | 33-17-2B | Ben Parks | Domestic | 1970 | 464 | Kgw | 320 [1970] |
| 31 | 33-17-303 | Dallas Co. FWD #1 | Public Supply (Not Used) | 1937 | 556 | Kgw | 147 [1937] |
| 32 | 33-17-301 | Mt. St. Michaels Home | Public Supply | 1947 | 2,667 | Kctm | 371 [1952] |
| 33 | 33-17-3A | Texas Auto Salvage | Domestic | 1972 | 50 | Qal | — |
| 34 | 33-10-704 | Lone Star Cement Co. | Industrial (Plugged) | 1956 | 2,585 | Kctm | 535 [1956] |
| 35 | 33-17-2B | Hill Pet Shop | Unknown | 1969 | 534 | Kgw | — |
| 36 | 33-17-302 | Mt. St. Michaels Home | Public Supply (Not Used) | 1922 | 1,492 | Kcpa | 358 [1933] |

024408

Table 4.3-3
Registered Groundwater Wells
Operable Unit No. 3
RSR Corporation Superfund Site



| Mapped Location # | State Identification # | Owner | Well Use | Completion Date | Total Depth (feet) | Aquifer* | Depth to Groundwater (feet)** |
|---|---|---|---|---|---|---|---|
| 37 | 33-09-8 | Marie Mims | Domestic | 1986 | 500 | Kgw | 230 [1986] |
| 38 | 33-09-8 | Marie Mims | Domestic | 1986 | 515 | Kgw | 270 [1986] |
| 39 | 33-09-9 | Dallas Calco, Inc. | Irrigation | 1990 | 705 | Kgw | 360 [1990] |
| a1 | 33-09-5x | C.L. Parrish | Domestic | 6/3/73 | 42 | Qal | -- |
| a2 | 33-09-506 | George Foster | Observation (Not Used) | 1950 | 325 | Kgw | 35 [1971] |
| a3 | 33-09-502 | City of Irving | Public Supply (Capped) | 1953 | 2309 | Kctm | 418 [1961] |
| a4 | 33-09-504 | City of Irving | Public Supply (Capped) | 1948 | 2267 | Kctm | 168 [1948] |
| a4 | 33-09-507 | City of Irving | Public Supply (Capped) | 7/7/72 | 2250 | Kctm | 703.5 [1972] |
| a5 | 33-09-5q | Glenn Herron | Irrigation | 4/17/76 | 29 | Qal | -- |
| a5 | 33-09-5q | Lowry C. Loveless | Domestic | 8/2/69 | 42 | Qal | -- |
| a6 | 33-09-5j | records missing | -- | -- | -- | -- | -- |
| a7 | 33-09-601 | Petrocarbon Chemicals, Inc. | Industrial (Plugged) | 6/19/57 | 443 | Kgw | 190 [1957] |
| a8 | 33-09-510 | City of Irving | Plugged | 1924 | 397 | Kgw | 150 [1942] |

024409

Table 4.3-3
Registered Groundwater Wells
Operable Unit No. 3
RSR Corporation Superfund Site



| Mapped Location # | State Identification # | Owner | Well Use | Completion Date | Total Depth (feet) | Aquifer* | Depth to Groundwater (feet)** |
|---|---|---|---|---|---|---|---|
| a9 | 33-09-509 | City of Irving | Plugged | 1939 | 494 | Kgw | 118 [1939] |
| a10 | 33-09-503 | City of Irving | Public Supply (Gapped) | 6/23/45 | 2283 | Kctm | 389.6 [1955] |
| a11 | 33-09-512 | Jim Malone | Domestic | 5/23/66 | 505 | Kgw | 200 [1966] |
| a12 | 33-09-5p | C.R. Niford | Unknown | 6/15/68 | 60 | Qal | 28 [1968] |
| a13 | 33-09-5d | C.A. Phillips | Domestic | 8/6/69 | 50 | Qal | – |
| a14 | 33-09-5u | Lucy C. McGee | Irrigation | 6/1/71 | 32 | Qal | – |
| a15 | 33-09-5w | records missing | – | – | – | – | – |
| a16 | 33-09-5z | Delbert Edwards | Domestic | 3/30/81 | 40 | Qal | – |
| a16 | 33-09-5z | Delbert Edwards | Domestic | 4/7/81 | 50 | Qal | 29 [1981] |
| a17 | 33-09-5g | A.S. Wochner | Domestic | 6/10/71 | 273 | Kgw | – |
| a17 | 33-09-5g | Bill Harris | Domestic | 4/01/72 | 31 | Qal | – |
| a18 | 33-09-5 | Jerry Thorn | Domestic | 10/7/88 | 60 | Qal | 30 [1988] |
| a18 | 33-09-5r | T.O. Pritchett | Domestic | 5/1/70 | 50 | Qal | – |
| a19 | 33-09-5b | records missing | – | – | – | – | – |
| a20 | 33-09-5m | Dr. Giles | Domestic | 5/26/64 | 50 | Qal | – |

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Table 4.3-3
Registered Groundwater Wells
Operable Unit No. 3
RSR Corporation Superfund Site



| Mapped Location # | State Identification # | Owner | Well Use | Completion Date | Total Depth (feet) | Aquifer* | Depth to Groundwater (feet)** |
|---|---|---|---|---|---|---|---|
| a21 | 33-09-4h | Fred Delorge | Domestic | 4/1/75 | 43 | Qal | -- |
| a22 | 33-09-8B | Ray K. Neal | Domestic | 11/6/72 | 30 | Qal | -- |
| a23 | 33-09-8c | records missing | -- | -- | -- | -- | -- |
| a24 | 33-09-7c | Jack Gazin | Domestic | 7/18/66 | 315 | Kgw | -- |
| a25 | 33-09-7e | Bill Welch | Domestic | 10/2/78 | 60 | Qal | 30 [1978] |
| a26 | 33-09-706 | Q. Hoy/Trailer Park | Irrigation | 6/28/68 | 291 | Kgw | -- |
| a27 | 33-09-8f | City of Irving | Piezometer | 2/20/81 | 36 | Qal | 27.5 [1981] |
| a27 | 33-09-8f | City of Irving | Peizometer | 2/19/81 | 31 | Qal | 24 [1981] |
| a27 | 33-09-8f | City of Irving | Piezometer | 2/23/81 | 37 | Qal | 25.5 [1981] |
| a27 | 33-09-8f | City of Irving | Piezometer | 2/23/81 | 34 | Qal | 18.5 [1981] |
| a27 | 33-09-8f | City of Irving | Monitoring | 2/24/81 | 29 | Qal | -- |
| a27 | 33-09-8f | City of Irving | Monitoring | 2/23/81 | 25 | Qal | 17 [1981] |
| a27 | 33-09-8f | City of Irving | Monitoring | 2/23/81 | 21 | Qal | 8 [1981] |

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Table 4.3-3
Registered Groundwater Wells
Operable Unit No. 3
RSR Corporation Superfund Site



| Mapped Location # | State Identification # | Owner | Well Use | Completion Date | Total Depth (feet) | Aquifer* | Depth to Groundwater (feet)** |
|---|---|---|---|---|---|---|---|
| a28 | 33-09-802 | Gifford-Hill & Co., Inc. | Industrial | 4/9/76 | 1180 | Kcpa | 460 [1976] |
| a29 | 33-09-8a | Dr. H.H. Plattner | Domestic | 11/14/66 | 450 | Kgw | 156 [1955] |
| a30 | 33-09-7d | C.B. Drinnan | Domestic | 9/18/67 | 220 | Kgw | 60 [1967] |
| a31 | 33-09-708 | Gifford-Hill Amer., Inc. | Industrial | 7/8/55 | 450 | Kgw | 156 [1955] |
| a32 | 33-09-707 | Gifford-Hill Amer., Inc. | Industrial | 1951 | 1102 | Kcpa | 225 [1951] |
| a33 | 33-09-703 | City of Grand Prairie | Public Supply | 7/01/53 | 2163 | Kctm | 834 [1975] |
| a34 | 33-09-702 | City of Grand Prairie | Public Supply (Plugged) | 1950 | 460 | Kgw | – |
| a35 | 33-17-2c | Cecil Ferris | Domestic | 9/17/80 | 60 | Qal | – |
| a36 | 33-17-105 | U.S. Air Force | Public Supply (Plugged) | 3/31/41 | 413 | Kgw | 300 [1958] |
| a36 | 33-17-106 | U.S. Air Force | Public Supply (Plugged) | 7/1/42 | 417 | Kgw | 300 [1958] |
| a37 | 33-17-204 | Industrial Catering Service | Industrial | 5/5/66 | 502 | Kgw | – |
| a38 | 33-17-103 | U.S. Naval Reserve | Public Supply | 7/1/42 | 417 | Kgw | 87 [1943] |

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Table 4.3-3
Registered Groundwater Wells
Operable Unit No. 3
RSR Corporation Superfund Site



| Mapped Location # | State Identification # | Owner | Well Use | Completion Date | Total Depth (feet) | Aquifer* | Depth to Groundwater (feet)** |
|---|---|---|---|---|---|---|---|
| a39 | 33-17-104 | U.S. Naval Reserve | Public Supply | 3/31/41 | 413 | Kgw | 78 [1941] |
| a40 | 33-17-203 | Dallas Naval Air Station | Public Supply | 10/24/68 | 2118 | Kctm | 606 [1968] |
| a41 | 33-17-202 | U.S. Naval Air Station | Public Supply | 11/23/42 | 2135 | Kctm | 379 [1954] |
| a42 | 33-17-2a | records missing | -- | -- | -- | -- | -- |
| a43 | 33-17-201 | Dallas Power & Light | Domestic | 1961 | 274 | Kgw | -- |
| a44 | 33-09-4j | F.C. Warming | Unknown | 5/1/70 | 50 | Qal | -- |
| a45 | 33-09-4f | F.D. Gilbreath | Domestic | 3/10/69 | 48 | Qal | -- |
| a46 | 33-09-5s | Yong Ho Pak | Irrigation | 12/8/78 | 402 | Kgw | 250 [1978] |
| a46 | 33-09-5s | Donald W. Adamson | Domestic | 5/1/70 | 48 | Qal | -- |
| a47 | 33-09-5i | records missing | -- | -- | -- | -- | -- |
| a48 | 33-09-5n | R.H. Zorin | Domestic | 6/16/64 | 42 | Qal | -- |
| a49 | 33-09-5e | Don Owen | Domestic | 7/15/69 | 33 | Qal | -- |
| a50 | 33-09-5t | Fred W. Miller | Irrigation | 5/1/71 | 35 | Qal | -- |
| a51 | 33-09-7 | Steffon Toth | Domestic | 9/16/90 | 320 | Kgw | 225 [1990] |
| a51 | 33-09-7k | Henderson Salvage | Domestic | 5/15/75 | 44 | Qal | -- |

Table 4.3-3
Registered Groundwater Wells
Operable Unit No. 3
RSR Corporation Superfund Site



| Mapped Location # | State Identification # | Owner | Well Use | Completion Date | Total Depth (feet) | Aquifer* | Depth to Groundwater (feet)** |
|---|---|---|---|---|---|---|---|
| a52 | 33-09-7 | Westland Corp. | Domestic | 9/1/86 | 420 | Kgw | 160 [1986] |
| a53 | 33-09-8 | Arthur Broyles | Domestic | 9/1/86 | 410 | Kgw | 180 [1980] |
| a54 | 33-09-7 | Cal Brundett | Irrigation | 6/21/88 | 265 | Kgw | 185 [1988] |
| a55 | 33-09-7 | Dealers Auto Auction | Industrial | 6/7/87 | 477 | Kgw | 230 [1987] |
| a56 | 33-09-7 | Martha Ragsdale | Domestic | 12/12/89 | 205 | Kgw | 120 [1989] |
| a57 | 33-09-8c | Grady Gibson | Domestic | 11/13/80 | 290 | Kgw | 79 [1980] |
| a58 | 33-17-1d | C.J. Olson | Domestic | 5/23/68 | 371 | Kgw | 200 [1968] |
| a59 | un-numbered | Don Richter | Irrigation | 6/28/93 | 60 | Qal | – |
| a60 | un-numbered | Rex Faulkner | Irrigation | 1/28/94 | 296 | Kgw | 90 [1994] |

*Aquifer Notation: Qal=Alluvium; Kgw=Woodbine Group; Kcpa=Paluxy Formation; Kctm=Twin Mountains Formation
**Date of latest available groundwater readings in [ ].

Note: There may be >1 well per Mapped Location # or State Identification #, due to the frequently large concentration of wells in a small area.

024414

**Table 4.3-4**
**Groundwater Elevations**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024415

| Well | Top of Casing Elevation (feet) | Date of Measurement | Depth to Water (feet) | Groundwater Elevation (feet) |
|---|---|---|---|---|
| 1A-S022 | 571.2 | 04/20/95 | 23.60 | 547.6 |
| 1A-S083 | 568.3 | 04/20/95 | 20.75 | 547.6 |
| 3A-S001 | 442.5 | 05/16/95 | 27.40 | 415.1 |
| 3A-S004 | 440.9 | 05/10/95 | 18.80 | 422.1 |
| 3A-S005 | 439.6 | 05/16/95 | 6.00 | 433.6 |
| 3A-S006 | 442.7 | 05/16/95 | 1.90 | 440.8 |
| 3B-S003 | 428.0 | 05/23/95 | 14.95 | 413.0 |
| 3B-S009 | 434.5 | 05/17/95 | 5.15 | 429.3 |
| 3B-S041 | 438.8 | 05/22/95 | 53.30 | 385.5 |
| 3B-S056 | 441.5 | 05/17/95 | 6.60 | 434.9 |
| 3C-S006 | 428.0 | 05/18/95 | 6.65 | 421.4 |
| 3C-S084 | 441.6 | 05/22/95 | 24.50 | 417.1 |
| 3C-S116 | 438.2 | 05/17/95 | 16.15 | 422.0 |
| 3C-S117 | 429.5 | 05/18/95 | 16.50 | 413.0 |
| 3D-S073 | 436.5 | 05/15/95 | 51.60 | 384.9 |
| 3D-S107 | 439.6 | 05/23/95 | 5.90 | 433.7 |
| 3D-S126 | 428.3 | 05/15/95 | 4.95 | 423.3 |
| 3D-S127 | 435.3 | 05/23/95 | 22.60 | 412.7 |
| 3J-S001 | 442.4 | 05/15/95 | 30.15 | 412.3 |
| 3K-S016 | 433.7 | 05/23/95 | 50.65 | 383.0 |
| 4A-S012 | 418.6 | 04/17/95 | 11.10 | 407.5 |
| 4A-S030 | 417.5 | 04/17/95 | 14.10 | 403.4 |
| 4A-S047 | 419.7 | 04/18/95 | 8.05 | 411.6 |
| 4A-S080 | 420.3 | 04/18/95 | 15.75 | 404.5 |
| 4B-S001 | 428.5 | 04/17/95 | 19.30 | 409.2 |
| 4B-S023 | 421.8 | 04/18/95 | 11.93 | 409.8 |
| 4C-S021 | 426.4 | 05/16/95 | 13.45 | 413.0 |
| 4C-S057 | 427.6 | 04/19/95 | 19.25 | 408.4 |
| 4C-S110 | 427.2 | 04/18/95 | 16.40 | 410.8 |
| 4C-S113 | 418.9 | 04/19/95 | 11.30 | 407.6 |
| 4C-S117 | 424.7 | 04/19/95 | 19.70 | 405.0 |
| 4D-S009 | 419.2 | 04/13/95 | 5.45 | 413.7 |
| 4D-S083 | 419.6 | 04/13/95 | 9.38 | 410.2 |

**Table 4.3-5**
**Surface Water Intakes**
**Operable Unit No. 3**
**RSR Corporation Superfund Site**



| Map Identification # | State Identification | Owner/User | Location of Intake | Use |
|---|---|---|---|---|
| 40 | Water Rights Permit No. 5151 | Grand Prairie (Texas) Metropolitan Utility & Reclamation District | West Fork, Trinity River | Off-channel reservoir storage for recreation and irrigation |
| 41 | Water Rights Permit No. 3754 | D.J. Mims & C.B. Mims (Sunset Golf Center, Grand Prairie, Texas) | Unnamed tributary of Mountain Creek, and Mountain Creek | Off-channel reservoir storage for irrigation |
| 42 | Water Rights Permit No. 5136 | City of Irving, Texas | West Fork, Trinity River | Off-channel storage (Lakes MacKenzie & Carter) for irrigation |
| 43 | Not Permitted - Inventory No. TX 00828 | City of Dallas, Texas (Fishtrap Lake) | West Fork, Trinity River | W. Dallas Housing Project Dam (Fishtrap Lake) |
| 44 | Not Permitted - Inventory No. TX 00831 | Texas Industries, Inc. (Dallas, Texas) | West Fork, Trinity River | Texaco Lake Dam (Texaco Lake) |
| 45 | Certificate of Adjudication 08-2374A | Brook Hollow Golf Club (Dallas, Texas) | Old Channel of Elm Fork, Trinity River | Off-channel storage for irrigation |
| 46 | Water Rights Permit No. 5176 | City of Dallas, Texas (Pegasus Park) | Old Channel of Elm Fork, Trinity River | Off-channel reservoir storage for recreation |

024417

**Table 4.4-1**
**Regional Background Concentrations in Soil**
**RSR Corporation Superfund Site**
**Operable Unit No. 3**
**Dallas, Texas**



| Chemical | Background Concentrations (mg/kg) | | | | |
|---|---|---|---|---|---|
| | Range | Arithmetic Mean | Standard Deviation | Number of Samples | Arithmetic Mean + 2 Standard Deviations |
| Aluminum[a] | 700 - > 100,000 | 72,000<br>47,000[a] | --<br>2.48 | 1,247 | 47,000 |
| Antimony | <1.0 - 2.0 | <1.0 | -- | 27 | 2.0[c] |
| Arsenic | 1.1 - 18 | 6.4 | 3.3 | 119 | 13 |
| Barium | 150 - 1,000 | 404 | 200 | 119 | 800 |
| Beryllium | N.D. - 7.0 | 0.62 | 1.06 | 119 | 2.7 |
| Cadmium[b] | N.D. - 11 | -- | -- | 1,319 | 11[c] |
| Chromium | 3.0 - 150 | 40 | 28 | 119 | 96 |
| Cobalt | N.D. - 30 | 4.9 | 4.5 | 119 | 14 |
| Copper | 3.0 - 30 | 15 | 8.0 | 119 | 31 |
| Lead | N.D. - 30 | 13 | 8.1 | 119 | 29 |
| Manganese[b] | < 2.0 - 7,000 | 550<br>330[a] | --<br>2.77 | 1,317 | 340 |
| Mercury | < 0.01 - 0.69 | 0.064 | 0.097 | 119 | 0.26 |
| Nickel | N.D. - 50 | 12 | 8.8 | 119 | 30 |
| Selenium | <0.1 - 1.1 | 0.32 | 0.2 | 119 | 0.72 |
| Silver[b] | N.D. - 5.0 | -- | -- | 1,319 | 5.0[c] |
| Thallium | -- | -- | -- | -- | -- |
| Vanadium | 7.0 - 200 | 52 | 37 | 119 | 130 |
| Zinc | 5.0 - 108 | 39 | 22 | 116 | 83 |

Source: Dragun, J. and Chiasson, Andrew. 1991. Elements in North American Soils. Hazardous Materials Control Resources Institute.

[a]Geometric mean
[b]Soil of conterminous USA, rather than Texas soils only
[c]Maximum value

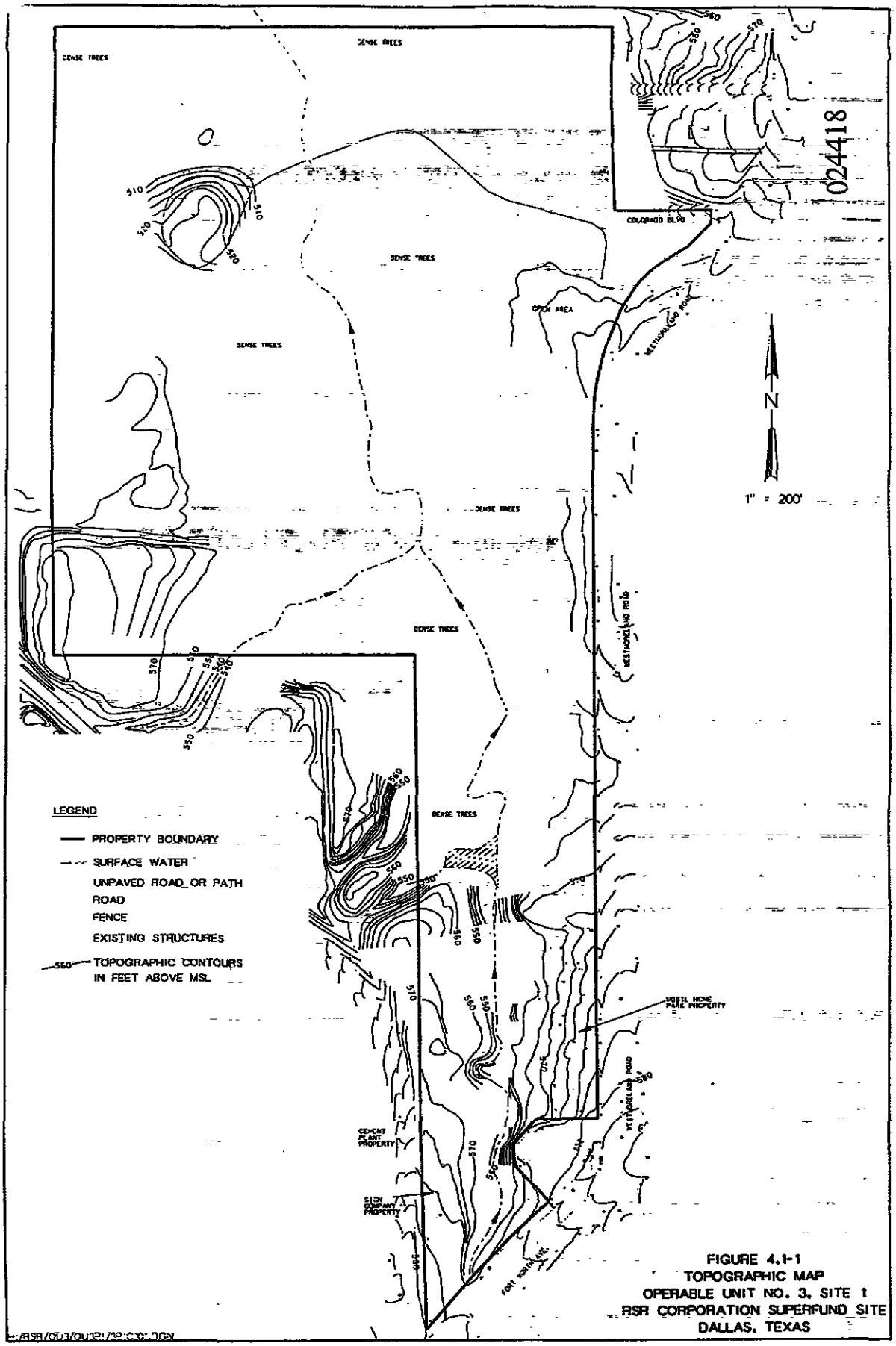



FIGURE 4.1-1
TOPOGRAPHIC MAP
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

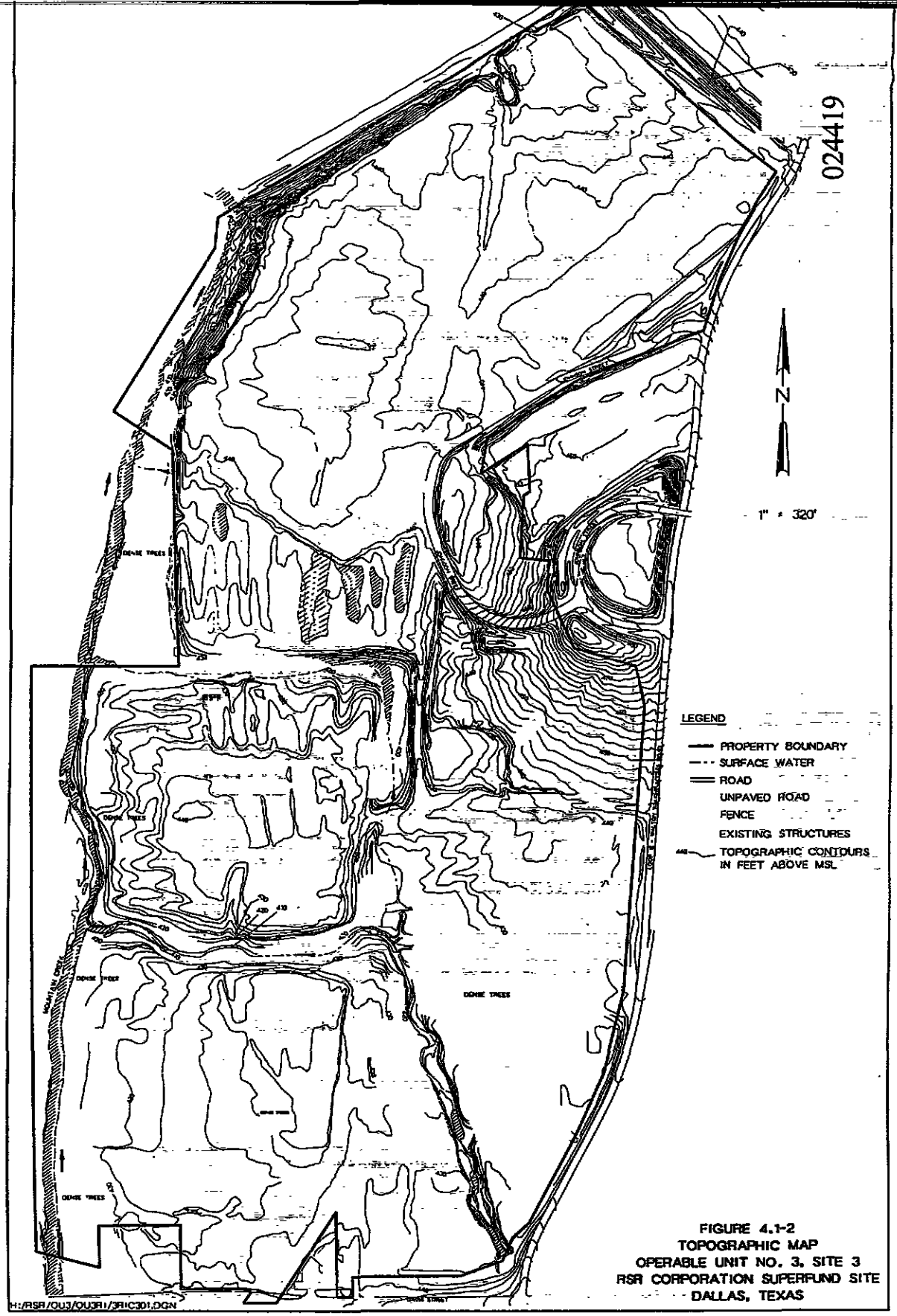



FIGURE 4.1-2
TOPOGRAPHIC MAP
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

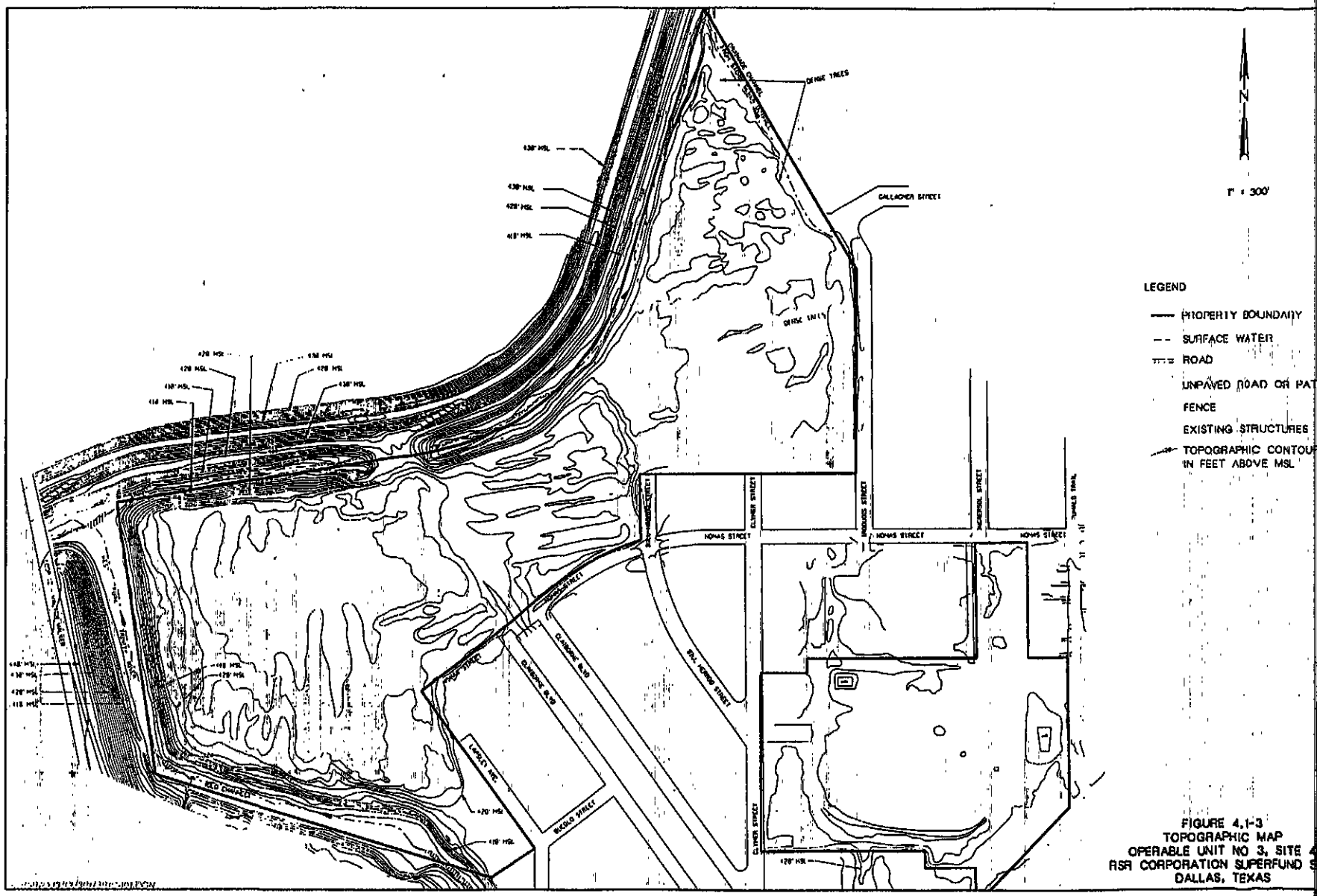
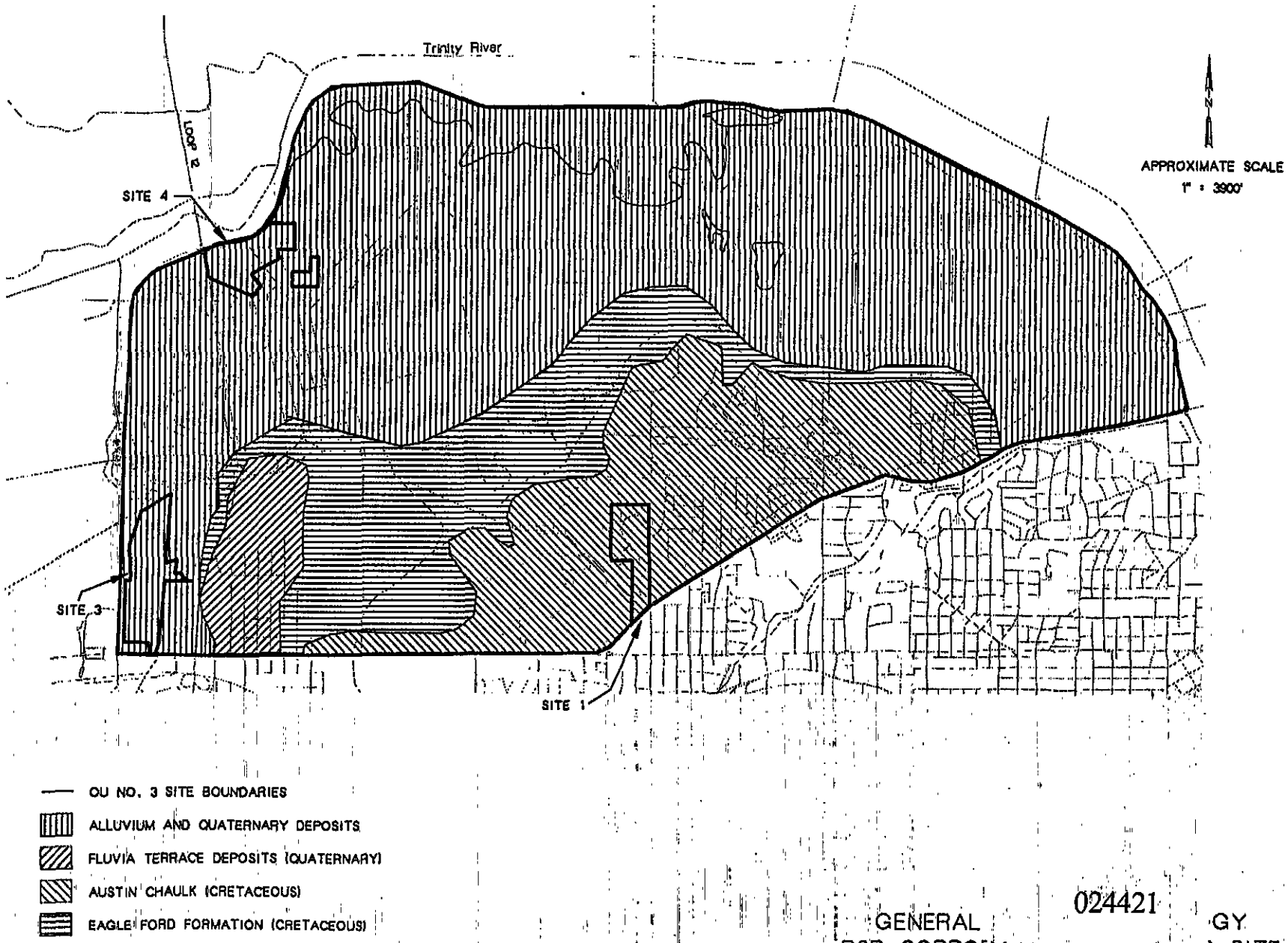



FIGURE 4.1-3
TOPOGRAPHIC MAP
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND S
DALLAS, TEXAS




68107R07.DGN *SOURCE: GEOLOGIC ATLAS OF TEXAS, DALLAS SHEET, 1972*

GENERAL GY
RSR CORPORATION SUPERFUND SITE

024421

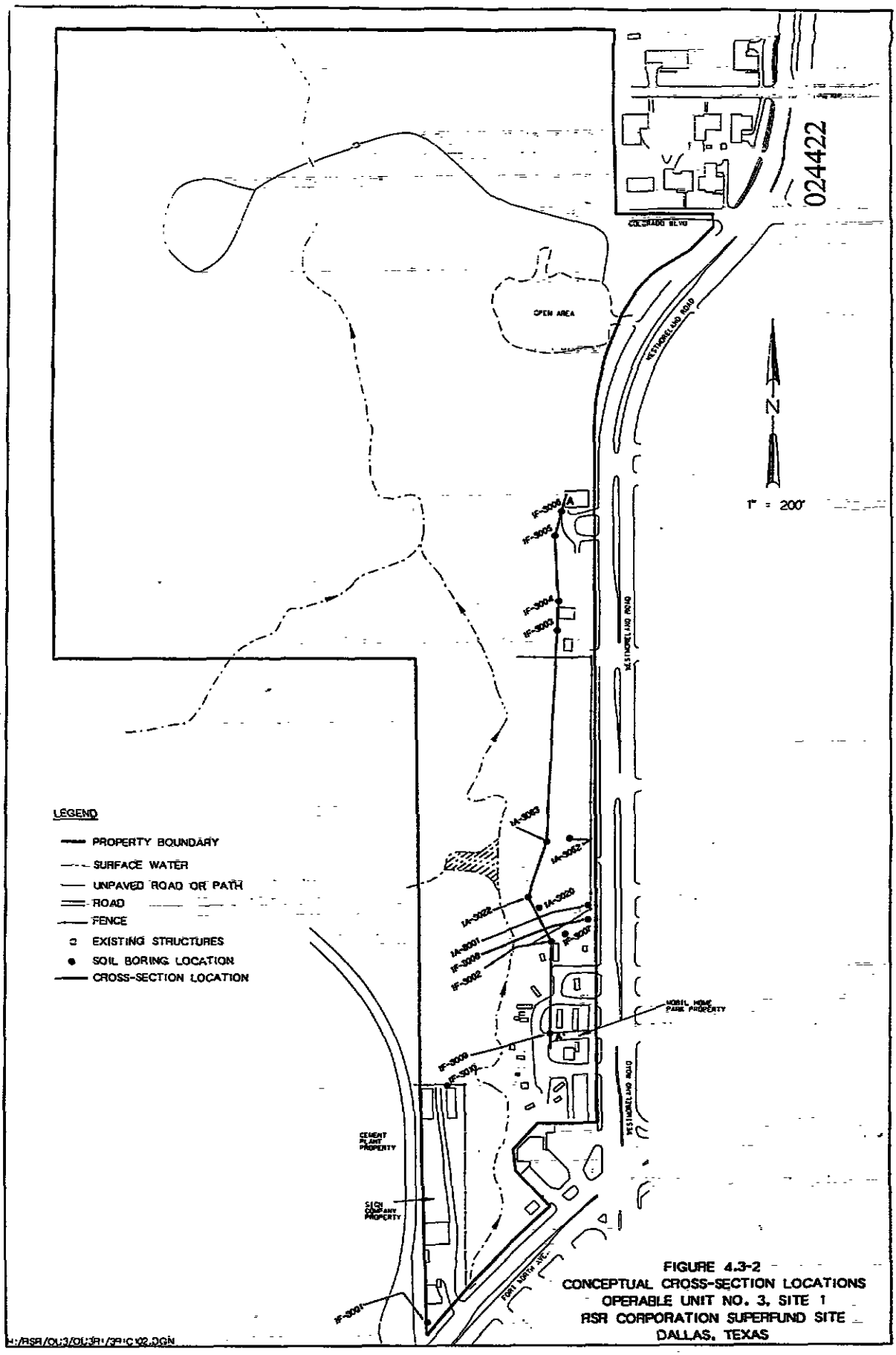



FIGURE 4.3-2
CONCEPTUAL CROSS-SECTION LOCATIONS
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

H:/RSR/OU3/OU3R1/3R1C02.DGN

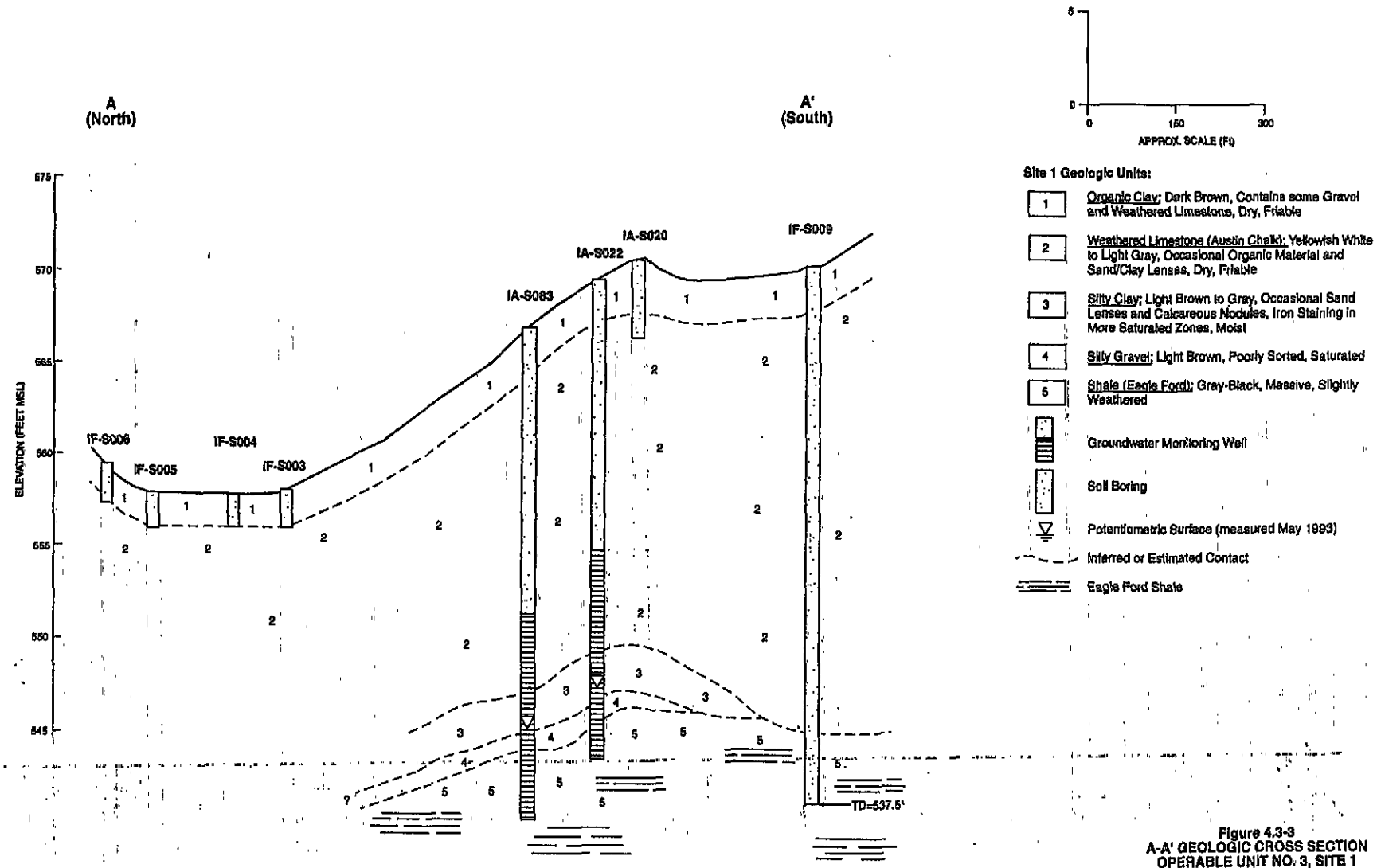



Figure 4.3-3
A-A' GEOLOGIC CROSS SECTION
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

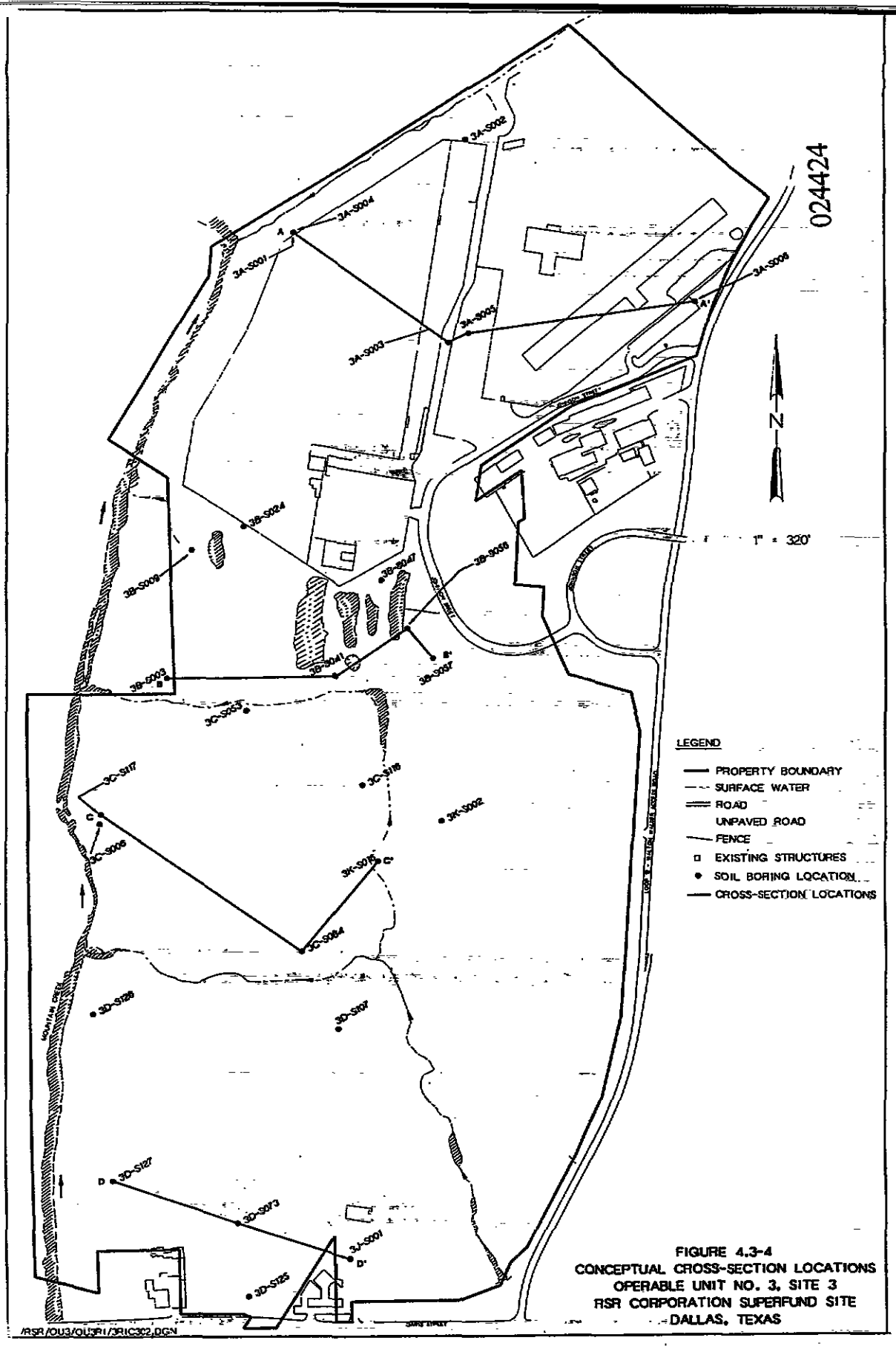
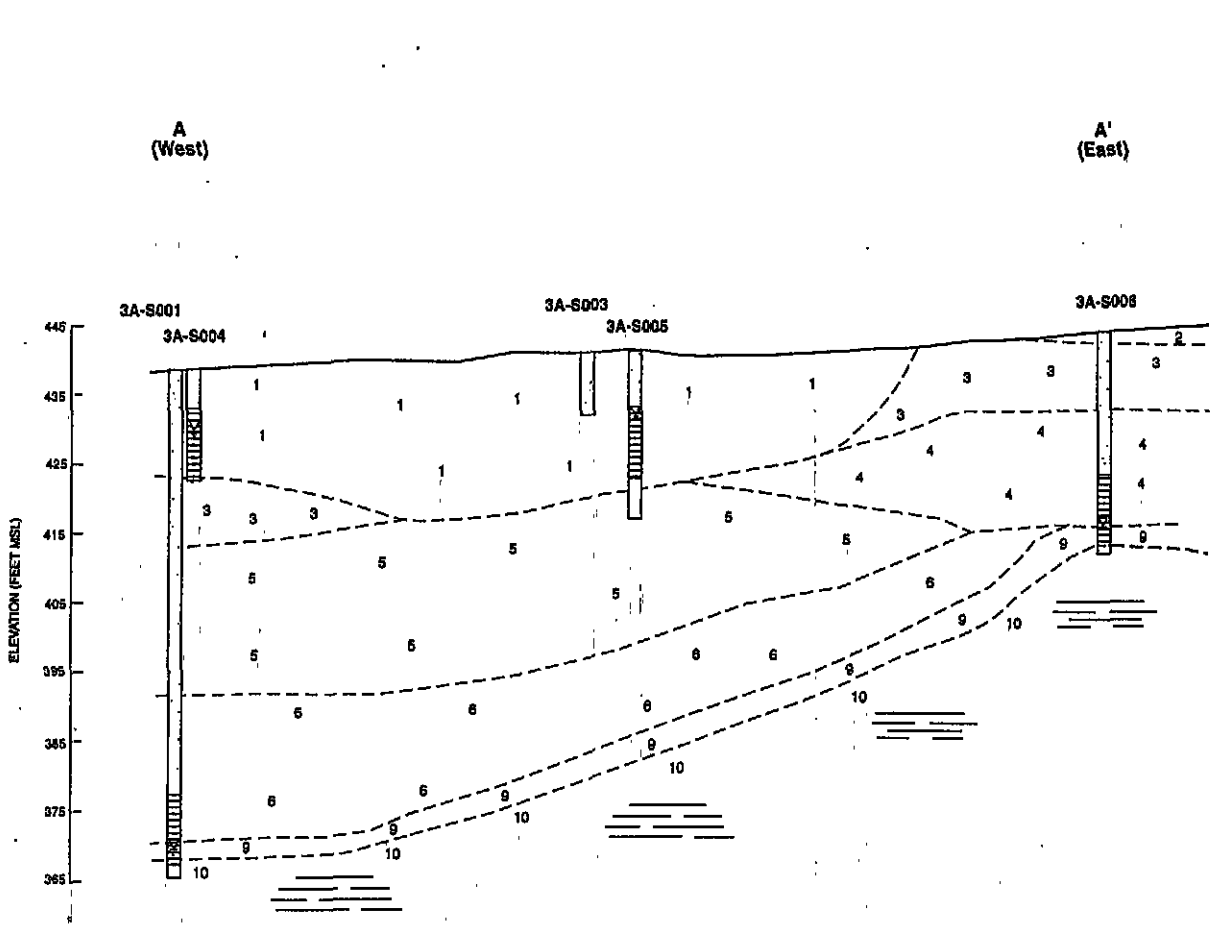
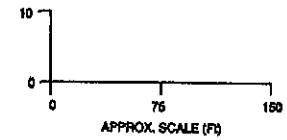



FIGURE 4.3-4
CONCEPTUAL CROSS-SECTION LOCATIONS
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS




**Site 3 Geologic Units:**

1. Silty to Gravelly Clay Mixed with Landfill Debris; Brown to Light Gray, Mixed with Wood, Paper, Glass, and Other Debris, Slightly Moist to Saturated
2. Silty Clay to Clay; Light Reddish Brown, Occasional Sand Stringers
3. Silty Clay; Olive to Dark Gray, Dense, Dry to Slightly Moist
4. Clay and Gravelly Clay; Light Brown and Dark Bluish-Gray Mottled, Dense, Slightly Moist
5. Silty Clay; Brown to Olive, Moist
6. Silty Clay; Light Brown to Dark Gray, Occasional Sand, Gravel, Shells, and Fat Clay Stringers, Moist
7. Silty Sand; Light Brown, Fine, Moist to Saturated
8. Silty Clay; Olive, Brown, and Gray Mottled, Contains Clayey Sand/Silt, Sand, and Occasional Gravel, Slightly Moist to Saturated
9. Gravel; Clayey, Silty, and Sandy, Olive to Brown, Moist to Saturated
10. Shale (Eagle Ford); Gray-Black, Massive, Slightly Weathered

Groundwater Monitoring Well

Soil Boring

Potentiometric Surface (measured May 1993)

Inferred or Estimated Contact

Eagle Ford Shale

**Figure 4.3-5**
**A-A' GEOLOGIC CROSS SECTION**
**OPERABLE UNIT NO. 3, SITE 3**
**RSR CORPORATION SUPERFUND SITE**
**DALLAS, TEXAS**

024425

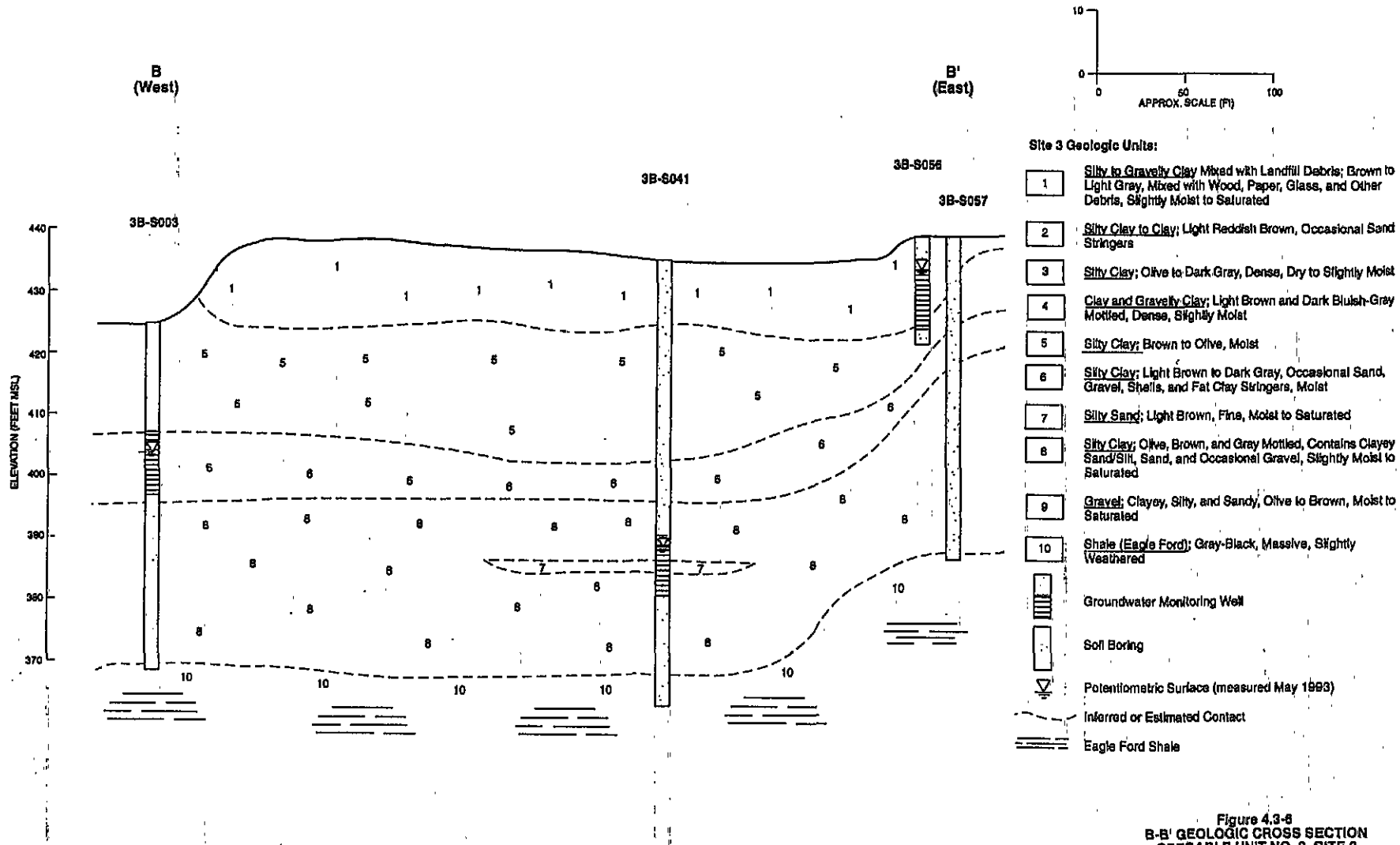



Figure 4.3-6
B-B' GEOLOGIC CROSS SECTION
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

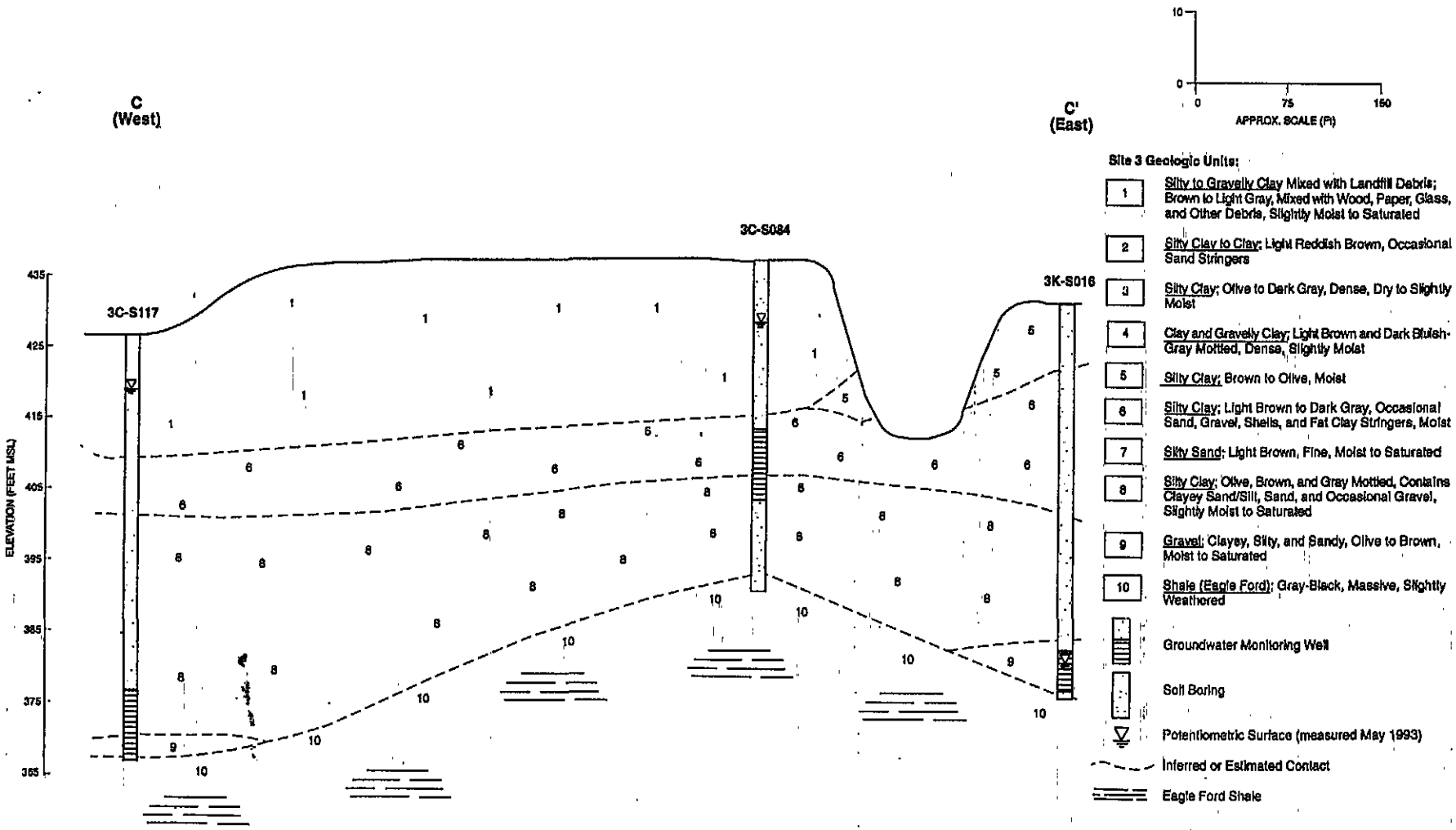



Figure 4.3-7
C-C' GEOLOGIC CROSS SECTION
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

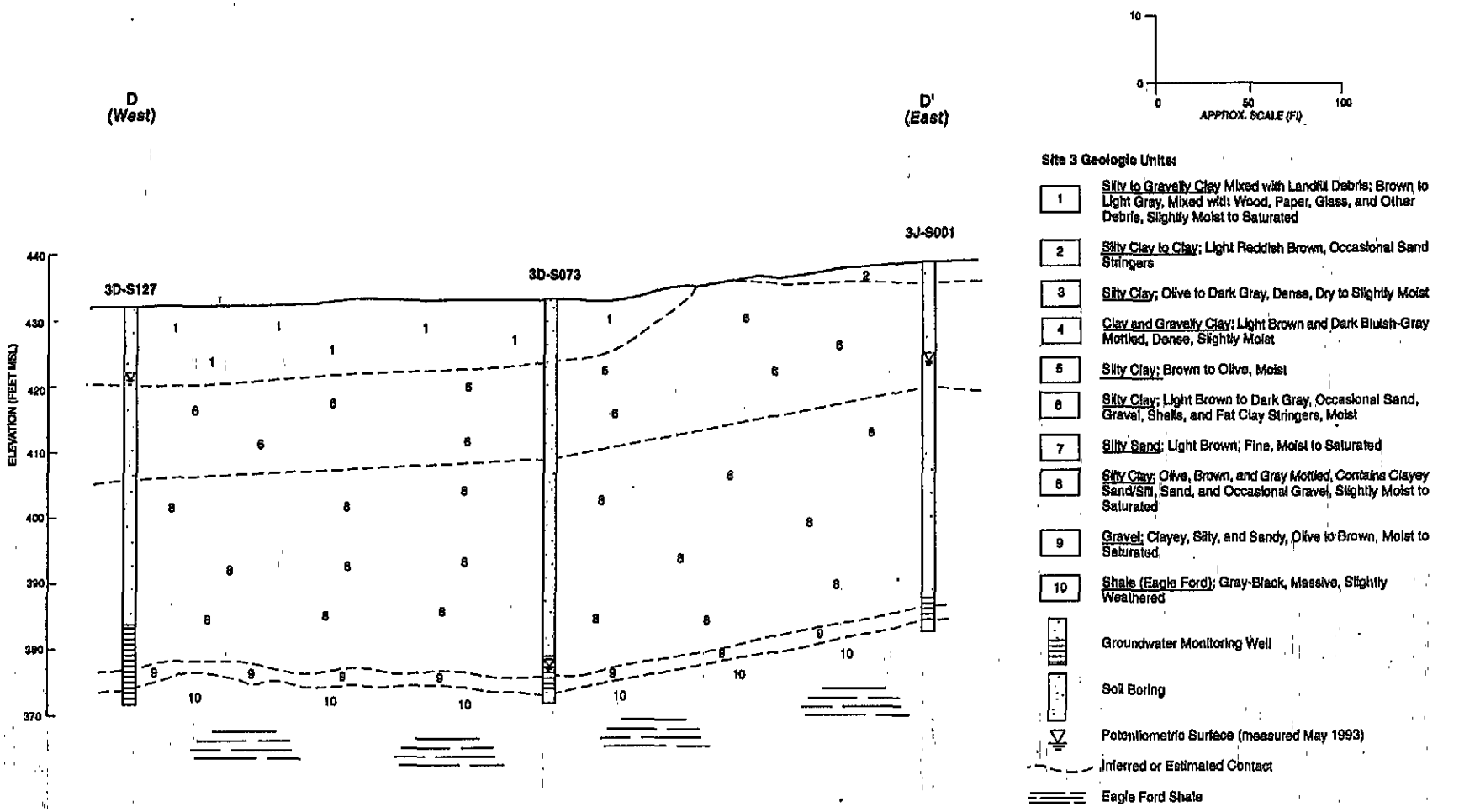



Figure 4.3-6
D-D' GEOLOGIC CROSS SECTION
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
*DALLAS, TEXAS*

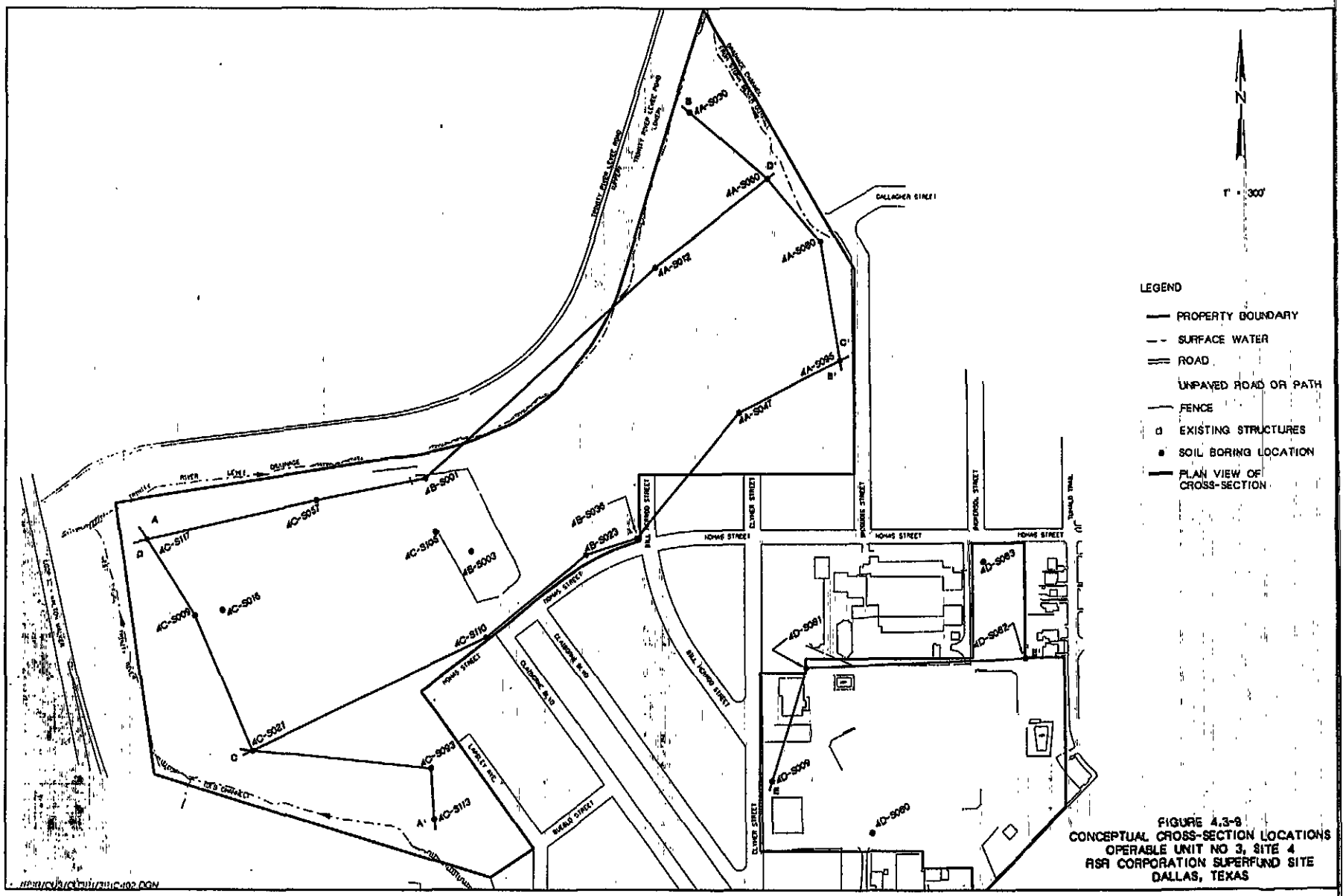



FIGURE 4.3-9
CONCEPTUAL CROSS-SECTION LOCATIONS
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024429

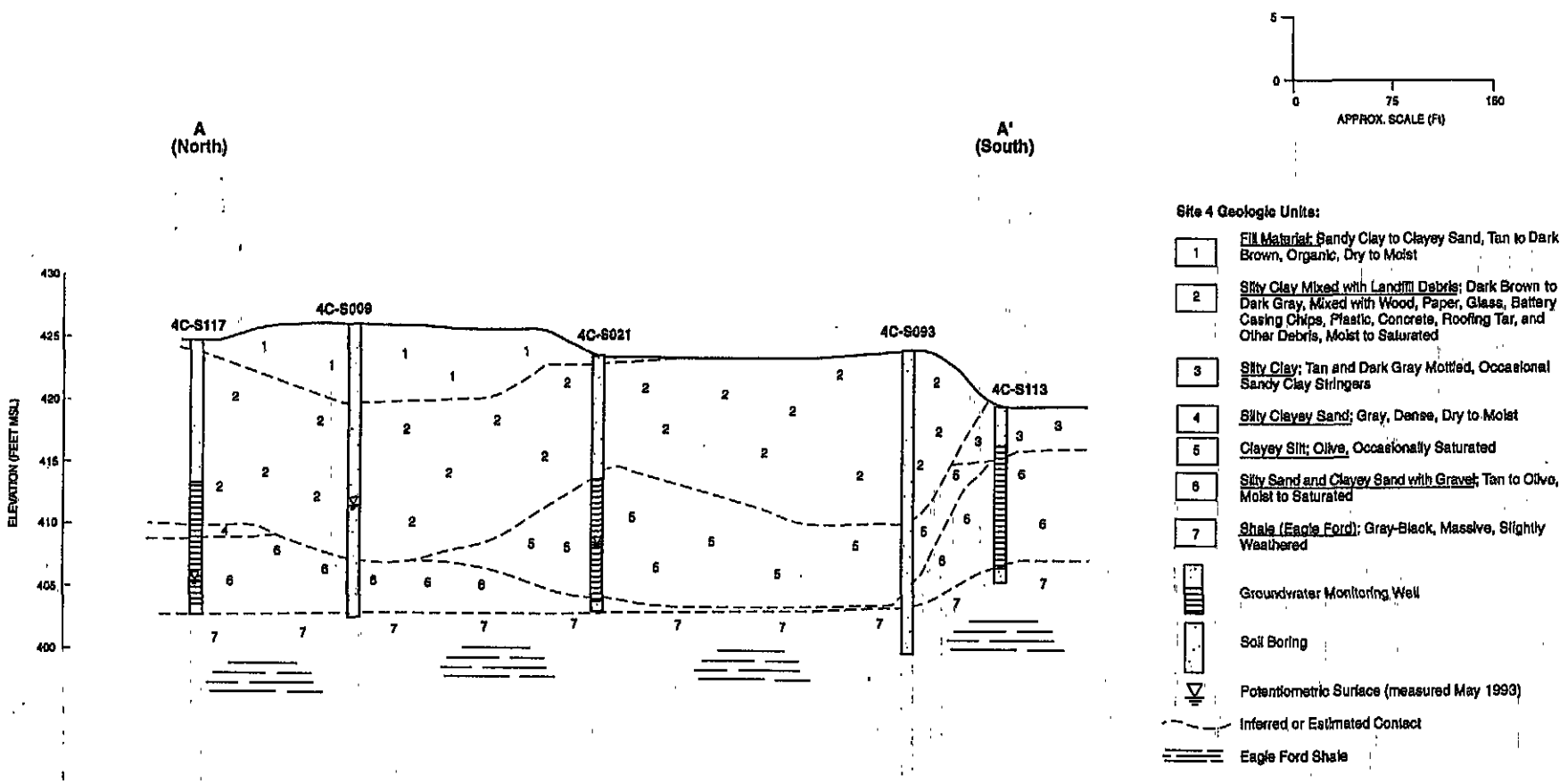
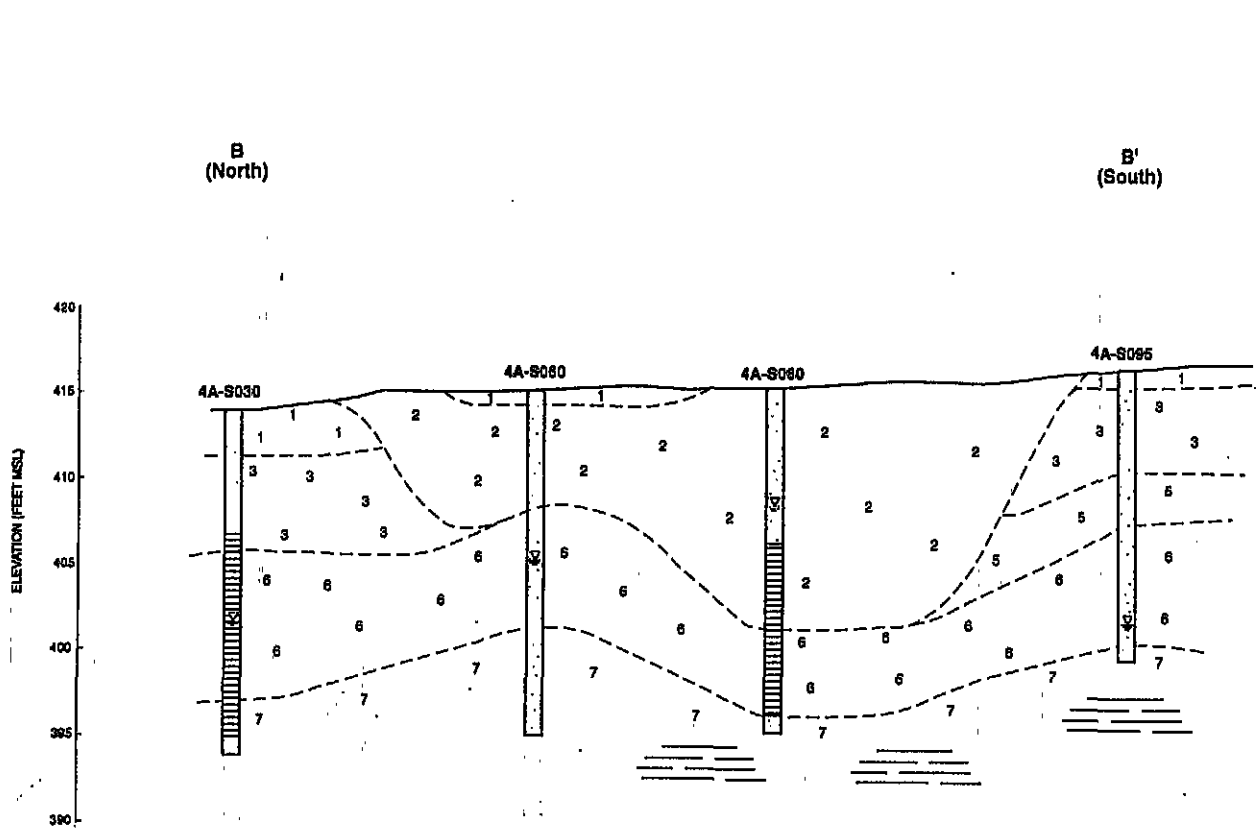
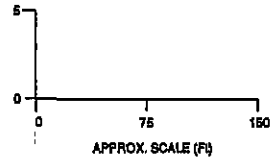



Figure 4.3-10
A-A' GEOLOGIC CROSS SECTION
OPERABLE UNIT NO. 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS




**Site 4 Geologic Units:**

1. Fill Material: Sandy Clay to Clayey Sand, Tan to Dark Brown, Organic, Dry to Moist
2. Silty Clay Mixed with Landfill Debris: Dark Brown to Dark Gray, Mixed with Wood, Paper, Glass, Battery Casing Chips, Plastic, Concrete, Roofing Tar, and Other Debris, Moist to Saturated
3. Silty Clay: Tan and Dark Gray Mottled, Occasional Sandy Clay Stringers
4. Silty Clayey Sand: Gray, Dense, Dry to Moist
5. Clayey Silt: Olive, Occasionally Saturated
6. Silty Sand and Clayey Sand with Gravel: Tan to Olive, Moist to Saturated
7. Shale (Eagle Ford): Gray-Black, Massive, Slightly Weathered

Groundwater Monitoring Well

Soil Boring

Potentiometric Surface (measured May 1993)

Inferred or Estimated Contact

Eagle Ford Shale

Figure 4.3-11
B-B' GEOLOGIC CROSS SECTION
OPERABLE UNIT NO. 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

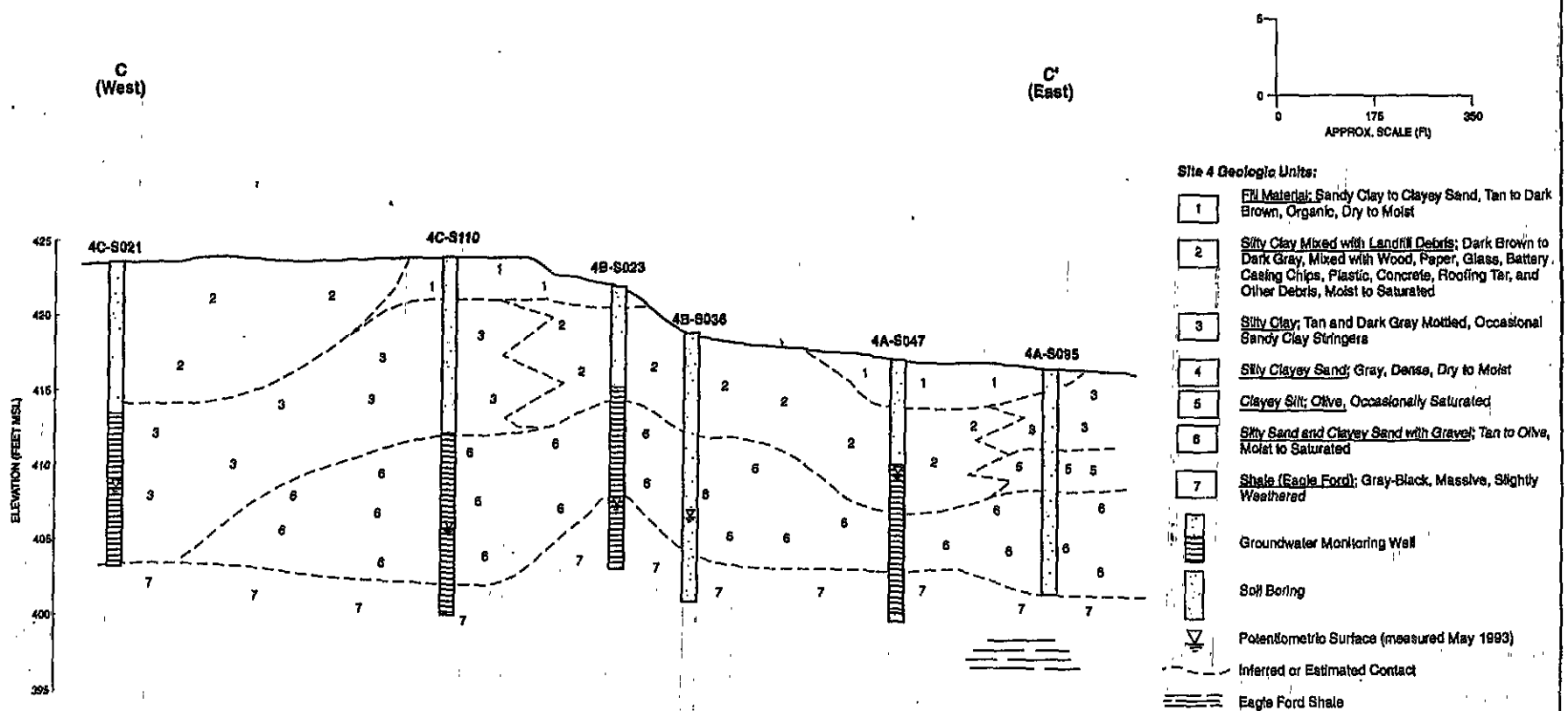



Figure 4.3-12
C-C' GEOLOGIC CROSS SECTION
OPERABLE UNIT NO. 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

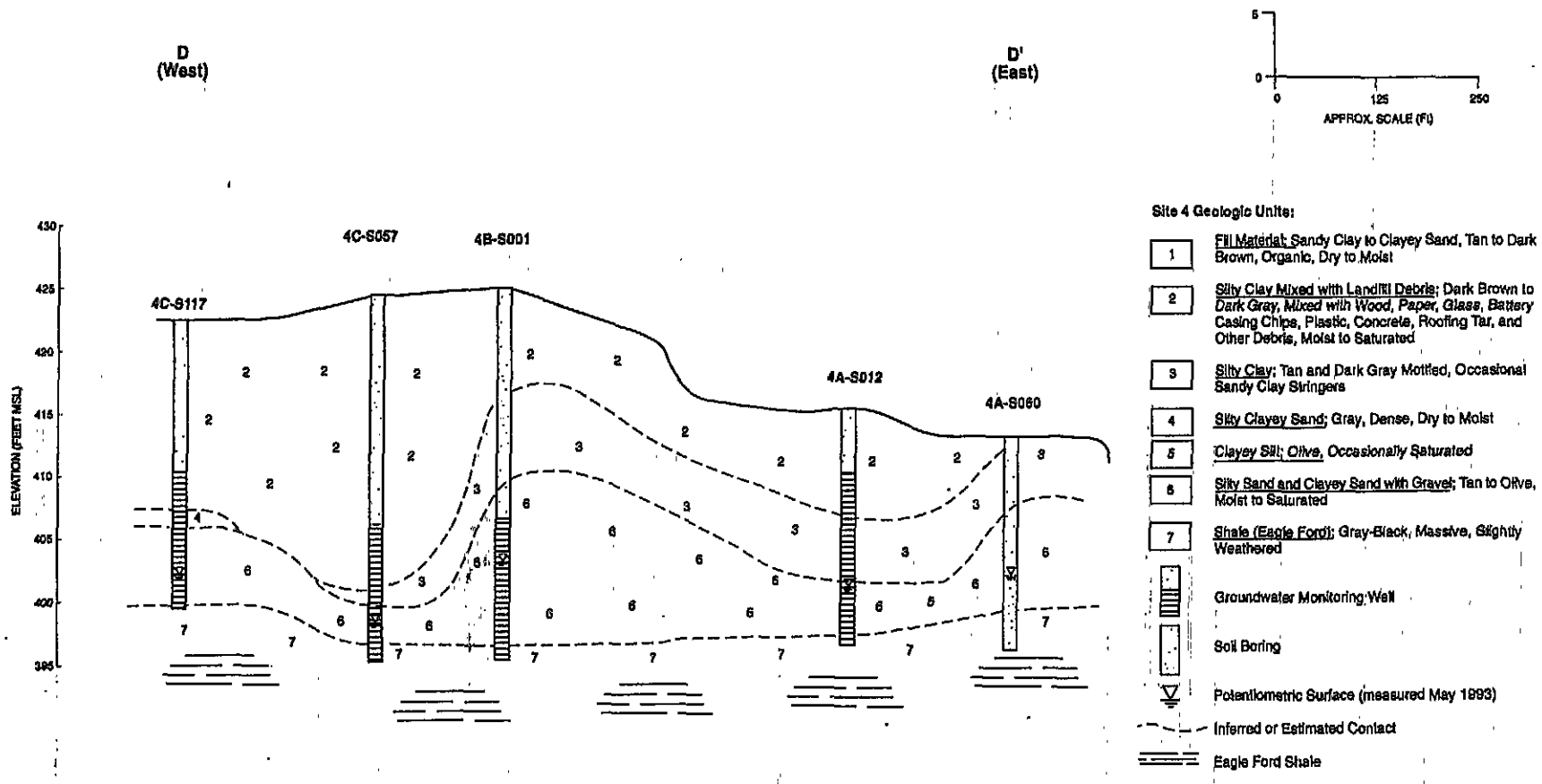



Figure 4.3-13
D-D' GEOLOGIC CROSS SECTION
OPERABLE UNIT NO. 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

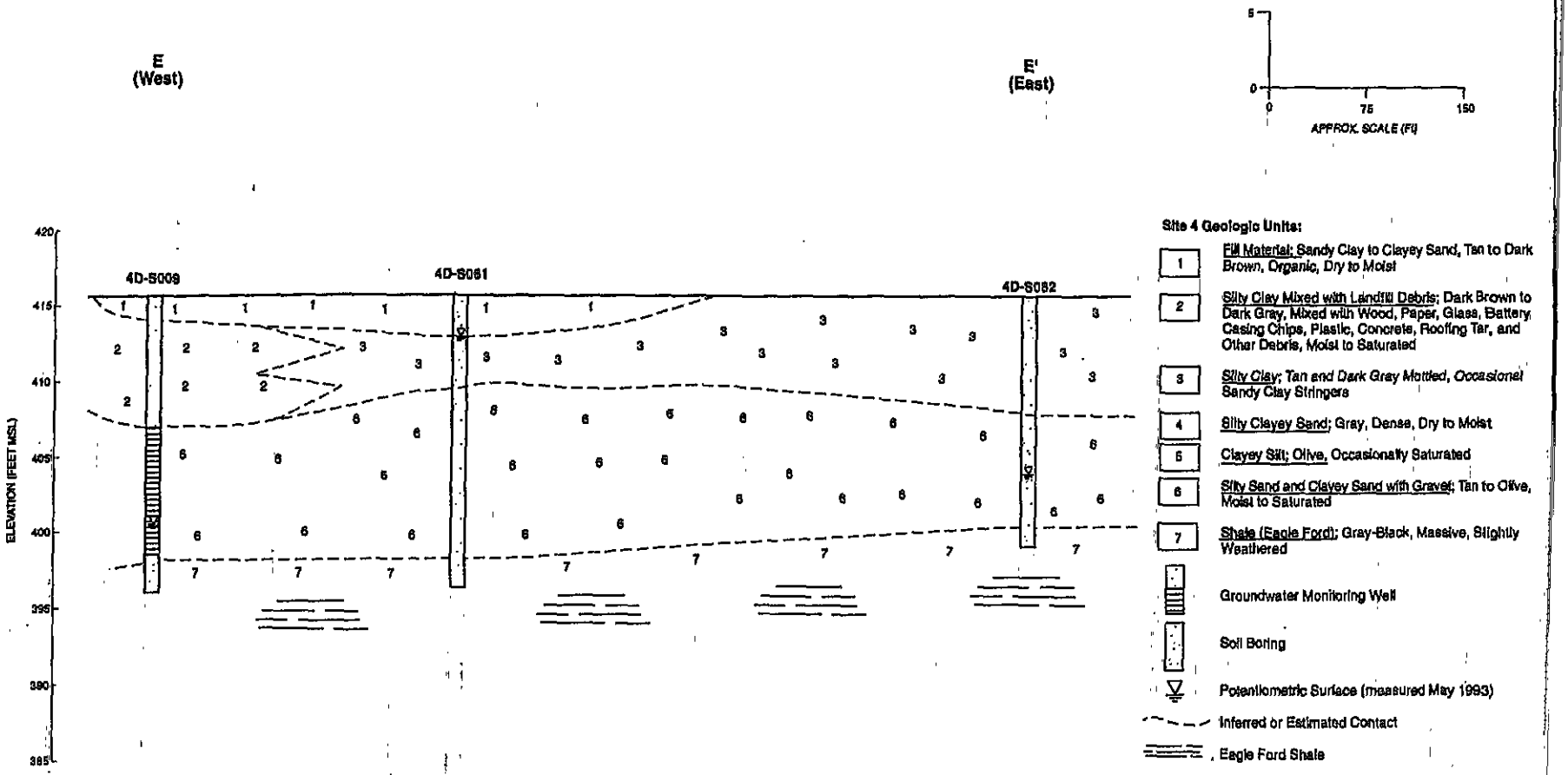



Figure 4.3-14
E-E' GEOLOGIC CROSS SECTION
OPERABLE UNIT NO. 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024435

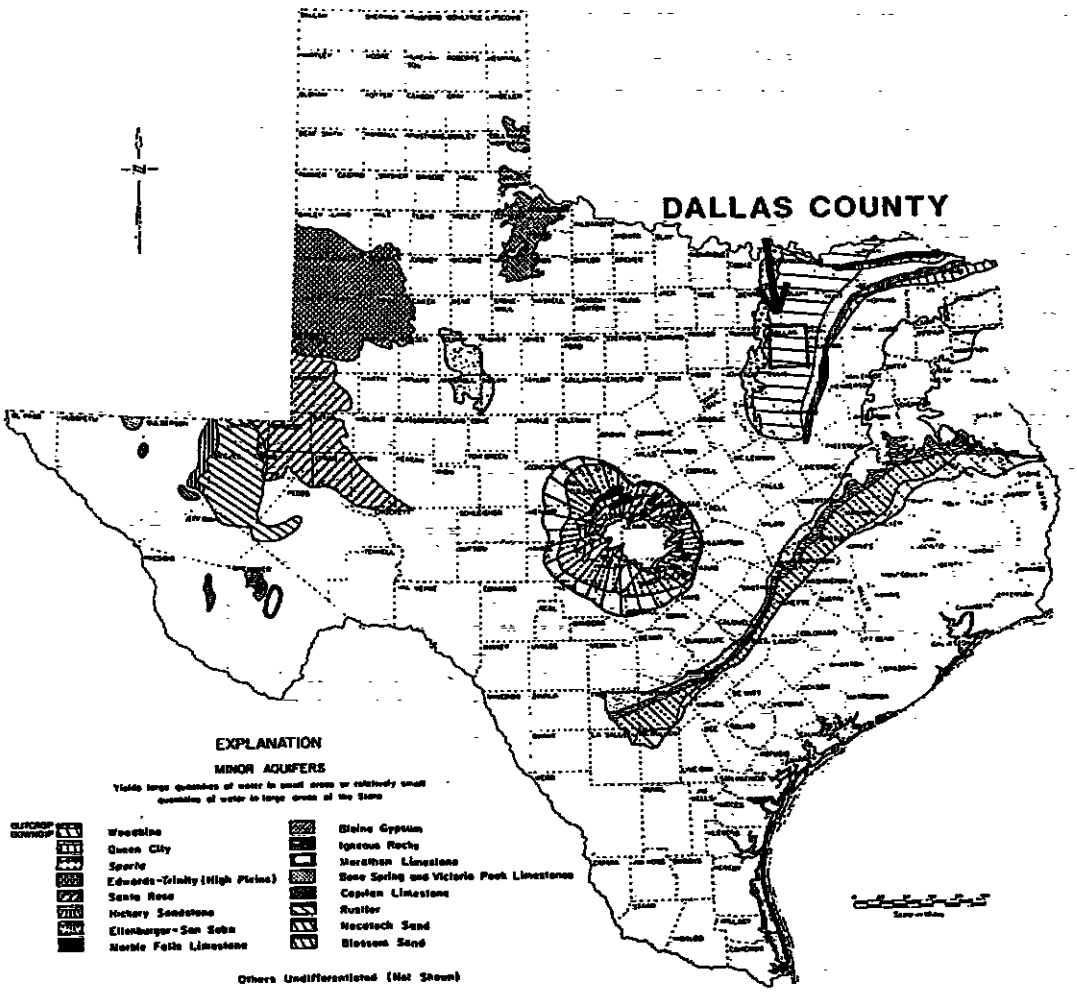



FIGURE 4.3-15
MINOR AQUIFERS OF TEXAS
OPERABLE UNIT NO.4
RSR CORPORATION SUPERFUND SITE

*SOURCE: TWC, GROUNDWATER QUALITY OF TEXAS - AN OVERVIEW OF NATURAL & NON AFFECTED CONDITIONS, REPORT 89-01, 3/89, P.8-9*

3RICX03B.DGN

024436

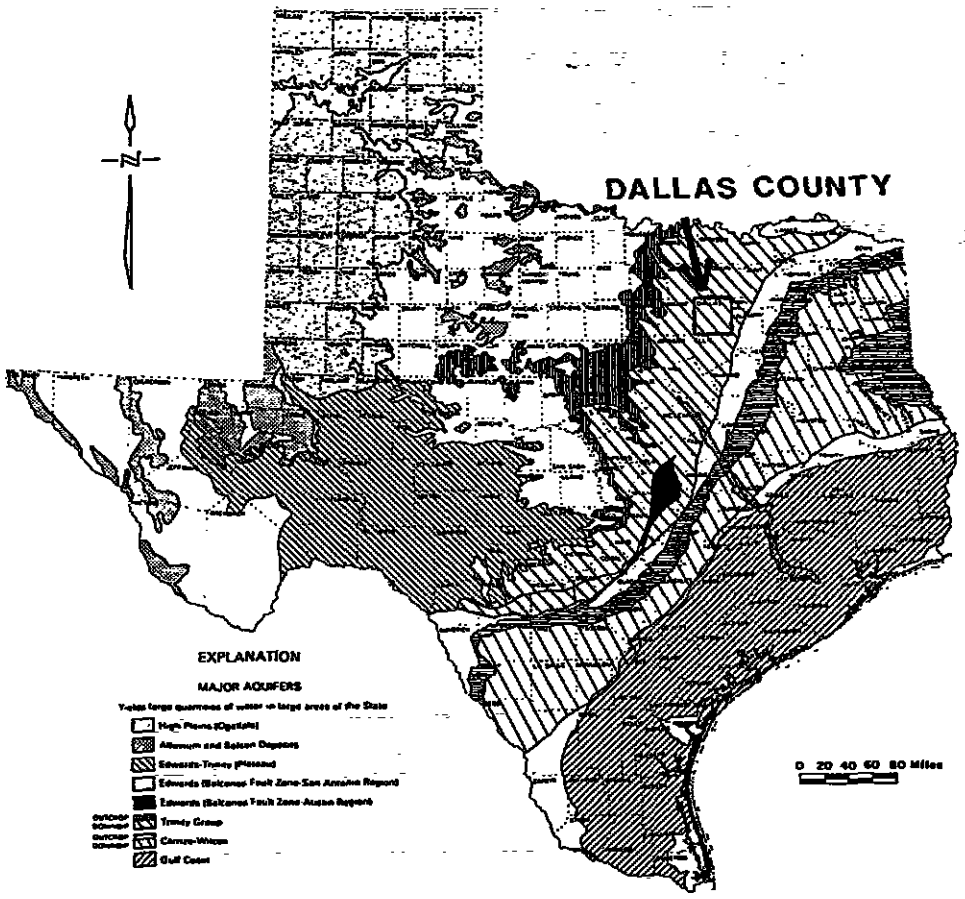
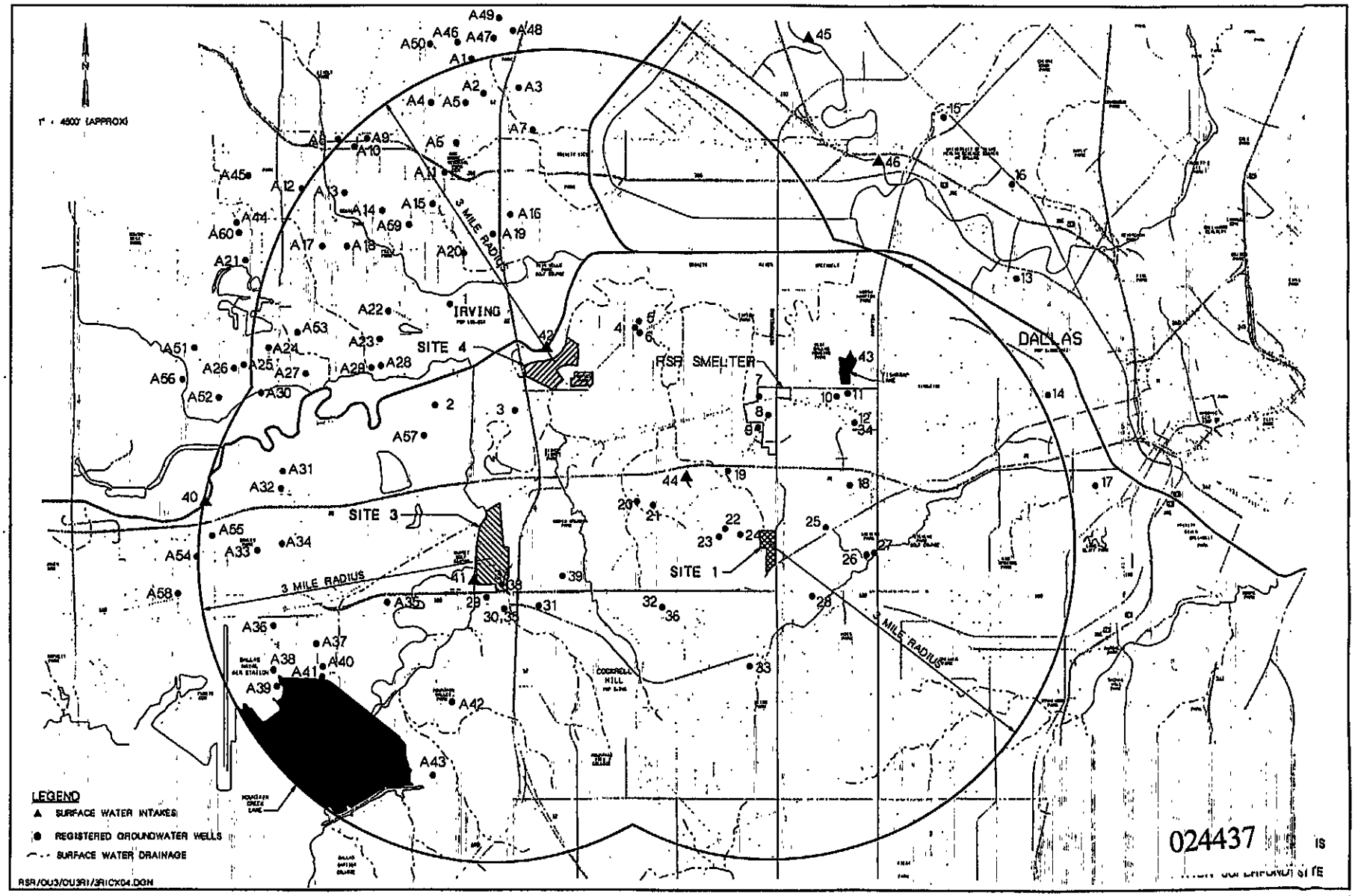



FIGURE 4.3-16
MAJOR AQUIFERS OF TEXAS
OPERABLE UNIT NO.4
RSR CORPORATION SUPERFUND SITE

*SOURCE: TNRCC, GROUNDWATER QUALITY OF TEXAS - AN OVERVIEW OF NATURAL & MAN - AFFECTED CONDITIONS, REPORT 89-01, 3/89, P.8*

3RICXO3A.DGN


1" = 4500' (APPROX)
IRVING
DALLAS
RSR SMELTER
SITE 1
SITE 3
SITE 4
3 MILE RADIUS
LEGEND
SURFACE WATER INTAKES
REGISTERED GROUNDWATER WELLS
SURFACE WATER DRAINAGE
RSR/OU3/OU3R1/3RICX04.DGN

024437

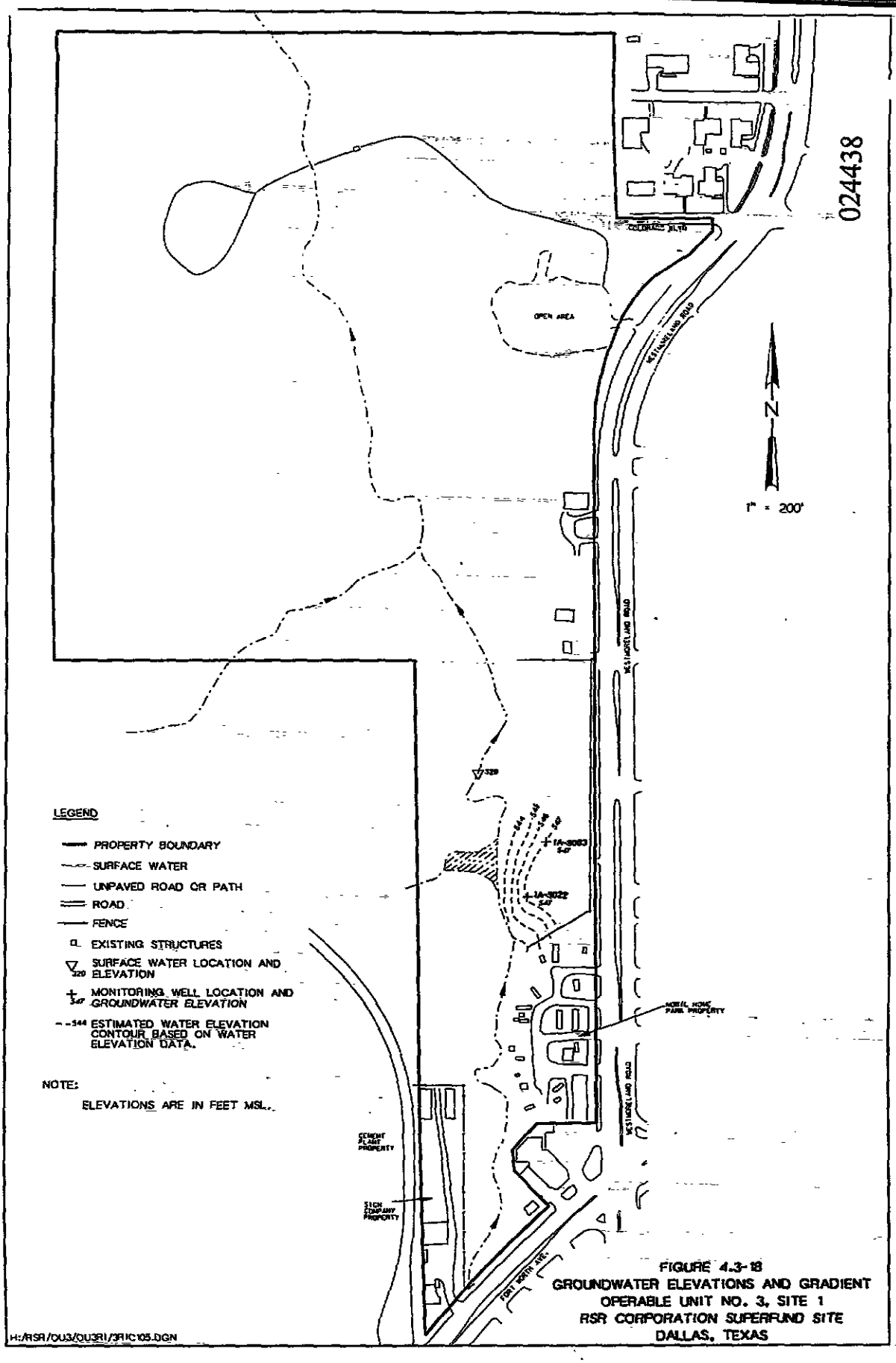



FIGURE 4.3-18
GROUNDWATER ELEVATIONS AND GRADIENT
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

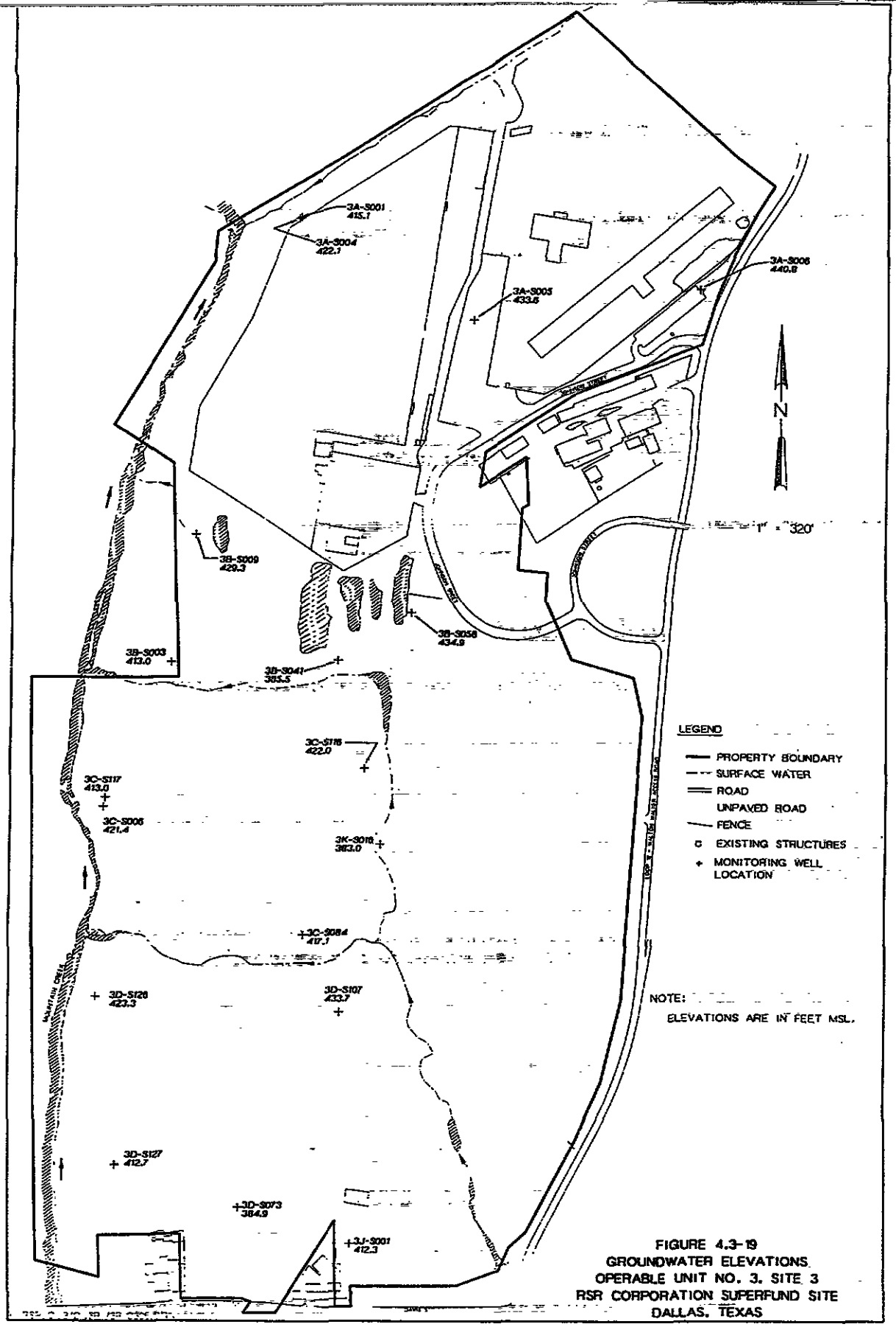



FIGURE 4.3-19
GROUNDWATER ELEVATIONS
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024439

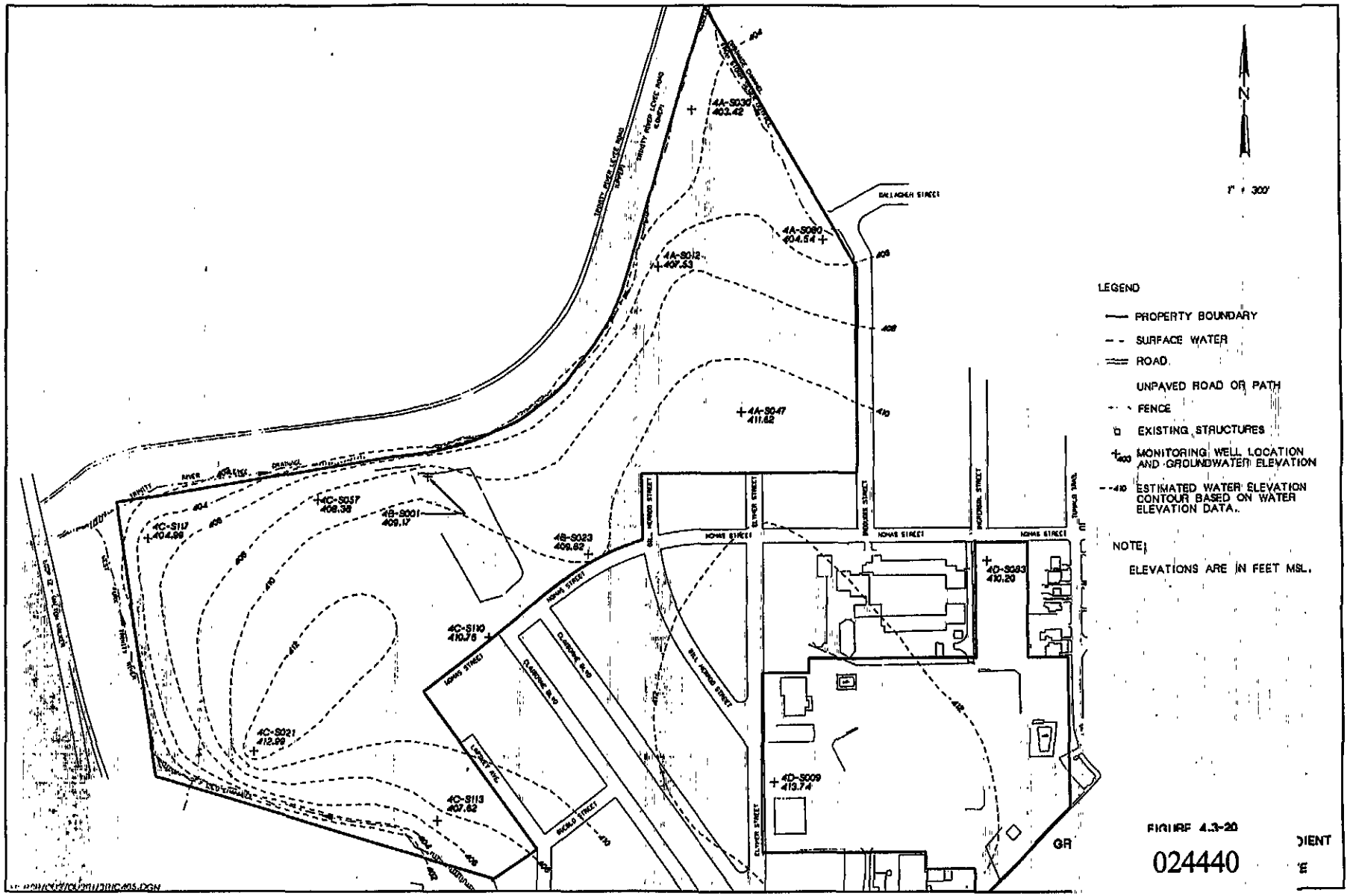
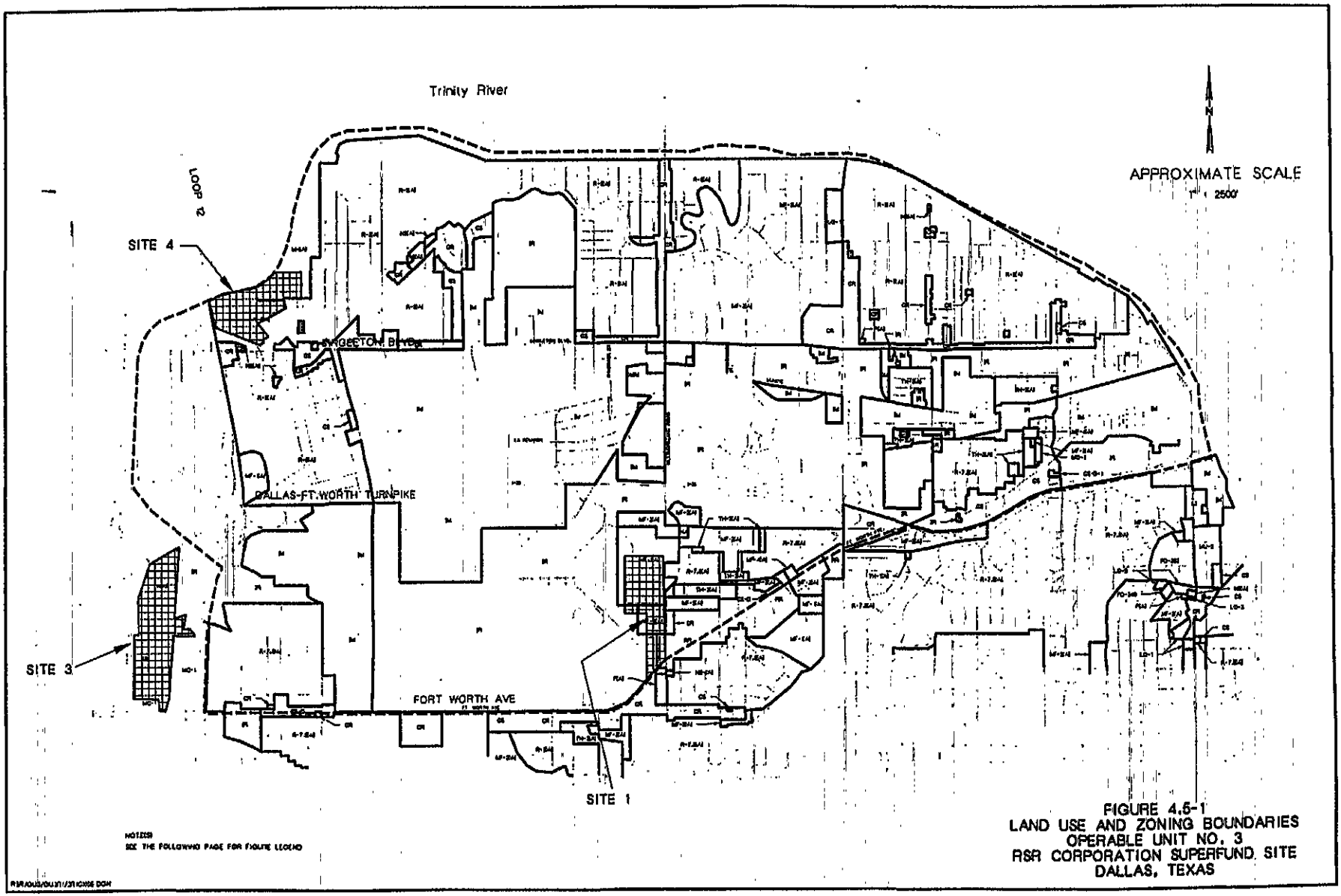



FIGURE 4.3-20

024440




NOTES:
SEE THE FOLLOWING PAGE FOR FIGURE LEGEND

FIGURE 4.5-1
LAND USE AND ZONING BOUNDARIES
OPERABLE UNIT NO. 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024442

# Chapter 5
# Investigation Quality Assurance/Quality Control

# Chapter 5
# Investigation Quality Assurance/Quality Control

024443

Measures were taken during the RI sampling activities to meet the Data Quality Objectives (DQOs) defined in the Quality Assurance Project Plan (QAPP) **(EPA, 1994c)**. The purpose of the quality assurance (QA) protocol specified by the QAPP is to provide a method by which the analytical results generated during the investigation may be considered accurate, precise, complete, comparable, and therefore, representative.

To accomplish this goal, field QA and laboratory QA samples were collected and analyzed. The accuracy and precision of the field sampling efforts were evaluated by comparing results of field duplicate samples and reviewing results of blank samples. Analytical accuracy, and precision of the analytical results were evaluated under the Contract Laboratory Program (CLP) using results of CLP-required laboratory quality control analyses. Representativeness was attained by following the appropriate sample collection, sample custody, and sample preservation methods as specified in the FSP **(EPA, 1994b)** and QAPP **(EPA, 1994c)**. The individual task TMs prepared for the various investigations provide detailed discussions of the QA/QC sample results (prior to validation of results for analyses performed by a non-CLP laboratory [i.e., TCLP and wet chemistry]). The following paragraphs summarize the analytical results for the duplicate sample pairs, field blanks, equipment rinseates, and trip blanks collected during the RI sampling activities, as well as any changes made to the data presented in the TMs after the TCLP and wet chemistry analytical results had been validated. **Appendix B** contains data quality information, including an explanation of data qualifiers **(Appendix B-2)**, a comparison of duplicate sample results **(Appendix B-3)**, and the QA/QC sample analytical results **(Appendix B-4)**. Overall, the results indicate relatively good duplicate correlation, and relatively good blank results, supporting the adequacy of the field investigation analytical results in meeting the DQOs.

## 5.1 Duplicate Samples

024444

Duplicate samples are independent samples collected such that they are equally representative of the parameter(s) of interest at a given point in space and time. When collected, processed, and analyzed by the same organizations, they provide intra-laboratory precision information for sample acquisition, homogeneity, handling, shipping, storage, preparation, and analysis.

Based on the standard practice of the industry, duplicate sample results are assumed to correlate well if they demonstrate a relative percent difference (RPD) of 50% or less. The RPD is calculated using the following equation:

$$RPD\ (\%) = \frac{X_1 - X_2}{X} x\ 100\%$$

where: $X_1$ = the concentration exhibited by Sample 1 of the duplicate pair
$X_2$ = the concentration exhibited by Sample 2 of the duplicate pair
$X$ = the average concentration of Samples 1 and 2

In instances where the concentration of an analyte in sample 1 or 2 of a duplicate pair is not detected, and the Practical Quantitation Limit (PQL) is less than the detected concentration in the other sample, the value of the PQL was used for the $X_1$ or $X_2$ value in the preceding equation. For the purpose of this RI, the PQL is defined as the value provided by the laboratory as the detection limit for a specific non-detected analyte. For example, the concentration of an analyte in Sample 1 is less than the PQL of 10 $\mu$g/L, and the concentration of the same analyte in Sample 2 is 15 $\mu$g/L. Therefore, the values used in the RPD equation would be 10 $\mu$g/L for $X_1$ and 15 $\mu$g/L for $X_2$. The RPD was not calculated when neither concentration was detected above the PQL, or when one

concentration was not detected above the PQL, and the other concentration was detected below the PQL for the first sample.

024445

The QAPP specified collection of approximately one (1) duplicate sample for every twenty (20) samples (5%), with a minimum of one (1) required (**EPA, 1994b**). During the RI sampling activities, five (5) stormwater and surface water duplicates (11% of the total number of stormwater and surface water samples collected), five (5) sediment duplicates (11%), nineteen (19) soil duplicates (8%), and four (4) groundwater duplicates (12%) were collected. See the Storm Sewer, Drainageway, and Pipeline, Surface Water and Sediment, Surface and Subsurface Soil, and Groundwater Investigation TMs (**EPA, 1995f, 1995g, 1995j**, and **1995k**) for detailed discussions of duplicate result comparisons.

As a result of the data validation of TCLP analytical results, data qualifiers were changed for the duplicate sample pairs from 1A-S045, 4B-S003, and 4E-A002. A complete list of definitions for qualifiers is provided in **Appendix B-2**. The TCLP semi-volatile results for 2-methylphenol, 3-methylphenol, 4-methylphenol, pentachlorophenol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol for the duplicate sample pairs from 1A-S045 and 4B-S003 were qualified as unusable due to low acid surrogate recoveries. For the TCLP inorganics, the "E" (barium at 4E-A002), "W" (selenium at 4E-A002), "*" (selenium at 4B-S003), and "N" (silver at 1A-S045 and 4B-S003) qualifiers were changed to "J" because the percent difference for barium was greater than 10% and the recovery was outside control limits for selenium and silver. These changes do not affect the duplicate sample comparison because the qualifiers in all instances are the same for both samples in the duplicate pair. An updated comparison of all duplicate sample results, with corresponding qualifiers, is presented in **Appendix B-3**.

Because a high percentage of the duplicate analytical results correlated well, and the majority of those with RPDs greater than 50% were still less than an order of magnitude

different from each other, it is apparent that the analytical procedures adequately met the DQOs for this investigation.

024446

## 5.2 Field Blank Samples

Field blank samples are clean, analyte-free samples closely resembling the sample matrices encountered in the sampling effort. Clean empty containers and blank matrix (distilled, deionized water for water sampling; silica sand for soil and sediment sampling) were transported to the field and exposed to the same conditions as the field samples. During sampling activities in the field, the blank matrix was transferred to clean sample containers and subsequently transported to the laboratory and analyzed along with the field samples. Field blanks allow for evaluation of contamination generated from ambient field conditions, such as air quality impacts.

The QAPP specified collection of one (1) field blank for every twenty (20) samples collected, or 5% **(EPA, 1994c)**. During the RI sampling activities, five (5) stormwater and surface water field blanks (11% of the total number of stormwater and surface water), six (6) sediment field blanks (13%), eighteen (18) soil field blanks (7%), and three (3) groundwater field blanks (9%) were collected. See the Storm Sewer, Drainageway, and Pipeline, Surface Water and Sediment, Surface and Subsurface Soil, and Groundwater Investigation TMs **(EPA, 1995f, 1995j, and 1995k)** for detailed discussions of field blank results.

As a result of the data validation of TCLP analytical results, several qualifiers were changed for field blanks 4E-A002 DL03 and 4A-P002 DL02. A complete list of definitions for qualifiers is provided in **Appendix B-2**. The "W" qualifier for the arsenic, lead, and selenium results for 4E-A002 DL03 was changed to "J" due to a high percent difference. The "BE" qualifier for arsenic and the "BN" qualifier for silver for

field blanks 4E-A002 DL03 and 4A-P002 DL02, respectively, were changed to "J" due to a recovery outside the control limits. The lead result for field blank 4A-P002 DL02 was qualified as not detected because lead also was detected in the laboratory preparation blank. All updated data for the field blanks, with corresponding qualifiers, is presented in **Appendix B-4**.

024447

Because the constituents detected in the field blanks were detected at relatively low levels, were not detected above the PQL in the associated samples collected at the same sampling locations, or were detected in the associated samples at much higher levels, it has been concluded that the ambient field conditions encountered during sampling did not affect the sample results, and the DQOs specified in the QAPP (**EPA, 1994c**) were met.

## 5.3 Equipment Rinseate Samples

Equipment rinseate samples are obtained by running clean, analyte-free, distilled water over or through decontaminated sample collection equipment (bailers, trowels) into the appropriate sample containers for analysis. These samples are used to determine whether decontamination procedures have been performed adequately.

The QAPP specified collection of one (1) equipment rinseate for every twenty (20) samples collected, or 5% (**EPA, 1994c**). During the RI sampling activities, fourteen (14) soil rinseates (6% of the total number of soil samples collected) and two (2) groundwater rinseates (6%) and were collected. See the Surface and Subsurface Soil and Groundwater Investigation TMs (**EPA, 1995j** and **1995k**) for detailed discussions of rinseate results.

The equipment rinseate results were not affected by completion of the data validation of TCLP and wet chemistry analytical results.

Because the organic and inorganic constituents detected in the equipment rinseates are either common laboratory contaminants, were detected at very low levels, were not detected above the PQL in the associated samples, or were detected in the associated samples at much higher levels, it has been concluded that the decontamination procedures were performed adequately to meet the DQOs specified in the QAPP (**EPA, 1994c**), and that the constituents detected in the equipment rinseates did not affect the sample results.

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## 5.4 Trip Blank Samples

Trip blank samples are clean, analyte-free samples closely resembling the sample matrices encountered in the sampling effort. The vials containing the trip blanks are prepared using blank water matrix (clean, analyte free, distilled water) prior to the field sampling effort. Without ever being unsealed, they travel to the field, are exposed to the same conditions as the field samples when collected, and are transported to the laboratory with the field samples, where they are analyzed under the same conditions. Trip blanks allow for evaluation of contamination generated from sample containers and changes occurring during the shipping and laboratory storage process. Trip blanks typically are associated with the most sensitive samples (water samples submitted for volatile organics analysis).

The QAPP required that one (1) trip blank be submitted for every twenty (20) samples collected, (**EPA, 1994c**). Trip blanks were submitted and analyzed for TCL volatile organic compounds during RI sampling activities on eight (8) separate occasions (January 16, January 18, January 20, February 15, March 13, April 13, April 17, and May 15, 1995). One (1) trip blank and at least one (1) surface water, sediment, soil, and/or groundwater sample were submitted on each of these days. See the Storm Sewer, Drainageway, and Pipeline, Surface Water and Sediment, Surface and Subsurface Soil,

and Groundwater Investigation TMs (**EPA, 1995f, 1995g, 1995j**, and **1995k**) for detailed discussions on trip blanks results.

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The few volatile organic compounds detected in the trip blanks could be considered laboratory contaminants, were detected at very low levels, and/or were not detected in the associated samples. It has been concluded, therefore, that the sample collection and shipment procedures were performed adequately to meet the DQOs specified in the QAPP (**EPA, 1994c**), and the sample results are representative of field conditions and were not affected by sampling or shipment procedures.

## 5.5 Laboratory QA

All TCL organic and TAL inorganic analyses performed on the samples collected during this investigation were analyzed under EPA's Contract Laboratory Program (CLP) and were validated by ESAT Region 6. The remaining analyses (TCLP and wet chemistry) were not conducted under CLP, but were analyzed by CH2M HILL using procedures specified in the CLP Statement of Work.

The quality assurance/quality control (QA/QC) for the CLP includes management review and oversight by EPA personnel at EPA's Region 6 Laboratory, as well as compliance with certain requirements during data collection, to produce the quality of data desired and to document the quality of the data. The laboratory QC includes matrix spike/matrix spike duplicates (MS/MSD) (which comprise approximately 10% of the total number of samples collected during this investigation), and method and instrument blanks. Upon completion of the analyses, the data were reviewed and validated, using qualifiers listed in **Appendix B-2**.

ESAT data validation resulted in several results being qualified as unusable due to low matrix spike recoveries:

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- four (4) dissolved mercury results (groundwater samples);
- thirty-seven (37) total antimony results (3 sediment and 33 soil samples);
- twenty-three (23) total mercury results (4 groundwater, 15 sediment, and 4 soil samples);
- two (2) total silver results (soil samples).

The validation of TCLP and wet chemistry analyses affected data qualifiers for TCLP volatiles (4 samples), TCLP semi-volatiles (15 samples), and TCLP inorganics (31 samples):

- The results for 2-butanone were qualified as not detected for samples 1A-S017 SL01, 3D-S056 SL01, 4B-S001 UL01, and 4C-S057 UL03 because the constituent also was detected in the laboratory preparation blank.
- Thirteen (13) results (2 sediment, 3 surface soil, and 8 subsurface samples) each for six (6) TCLP semi-volatile compounds 2-methylphenol, 3-methylphenol, 4-methylphenol, pentachlorophenol, 2,4,5-trichlorophenol, and 2,4,6-trichlorophenol, were qualified as unusable due to low acid surrogate recoveries.
- The "E" qualifier for eleven (11) barium results (5 sediment and 6 surface soil samples) was changed to "J" due to high percent difference.

- The lead results in 4A-P002 DL01 and 3J-S001 UL01 were qualified as nc detected because lead also was found in the laboratory preparation blank.

- The "BW" qualifiers for three (3) lead results (1 sediment and 2 surface soil samples) and the "W" and "*" qualifiers for ten (10) selenium results (3 sediment, 4 surface soil, and 3 subsurface soil samples) were changed to "J" because the recoveries for both constituents were outside the control limits.

- The "BN" and "N" qualifiers for sixteen (16) silver results (1 sediment, 8 surface soil, and 7 subsurface soil samples) were changed to "J" also because of recovery outside the control limits.

- Four (4) silver results (3B-S003 UL03, 3D-S107 UL02, 3D-S127 UL01, and 3D-S127 UL02) were qualified as unusable due to low recovery.

The complete data for the investigation is presented, with the corresponding qualifiers, in **Appendix C.** A complete list of definitions for qualifiers is provided in **Appendix B-2.**

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# Chapter 6
# Nature and Extent of Contamination, Site 1

# Chapter 6
# Nature and Extent of Contamination, Site 1

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This chapter presents the analytical results of RI field activities conducted during the data gathering and field investigation tasks for Site 1 of OU No. 3. These tasks include the storm sewer investigation, the surface water and sediment investigation, the soil investigation, and the groundwater investigation. The objectives and procedures for each of these tasks, and an explanation of the sample designation system referenced in this chapter, are detailed in **Chapter 3**. Included below is an evaluation of the detected constituents and associated potential source areas, and comparisons to collected background samples and expected regional background concentrations which were introduced in **Chapter 4**. In **Chapters 10** and **12** of this report, the summarized results are compared to risk-based levels developed as part of the OU No. 3 risk assessments. Technical Memoranda prepared at the conclusion of each field investigation task provide more detailed descriptions of the field activities performed.

## 6.1 Storm Sewers and Drainageways

This section describes the analytical results of the water and sediment sampling conducted for storm sewers and drainageways on Site 1. As described in **Chapter 3**, four (4) sample locations (illustrated on **Figure 3.5-1**) originally were selected on Site 1. Water samples were collected from only two (2) of these locations, and a sediment sample was collected from only one (1) location, due to low flow conditions and the small quantities of sediment in the other three (3) structures, respectively.

The two (2) locations with enough media to collect a sample included one (1) within a concrete drainage channel in Area 1A (1A-P002) and one (1) within a storm sewer inlet on the west side of Westmoreland Road (1F-P001). The 1A-P002 channel is fed by stormwater originating from curb inlets along Westmoreland Road and surface runoff

from Site 1, and discharges to the creek that flows north through Site 1; the channel contains large slag pieces and is surrounded by slag on the adjacent ground surface. The 1F-P001 inlet is not located near areas visibly affected by surface dumping of slag and battery casing chips and was expected to represent conditions of stormwater entering Site 1. Stormwater entering this inlet joins an extensive stormwater system beneath the Westmoreland Road-Colorado Boulevard intersection, which discharges to an outfall located at the western end of Colorado Boulevard and eventually joins the creek that flows north through Site 1.

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The following sections describe the analytical results for both stormwater and storm sewer sediment. Refer to **Appendix B-2** for a list of the definitions of data qualifiers. **Appendix C-1** presents the analytical results by location number.

### 6.1.1 Stormwater

The stormwater sampled from the concrete drainage channel (1A-P002) and the stormwater inlet (1F-P001) were analyzed for TAL inorganics and TCL organics; analytical results are described below.

#### *6.1.1.1 Inorganic Constituents*

**Table 6.1-1** lists the concentrations of TAL inorganics (total and dissolved) detected in the two (2) Site 1 stormwater samples, and **Figure 6.1-1** illustrates the locations of these samples, along with the concentrations of lead, arsenic, and cadmium. Almost twice as many total and dissolved TAL constituents were detected in the sample collected from the Westmoreland Road inlet (1F-P001) than in the sample from the onsite drainage channel (1A-P002, which contains large slag pieces). The highest total lead concentration (410 $\mu$g/L) was exhibited by the inlet sample (1F-P001), whereas the sample from the onsite drainage channel (1A-P002) demonstrated a total lead concentration of 32.7 $\mu$g/L. The elevated lead concentration and higher occurrence of TAL constituents exhibited by the

inlet sample may be a result of inorganic constituents in runoff from the surfaces of Westmoreland Road and Colorado Boulevard. The highest concentration of arsenic (61.1 μg/L) was detected in the sample from the onsite drainage channel (1A-P002); cadmium was not detected in the drainage channel sample, but was detected at a low concentration (4.4 μg/L) in the inlet sample.

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#### *6.1.1.2 Organic Constituents*

**Table 6.1-2** lists the concentrations of TCL organics detected in the two (2) Site 1 stormwater samples. As with the inorganic constituents, the frequency of occurrence of detected TCL organic constituents (including selected volatiles, semi-volatiles and pesticides) was greater in the inlet sample (1F-P001) than in the onsite drainage channel sample (1A-P002). All detected concentrations of organics were estimated below the PQL at concentrations of 8 μg/L or less in the inlet sample except for acetone (22 μg/L) and bis(2-ethylhexyl)phalate (43J μg/L), both of which may be laboratory contaminants. In addition to bis(2-ethylhexyl)phthalate and three (3) pesticide compounds estimated below the PQL at concentrations of 1 μg/L or less, 1,3-dichlorobenzene was detected at a low level (2J μg/L) in the drainage channel sample (1A-P002).

### 6.1.2 Storm Sewer Sediment

The stormwater sediment sample collected from location 1A-P002 was analyzed for TAL inorganics and TCL organics; analytical results are described below.

#### *6.1.2.1 Inorganic Constituents*

**Table 6.1-3** lists the concentrations of TAL inorganics detected in the sediment sample collected from Site 1, and **Figure 6.1-2** illustrates the location of this sample (1A-P002), along with the concentrations of lead, arsenic, and cadmium. This sample exhibited a lead concentration of 523Jv mg/kg, compared to the 30 mg/kg expected to occur in

regional background soil (**Dragun and Chiasson, 1991**). Arsenic and cadmium concentrations exhibited by this sample (17.6 mg/kg and 0.71 mg/kg, respectively) were below the expected regional background levels of 18 mg/kg and 11 mg/kg, respectively (**Dragun and Chiasson, 1991**).

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### *6.1.2.2 Organic Constituents*

**Table 6.1-4** lists the concentrations of TCL organics detected in this sample. Four (4) volatile organic analytes were detected at concentrations ranging from 0.001J mg/kg to 0.009J mg/kg (2-butanone). Thirteen semi-volatile organic compounds (including several phthalate compounds) were detected at concentrations up to 2J mg/kg (butylbenzylphthalate). Seven pesticide compounds were detected at estimated concentrations up to 0.0023J mg/kg (Dieldrin).

## 6.2 Surface Water and Sediment

This section describes the analytical results of the surface water and sediment investigation conducted on Site 1. As described in **Chapter 3**, eleven (11) sampling locations (illustrated in **Figure 3.6-1**) were selected on Site 1: seven (7) of these are located within the creek that flows north through the site, two (2) are located at surface seeps along the eastern bank of the creek (downslope of areas where slag was observed), and one (1) is located within the drainage channel that flows east from the cement plant property, and discharges to the Site 1 creek. The sampling location at the head of the creek (1C-A005, located at the southern end of Site 1) was selected as a background location. On the eastern creek bank between sampling location 1C-A004 and downstream location 1C-A001, slag and battery casing chips were observed on the ground surface.

The following sections describe the analytical results for both surface water and sediment. Refer to **Appendix B-2** for a list of the definitions of data qualifiers. **Appendix C-2** presents the analytical results by location number.

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### 6.2.1 Surface Water

The eleven (11) surface water samples collected from the locations described above were analyzed for TAL inorganics and TCL organics; analytical results are described below.

#### *6.2.1.1 Inorganic Constituents*

**Table 6.2-1** lists the concentrations of TAL inorganics (total and dissolved) detected in the eleven (11) Site 1 surface water samples, and **Figure 6.2-1** illustrates the locations of these samples, along with concentrations of lead, arsenic, and cadmium.

Total lead concentrations exhibited by surface water samples collected from Site 1 range from 18.5 $\mu$g/L (at upgradient location 1C-A005) to 318 $\mu$g/L (surface seep location 1A-A003). The highest concentrations of total lead (318 $\mu$g/L and 283 $\mu$g/L) were exhibited by samples collected from the two surface seeps (locations 1A-S002 and 1A-S003, respectively). Total lead concentrations in samples collected from the Site 1 creek were observed to decrease with distance downstream of these seeps, at concentrations up to 104 $\mu$g/L (location 1C-A003, located downstream of seep location 1A-A002). Total lead was not detected in the sample collected from the cement plant drainage, or from samples collected from downstream of the confluence of this drainage with the Site 1 creek. Dissolved lead was not detected in any of the Site 1 surface water samples.

Total arsenic was detected in five (5) of the eleven (11) Site 1 surface water samples at concentrations ranging from 27J $\mu$g/L to 187 $\mu$g/L. The highest total arsenic concentration was exhibited by the sample collected from surface seep location 1A-A002; total arsenic also was detected in samples collected from the cement plant drainage and

from locations downstream of the confluence of this drainage with the Site 1 creek (at concentrations up to 37 $\mu$g/L). Dissolved arsenic was detected at concentrations ranging from 9.3J $\mu$g/L to 72.6 $\mu$g/L in nine (9) surface water samples, all of which were collected from locations downstream of the creek bank areas containing slag.

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Cadmium was not detected in any surface water samples collected from Site 1.

Total antimony was detected in the water sample from surface seep location 1A-A002 (59.5 $\mu$g/L) and in the four (4) samples collected from the cement plant drainage and from locations downstream of the confluence of the cement plant drainage with the Site 1 creek (at concentrations up to 13 $\mu$g/L).

The few observed instances where the concentration of a dissolved inorganic constituent in a surface water sample exceeded the total concentration of the same constituent for the same sample can be attributed to the sample collection technique (water was collected separately, in separate sample containers, for dissolved and total analyses) and/or expected variation in analytical results with low level detections.

### *6.2.1.2 Organic Constituents*

**Table 6.2-2** lists the concentrations of TCL organics detected in the eleven (11) Site 1 surface water samples. Acetone, the only volatile organic analyte detected in these samples, was detected in four (4) samples at concentrations up to 11 $\mu$g/L. Ten (10) semi-volatiles and three (3) pesticide compounds were detected in one or more surface water samples at concentrations up to 6J $\mu$g/L (1,3-dichlorobenzene) and 0.023J $\mu$g/L (beta-BHC), respectively. A majority of these analytes were detected in the samples collected from locations 1C-A002, 1C-A003, 1C-A004, and 1C-A005 (**Figure 6.2-1**), which are located on the creek just downslope of the slag areas on Site 1, where darkly discolored soil and a hydrocarbon odor were observed during site reconnaissance and surface water sampling activities (**EPA, 1995b and 1995g**).

## 6.2.2 Sediment

Sediment samples were collected from the eleven (11) surface water sampling locations on Site 1 and analyzed for TAL total inorganics and TCL organics. The sample collected from 1A-A003 also was submitted for TCLP organics and inorganics analysis. Analytical results are described below.

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### *6.2.2.1 Inorganic Constituents*

**Table 6.2-3** lists the concentrations of TAL inorganics detected in the sediment samples collected from Site 1, and **Figure 6.2-2** illustrates the locations of these samples, along with concentrations of lead, arsenic, and cadmium. Lead was detected in nine (9) samples at concentrations ranging from 16Jv mg/kg to 3,940Jv mg/kg. Arsenic was detected in ten (10) samples at concentrations ranging from 7.1J mg/kg to 224 mg/kg. For comparison purposes, the maximum lead and arsenic concentrations expected in regional background soil are 30 mg/kg and 18 mg/kg, respectively **(Dragun and Chiasson, 1991)**.

The highest concentrations of lead (406 mg/kg to 3,940 mg/kg) were exhibited by sediment samples collected from locations 1A-A002 (surface seep location), 1C-A001, 1C-A002, 1C-A003, and 1C-A005. The sample from 1A-A002 also exhibited arsenic, cadmium, antimony, copper, and zinc at concentrations significantly above those expected in regional background soil **(Dragun and Chiasson, 1991)**. These elevated concentrations are likely the result of surface water runoff coming into contact with slag and other debris on the Area 1A ground surface prior to reaching the creek.

Lead concentrations exhibited by samples collected from locations downstream of the slag area are still elevated, although at lower levels (16 mg/kg to 92 mg/kg). The high lead concentration (873 mg/kg) exhibited by the sample collected from 1C-A005 (the farthest upstream location on the creek just below the Fort Worth Avenue storm sewer outfall)

may be attributed to non-site-related sources (i.e., lead in stormwater runoff from the nearby road surface).

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### *6.2.2.2 Organic Constituents*

**Table 6.2-4** lists the concentrations of TCL organics detected in the Site 1 sediment samples. Five (5) volatile organic analytes were detected at concentrations up to 0.045 mg/kg (4-methyl-2-pentanone). Twenty (20) semi-volatile organic compounds were detected at concentrations up to 13 mg/kg (chrysene), and fourteen (14) pesticide compounds were detected at estimated concentrations up to 0.029 mg/kg (Aroclor-1260). The highest number of organic analytes (approximately twenty (20) each) were detected in three (3) samples, two (2) of which are located at and near the seep (1A-A002 and 1C-A003) where darkly discolored soil and a hydrocarbon odor were observed, and at location 1C-A005, just downstream of the storm sewer outfall for stormwater drainage from Fort Worth Avenue and Westmoreland Road.

### *6.2.2.3 TCLP Constituents*

As shown in **Table 6.2-3**, the only TCLP constituents detected in the sediment sample collected from location 1A-A003 were barium and lead, which were detected at low levels (0.896E mg/L and 0.0026BW mg/L, respectively). These concentrations are below the 5 mg/L lead and 100 mg/L barium, which would define this sediment as hazardous waste by the characteristic of toxicity **(40 CFR §261.24)**.

## 6.3 Soil

For purposes of this report, surface soil is defined as the top 2 inches of soil, and subsurface soil is defined as the soil material below this 2-inch horizon. Two main methods of analysis were utilized on the surface and subsurface soil: in-field x-ray

fluorescence (XRF) and laboratory analysis. XRF was used as a field screening method for the collection of data to estimate inorganic contaminant levels in surface and subsurface soils at OU No. 3. Selected soil samples also were collected for laboratory analysis of inorganics, organics, and other physical and chemical soil parameters. Discrepancies between inorganic data obtained using field XRF methods and inorganic data obtained by offsite laboratory methods generally are considered acceptable if they are within twenty (20) to thirty percent (30%) of each other **(Berry, Personal Communication, 1996)**. Higher discrepancies may be attributed to either: (1) insufficient homogenization of the sample material in the field, which may result in XRF measurements which are either much higher or much lower than what is representative of a particular constituent concentration at a particular grid node, or (2) insufficient digestion of the soil sample by the laboratory, which may result in under-estimation of the concentration of a particular constituent in the laboratory sample. Across the OU No. 3 sites, the average discrepancy between these two sets of analytical results was thirty-three percent (33%).

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The following sections summarize both surface and subsurface soil sample analytical and XRF test results; XRF results are addressed qualitatively, while TAL inorganics results are discussed in more detail. **Appendices C-3** and **C-4** present the XRF results for surface and subsurface soil, and the laboratory analytical results for surface and subsurface soil and soil vapor, respectively. Refer to **Appendix B-2** for definitions of the data qualifiers.

### 6.3.1 Surface Soil

Within Area 1A, eighty-one (81) XRF grid nodes were established approximately 25 feet apart. Eight (8) grid nodes also were established around the base of a large slag and debris pile located in the northern portion of the site (Area 1B). The locations of all the Site 1 grid nodes are illustrated on **Figure 3.8-1**.

The soil at each grid node was prepared for XRF analysis by clearing rocks, leaves, and other debris from a 10-by-10-inch square (centered around the grid node), and mixing the top 2 inches of soil within this area to reduce gross heterogeneity. Three (3) XRF readings were taken at each location within the 10-by-10-inch square. All inorganics results were saved, and the results for lead, arsenic, and cadmium also were recorded in field log books. Based primarily on the XRF results, soil from twenty-five (25) of the grid node locations was collected for laboratory analysis of TAL inorganics. Four (4) samples also were collected from background locations (samples beginning with the prefix "IF-") and submitted for TAL inorganics analysis. Two (2) of these twenty-nine (29) samples, including one background, also were submitted for analysis of TCL organics, and three (3) were submitted for analysis of TCLP organics and inorganics.

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### *6.3.1.1 Inorganic Constituents*

Illustrations of the ranges in concentrations of XRF lead, arsenic, and cadmium in Site 1 surface soil samples are shown on **Figures 6.3-1**, **6.3-2**, and **6.3-3**, respectively. A listing of XRF results for inorganic constituents detected in these samples is provided in **Appendix C**. The XRF lead concentrations detected in surface soil ranged from 28 mg/kg to 22,640 mg/kg. Arsenic was detected at only one (1) grid node at a concentration of 1,481 mg/kg, and cadmium was detected at only six (6) grid nodes at concentrations up to 576 mg/kg.

A list of TAL inorganics detected in the twenty-nine (29) surface soil samples collected for laboratory analyses is presented in **Table 6.3-1**. The locations of these samples, along with concentrations of lead, arsenic, and cadmium in these soil samples are provided in **Figure 6.3-4**. Lead was detected in all surface soil samples at concentrations ranging from 1 mg/kg to 105,000 mg/kg (1A-S045). The highest lead concentrations exhibited by Site 1 surface soil were demonstrated by samples collected from the central and western portions of Area 1A (particularly around grid nodes 1A-S045, 1A-S072, and 1A-S075) and at one grid node in Area 1B (1B-S006). These locations are coincident

with areas where slag was observed over much of the ground surface. Concentrations of lead in samples outside these areas were lower by an order of magnitude or more. Arsenic was detected in all the Site 1 surface soil samples at concentrations ranging from 10 mg/kg (at 1A-S503) to 7,980 mg/kg (at 1A-S045, located in the area where most of the slag was observed). Cadmium concentrations in seventeen (17) of these samples ranged from 0.5 mg/kg to 637 mg/kg (at location 1A-S045).

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The maximum concentrations measured in samples collected from the four (4) background locations on Site 1 were 446 mg/kg lead and 22.1 mg/kg arsenic; cadmium was not detected. Concentrations of TAL inorganics reported in the surface soil samples also were compared to regional background concentrations expected for this area (**Dragun and Chiasson, 1991**). Concentrations of the following inorganic constituents exceeded expected regional background concentrations at one or more sampling locations by an order of magnitude or more: antimony (sixteen (16) samples), arsenic (nine (9) samples), cadmium (one (1) sample), copper (nine (9) samples), lead (twenty (20) samples), nickel (five (5) samples), and zinc (ten (10) samples).

### *6.3.1.2 Organic Constituents*

A list of concentrations of detected TCL organics in the two (2) surface soil samples is presented in **Table 6.3-2.** Nine (9) semi-volatile organics and one (1) pesticide were detected in these samples, at concentrations up to 0.24J mg/kg (benzo(b)flouranthene at 1F-S500).

### *6.3.1.3 TCLP Constituents*

Three (3) surface soil samples were analyzed for TCLP organics and inorganics; a list of detected concentrations is provided in **Table 6.3-3. Figure 6.3-5** shows the TCLP lead, arsenic, and cadmium concentrations measured in the three samples. Each soil sample exhibited concentrations of six (6) inorganic TCLP constituents. However, only lead

and cadmium at 1A-S045 (detected at concentrations of 364 mg/L and 2.36 mg/L, respectively) demonstrated concentrations higher than 5 mg/L for lead and 1 mg/L for cadmium. These levels define waste material as hazardous by the characteristic of toxicity (**40 CFR §261.24**).

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### 6.3.2 Soil Vapor

Four (4) soil vapor samples were collected from Site 1 direct push borings as part of the Landfill Gas Investigation at OU No. 3 (**EPA, 1995i**). The locations of these borings are shown on **Figure 6.3-6**, and soil vapor analytical results are presented in **Table 6.3-4**. Methane was detected in two (2) of the samples at concentrations of 16.9 ppm (6 feet bgs at 1A-S052) and 29.8 ppm (2 feet bgs at 1F-S003). Location 1A-S052 is in the southern portion of Site 1 that is partially enclosed by the chain link fence, in an area where slag is scattered over most of the ground surface. Location 1F-S003 is in an area where municipal debris is scattered over most of the ground surface, between the two sheds in the northeastern portion of Site 1 (**EPA, 1995b**). Landfill material was not observed during examination of subsurface soil core samples collected from either location (**EPA, 1995j**).

### 6.3.3 Subsurface Soil

Within Areas 1A and 1F only, twelve (12) direct push borings were advanced at locations based primarily on surface soil XRF results and direct push rig accessibility (borings were not advanced within Area 1B due to site inaccessibility which prohibited transport of the drill rig). The Area 1A and 1F direct push borings reached refusal at depths between 1 and 24 feet bgs. Subsequently, five (5) auger borings (two (2) at direct push locations) were advanced to depths between 26 and 32.5 feet bgs. These direct push and soil boring locations are illustrated on **Figure 3.8-4**.

A total of five (5) subsurface soil samples collected from these borings were submitted for TAL inorganics analysis. Two (2) of these also were submitted for TCL organics analysis, and one (1) sample was submitted for analysis of TCLP organics and inorganics. Analytical results are described below.

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### *6.3.3.1 Inorganic Constituents*

An illustration of the ranges in concentrations of XRF lead, arsenic, and cadmium in Site 1 subsurface soil samples is shown on **Figures 6.3-7**. Subsurface soil samples collected from depths between 0 and 3 feet bgs exhibited XRF concentrations of lead and arsenic up to 1,582 mg/kg and 66 mg/kg, respectively. Cadmium was detected in one (1) subsurface soil sample collected between 0 and 2 feet bgs. Neither lead, arsenic, nor cadmium were detected in samples collected from depths greater than 3 feet bgs.

A list of TAL inorganics detected in the five (5) subsurface soil samples submitted for laboratory analysis is presented in **Table 6.3-5**. The locations of these samples are illustrated on **Figure 6.3-8**, along with concentrations of lead, arsenic, and cadmium. Similar to the XRF results, the detected concentrations of the contaminants of concern generally were higher in shallow subsurface samples than in soil collected from deeper intervals. Lead concentrations ranged from 62.4 mg/kg to 6,540J mg/kg in the three (3) samples collected from 0 to 2 feet bgs, and were detected at concentrations up to 26.1 mg/kg in samples collected from depths of 11 and 22 feet bgs. Similarly, arsenic and cadmium were detected at concentrations up to 309J mg/kg and 17.7 mg/kg, respectively, in the shallow soil samples, and up to 13.7 mg/kg and 0.31 mg/kg, respectively, in the deeper samples.

Analytical results indicate that shallow subsurface soil (0 to 2 feet bgs) within Area 1A, particularly at boring 1A-S083, generally exhibited higher concentrations of the contaminants of concern than subsurface soil collected from depths below 3 feet bgs or from other areas of the site. This may be attributed to slag observed over much of the

ground surface, and in the shallow subsurface (to a depth of approximately 4 feet bgs at 1A-S083), within Area 1A.

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At background location 1F-S010 (located on the west side of Site 1), the maximum concentrations of the contaminants of concern exhibited by shallow subsurface samples (0 to 2 feet bgs) were 62.4 mg/kg lead, 12.1 mg/kg arsenic, and 0.45 mg/kg cadmium, respectively. The concentrations of TAL inorganics reported in subsurface soil collected from Site 1 also were compared to corresponding concentrations expected in regional background soil (**Dragun and Chaissen, 1991**). Concentrations of the following inorganics significantly exceeded the expected regional concentrations at two (2) sampling locations: antimony, arsenic, copper, and lead.

### *6.3.3.2 Organic Constituents*

A list of concentrations of TCL organics detected in the two (2) subsurface soil samples collected from above the saturated zone at borings 1A-S022 and 1A-S083 is presented in **Table 6.3-6**. One or more of three (3) organic constituents (including two (2) phthalate compounds) were detected in these samples at concentrations up to 0.34J mg/kg.

### *6.3.3.3 TCLP Constituents*

Concentrations of the four (4) TCLP inorganic constituents detected in the subsurface soil sample collected from 0 to 2 feet bgs at 1F-S003, presented in **Table 6.3-7**, are below the concentrations listed in **40 CFR §261.24**, which define the toxicity characteristics of a hazardous waste. The locations of these samples are illustrated on **Figure 6.3-9**, along with concentrations of lead, arsenic, and cadmium.

## 6.4 Groundwater Investigation

024467

This section describes the analytical results of the groundwater investigation on Site 1. Only two (2) monitoring wells (illustrated on **Figure 3.9-1**) were installed on this site, at locations relatively close to the creek bank within Area 1A. These were the only locations where a saturated zone was encountered in soil borings advanced on Site 1. The wells are screened in weathered Austin Chalk directly above the Eagle Ford Shale (**EPA, 1995j**). Well 1A-S022 (screened from 15 to 25 feet bgs) is located at the southern end of Area 1A. Well 1A-S083 (screened from 16 to 26 feet bgs) is located near boring 1A-S045, where slag was observed on and beneath the surface, and where relatively high concentrations of lead and arsenic were exhibited by surface and shallow subsurface soil. After the wells were installed, they were developed by surging and pumping. A minimum of 12 hours after development, the wells were purged and sampled, and the groundwater samples were submitted for TAL inorganics and TCL organics analyses.

The following sections describe the analytical results for groundwater. Refer to **Appendix B-2** for a list of the definitions of data qualifiers. **Appendix C-5** presents the analytical results by location number.

### 6.4.1 Inorganic Constituents

A list of TAL inorganics (total and dissolved) detected in groundwater samples collected from monitoring wells on Site 1 is provided in **Table 6.4-1**. **Figure 6.4-1** illustrates the locations of these wells, along with the concentrations of lead, arsenic, and cadmium. Total lead concentrations were 5.7 $\mu$g/L (1A-S083) and 5.9 $\mu$g/L (1A-S022), total arsenic concentrations were 3.5 $\mu$g/L (1A-S083) and 3.7 $\mu$g/L (1A-S022), and total cadmium was not detected in either sample. Dissolved lead concentrations were 2.2 $\mu$g/L (1A-S083) and 2.3 $\mu$g/L (1A-S022), and dissolved arsenic and cadmium were not detected in either sample. TDS was measured at 472,000 $\mu$g/L (1A-S083) and 598,000 $\mu$g/L (1A-S022).

### 6.4.2 Organic Constituents

024468

**Table 6.4-2** provides a list of concentrations for TCL organics detected in the groundwater samples. One or more of two (2) volatiles, three (3) semi-volatiles (all phthalate compounds), and one (1) pesticide compound were detected in the two groundwater samples at concentrations no more than 5J $\mu$g/L (diethylphthalate at 1A-S022).

Table 6.1-1
Stormwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024469

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | |
| **1A-P002 WL01** | | | |
| | Antimony | 43.90000 | µg/L |
| | Arsenic | 61.10000 | µg/L |
| | Barium | 77.60000 | µg/L |
| | Calcium | 109,000.00000 | µg/L |
| | Iron | 356.00000 | µg/L |
| | Lead | 32.70000 | µg/L |
| | Magnesium | 2,520.00000 | µg/L |
| | Manganese | 91.10000 | µg/L |
| | Potassium | 3,090.00000 | µg/L |
| | Sodium | 15,200.00000 | µg/L |
| | Thallium | 9.10000 J | µg/L |
| | Vanadium | 2.20000 | µg/L |
| | Zinc | 57.00000 | µg/L |
| **1F-P001 WL01** | | | |
| | Aluminum | 17,100.00000 | µg/L |
| | Antimony | 17.40000 | µg/L |
| | Arsenic | 9.70000 | µg/L |
| | Barium | 282.00000 | µg/L |
| | Beryllium | 1.50000 | µg/L |
| | Cadmium | 4.40000 | µg/L |
| | Calcium | 151,000.00000 | µg/L |
| | Chromium | 39.20000 | µg/L |
| | Cobalt | 7.80000 | µg/L |
| | Copper | 181.00000 | µg/L |
| | Iron | 18,300.00000 | µg/L |
| | Lead | 410.00000 | µg/L |
| | Magnesium | 5,240.00000 | µg/L |
| | Manganese | 528.00000 | µg/L |
| | Mercury | 0.29000 | µg/L |
| | Nickel | 35.50000 | µg/L |
| | Potassium | 12,500.00000 | µg/L |
| | Selenium | 3.80000 | µg/L |
| | Sodium | 15,900.00000 | µg/L |
| | Vanadium | 50.80000 | µg/L |
| | Zinc | 785.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.1-1
Stormwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024470

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TAL DISSOLVED INORGANICS** | | |
| **1A-P002 WL01** | | | |
| | Antimony | 43.50000 ^J | µg/L |
| | Arsenic | 37.30000 | µg/L |
| | Barium | 59.50000 J | µg/L |
| | Calcium | 91,600.00000 | µg/L |
| | Magnesium | 2,220.00000 | µg/L |
| | Manganese | 45.20000 | µg/L |
| | Potassium | 2,930.00000 | µg/L |
| | Sodium | 15,100.00000 | µg/L |
| **1F-P001 WL01** | | | |
| | Antimony | 9.20000 | µg/L |
| | Barium | 64.10000 | µg/L |
| | Calcium | 61,300.00000 | µg/L |
| | Chromium | 2.60000 | µg/L |
| | Copper | 37.10000 | µg/L |
| | Magnesium | 2,180.00000 | µg/L |
| | Manganese | 18.10000 | µg/L |
| | Nickel | 5.90000 | µg/L |
| | Potassium | 9,360.00000 | µg/L |
| | Selenium | 3.90000 | µg/L |
| | Sodium | 15,200.00000 | µg/L |
| | Vanadium | 2.50000 | µg/L |
| | Zinc | 23.20000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.1-2
Stormwater TCL Organic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024471

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **1F-P001 WL01** | | | |
| | Acetone | 22.00000 | µg/L |
| | 4-Methyl-2-Pentanone | 4.00000 J | µg/L |
| | **TCL SEMI-VOLATILES** | | |
| **1A-P002 WL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 1.00000 J | µg/L |
| | 1,3-Dichlorobenzene | 2.00000 J | µg/L |
| **1F-P001 WL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 43.00000 J | µg/L |
| | Di-n-octylphthalate | 7.00000 J | µg/L |
| | Fluoranthene | 7.00000 J | µg/L |
| | Phenanthrene | 6.00000 J | µg/L |
| | Pyrene | 8.00000 Jv | µg/L |
| | **TCL PESTICIDES** | | |
| **1A-P002 WL01** | | | |
| | beta-BHC | 0.01100 J | µg/L |
| | 4,4'-DDT | 0.03900 Jv | µg/L |
| | Endosulfan II | 0.10000 Jv | µg/L |
| **1F-P001 WL01** | | | |
| | alpha-BHC | 0.00990 J | µg/L |
| | alpha-Chlordane | 0.01800 Jv | µg/L |
| | gamma-Chlordane | 0.01700 Jv | µg/L |
| | 4,4'-DDE | 0.04900 Jv | µg/L |
| | Dieldrin | 0.01900 Jv | µg/L |
| | Endosulfan I | 0.01900 Jv | µg/L |
| | Endrin ketone | 0.02200 Jv | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.1-3
Storm Sewer Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024472

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | | |
| **1A-P002 DL01** | | | | |
| | Aluminum | 3,360.00000 | J | mg/kg |
| | Antimony | 5.90000 | | mg/kg |
| | Arsenic | 17.60000 | | mg/kg |
| | Barium | 55.00000 | | mg/kg |
| | Beryllium | 0.35000 | | mg/kg |
| | Cadmium | 0.71000 | | mg/kg |
| | Calcium | 326,000.00000 | | mg/kg |
| | Chromium | 75.20000 | | mg/kg |
| | Cobalt | 4.20000 | | mg/kg |
| | Copper | 61.80000 | | mg/kg |
| | Iron | 11,700.00000 | | mg/kg |
| | Lead | 523.00000 | Jv | mg/kg |
| | Magnesium | 2,990.00000 | | mg/kg |
| | Manganese | 814.00000 | | mg/kg |
| | Nickel | 15.20000 | | mg/kg |
| | Potassium | 771.00000 | | mg/kg |
| | Sodium | 950.00000 | J | mg/kg |
| | Vanadium | 14.70000 | | mg/kg |
| | Zinc | 141.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.1-4
Storm Sewer Sediment TCL Organic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024473

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **1A-P002 DL01** | | | |
| | 2-Butanone | 0.00900 J | mg/kg |
| | 4-Methyl-2-Pentanone | 0.00600 J | mg/kg |
| | Tetrachloroethene | 0.00100 J | mg/kg |
| | Toluene | 0.00300 J | mg/kg |
| | **TCL SEMI-VOLATILES** | | |
| **1A-P002 DL01** | | | |
| | Benzo(a)anthracene | 0.05400 J | mg/kg |
| | Benzo(a)pyrene | 0.07200 J | mg/kg |
| | Benzo(b)fluoranthene | 0.10000 J | mg/kg |
| | Benzo(g,h,i)perylene | 0.07400 J | mg/kg |
| | Benzo(k)fluoranthene | 0.07800 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.82000 J | mg/kg |
| | Butylbenzylphthalate | 2.00000 J | mg/kg |
| | Chrysene | 0.10000 J | mg/kg |
| | Dimethylphthalate | 0.24000 J | mg/kg |
| | Fluoranthene | 0.06000 J | mg/kg |
| | Indeno(1,2,3-cd)pyrene | 0.05700 J | mg/kg |
| | Phenanthrene | 0.06000 J | mg/kg |
| | Pyrene | 0.29000 J | mg/kg |
| | **TCL PESTICIDES** | | |
| **1A-P002 DL01** | | | |
| | alpha-Chlordane | 0.00061 J | mg/kg |
| | gamma-Chlordane | 0.00085 J | mg/kg |
| | 4,4'-DDT | 0.00057 J | mg/kg |
| | Dieldrin | 0.00230 J | mg/kg |
| | Endrin ketone | 0.00057 J | mg/kg |
| | Heptachlor | 0.00033 J | mg/kg |
| | Heptachlor epoxide | 0.00025 J | mg/kg |

* *Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024474

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | | |
| **1A-A002 WL01** | | | | |
| | Aluminum | 355.00000 | | µg/L |
| | Antimony | 59.50000 | | µg/L |
| | Arsenic | 187.00000 | | µg/L |
| | Barium | 224.00000 | | µg/L |
| | Beryllium | 1.50000 | | µg/L |
| | Calcium | 133,000.00000 | | µg/L |
| | Cobalt | 7.10000 | | µg/L |
| | Copper | 20.20000 | | µg/L |
| | Iron | 29,200.00000 | | µg/L |
| | Lead | 318.00000 | | µg/L |
| | Magnesium | 4,360.00000 | | µg/L |
| | Manganese | 2,130.00000 | | µg/L |
| | Nickel | 13.80000 | | µg/L |
| | Potassium | 2,070.00000 | | µg/L |
| | Sodium | 26,400.00000 | | µg/L |
| | Vanadium | 4.00000 | | µg/L |
| | Zinc | 41.30000 | | µg/L |
| **1A-A003 WL01** | | | | |
| | Aluminum | 325.00000 | J^ | µg/L |
| | Barium | 115.00000 | J | µg/L |
| | Calcium | 167,000.00000 | | µg/L |
| | Copper | 27.40000 | | µg/L |
| | Iron | 15,700.00000 | J | µg/L |
| | Lead | 283.00000 | | µg/L |
| | Magnesium | 4,180.00000 | | µg/L |
| | Manganese | 695.00000 | | µg/L |
| | Potassium | 2,560.00000 | | µg/L |
| | Sodium | 23,500.00000 | J | µg/L |
| | Zinc | 12.30000 | | µg/L |
| **1C-A001 WL01** | | | | |
| | Aluminum | 1,650.00000 | J | µg/L |
| | Barium | 61.25000 | J | µg/L |
| | Calcium | 68,500.00000 | | µg/L |
| | Chromium | 4.15000 | | µg/L |
| | Copper | 44.57500 | JC | µg/L |
| | Iron | 2,260.00000 | J | µg/L |
| | Lead | 44.05000 | J | µg/L |
| | Magnesium | 2,265.00000 | | µg/L |
| | Manganese | 324.50000 | | µg/L |
| | Potassium | 3,630.00000 | | µg/L |
| | Sodium | 9,295.00000 | J^ | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024475

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Vanadium | 4.60000 Jv | µg/L |
| | Zinc | 152.50000 J | µg/L |
| **1C-A002 WL01** | | | |
| | Aluminum | 1,780.00000 J | µg/L |
| | Barium | 68.90000 J | µg/L |
| | Calcium | 85,000.00000 | µg/L |
| | Copper | 40.30000 | µg/L |
| | Iron | 2,730.00000 J | µg/L |
| | Lead | 61.00000 | µg/L |
| | Magnesium | 2,830.00000 | µg/L |
| | Manganese | 442.00000 | µg/L |
| | Potassium | 4,480.00000 | µg/L |
| | Sodium | 9,900.00000 J | µg/L |
| | Vanadium | 3.60000 Jv | µg/L |
| | Zinc | 80.80000 | µg/L |
| **1C-A003 WL01** | | | |
| | Aluminum | 4,810.00000 J | µg/L |
| | Barium | 118.00000 J | µg/L |
| | Calcium | 112,000.00000 | µg/L |
| | Chromium | 9.60000 | µg/L |
| | Copper | 44.30000 | µg/L |
| | Iron | 7,010.00000 J | µg/L |
| | Lead | 104.00000 | µg/L |
| | Magnesium | 2,820.00000 | µg/L |
| | Manganese | 790.00000 | µg/L |
| | Nickel | 19.20000 | µg/L |
| | Potassium | 4,980.00000 | µg/L |
| | Sodium | 7,000.00000 J | µg/L |
| | Vanadium | 15.30000 Jv | µg/L |
| | Zinc | 264.00000 | µg/L |
| **1C-A004 WL01** | | | |
| | Aluminum | 1,190.00000 J | µg/L |
| | Barium | 48.60000 J | µg/L |
| | Calcium | 50,700.00000 | µg/L |
| | Copper | 46.50000 | µg/L |
| | Iron | 1,360.00000 J | µg/L |
| | Lead | 41.90000 | µg/L |
| | Magnesium | 1,230.00000 | µg/L |
| | Manganese | 270.00000 | µg/L |
| | Potassium | 2,670.00000 | µg/L |
| | Sodium | 3,900.00000 J | µg/L |
| | Vanadium | 3.30000 Jv | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024476

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Zinc | 107.00000 | | µg/L |
| 1C-A005 WL01 | | | | |
| | Aluminum | 1,170.00000 | J | µg/L |
| | Barium | 36.50000 | J | µg/L |
| | Calcium | 39,400.00000 | | µg/L |
| | Copper | 31.30000 | | µg/L |
| | Iron | 1,550.00000 | J | µg/L |
| | Lead | 18.50000 | | µg/L |
| | Magnesium | 1,300.00000 | | µg/L |
| | Manganese | 165.00000 | | µg/L |
| | Potassium | 2,670.00000 | | µg/L |
| | Sodium | 4,830.00000 | J | µg/L |
| | Vanadium | 2.60000 | Jv | µg/L |
| | Zinc | 74.70000 | | µg/L |
| 1D-A001 WL01 | | | | |
| | Antimony | 13.00000 | | µg/L |
| | Arsenic | 37.30000 | | µg/L |
| | Barium | 30.50000 | | µg/L |
| | Calcium | 247,000.00000 | | µg/L |
| | Iron | 114.00000 | | µg/L |
| | Magnesium | 44,100.00000 | | µg/L |
| | Manganese | 140.00000 | | µg/L |
| | Potassium | 944,000.00000 | | µg/L |
| | Sodium | 310,000.00000 | | µg/L |
| 1E-A001 WL01 | | | | |
| | Antimony | 11.20000 | | µg/L |
| | Arsenic | 37.00000 | | µg/L |
| | Barium | 52.90000 | | µg/L |
| | Calcium | 143,000.00000 | | µg/L |
| | Iron | 293.00000 | | µg/L |
| | Magnesium | 20,200.00000 | | µg/L |
| | Manganese | 410.00000 | | µg/L |
| | Mercury | 0.20000 | | µg/L |
| | Potassium | 396,000.00000 | | µg/L |
| | Sodium | 134,000.00000 | | µg/L |
| | Zinc | 4.50000 | | µg/L |
| 1E-A002 WL01 | | | | |
| | Antimony | 12.90000 | | µg/L |
| | Arsenic | 27.00000 | J | µg/L |
| | Barium | 49.40000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024477

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Calcium | 178,000.00000 | µg/L |
| | Iron | 280.00000 | µg/L |
| | Magnesium | 26,600.00000 | µg/L |
| | Manganese | 216.00000 | µg/L |
| | Mercury | 0.20000 | µg/L |
| | Potassium | 556,000.00000 | µg/L |
| | Sodium | 175,000.00000 | µg/L |
| 1E-A003 WL01 | | | |
| | Antimony | 9.90000 | µg/L |
| | Arsenic | 31.50000 | µg/L |
| | Barium | 42.80000 | µg/L |
| | Calcium | 192,000.00000 | µg/L |
| | Iron | 208.00000 | µg/L |
| | Magnesium | 30,600.00000 | µg/L |
| | Manganese | 193.00000 | µg/L |
| | Potassium | 663,000.00000 | µg/L |
| | Sodium | 208,000.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024478

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TAL DISSOLVED INORGANICS** | | |
| **1A-A002 WL01** | | | |
| | Arsenic | 72.60000 | µg/L |
| | Barium | 127.00000 J | µg/L |
| | Calcium | 117,000.00000 | µg/L |
| | Iron | 161.00000 | µg/L |
| | Magnesium | 3,560.00000 | µg/L |
| | Manganese | 1,020.00000 | µg/L |
| | Potassium | 2,280.00000 | µg/L |
| | Sodium | 27,800.00000 | µg/L |
| **1A-A003 WL01** | | | |
| | Antimony | 5.00000 | µg/L |
| | Arsenic | 17.60000 J | µg/L |
| | Barium | 93.90000 | µg/L |
| | Calcium | 146,000.00000 | µg/L |
| | Copper | 7.10000 | µg/L |
| | Iron | 720.00000 | µg/L |
| | Magnesium | 3,850.00000 | µg/L |
| | Manganese | 445.00000 | µg/L |
| | Potassium | 2,810.00000 | µg/L |
| | Sodium | 24,400.00000 | µg/L |
| **1C-A001 WL01** | | | |
| | Arsenic | 9.35000 J | µg/L |
| | Barium | 40.10000 J | µg/L |
| | Calcium | 56,350.00000 | µg/L |
| | Copper | 6.70000 C | µg/L |
| | Magnesium | 1,860.00000 | µg/L |
| | Manganese | 205.00000 | µg/L |
| | Mercury | 0.18500 | µg/L |
| | Potassium | 4,015.00000 | µg/L |
| | Selenium | 5.75000 | µg/L |
| | Sodium | 9,705.00000 | µg/L |
| | Zinc | 4.90000 | µg/L |
| **1C-A002 WL01** | | | |
| | Arsenic | 19.30000 | µg/L |
| | Barium | 43.90000 J | µg/L |
| | Calcium | 57,300.00000 | µg/L |
| | Magnesium | 2,030.00000 | µg/L |
| | Manganese | 267.00000 | µg/L |
| | Potassium | 4,370.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 6.2-1**
**Surface Water TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024479

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Sodium | 11,500.00000 | | µg/L |
| | Zinc | 4.40000 | | µg/L |
| **1C-A003 WL01** | | | | |
| | Aluminum | 27.20000 | | µg/L |
| | Arsenic | 9.30000 | J | µg/L |
| | Barium | 30.40000 | | µg/L |
| | Calcium | 38,400.00000 | | µg/L |
| | Copper | 15.60000 | | µg/L |
| | Magnesium | 1,300.00000 | | µg/L |
| | Manganese | 131.00000 | | µg/L |
| | Potassium | 3,850.00000 | | µg/L |
| | Sodium | 6,430.00000 | | µg/L |
| | Zinc | 7.70000 | | µg/L |
| **1C-A004 WL01** | | | | |
| | Aluminum | 48.50000 | | µg/L |
| | Barium | 17.40000 | | µg/L |
| | Calcium | 24,200.00000 | | µg/L |
| | Copper | 12.90000 | | µg/L |
| | Magnesium | 756.00000 | | µg/L |
| | Manganese | 47.60000 | | µg/L |
| | Potassium | 2,270.00000 | | µg/L |
| | Sodium | 3,460.00000 | | µg/L |
| | Vanadium | 2.20000 | | µg/L |
| | Zinc | 6.50000 | | µg/L |
| **1C-A005 WL01** | | | | |
| | Aluminum | 33.20000 | | µg/L |
| | Barium | 22.90000 | | µg/L |
| | Calcium | 29,400.00000 | | µg/L |
| | Copper | 11.00000 | | µg/L |
| | Magnesium | 953.00000 | | µg/L |
| | Manganese | 71.00000 | | µg/L |
| | Mercury | 0.27000 | | µg/L |
| | Potassium | 2,840.00000 | | µg/L |
| | Sodium | 4,350.00000 | | µg/L |
| | Vanadium | 2.20000 | | µg/L |
| | Zinc | 22.10000 | | µg/L |
| **1D-A001 WL01** | | | | |
| | Arsenic | 27.20000 | | µg/L |
| | Barium | 30.90000 | J | µg/L |
| | Calcium | 255,000.00000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024480

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Magnesium | 45,900.00000 | µg/L |
| | Manganese | 141.00000 | µg/L |
| | Potassium | 1,000,000.00000 | µg/L |
| | Sodium | 328,000.00000 | µg/L |
| 1E-A001 WL01 | | | |
| | Arsenic | 36.30000 | µg/L |
| | Barium | 54.20000 J | µg/L |
| | Calcium | 149,000.00000 | µg/L |
| | Magnesium | 21,600.00000 | µg/L |
| | Manganese | 427.00000 | µg/L |
| | Potassium | 424,000.00000 | µg/L |
| | Sodium | 142,000.00000 | µg/L |
| | Zinc | 8.40000 | µg/L |
| 1E-A002 WL01 | | | |
| | Arsenic | 31.60000 | µg/L |
| | Barium | 49.60000 J | µg/L |
| | Calcium | 179,000.00000 | µg/L |
| | Magnesium | 27,200.00000 | µg/L |
| | Manganese | 213.00000 | µg/L |
| | Potassium | 555,000.00000 | µg/L |
| | Sodium | 183,000.00000 | µg/L |
| 1E-A003 WL01 | | | |
| | Arsenic | 33.50000 | µg/L |
| | Barium | 44.00000 J | µg/L |
| | Calcium | 195,000.00000 | µg/L |
| | Magnesium | 31,200.00000 | µg/L |
| | Manganese | 200.00000 | µg/L |
| | Potassium | 672,000.00000 | µg/L |
| | Sodium | 214,000.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.2-2
Surface Water TCL Organic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024481

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **1C-A002 WL01** | | | |
| | Acetone | 7.00000 J | µg/L |
| **1C-A003 WL01** | | | |
| | Acetone | 11.00000 | µg/L |
| **1C-A004 WL01** | | | |
| | Acetone | 5.00000 J | µg/L |
| **1E-A003 WL01** | | | |
| | Acetone | 3.00000 J | µg/L |
| | **TCL SEMI-VOLATILES** | | |
| **1A-A002 WL01** | | | |
| | 1,3-Dichlorobenzene | 6.00000 J | µg/L |
| **1A-A003 WL01** | | | |
| | 1,3-Dichlorobenzene | 2.00000 J | µg/L |
| **1C-A001 WL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.80000 J | µg/L |
| **1C-A002 WL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.90000 J | µg/L |
| | 1,3-Dichlorobenzene | 1.00000 J | µg/L |
| | Fluoranthene | 0.60000 J | µg/L |
| **1C-A003 WL01** | | | |
| | Benzo(b)fluoranthene | 0.80000 J | µg/L |
| | Benzo(k)fluoranthene | 0.50000 J | µg/L |
| | bis(2-Ethylhexyl)phthalate | 2.00000 J | µg/L |
| | Butylbenzylphthalate | 0.50000 J | µg/L |
| | Chrysene | 0.70000 J | µg/L |
| | 1,3-Dichlorobenzene | 0.90000 J | µg/L |
| | Diethylphthalate | 0.60000 J | µg/L |
| | Fluoranthene | 1.00000 J | µg/L |
| | Pyrene | 1.00000 J | µg/L |
| **1C-A004 WL01** | | | |
| | Benzo(b)fluoranthene | 0.70000 J | µg/L |
| | bis(2-Ethylhexyl)phthalate | 2.00000 J | µg/L |
| | Chrysene | 0.70000 J | µg/L |
| | Diethylphthalate | 0.70000 J | µg/L |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers. The samples collected from 1E-A001 and 1E-A002 did not show detections of TCL organics.*

Table 6.2-2
Surface Water TCL Organic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024482

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | Fluoranthene | 1.00000 J | µg/L |
| | Pyrene | 0.90000 J | µg/L |
| 1C-A005 WL01 | | | |
| | bis(2-Ethylhexyl)phthalate | 1.00000 J | µg/L |
| | Di-n-butylphthalate | 0.50000 J | µg/L |
| 1D-A001 WL01 | | | |
| | 1,3-Dichlorobenzene | 1.00000 J | µg/L |
| | **TCL PESTICIDES** | | |
| 1A-A003 WL01 | | | |
| | beta-BHC | 0.01400 J | µg/L |
| 1C-A001 WL01 | | | |
| | Aldrin | 0.00725 J | µg/L |
| | beta-BHC | 0.01850 J | µg/L |
| 1C-A002 WL01 | | | |
| | Aldrin | 0.00640 J | µg/L |
| | beta-BHC | 0.02300 J | µg/L |
| 1C-A005 WL01 | | | |
| | Aldrin | 0.01200 J | µg/L |
| | alpha-BHC | 0.00320 J | µg/L |
| | beta-BHC | 0.01600 J | µg/L |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers. The samples collected from 1E-A001 and 1E-A002 did not show detections of TCL organics.*

Table 6.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024483

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | | |
| **1A-A002 DL01** | | | | |
| | Aluminum | 7,930.00000 | J | mg/kg |
| | Antimony | 75.70000 | | mg/kg |
| | Arsenic | 224.00000 | | mg/kg |
| | Barium | 272.00000 | | mg/kg |
| | Beryllium | 1.10000 | | mg/kg |
| | Cadmium | 43.10000 | | mg/kg |
| | Calcium | 173,000.00000 | | mg/kg |
| | Chromium | 21.40000 | | mg/kg |
| | Cobalt | 11.50000 | | mg/kg |
| | Copper | 219.00000 | | mg/kg |
| | Iron | 33,900.00000 | | mg/kg |
| | Lead | 3,940.00000 | Jv | mg/kg |
| | Magnesium | 2,020.00000 | | mg/kg |
| | Manganese | 2,620.00000 | | mg/kg |
| | Nickel | 49.40000 | | mg/kg |
| | Potassium | 1,880.00000 | | mg/kg |
| | Sodium | 1,850.00000 | J | mg/kg |
| | Vanadium | 39.00000 | | mg/kg |
| | Zinc | 2,090.00000 | | mg/kg |
| **1A-A003 DL01** | | | | |
| | Aluminum | 1,030.00000 | J | mg/kg |
| | Barium | 266.00000 | | mg/kg |
| | Beryllium | 2.50000 | | mg/kg |
| | Calcium | 30,400.00000 | | mg/kg |
| | Iron | 134,000.00000 | | mg/kg |
| | Manganese | 7,630.00000 | | mg/kg |
| **1C-A001 DL01** | | | | |
| | Aluminum | 12,750.00000 | J | mg/kg |
| | Antimony | 1.65000 | | mg/kg |
| | Arsenic | 22.55000 | | mg/kg |
| | Barium | 125.55000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Calcium | 111,500.00000 | | mg/kg |
| | Chromium | 22.05000 | | mg/kg |
| | Cobalt | 11.65000 | | mg/kg |
| | Iron | 20,250.00000 | | mg/kg |
| | Lead | 485.00000 | Jv | mg/kg |
| | Magnesium | 2,100.00000 | | mg/kg |
| | Manganese | 1,520.00000 | | mg/kg |
| | Nickel | 39.75000 | | mg/kg |
| | Potassium | 2,925.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 6.2-3**
**Sediment TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024484

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Vanadium | 42.90000 | | mg/kg |
| | Zinc | 190.50000 | | mg/kg |
| **1C-A002 DL01** | | | | |
| | Aluminum | 16,100.00000 | J | mg/kg |
| | Arsenic | 21.10000 | | mg/kg |
| | Barium | 113.00000 | | mg/kg |
| | Beryllium | 2.00000 | | mg/kg |
| | Calcium | 75,200.00000 | | mg/kg |
| | Chromium | 24.20000 | | mg/kg |
| | Cobalt | 12.60000 | | mg/kg |
| | Iron | 33,200.00000 | | mg/kg |
| | Lead | 406.00000 | Jv | mg/kg |
| | Magnesium | 2,700.00000 | | mg/kg |
| | Manganese | 969.00000 | | mg/kg |
| | Nickel | 35.10000 | | mg/kg |
| | Potassium | 3,260.00000 | | mg/kg |
| | Sodium | 990.00000 | J- | mg/kg |
| | Vanadium | 41.70000 | | mg/kg |
| | Zinc | 142.00000 | | mg/kg |
| **1C-A003 DL01** | | | | |
| | Aluminum | 17,000.00000 | J | mg/kg |
| | Arsenic | 17.50000 | J | mg/kg |
| | Barium | 112.00000 | | mg/kg |
| | Beryllium | 1.70000 | | mg/kg |
| | Calcium | 35,700.00000 | | mg/kg |
| | Chromium | 28.30000 | | mg/kg |
| | Cobalt | 8.90000 | | mg/kg |
| | Copper | 62.20000 | J- | mg/kg |
| | Iron | 21,000.00000 | | mg/kg |
| | Lead | 688.00000 | Jv | mg/kg |
| | Magnesium | 3,090.00000 | | mg/kg |
| | Manganese | 289.00000 | | mg/kg |
| | Nickel | 24.20000 | | mg/kg |
| | Potassium | 3,130.00000 | | mg/kg |
| | Sodium | 1,520.00000 | J | mg/kg |
| | Vanadium | 45.60000 | | mg/kg |
| | Zinc | 98.40000 | J- | mg/kg |
| **1C-A004 DL01** | | | | |
| | Aluminum | 1,930.00000 | J | mg/kg |
| | Arsenic | 7.10000 | J | mg/kg |
| | Barium | 37.40000 | | mg/kg |
| | Beryllium | 0.38000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024485

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Calcium | 325,000.00000 | | mg/kg |
| | Chromium | 94.10000 | | mg/kg |
| | Cobalt | 7.00000 | | mg/kg |
| | Iron | 11,300.00000 | | mg/kg |
| | Magnesium | 759.00000 | | mg/kg |
| | Manganese | 1,900.00000 | | mg/kg |
| | Nickel | 20.90000 | | mg/kg |
| | Potassium | 568.00000 | | mg/kg |
| | Sodium | 817.00000 | J^ | mg/kg |
| | Vanadium | 56.30000 | | mg/kg |
| 1C-A005 DL01 | | | | |
| | Aluminum | 8,200.00000 | J | mg/kg |
| | Arsenic | 13.70000 | | mg/kg |
| | Barium | 136.00000 | | mg/kg |
| | Beryllium | 0.88000 | | mg/kg |
| | Calcium | 108,000.00000 | | mg/kg |
| | Chromium | 19.10000 | | mg/kg |
| | Cobalt | 11.00000 | | mg/kg |
| | Iron | 19,400.00000 | | mg/kg |
| | Lead | 873.00000 | Jv | mg/kg |
| | Magnesium | 1,600.00000 | | mg/kg |
| | Manganese | 1,260.00000 | | mg/kg |
| | Mercury | 0.18000 | | mg/kg |
| | Nickel | 32.20000 | | mg/kg |
| | Potassium | 1,530.00000 | | mg/kg |
| | Sodium | 845.00000 | J^ | mg/kg |
| | Vanadium | 33.10000 | | mg/kg |
| | Zinc | 230.00000 | | mg/kg |
| 1D-A001 DL01 | | | | |
| | Aluminum | 12,900.00000 | | mg/kg |
| | Arsenic | 7.50000 | | mg/kg |
| | Barium | 90.80000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Calcium | 93,800.00000 | | mg/kg |
| | Chromium | 18.30000 | | mg/kg |
| | Cobalt | 6.00000 | | mg/kg |
| | Copper | 30.20000 | | mg/kg |
| | Iron | 17,800.00000 | | mg/kg |
| | Lead | 30.60000 | Jv | mg/kg |
| | Magnesium | 2,350.00000 | | mg/kg |
| | Manganese | 608.00000 | Jv | mg/kg |
| | Mercury | 0.16000 | | mg/kg |
| | Nickel | 21.70000 | | mg/kg |
| | Potassium | 11,800.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024486

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Sodium | 1,570.00000 | J | mg/kg |
| | Vanadium | 38.50000 | | mg/kg |
| | Zinc | 66.20000 | | mg/kg |
| 1E-A001 DL01 | | | | |
| | Aluminum | 14,000.00000 | | mg/kg |
| | Arsenic | 18.00000 | | mg/kg |
| | Barium | 43.70000 | | mg/kg |
| | Beryllium | 1.40000 | | mg/kg |
| | Calcium | 34,800.00000 | | mg/kg |
| | Chromium | 22.80000 | | mg/kg |
| | Cobalt | 3.70000 | | mg/kg |
| | Copper | 28.40000 | | mg/kg |
| | Iron | 24,300.00000 | | mg/kg |
| | Lead | 16.00000 | Jv | mg/kg |
| | Magnesium | 2,470.00000 | | mg/kg |
| | Manganese | 198.00000 | Jv | mg/kg |
| | Mercury | 0.18000 | | mg/kg |
| | Nickel | 13.20000 | | mg/kg |
| | Potassium | 7,020.00000 | | mg/kg |
| | Sodium | 1,120.00000 | J | mg/kg |
| | Vanadium | 34.70000 | | mg/kg |
| | Zinc | 37.60000 | | mg/kg |
| 1E-A002 DL01 | | | | |
| | Aluminum | 11,400.00000 | | mg/kg |
| | Arsenic | 16.20000 | | mg/kg |
| | Barium | 70.40000 | | mg/kg |
| | Beryllium | 0.93000 | | mg/kg |
| | Calcium | 172,000.00000 | | mg/kg |
| | Chromium | 23.30000 | | mg/kg |
| | Cobalt | 6.40000 | | mg/kg |
| | Copper | 36.80000 | | mg/kg |
| | Iron | 15,600.00000 | | mg/kg |
| | Lead | 92.90000 | Jv | mg/kg |
| | Magnesium | 2,430.00000 | | mg/kg |
| | Manganese | 815.00000 | Jv | mg/kg |
| | Nickel | 26.10000 | | mg/kg |
| | Potassium | 7,160.00000 | | mg/kg |
| | Sodium | 1,290.00000 | J | mg/kg |
| | Vanadium | 53.10000 | | mg/kg |
| | Zinc | 80.50000 | | mg/kg |
| 1E-A003 DL01 | | | | |
| | Aluminum | 11,200.00000 | | mg/kg |

* *Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024487

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Arsenic | 27.10000 | | mg/kg |
| | Barium | 75.80000 | | mg/kg |
| | Beryllium | 2.30000 | | mg/kg |
| | Calcium | 42,700.00000 | | mg/kg |
| | Chromium | 18.30000 | | mg/kg |
| | Cobalt | 11.50000 | | mg/kg |
| | Copper | 28.20000 | | mg/kg |
| | Iron | 45,700.00000 | | mg/kg |
| | Lead | 28.20000 | Jv | mg/kg |
| | Magnesium | 2,270.00000 | | mg/kg |
| | Manganese | 598.00000 | Jv | mg/kg |
| | Mercury | 0.27000 | | mg/kg |
| | Nickel | 22.30000 | | mg/kg |
| | Potassium | 10,800.00000 | | mg/kg |
| | Sodium | 2,360.00000 | J | mg/kg |
| | Vanadium | 37.00000 | | mg/kg |
| | Zinc | 95.80000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.2-4
Sediment TCL Organic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024488

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **1A-A002 DL01** | | | |
| | 2-Butanone | 0.00900 J | mg/kg |
| **1C-A003 DL01** | | | |
| | Carbon Disulfide | 0.00300 J | mg/kg |
| | Ethylbenzene | 0.00300 JF+ | mg/kg |
| | 2-Hexanone | 0.00400 J | mg/kg |
| | 4-Methyl-2-Pentanone | 0.04500 | mg/kg |
| | Xylene (total) | 0.00300 J | mg/kg |
| **1D-A001 DL01** | | | |
| | 2-Butanone | 0.00500 J | mg/kg |
| | **TCL SEMI-VOLATILES** | | |
| **1A-A002 DL01** | | | |
| | Benzo(a)pyrene | 0.03300 J | mg/kg |
| | Benzo(b)fluoranthene | 0.03900 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.08500 J | mg/kg |
| | Chrysene | 0.09200 J | mg/kg |
| | 2-Methylnaphthalene | 0.03100 J | mg/kg |
| | Pyrene | 0.03700 J | mg/kg |
| **1C-A001 DL01** | | | |
| | Anthracene | 0.15750 J | mg/kg |
| | Benzo(a)anthracene | 0.26000 J | mg/kg |
| | Benzo(a)pyrene | 0.32000 J | mg/kg |
| | Benzo(b)fluoranthene | 0.48000 J | mg/kg |
| | Benzo(g,h,i)perylene | 0.37500 J | mg/kg |
| | Benzo(k)fluoranthene | 0.28000 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.22000 J | mg/kg |
| | Carbazole | 0.16500 J | mg/kg |
| | Chrysene | 0.49500 J | mg/kg |
| | Fluoranthene | 0.38000 J | mg/kg |
| | Indeno(1,2,3-cd)pyrene | 0.29000 J | mg/kg |
| | Phenanthrene | 0.17000 J | mg/kg |
| | Pyrene | 0.98500 J | mg/kg |
| **1C-A002 DL01** | | | |
| | Anthracene | 0.11000 J | mg/kg |
| | Benzo(a)anthracene | 0.89000 J | mg/kg |
| | Benzo(a)pyrene | 1.10000 J | mg/kg |
| | Benzo(b)fluoranthene | 0.66000 J | mg/kg |
| | Benzo(g,h,i)perylene | 0.69000 J | mg/kg |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers. The sample collected from 1A-A003 did not show detections of TCL organics.*

Table 6.2-4
Sediment TCL Organic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024489

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Benzo(k)fluoranthene | 0.26000 | J | mg/kg |
| | Carbazole | 0.08300 | J | mg/kg |
| | Chrysene | 3.30000 | J | mg/kg |
| | Dibenz(a,h)anthracene | 0.37000 | J | mg/kg |
| | Fluoranthene | 0.32000 | J | mg/kg |
| | Indeno(1,2,3-cd)pyrene | 0.41000 | J | mg/kg |
| | Phenanthrene | 0.79000 | J | mg/kg |
| | Pyrene | 1.70000 | J | mg/kg |
| 1C-A003 DL01 | | | | |
| | Benzo(a)anthracene | 2.90000 | J | mg/kg |
| | Chrysene | 13.00000 | J | mg/kg |
| | Fluoranthene | 0.96000 | J | mg/kg |
| | 2-Methylnaphthalene | 1.50000 | J | mg/kg |
| | N-Nitrosodiphenylamine (1) | 2.60000 | JF+ | mg/kg |
| | Phenanthrene | 7.90000 | J | mg/kg |
| | Pyrene | 5.90000 | J | mg/kg |
| 1C-A004 DL01 | | | | |
| | Benzo(b)fluoranthene | 0.05600 | J | mg/kg |
| | Benzo(g,h,i)perylene | 0.03000 | J | mg/kg |
| | Benzo(k)fluoranthene | 0.04000 | J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.10000 | J | mg/kg |
| | Chrysene | 0.04600 | J | mg/kg |
| | Fluoranthene | 0.03000 | J | mg/kg |
| | Indeno(1,2,3-cd)pyrene | 0.02300 | J | mg/kg |
| | Pyrene | 0.06600 | J | mg/kg |
| 1C-A005 DL01 | | | | |
| | Acenaphthene | 0.13000 | J | mg/kg |
| | Anthracene | 0.35000 | J | mg/kg |
| | Benzo(a)anthracene | 4.10000 | | mg/kg |
| | Benzo(a)pyrene | 4.70000 | | mg/kg |
| | Benzo(b)fluoranthene | 6.00000 | | mg/kg |
| | Benzo(g,h,i)perylene | 4.50000 | | mg/kg |
| | Benzo(k)fluoranthene | 5.40000 | | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 2.10000 | J | mg/kg |
| | Butylbenzylphthalate | 0.54000 | J | mg/kg |
| | Carbazole | 0.76000 | J | mg/kg |
| | Chrysene | 6.60000 | | mg/kg |
| | Fluoranthene | 7.20000 | | mg/kg |
| | Fluorene | 0.14000 | J | mg/kg |
| | Indeno(1,2,3-cd)pyrene | 4.30000 | | mg/kg |
| | Phenanthrene | 2.60000 | | mg/kg |
| | Pyrene | 11.00000 | | mg/kg |
| 1D-A001 DL01 | | | | |

* *Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers. The sample collected from 1A-A003 did not show detections of TCL organics.*

Table 6.2-4
Sediment TCL Organic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024490

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | bis(2-Ethylhexyl)phthalate | 0.03800 J | mg/kg |
| | Di-n-butylphthalate | 0.18000 J | mg/kg |
| | Fluoranthene | 0.02900 J | mg/kg |
| | Pyrene | 0.03500 J | mg/kg |
| **1E-A001 DL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.03800 J | mg/kg |
| | Di-n-butylphthalate | 0.06400 J | mg/kg |
| **1E-A002 DL01** | | | |
| | Benzo(b)fluoranthene | 0.03100 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.08300 J | mg/kg |
| | Chrysene | 0.03300 J | mg/kg |
| | Di-n-butylphthalate | 0.04100 J | mg/kg |
| | Fluoranthene | 0.03500 J | mg/kg |
| | Pyrene | 0.03600 J | mg/kg |
| **1E-A003 DL01** | | | |
| | Benzo(b)fluoranthene | 0.02900 JF+ | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.05900 J | mg/kg |
| | Chrysene | 0.02700 J | mg/kg |
| | Di-n-butylphthalate | 0.03200 J | mg/kg |
| | **TCL PESTICIDES** | | |
| **1A-A002 DL01** | | | |
| | alpha-Chlordane | 0.00026 J | mg/kg |
| | 4,4'-DDE | 0.00053 J | mg/kg |
| | Dieldrin | 0.00064 J | mg/kg |
| **1C-A001 DL01** | | | |
| | alpha-Chlordane | 0.00460 J | mg/kg |
| | gamma-Chlordane | 0.00650 J | mg/kg |
| | 4,4'-DDD | 0.01180 Jv | mg/kg |
| | 4,4'-DDE | 0.01260 Jv | mg/kg |
| | 4,4'-DDT | 0.01175 Jv | mg/kg |
| | Dieldrin | 0.00785 Jv | mg/kg |
| | Endrin aldehyde | 0.00340 Jv | mg/kg |
| | Heptachlor epoxide | 0.00599 J | mg/kg |
| **1C-A002 DL01** | | | |
| | Dieldrin | 0.00230 J | mg/kg |
| | Endosulfan sulfate | 0.00430 J | mg/kg |
| | Heptachlor epoxide | 0.00110 J | mg/kg |
| **1C-A003 DL01** | | | |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers. The sample collected from 1A-A003 did not show detections of TCL organics.*

**Table 6.2-4**
**Sediment TCL Organic Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024491

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Aldrin | 0.00450 J | mg/kg |
| | delta-BHC | 0.00130 J | mg/kg |
| | alpha-Chlordane | 0.00180 J | mg/kg |
| | gamma-Chlordane | 0.00320 J | mg/kg |
| | Endosulfan I | 0.00190 J | mg/kg |
| | Endosulfan sulfate | 0.00680 Jv | mg/kg |
| | Endrin ketone | 0.00280 Jv | mg/kg |
| | Heptachlor epoxide | 0.00170 J | mg/kg |
| **1C-A004 DL01** | | | |
| | alpha-Chlordane | 0.00067 J | mg/kg |
| | gamma-Chlordane | 0.00060 J | mg/kg |
| | 4,4'-DDT | 0.00044 J | mg/kg |
| | Dieldrin | 0.00360 | mg/kg |
| | Heptachlor epoxide | 0.00022 J | mg/kg |
| **1C-A005 DL01** | | | |
| | alpha-Chlordane | 0.00510 J | mg/kg |
| | gamma-Chlordane | 0.00490 J | mg/kg |
| | 4,4'-DDT | 0.00560 J | mg/kg |
| | Dieldrin | 0.00540 J | mg/kg |
| **1D-A001 DL01** | | | |
| | Aroclor-1260 | 0.02900 J | mg/kg |
| | alpha-Chlordane | 0.00036 J | mg/kg |
| | gamma-Chlordane | 0.00046 J | mg/kg |
| | 4,4'-DDD | 0.00190 J | mg/kg |
| | 4,4'-DDE | 0.00200 J | mg/kg |
| | Endrin aldehyde | 0.00076 J | mg/kg |
| **1E-A002 DL01** | | | |
| | Aroclor-1260 | 0.02300 J | mg/kg |
| | gamma-Chlordane | 0.00042 J | mg/kg |
| | 4,4'-DDD | 0.00230 J | mg/kg |
| | 4,4'-DDE | 0.00160 J | mg/kg |
| | Endrin aldehyde | 0.00072 J | mg/kg |
| **1E-A003 DL01** | | | |
| | 4,4'-DDT | 0.00053 J | mg/kg |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers. The sample collected from 1A-A003 did not show detections of TCL organics.*

Table 6.2-5
Sediment TCLP Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024492

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | **TCLP INORGANICS** | | |
| **1A-A003 DL01** | | | |
| | Barium | 0.89600 E | mg/L |
| | Lead | 0.00260 BW | mg/L |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers.*

Table 6.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024493

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | TAL TOTAL INORGANICS | | | |
| 1A-S010 SL01 | | | | |
| | Aluminum | 22,600.00000 | | mg/kg |
| | Antimony | 5.20000 | | mg/kg |
| | Arsenic | 13.20000 | | mg/kg |
| | Barium | 194.00000 | | mg/kg |
| | Beryllium | 0.88000 | | mg/kg |
| | Cadmium | 0.50000 | | mg/kg |
| | Calcium | 102,000.00000 | | mg/kg |
| | Chromium | 22.00000 | | mg/kg |
| | Cobalt | 13.00000 | | mg/kg |
| | Copper | 20.10000 | | mg/kg |
| | Iron | 21,900.00000 | | mg/kg |
| | Lead | 114.00000 | | mg/kg |
| | Magnesium | 3,290.00000 | | mg/kg |
| | Manganese | 2,260.00000 | | mg/kg |
| | Mercury | 0.13000 | | mg/kg |
| | Nickel | 44.80000 | | mg/kg |
| | Potassium | 5,000.00000 | | mg/kg |
| | Selenium | 2.30000 | | mg/kg |
| | Silver | 0.16000 | | mg/kg |
| | Sodium | 456.00000 | | mg/kg |
| | Thallium | 1.40000 | | mg/kg |
| | Vanadium | 62.80000 | | mg/kg |
| | Zinc | 1,020.00000 | | mg/kg |
| 1A-S017 SL01 | | | | |
| | Aluminum | 5,870.00000 | | mg/kg |
| | Antimony | 19.50000 | Jv | mg/kg |
| | Arsenic | 40.10000 | | mg/kg |
| | Barium | 1,060.00000 | | mg/kg |
| | Beryllium | 0.46000 | | mg/kg |
| | Cadmium | 40.50000 | | mg/kg |
| | Calcium | 170,000.00000 | | mg/kg |
| | Chromium | 54.10000 | | mg/kg |
| | Cobalt | 13.20000 | | mg/kg |
| | Copper | 240.00000 | | mg/kg |
| | Iron | 33,900.00000 | | mg/kg |
| | Lead | 2,620.00000 | | mg/kg |
| | Magnesium | 2,530.00000 | | mg/kg |
| | Manganese | 1,690.00000 | | mg/kg |
| | Mercury | 2.00000 | | mg/kg |
| | Nickel | 145.00000 | | mg/kg |
| | Potassium | 1,450.00000 | | mg/kg |
| | Silver | 0.45000 | | mg/kg |
| | Thallium | 0.94000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 6.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024494

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Vanadium | 22.90000 | mg/kg |
| | Zinc | 3,140.00000 | mg/kg |
| **1A-S020 SL01** | | | |
| | Aluminum | 18,500.00000 | mg/kg |
| | Antimony | 0.75000 | mg/kg |
| | Arsenic | 10.20000 | mg/kg |
| | Barium | 167.00000 | mg/kg |
| | Beryllium | 0.78000 | mg/kg |
| | Calcium | 98,000.00000 J | mg/kg |
| | Chromium | 18.70000 | mg/kg |
| | Cobalt | 11.60000 | mg/kg |
| | Copper | 16.30000 | mg/kg |
| | Iron | 17,600.00000 J | mg/kg |
| | Lead | 64.40000 | mg/kg |
| | Magnesium | 2,940.00000 | mg/kg |
| | Manganese | 1,960.00000 | mg/kg |
| | Nickel | 35.10000 | mg/kg |
| | Potassium | 4,290.00000 | mg/kg |
| | Selenium | 1.10000 | mg/kg |
| | Sodium | 302.00000 J | mg/kg |
| | Vanadium | 48.60000 | mg/kg |
| | Zinc | 69.20000 | mg/kg |
| **1A-S023 EL01** | | | |
| | Aluminum | 9,400.00000 | mg/kg |
| | Arsenic | 14.20000 | mg/kg |
| | Barium | 85.50000 | mg/kg |
| | Beryllium | 0.60000 | mg/kg |
| | Calcium | 113,000.00000 J | mg/kg |
| | Chromium | 13.20000 | mg/kg |
| | Cobalt | 8.90000 | mg/kg |
| | Copper | 26.10000 | mg/kg |
| | Iron | 16,300.00000 J | mg/kg |
| | Lead | 169.00000 | mg/kg |
| | Magnesium | 2,140.00000 | mg/kg |
| | Manganese | 928.00000 Jv | mg/kg |
| | Nickel | 22.70000 | mg/kg |
| | Potassium | 2,720.00000 | mg/kg |
| | Sodium | 133.00000 J | mg/kg |
| | Vanadium | 35.80000 | mg/kg |
| | Zinc | 120.00000 | mg/kg |
| **1A-S030 SL01** | | | |
| | Aluminum | 17,700.00000 | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024495

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Antimony | 1.50000 | | mg/kg |
| | Arsenic | 12.50000 | | mg/kg |
| | Barium | 226.00000 | | mg/kg |
| | Beryllium | 0.69000 | | mg/kg |
| | Calcium | 124,000.00000 | J | mg/kg |
| | Chromium | 18.40000 | | mg/kg |
| | Cobalt | 15.40000 | | mg/kg |
| | Copper | 17.40000 | | mg/kg |
| | Iron | 18,600.00000 | J | mg/kg |
| | Lead | 126.00000 | | mg/kg |
| | Magnesium | 2,930.00000 | | mg/kg |
| | Manganese | 3,490.00000 | | mg/kg |
| | Nickel | 54.40000 | | mg/kg |
| | Potassium | 4,610.00000 | | mg/kg |
| | Selenium | 1.30000 | | mg/kg |
| | Sodium | 305.00000 | J | mg/kg |
| | Vanadium | 57.30000 | | mg/kg |
| | Zinc | 88.20000 | | mg/kg |
| 1A-S042 SL01 | | | | |
| | Aluminum | 8,540.00000 | | mg/kg |
| | Antimony | 120.00000 | Jv | mg/kg |
| | Arsenic | 109.00000 | | mg/kg |
| | Barium | 393.00000 | | mg/kg |
| | Beryllium | 0.63000 | | mg/kg |
| | Cadmium | 4.10000 | | mg/kg |
| | Calcium | 159,000.00000 | J | mg/kg |
| | Chromium | 22.30000 | | mg/kg |
| | Cobalt | 13.00000 | J | mg/kg |
| | Copper | 123.00000 | | mg/kg |
| | Iron | 26,100.00000 | | mg/kg |
| | Lead | 8,950.00000 | | mg/kg |
| | Magnesium | 1,900.00000 | | mg/kg |
| | Manganese | 1,910.00000 | | mg/kg |
| | Nickel | 45.00000 | | mg/kg |
| | Potassium | 1,160.00000 | | mg/kg |
| | Selenium | 0.69000 | | mg/kg |
| | Sodium | 521.00000 | Jv | mg/kg |
| | Vanadium | 28.40000 | | mg/kg |
| | Zinc | 603.00000 | | mg/kg |
| 1A-S043 EL01 | | | | |
| | Aluminum | 8,670.00000 | | mg/kg |
| | Antimony | 1,900.00000 | Jv | mg/kg |
| | Arsenic | 2,510.00000 | | mg/kg |
| | Barium | 977.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024496

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Beryllium | 0.60000 | | mg/kg |
| | Cadmium | 38.10000 | | mg/kg |
| | Calcium | 87,200.00000 | J | mg/kg |
| | Chromium | 204.00000 | | mg/kg |
| | Cobalt | 64.40000 | | mg/kg |
| | Copper | 2,520.00000 | | mg/kg |
| | Iron | 68,600.00000 | J | mg/kg |
| | Lead | 27,000.00000 | | mg/kg |
| | Magnesium | 3,590.00000 | | mg/kg |
| | Manganese | 1,310.00000 | Jv | mg/kg |
| | Mercury | 0.08000 | | mg/kg |
| | Nickel | 627.00000 | | mg/kg |
| | Potassium | 1,490.00000 | | mg/kg |
| | Selenium | 1.10000 | | mg/kg |
| | Silver | 3.20000 | J | mg/kg |
| | Sodium | 1,850.00000 | | mg/kg |
| | Vanadium | 62.60000 | | mg/kg |
| | Zinc | 2,070.00000 | | mg/kg |
| 1A-S045 SL01 | | | | |
| | Aluminum | 10,800.00000 | | mg/kg |
| | Antimony | 3,710.00000 | Jv | mg/kg |
| | Arsenic | 7,980.00000 | | mg/kg |
| | Barium | 1,230.00000 | | mg/kg |
| | Beryllium | 0.60000 | | mg/kg |
| | Cadmium | 637.00000 | | mg/kg |
| | Calcium | 58,500.00000 | J | mg/kg |
| | Chromium | 117.00000 | | mg/kg |
| | Cobalt | 39.80000 | J | mg/kg |
| | Copper | 2,040.00000 | | mg/kg |
| | Iron | 81,700.00000 | | mg/kg |
| | Lead | 105,000.00000 | | mg/kg |
| | Magnesium | 5,600.00000 | | mg/kg |
| | Manganese | 711.00000 | | mg/kg |
| | Nickel | 845.00000 | | mg/kg |
| | Potassium | 981.00000 | | mg/kg |
| | Selenium | 5.00000 | | mg/kg |
| | Silver | 1.70000 | | mg/kg |
| | Sodium | 3,130.00000 | | mg/kg |
| | Thallium | 4.40000 | Jv | mg/kg |
| | Vanadium | 19.90000 | | mg/kg |
| | Zinc | 2,060.00000 | | mg/kg |
| 1A-S050 SL01 | | | | |
| | Aluminum | 12,900.00000 | | mg/kg |
| | Antimony | 106.00000 | Jv | mg/kg |

* *Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 6.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024497

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Arsenic | 73.40000 | | mg/kg |
| | Barium | 349.00000 | | mg/kg |
| | Beryllium | 0.83000 | | mg/kg |
| | Cadmium | 1.40000 | | mg/kg |
| | Calcium | 116,000.00000 | | mg/kg |
| | Chromium | 30.20000 | | mg/kg |
| | Cobalt | 18.30000 | | mg/kg |
| | Copper | 127.00000 | | mg/kg |
| | Iron | 27,500.00000 | | mg/kg |
| | Lead | 1,570.00000 | | mg/kg |
| | Magnesium | 3,090.00000 | | mg/kg |
| | Manganese | 2,490.00000 | | mg/kg |
| | Nickel | 59.40000 | | mg/kg |
| | Potassium | 3,130.00000 | | mg/kg |
| | Thallium | 1.10000 | | mg/kg |
| | Vanadium | 51.10000 | | mg/kg |
| | Zinc | 371.00000 | | mg/kg |
| **1A-S052 EL01** | | | | |
| | Aluminum | 7,600.00000 | | mg/kg |
| | Antimony | 254.00000 | Jv | mg/kg |
| | Arsenic | 247.00000 | | mg/kg |
| | Barium | 723.00000 | | mg/kg |
| | Beryllium | 0.53000 | | mg/kg |
| | Cadmium | 5.60000 | | mg/kg |
| | Calcium | 94,600.00000 | | mg/kg |
| | Chromium | 25.30000 | | mg/kg |
| | Cobalt | 17.60000 | | mg/kg |
| | Copper | 324.00000 | | mg/kg |
| | Iron | 43,800.00000 | J | mg/kg |
| | Lead | 8,450.00000 | | mg/kg |
| | Magnesium | 2,030.00000 | | mg/kg |
| | Manganese | 1,250.00000 | Jv | mg/kg |
| | Nickel | 56.50000 | | mg/kg |
| | Potassium | 1,350.00000 | | mg/kg |
| | Silver | 2.30000 | | mg/kg |
| | Sodium | 1,100.00000 | | mg/kg |
| | Vanadium | 27.90000 | | mg/kg |
| | Zinc | 1,130.00000 | | mg/kg |
| **1A-S055 SL01** | | | | |
| | Aluminum | 12,100.00000 | | mg/kg |
| | Antimony | 674.00000 | Jv | mg/kg |
| | Arsenic | 763.00000 | | mg/kg |
| | Barium | 844.00000 | | mg/kg |
| | Beryllium | 0.73000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024498

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Cadmium | 17.10000 | | mg/kg |
| | Calcium | 84,000.00000 | J | mg/kg |
| | Chromium | 31.50000 | | mg/kg |
| | Cobalt | 35.30000 | J^ | mg/kg |
| | Copper | 650.00000 | | mg/kg |
| | Iron | 42,800.00000 | | mg/kg |
| | Lead | 18,100.00000 | | mg/kg |
| | Magnesium | 2,460.00000 | | mg/kg |
| | Manganese | 1,560.00000 | | mg/kg |
| | Nickel | 168.00000 | | mg/kg |
| | Potassium | 1,980.00000 | | mg/kg |
| | Selenium | 2.40000 | | mg/kg |
| | Silver | 0.32000 | | mg/kg |
| | Sodium | 695.00000 | Jv | mg/kg |
| | Vanadium | 38.00000 | | mg/kg |
| | Zinc | 1,160.00000 | | mg/kg |
| 1A-S066 SL01 | | | | |
| | Aluminum | 9,690.00000 | | mg/kg |
| | Antimony | 925.00000 | Jv | mg/kg |
| | Arsenic | 876.00000 | | mg/kg |
| | Barium | 491.00000 | | mg/kg |
| | Beryllium | 0.73000 | | mg/kg |
| | Cadmium | 8.90000 | | mg/kg |
| | Calcium | 118,000.00000 | J | mg/kg |
| | Chromium | 40.50000 | | mg/kg |
| | Cobalt | 43.00000 | J^ | mg/kg |
| | Copper | 952.00000 | | mg/kg |
| | Iron | 47,900.00000 | | mg/kg |
| | Lead | 10,800.00000 | | mg/kg |
| | Magnesium | 2,840.00000 | | mg/kg |
| | Manganese | 1,540.00000 | | mg/kg |
| | Nickel | 256.00000 | | mg/kg |
| | Potassium | 1,480.00000 | | mg/kg |
| | Selenium | 1.60000 | J | mg/kg |
| | Sodium | 1,380.00000 | Jv | mg/kg |
| | Vanadium | 36.40000 | | mg/kg |
| | Zinc | 1,160.00000 | | mg/kg |
| 1A-S072 SL01 | | | | |
| | Aluminum | 12,065.00000 | J | mg/kg |
| | Antimony | 2,500.00000 | J | mg/kg |
| | Arsenic | 2,812.50000 | J^ | mg/kg |
| | Barium | 1,665.00000 | | mg/kg |
| | Beryllium | 0.82000 | | mg/kg |
| | Cadmium | 33.70000 | J^ | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024499

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Calcium | 76,750.00000 J | mg/kg |
| | Chromium | 57.50000 Jv | mg/kg |
| | Cobalt | 80.20000 J | mg/kg |
| | Copper | 5,840.00000 J | mg/kg |
| | Iron | 157,000.00000 | mg/kg |
| | Lead | 37,950.00000 J | mg/kg |
| | Magnesium | 2,465.00000 J | mg/kg |
| | Manganese | 1,002.00000 | mg/kg |
| | Nickel | 658.00000 J | mg/kg |
| | Potassium | 1,980.00000 J | mg/kg |
| | Selenium | 7.15000 J | mg/kg |
| | Silver | 0.67500 | mg/kg |
| | Sodium | 3,410.00000 Jv | mg/kg |
| | Thallium | 0.61750 Jv | mg/kg |
| | Vanadium | 22.80000 J | mg/kg |
| | Zinc | 4,535.00000 J | mg/kg |
| **1A-S075 SL01** | | | |
| | Aluminum | 18,400.00000 J | mg/kg |
| | Antimony | 5,050.00000 | mg/kg |
| | Arsenic | 2,530.00000 | mg/kg |
| | Barium | 2,330.00000 | mg/kg |
| | Beryllium | 4.30000 | mg/kg |
| | Cadmium | 33.70000 | mg/kg |
| | Calcium | 132,000.00000 | mg/kg |
| | Chromium | 107.00000 | mg/kg |
| | Cobalt | 86.10000 | mg/kg |
| | Copper | 6,610.00000 | mg/kg |
| | Iron | 172,000.00000 | mg/kg |
| | Lead | 47,600.00000 | mg/kg |
| | Magnesium | 7,700.00000 | mg/kg |
| | Manganese | 1,270.00000 | mg/kg |
| | Nickel | 1,180.00000 | mg/kg |
| | Potassium | 2,350.00000 J | mg/kg |
| | Selenium | 9.20000 J | mg/kg |
| | Sodium | 5,240.00000 J | mg/kg |
| | Vanadium | 36.00000 | mg/kg |
| | Zinc | 3,290.00000 | mg/kg |
| **1A-S078 SL01** | | | |
| | Aluminum | 32,300.00000 J | mg/kg |
| | Antimony | 29.30000 | mg/kg |
| | Arsenic | 30.80000 | mg/kg |
| | Barium | 188.00000 | mg/kg |
| | Cadmium | 0.82000 | mg/kg |
| | Calcium | 118,000.00000 | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024500

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Chromium | 34.70000 | | mg/kg |
| | Cobalt | 10.60000 | | mg/kg |
| | Copper | 75.50000 | | mg/kg |
| | Iron | 30,600.00000 | | mg/kg |
| | Lead | 689.00000 | | mg/kg |
| | Magnesium | 4,940.00000 | | mg/kg |
| | Manganese | 869.00000 | | mg/kg |
| | Mercury | 0.27000 | | mg/kg |
| | Nickel | 41.50000 | | mg/kg |
| | Potassium | 7,040.00000 | J | mg/kg |
| | Sodium | 428.00000 | J | mg/kg |
| | Vanadium | 64.70000 | | mg/kg |
| | Zinc | 189.00000 | | mg/kg |
| 1A-S079 SL01 | | | | |
| | Aluminum | 14,900.00000 | J | mg/kg |
| | Antimony | 492.00000 | | mg/kg |
| | Arsenic | 633.00000 | | mg/kg |
| | Barium | 644.00000 | | mg/kg |
| | Cadmium | 14.20000 | | mg/kg |
| | Calcium | 78,400.00000 | | mg/kg |
| | Chromium | 40.10000 | | mg/kg |
| | Cobalt | 18.30000 | | mg/kg |
| | Copper | 457.00000 | | mg/kg |
| | Iron | 50,000.00000 | | mg/kg |
| | Lead | 10,900.00000 | | mg/kg |
| | Magnesium | 3,520.00000 | | mg/kg |
| | Manganese | 793.00000 | | mg/kg |
| | Nickel | 87.10000 | | mg/kg |
| | Potassium | 3,840.00000 | J | mg/kg |
| | Selenium | 1.80000 | J | mg/kg |
| | Sodium | 1,680.00000 | J | mg/kg |
| | Vanadium | 44.90000 | | mg/kg |
| | Zinc | 989.00000 | | mg/kg |
| 1A-S080 SL01 | | | | |
| | Aluminum | 12,100.00000 | J | mg/kg |
| | Antimony | 18.40000 | | mg/kg |
| | Arsenic | 32.60000 | | mg/kg |
| | Barium | 158.00000 | | mg/kg |
| | Cadmium | 1.50000 | | mg/kg |
| | Calcium | 228,000.00000 | | mg/kg |
| | Chromium | 23.80000 | | mg/kg |
| | Cobalt | 9.30000 | | mg/kg |
| | Copper | 61.20000 | | mg/kg |
| | Iron | 19,400.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 6.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024501

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Lead | 689.00000 | | mg/kg |
| | Magnesium | 3,150.00000 | | mg/kg |
| | Manganese | 1,530.00000 | | mg/kg |
| | Mercury | 0.16000 | | mg/kg |
| | Nickel | 42.10000 | | mg/kg |
| | Potassium | 4,930.00000 | J | mg/kg |
| | Sodium | 469.00000 | J | mg/kg |
| | Vanadium | 61.00000 | | mg/kg |
| | Zinc | 151.00000 | | mg/kg |
| **1A-S082 SL01** | | | | |
| | Aluminum | 11,200.00000 | J | mg/kg |
| | Antimony | 22.30000 | | mg/kg |
| | Arsenic | 49.00000 | | mg/kg |
| | Barium | 161.00000 | | mg/kg |
| | Cadmium | 3.90000 | | mg/kg |
| | Calcium | 189,000.00000 | | mg/kg |
| | Chromium | 16.40000 | | mg/kg |
| | Cobalt | 10.60000 | | mg/kg |
| | Copper | 80.10000 | | mg/kg |
| | Iron | 18,100.00000 | | mg/kg |
| | Lead | 1,350.00000 | | mg/kg |
| | Magnesium | 2,450.00000 | | mg/kg |
| | Manganese | 1,610.00000 | | mg/kg |
| | Mercury | 0.14000 | | mg/kg |
| | Nickel | 39.20000 | | mg/kg |
| | Potassium | 3,900.00000 | J | mg/kg |
| | Sodium | 408.00000 | J | mg/kg |
| | Vanadium | 50.90000 | | mg/kg |
| | Zinc | 142.00000 | | mg/kg |
| **1A-S503 EL01** | | | | |
| | Aluminum | 12,000.00000 | | mg/kg |
| | Arsenic | 10.10000 | | mg/kg |
| | Barium | 174.00000 | | mg/kg |
| | Beryllium | 0.86000 | | mg/kg |
| | Calcium | 121,000.00000 | J | mg/kg |
| | Chromium | 14.60000 | | mg/kg |
| | Cobalt | 10.90000 | | mg/kg |
| | Copper | 19.80000 | | mg/kg |
| | Iron | 13,400.00000 | J | mg/kg |
| | Lead | 57.20000 | | mg/kg |
| | Magnesium | 2,430.00000 | | mg/kg |
| | Manganese | 2,410.00000 | Jv | mg/kg |
| | Nickel | 39.10000 | | mg/kg |
| | Potassium | 2,260.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 6.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024502

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Silver | 1.30000 | mg/kg |
| | Vanadium | 40.90000 | mg/kg |
| | Zinc | 98.70000 | mg/kg |
| **1B-S004 SL01** | | | |
| | Aluminum | 20,400.00000 | mg/kg |
| | Antimony | 36.60000 | mg/kg |
| | Arsenic | 52.20000 | mg/kg |
| | Barium | 121.00000 | mg/kg |
| | Beryllium | 1.60000 | mg/kg |
| | Cadmium | 1.30000 | mg/kg |
| | Calcium | 113,000.00000 | mg/kg |
| | Chromium | 25.60000 | mg/kg |
| | Cobalt | 7.90000 | mg/kg |
| | Copper | 140.00000 J | mg/kg |
| | Iron | 25,600.00000 | mg/kg |
| | Lead | 1,660.00000 | mg/kg |
| | Magnesium | 3,700.00000 | mg/kg |
| | Manganese | 850.00000 | mg/kg |
| | Nickel | 32.90000 | mg/kg |
| | Potassium | 4,860.00000 | mg/kg |
| | Vanadium | 61.20000 | mg/kg |
| | Zinc | 201.00000 | mg/kg |
| **1B-S006 SL01** | | | |
| | Aluminum | 14,400.00000 | mg/kg |
| | Antimony | 235.00000 | mg/kg |
| | Arsenic | 55.00000 | mg/kg |
| | Barium | 109.00000 | mg/kg |
| | Beryllium | 1.10000 | mg/kg |
| | Cadmium | 1.20000 | mg/kg |
| | Calcium | 168,000.00000 | mg/kg |
| | Chromium | 21.70000 | mg/kg |
| | Cobalt | 7.70000 | mg/kg |
| | Iron | 19,700.00000 | mg/kg |
| | Lead | 2,990.00000 | mg/kg |
| | Magnesium | 3,010.00000 | mg/kg |
| | Manganese | 1,270.00000 | mg/kg |
| | Nickel | 46.70000 | mg/kg |
| | Potassium | 4,350.00000 | mg/kg |
| | Sodium | 523.00000 J | mg/kg |
| | Vanadium | 60.20000 | mg/kg |
| | Zinc | 151.00000 | mg/kg |
| **1B-S500 EL01** | | | |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024503

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Aluminum | 6,840.00000 | | mg/kg |
| | Antimony | 6.30000 | Jv | mg/kg |
| | Arsenic | 15.70000 | | mg/kg |
| | Barium | 73.50000 | | mg/kg |
| | Beryllium | 0.61000 | | mg/kg |
| | Calcium | 159,000.00000 | J | mg/kg |
| | Chromium | 15.40000 | | mg/kg |
| | Cobalt | 7.00000 | | mg/kg |
| | Copper | 31.60000 | | mg/kg |
| | Iron | 30,300.00000 | J | mg/kg |
| | Lead | 992.00000 | | mg/kg |
| | Magnesium | 1,850.00000 | | mg/kg |
| | Manganese | 821.00000 | Jv | mg/kg |
| | Mercury | 0.10000 | | mg/kg |
| | Nickel | 22.00000 | | mg/kg |
| | Potassium | 1,820.00000 | | mg/kg |
| | Silver | 1.10000 | | mg/kg |
| | Sodium | 173.00000 | | mg/kg |
| | Vanadium | 35.10000 | | mg/kg |
| | Zinc | 109.00000 | | mg/kg |
| **1B-S501 EL01** | | | | |
| | Aluminum | 9,180.00000 | | mg/kg |
| | Arsenic | 14.70000 | | mg/kg |
| | Barium | 122.00000 | | mg/kg |
| | Beryllium | 0.81000 | | mg/kg |
| | Calcium | 175,000.00000 | J | mg/kg |
| | Chromium | 14.10000 | | mg/kg |
| | Cobalt | 12.50000 | | mg/kg |
| | Copper | 25.80000 | | mg/kg |
| | Iron | 15,700.00000 | J | mg/kg |
| | Lead | 177.00000 | | mg/kg |
| | Magnesium | 2,010.00000 | | mg/kg |
| | Manganese | 2,350.00000 | Jv | mg/kg |
| | Mercury | 0.08000 | | mg/kg |
| | Nickel | 32.90000 | | mg/kg |
| | Potassium | 2,110.00000 | | mg/kg |
| | Sodium | 242.00000 | | mg/kg |
| | Vanadium | 47.20000 | | mg/kg |
| | Zinc | 110.00000 | | mg/kg |
| **1B-S502 EL01** | | | | |
| | Aluminum | 11,100.00000 | | mg/kg |
| | Antimony | 10.20000 | Jv | mg/kg |
| | Arsenic | 23.80000 | | mg/kg |
| | Barium | 85.10000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 6.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024504

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Beryllium | 0.76000 | | mg/kg |
| | Calcium | 120,000.00000 | J | mg/kg |
| | Chromium | 18.70000 | | mg/kg |
| | Cobalt | 7.30000 | | mg/kg |
| | Copper | 55.20000 | | mg/kg |
| | Iron | 16,200.00000 | J | mg/kg |
| | Lead | 576.00000 | | mg/kg |
| | Magnesium | 2,760.00000 | | mg/kg |
| | Manganese | 842.00000 | Jv | mg/kg |
| | Mercury | 0.13000 | | mg/kg |
| | Nickel | 24.30000 | | mg/kg |
| | Potassium | 3,400.00000 | | mg/kg |
| | Sodium | 196.00000 | | mg/kg |
| | Vanadium | 49.70000 | | mg/kg |
| | Zinc | 130.00000 | | mg/kg |
| **1B-S503 EL01** | | | | |
| | Aluminum | 5,240.00000 | | mg/kg |
| | Antimony | 6.60000 | Jv | mg/kg |
| | Arsenic | 10.30000 | | mg/kg |
| | Barium | 86.90000 | | mg/kg |
| | Beryllium | 0.40000 | | mg/kg |
| | Calcium | 80,100.00000 | J | mg/kg |
| | Cobalt | 5.50000 | | mg/kg |
| | Copper | 51.20000 | | mg/kg |
| | Iron | 11,300.00000 | J | mg/kg |
| | Lead | 451.00000 | | mg/kg |
| | Magnesium | 1,790.00000 | | mg/kg |
| | Manganese | 658.00000 | Jv | mg/kg |
| | Mercury | 0.18000 | | mg/kg |
| | Nickel | 17.10000 | | mg/kg |
| | Potassium | 1,800.00000 | | mg/kg |
| | Vanadium | 22.60000 | | mg/kg |
| | Zinc | 164.00000 | | mg/kg |
| **1F-S500 EL01** | | | | |
| | Aluminum | 11,900.00000 | | mg/kg |
| | Antimony | 5.00000 | Jv | mg/kg |
| | Arsenic | 22.10000 | | mg/kg |
| | Barium | 94.40000 | | mg/kg |
| | Beryllium | 0.96000 | | mg/kg |
| | Calcium | 187,000.00000 | J | mg/kg |
| | Chromium | 21.20000 | | mg/kg |
| | Cobalt | 9.60000 | | mg/kg |
| | Copper | 24.30000 | | mg/kg |
| | Iron | 19,500.00000 | J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024505

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Lead | 86.90000 | | mg/kg |
| | Magnesium | 2,420.00000 | | mg/kg |
| | Manganese | 1,500.00000 | Jv | mg/kg |
| | Mercury | 0.08000 | | mg/kg |
| | Nickel | 33.60000 | | mg/kg |
| | Potassium | 2,430.00000 | | mg/kg |
| | Sodium | 224.00000 | | mg/kg |
| | Vanadium | 57.40000 | | mg/kg |
| | Zinc | 111.00000 | | mg/kg |
| 1F-S501 EL01 | | | | |
| | Aluminum | 9,270.00000 | | mg/kg |
| | Arsenic | 10.30000 | | mg/kg |
| | Barium | 75.80000 | | mg/kg |
| | Beryllium | 0.66000 | | mg/kg |
| | Calcium | 68,800.00000 | J | mg/kg |
| | Chromium | 12.40000 | ^J | mg/kg |
| | Cobalt | 8.90000 | | mg/kg |
| | Copper | 33.40000 | | mg/kg |
| | Iron | 15,100.00000 | J | mg/kg |
| | Lead | 200.00000 | | mg/kg |
| | Magnesium | 2,080.00000 | | mg/kg |
| | Manganese | 662.00000 | Jv | mg/kg |
| | Mercury | 0.14000 | | mg/kg |
| | Nickel | 21.10000 | | mg/kg |
| | Potassium | 2,260.00000 | | mg/kg |
| | Vanadium | 33.70000 | | mg/kg |
| | Zinc | 92.90000 | | mg/kg |
| 1F-S502 EL01 | | | | |
| | Aluminum | 13,100.00000 | | mg/kg |
| | Arsenic | 13.90000 | | mg/kg |
| | Barium | 88.40000 | | mg/kg |
| | Beryllium | 0.82000 | | mg/kg |
| | Calcium | 183,000.00000 | J | mg/kg |
| | Chromium | 15.10000 | | mg/kg |
| | Cobalt | 10.10000 | | mg/kg |
| | Copper | 16.90000 | | mg/kg |
| | Iron | 15,700.00000 | J | mg/kg |
| | Lead | 17.90000 | | mg/kg |
| | Magnesium | 2,310.00000 | | mg/kg |
| | Manganese | 1,810.00000 | Jv | mg/kg |
| | Nickel | 33.90000 | | mg/kg |
| | Potassium | 2,320.00000 | | mg/kg |
| | Sodium | 130.00000 | ^J | mg/kg |
| | Vanadium | 60.10000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024506

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Zinc | 57.90000 | | mg/kg |
| 1F-S503 EL01 | | | | |
| | Aluminum | 9,020.00000 | | mg/kg |
| | Antimony | 6.70000 | Jv | mg/kg |
| | Arsenic | 18.50000 | | mg/kg |
| | Barium | 128.00000 | | mg/kg |
| | Beryllium | 0.65000 | | mg/kg |
| | Calcium | 121,000.00000 | J | mg/kg |
| | Chromium | 16.00000 | | mg/kg |
| | Cobalt | 9.60000 | | mg/kg |
| | Copper | 43.10000 | | mg/kg |
| | Iron | 16,000.00000 | J | mg/kg |
| | Lead | 446.00000 | | mg/kg |
| | Magnesium | 2,090.00000 | | mg/kg |
| | Manganese | 2,000.00000 | Jv | mg/kg |
| | Mercury | 0.12000 | | mg/kg |
| | Nickel | 32.70000 | | mg/kg |
| | Potassium | 2,190.00000 | | mg/kg |
| | Sodium | 148.00000 | ^J | mg/kg |
| | Vanadium | 40.40000 | | mg/kg |
| | Zinc | 177.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

024507

**Table 6.3-2**
**Surface Soil TCL Organic Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TCL SEMI-VOLATILES** | | |
| **1F-S500 EL01** | | | |
| | Benzo(a)anthracene | 0.11000 J | mg/kg |
| | Benzo(a)pyrene | 0.16000 J | mg/kg |
| | Benzo(b)fluoranthene | 0.24000 J | mg/kg |
| | Benzo(g,h,i)perylene | 0.15000 J | mg/kg |
| | Benzo(k)fluoranthene | 0.17000 J | mg/kg |
| | Chrysene | 0.20000 J | mg/kg |
| | Fluoranthene | 0.23000 J | mg/kg |
| | Indeno(1,2,3-cd)pyrene | 0.14000 J | mg/kg |
| | Pyrene | 0.21000 J | mg/kg |
| | **TCL PESTICIDES** | | |
| **1A-S503 EL01** | | | |
| | Heptachlor epoxide | 0.00150 J | mg/kg |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers.*

Table 6.3-3
Surface Soil TCLP Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024508

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TCLP INORGANICS** | | |
| **1A-S017 SL01** | | | |
| | Arsenic | 0.00410 B | mg/L |
| | Barium | 4.26000 | mg/L |
| | Cadmium | 0.19400 | mg/L |
| | Chromium | 0.00180 B | mg/L |
| | Lead | 0.49000 | mg/L |
| | Selenium | 0.00780 B | mg/L |
| **1A-S045 SL01** | | | |
| | Arsenic | 4.27000 | mg/L |
| | Barium | 4.06500 | mg/L |
| | Cadmium | 2.36000 | mg/L |
| | Chromium | 0.05780 | mg/L |
| | Lead | 364.00000 | mg/L |
| | Selenium | 0.01020 B* | mg/L |
| **1B-S004 SL01** | | | |
| | Arsenic | 0.01940 B | mg/L |
| | Barium | 0.83200 | mg/L |
| | Cadmium | 0.00290 B | mg/L |
| | Lead | 0.19200 | mg/L |
| | Selenium | 0.00790 B* | mg/L |
| | Silver | 0.00240 J | mg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

024509

**Table 6.3-4**
**Soil Vapor Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|---|
| 1A-S052 UV01 | 0.0- 6.0 | Methane | 16.90000 | ppm |
| 1F-S003 UV01 | 0.0- 2.0 | Methane | 29.80000 | ppm |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024510

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | **TAL TOTAL INORGANICS** | | | |
| 1A-S022 UL01 | 11.0-12.5 | | | | |
| | | Aluminum | 10,800.00000 | | mg/kg |
| | | Arsenic | 12.50000 | | mg/kg |
| | | Barium | 99.70000 | | mg/kg |
| | | Beryllium | 0.63000 | | mg/kg |
| | | Calcium | 166,000.00000 | | mg/kg |
| | | Chromium | 13.30000 | | mg/kg |
| | | Cobalt | 12.10000 | | mg/kg |
| | | Copper | 12.10000 | | mg/kg |
| | | Iron | 13,000.00000 | | mg/kg |
| | | Lead | 26.10000 | | mg/kg |
| | | Magnesium | 1,990.00000 | | mg/kg |
| | | Manganese | 1,850.00000 | | mg/kg |
| | | Nickel | 37.10000 | | mg/kg |
| | | Potassium | 2,340.00000 | | mg/kg |
| | | Thallium | 1.10000 | | mg/kg |
| | | Vanadium | 50.20000 | | mg/kg |
| | | Zinc | 66.10000 | | mg/kg |
| 1A-S052 UL01 | 0.0- 0.5 | | | | |
| | | Aluminum | 6,620.00000 | J | mg/kg |
| | | Antimony | 106.00000 | Jv | mg/kg |
| | | Arsenic | 113.00000 | J | mg/kg |
| | | Barium | 417.00000 | Jv | mg/kg |
| | | Beryllium | 0.58000 | | mg/kg |
| | | Cadmium | 3.80000 | | mg/kg |
| | | Calcium | 180,000.00000 | | mg/kg |
| | | Chromium | 14.50000 | | mg/kg |
| | | Cobalt | 11.70000 | | mg/kg |
| | | Copper | 157.00000 | Jv | mg/kg |
| | | Iron | 22,300.00000 | | mg/kg |
| | | Lead | 3,610.00000 | J | mg/kg |
| | | Magnesium | 1,950.00000 | | mg/kg |
| | | Manganese | 1,650.00000 | Jv | mg/kg |
| | | Nickel | 35.60000 | | mg/kg |
| | | Potassium | 1,700.00000 | | mg/kg |
| | | Sodium | 809.00000 | | mg/kg |
| | | Vanadium | 23.20000 | J | mg/kg |
| | | Zinc | 613.00000 | Jv | mg/kg |
| 1A-S083 UL01 | 0.0- 2.0 | | | | |
| | | Aluminum | 10,000.00000 | J | mg/kg |
| | | Antimony | 130.00000 | Jv | mg/kg |
| | | Arsenic | 309.00000 | J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 6.3-5**
**Subsurface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024511

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|---|
| | | Barium | 431.00000 | Jv | mg/kg |
| | | Beryllium | 0.79000 | | mg/kg |
| | | Cadmium | 17.70000 | | mg/kg |
| | | Calcium | 121,000.00000 | | mg/kg |
| | | Chromium | 40.50000 | | mg/kg |
| | | Cobalt | 21.10000 | | mg/kg |
| | | Copper | 484.00000 | Jv | mg/kg |
| | | Iron | 23,000.00000 | | mg/kg |
| | | Lead | 6,540.00000 | J | mg/kg |
| | | Magnesium | 2,350.00000 | | mg/kg |
| | | Manganese | 3,050.00000 | Jv | mg/kg |
| | | Nickel | 95.10000 | | mg/kg |
| | | Potassium | 2,500.00000 | | mg/kg |
| | | Selenium | 1.00000 | | mg/kg |
| | | Sodium | 500.00000 | | mg/kg |
| | | Vanadium | 40.10000 | J | mg/kg |
| | | Zinc | 630.00000 | Jv | mg/kg |
| **1A-S083 UL02** | **20.0-22.0** | | | | |
| | | Aluminum | 3,890.00000 | | mg/kg |
| | | Arsenic | 13.70000 | | mg/kg |
| | | Barium | 36.90000 | | mg/kg |
| | | Beryllium | 0.45000 | | mg/kg |
| | | Cadmium | 0.31000 | | mg/kg |
| | | Calcium | 342,000.00000 | | mg/kg |
| | | Chromium | 16.80000 | J | mg/kg |
| | | Cobalt | 4.60000 | | mg/kg |
| | | Copper | 21.50000 | | mg/kg |
| | | Iron | 10,600.00000 | | mg/kg |
| | | Lead | 9.30000 | | mg/kg |
| | | Magnesium | 1,500.00000 | | mg/kg |
| | | Manganese | 573.00000 | | mg/kg |
| | | Nickel | 28.00000 | | mg/kg |
| | | Potassium | 1,040.00000 | | mg/kg |
| | | Sodium | 419.00000 | | mg/kg |
| | | Thallium | 1.10000 | | mg/kg |
| | | Vanadium | 30.40000 | | mg/kg |
| | | Zinc | 46.30000 | | mg/kg |
| **1F-S010 UL01** | **0.0- 2.0** | | | | |
| | | Aluminum | 3,740.00000 | | mg/kg |
| | | Arsenic | 12.10000 | | mg/kg |
| | | Barium | 86.10000 | | mg/kg |
| | | Beryllium | 0.44000 | | mg/kg |
| | | Cadmium | 0.45000 | | mg/kg |
| | | Calcium | 280,000.00000 | | mg/kg |
| | | Chromium | 6.60000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024512

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|---|
| | | Cobalt | 15.40000 | | mg/kg |
| | | Copper | 19.70000 | | mg/kg |
| | | Iron | 10,300.00000 | | mg/kg |
| | | Lead | 62.40000 | | mg/kg |
| | | Magnesium | 1,710.00000 | | mg/kg |
| | | Manganese | 2,390.00000 | | mg/kg |
| | | Nickel | 64.00000 | | mg/kg |
| | | Potassium | 898.00000 | | mg/kg |
| | | Sodium | 281.00000 | | mg/kg |
| | | Thallium | 2.40000 | | mg/kg |
| | | Vanadium | 22.80000 | | mg/kg |
| | | Zinc | 165.00000 | Jv | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.3-6
Subsurface Soil TCL Organic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024513

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **1A-S083 UL02** | | | |
| | Chlorobenzene | 0.00200 J | mg/kg |
| | **TCL SEMI-VOLATILES** | | |
| **1A-S022 UL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.06200 J | mg/kg |
| | Di-n-butylphthalate | 0.34000 J | mg/kg |
| **1A-S083 UL02** | | | |
| | Di-n-butylphthalate | 0.03300 J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

024514

**Table 6.3-7**
**Subsurface Soil TCLP Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | **TCLP INORGANICS** | | |
| **1F-S003 UL01** | | | |
| | Barium | 0.56700 | mg/L |
| | Cadmium | 0.00064 B | mg/L |
| | Lead | 0.01730 B | mg/L |
| | Selenium | 0.00630 B* | mg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.4-1
Groundwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024515

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | |
| **1A-S022 GW01** | | | |
| | Aluminum | 1,480.00000 | µg/L |
| | Arsenic | 3.70000 | µg/L |
| | Barium | 78.60000 | µg/L |
| | Calcium | 236,000.00000 | µg/L |
| | Cobalt | 2.10000 | µg/L |
| | Iron | 1,890.00000 | µg/L |
| | Lead | 5.90000 | µg/L |
| | Magnesium | 6,540.00000 | µg/L |
| | Manganese | 291.00000 | µg/L |
| | Nickel | 10.80000 | µg/L |
| | Potassium | 4,940.00000 | µg/L |
| | Sodium | 22,800.00000 | µg/L |
| | Vanadium | 9.30000 | µg/L |
| | Zinc | 134.00000 | µg/L |
| **1A-S083 GW01** | | | |
| | Aluminum | 1,750.00000 | µg/L |
| | Arsenic | 3.50000 | µg/L |
| | Barium | 80.20000 | µg/L |
| | Calcium | 184,000.00000 | µg/L |
| | Cobalt | 1.40000 | µg/L |
| | Iron | 2,540.00000 | µg/L |
| | Lead | 5.70000 | µg/L |
| | Magnesium | 3,420.00000 | µg/L |
| | Manganese | 128.00000 | µg/L |
| | Nickel | 10.10000 | µg/L |
| | Potassium | 3,520.00000 | µg/L |
| | Sodium | 23,400.00000 | µg/L |
| | Vanadium | 13.80000 | µg/L |
| | Zinc | 39.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 6.4-1**
**Groundwater TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**

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| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TAL DISSOLVED INORGANICS** | | |
| **1A-S022 GW01** | | | |
| | Barium | 60.90000 | µg/L |
| | Calcium | 192,000.00000 | µg/L |
| | Lead | 2.30000 | µg/L |
| | Magnesium | 7,070.00000 | µg/L |
| | Manganese | 36.30000 | µg/L |
| | Nickel | 8.60000 J | µg/L |
| | Potassium | 5,390.00000 | µg/L |
| | Sodium | 24,800.00000 | µg/L |
| | Zinc | 35.20000 | µg/L |
| **1A-S083 GW01** | | | |
| | Aluminum | 43.50000 | µg/L |
| | Barium | 74.00000 | µg/L |
| | Calcium | 147,000.00000 | µg/L |
| | Lead | 2.20000 | µg/L |
| | Magnesium | 3,340.00000 | µg/L |
| | Manganese | 34.80000 | µg/L |
| | Potassium | 2,960.00000 | µg/L |
| | Sodium | 25,100.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 6.4-2
Groundwater TCL Organic Analytical Data
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas

024517

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **1A-S022 GW01** | | | |
| | Chloroform | 2.00000 J | µg/L |
| | Tetrachloroethene | 1.00000 J | µg/L |
| **1A-S083 GW01** | | | |
| | Tetrachloroethene | 3.00000 J | µg/L |
| | **TCL SEMI-VOLATILES** | | |
| **1A-S022 GW01** | | | |
| | bis(2-Ethylhexyl)phthalate | 2.00000 J | µg/L |
| | Di-n-butylphthalate | 2.00000 J | µg/L |
| | Diethylphthalate | 5.00000 J | µg/L |
| | **TCL PESTICIDES** | | |
| **1A-S083 GW01** | | | |
| | Dieldrin | 0.02400 J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

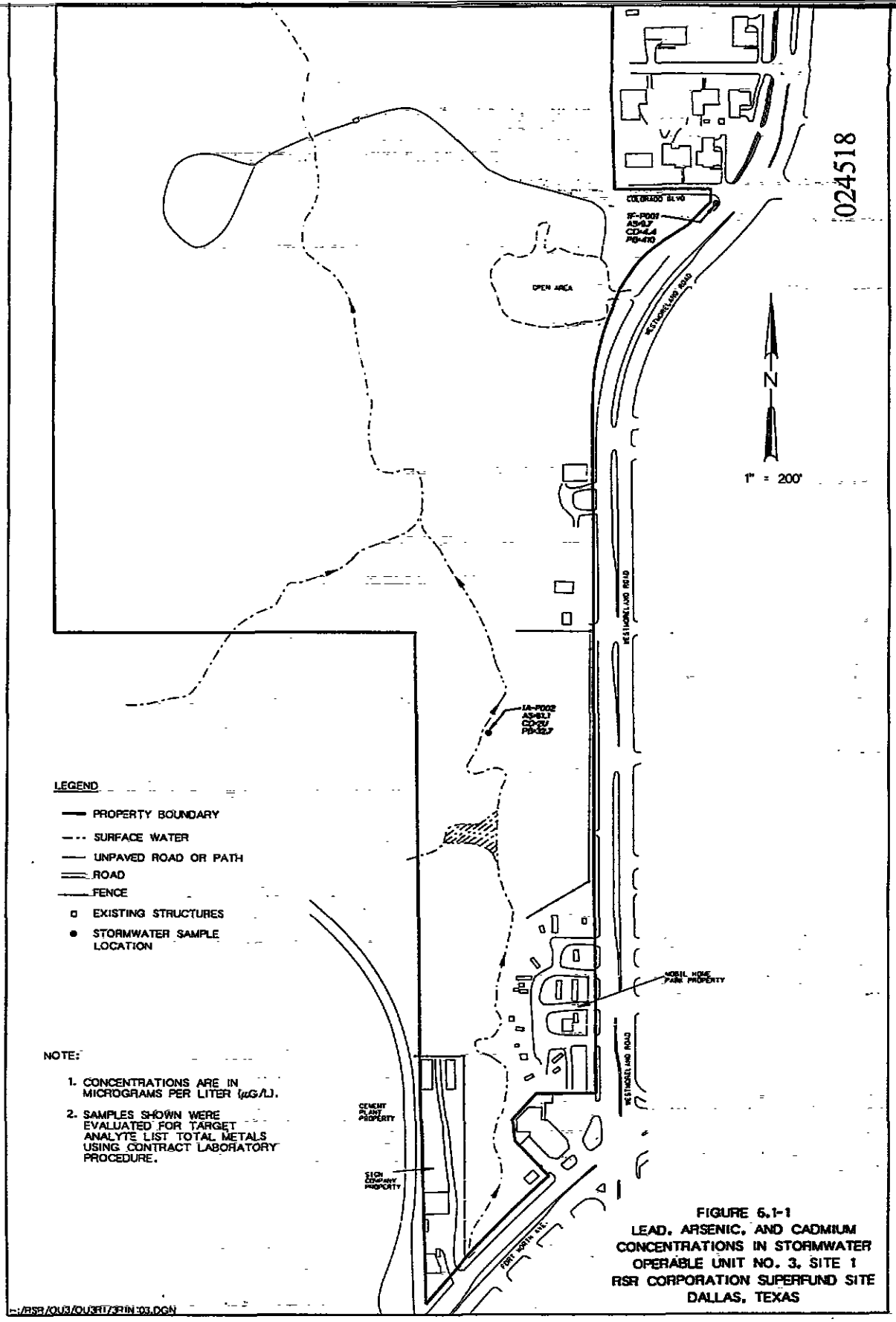


FIGURE 6.1-1
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN STORMWATER
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

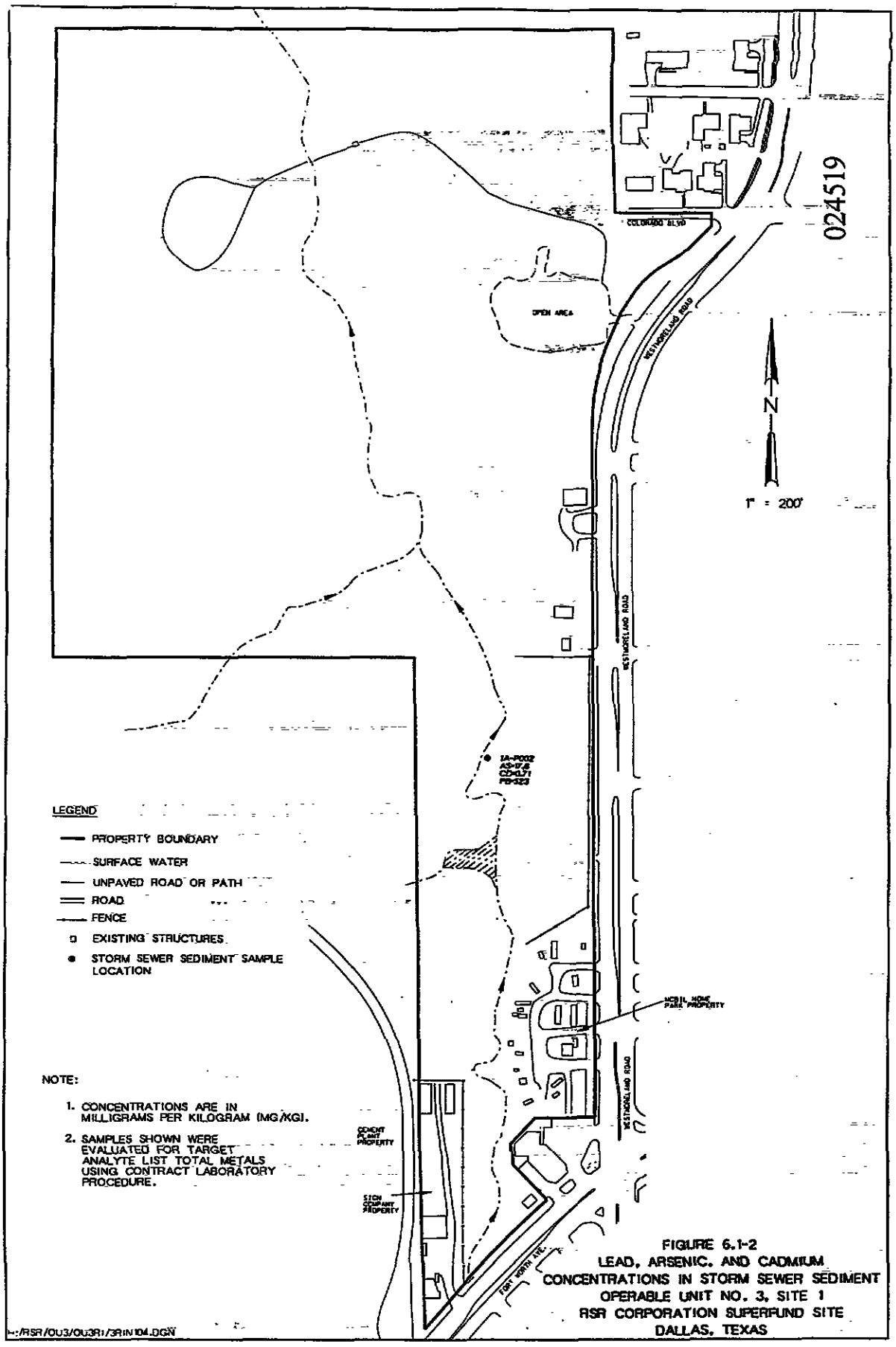


FIGURE 6.1-2
LEAD, ARSENIC, AND CADMIUM
CONCENTRATIONS IN STORM SEWER SEDIMENT
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

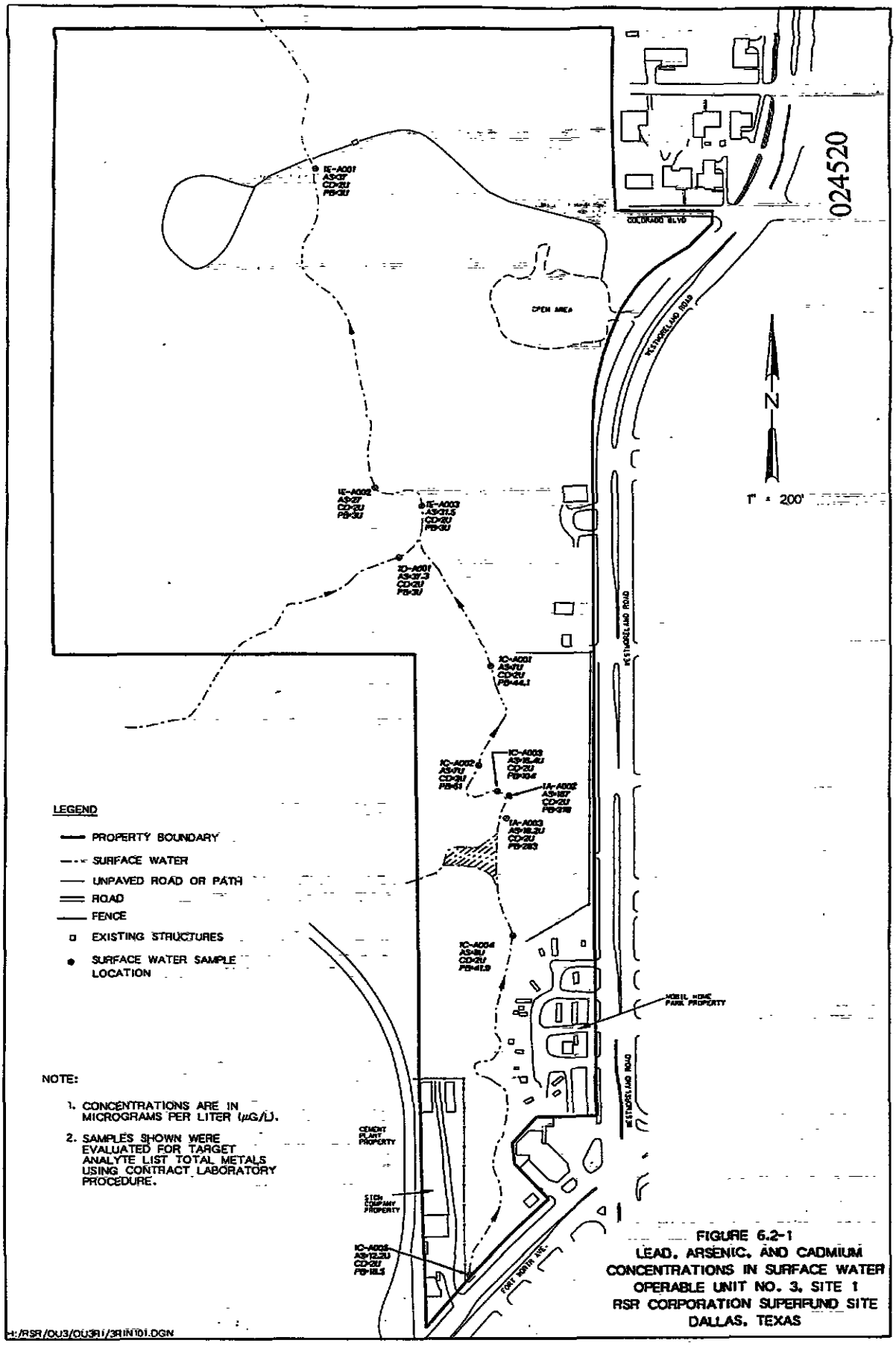


FIGURE 6.2-1
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SURFACE WATER
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

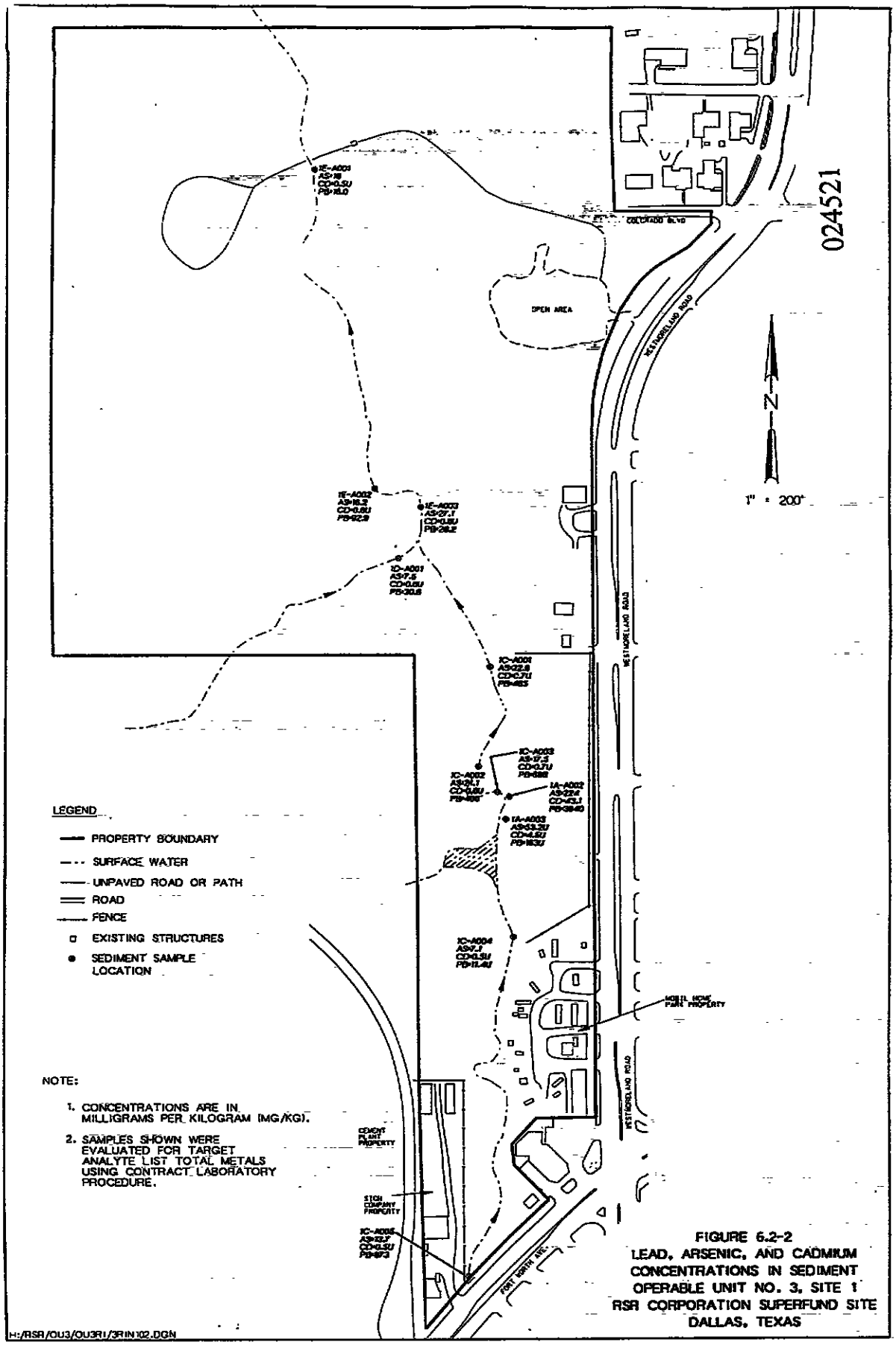


FIGURE 6.2-2
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SEDIMENT
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

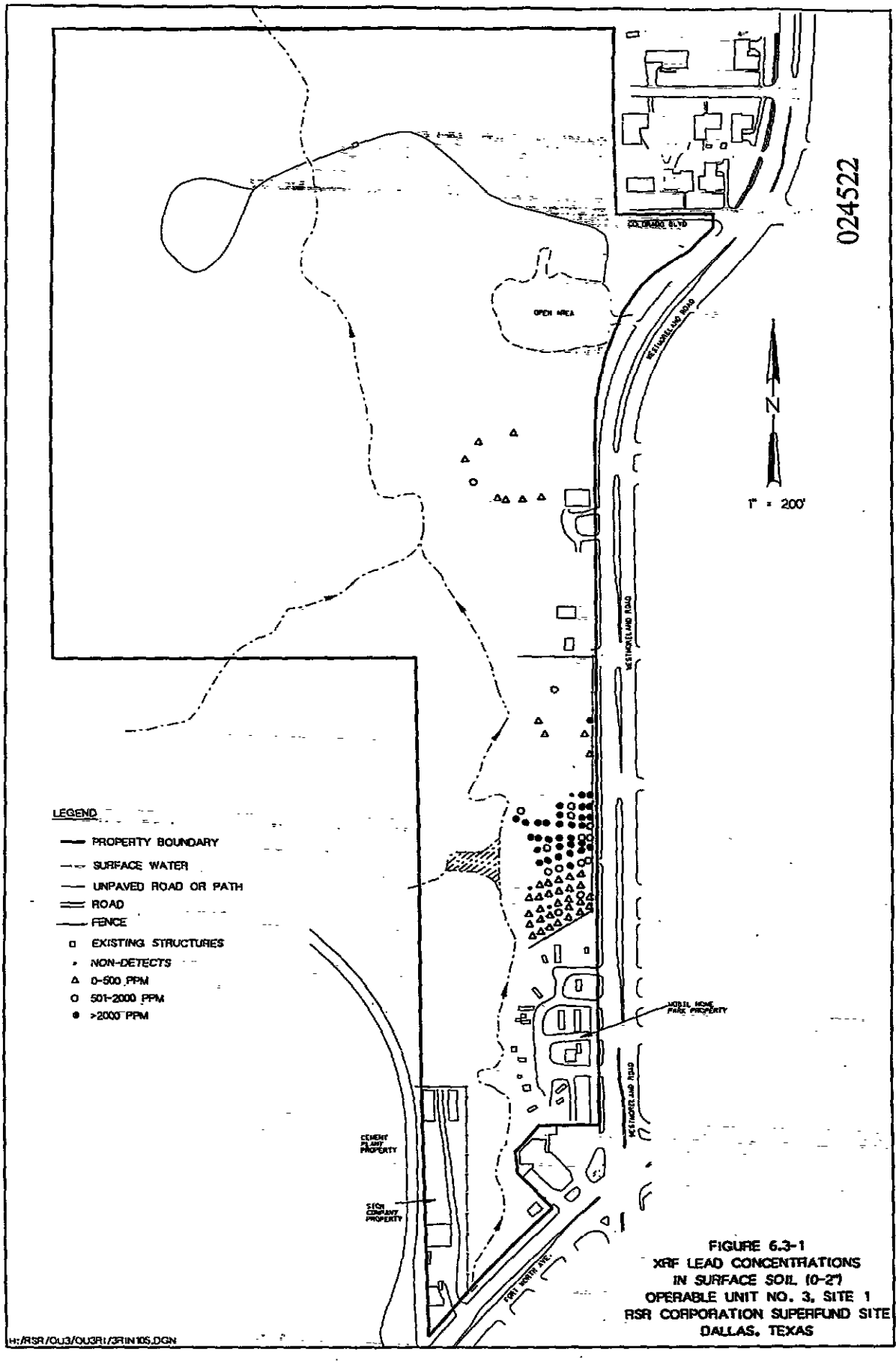


FIGURE 6.3-1
XRF LEAD CONCENTRATIONS
IN SURFACE SOIL (0-2')
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

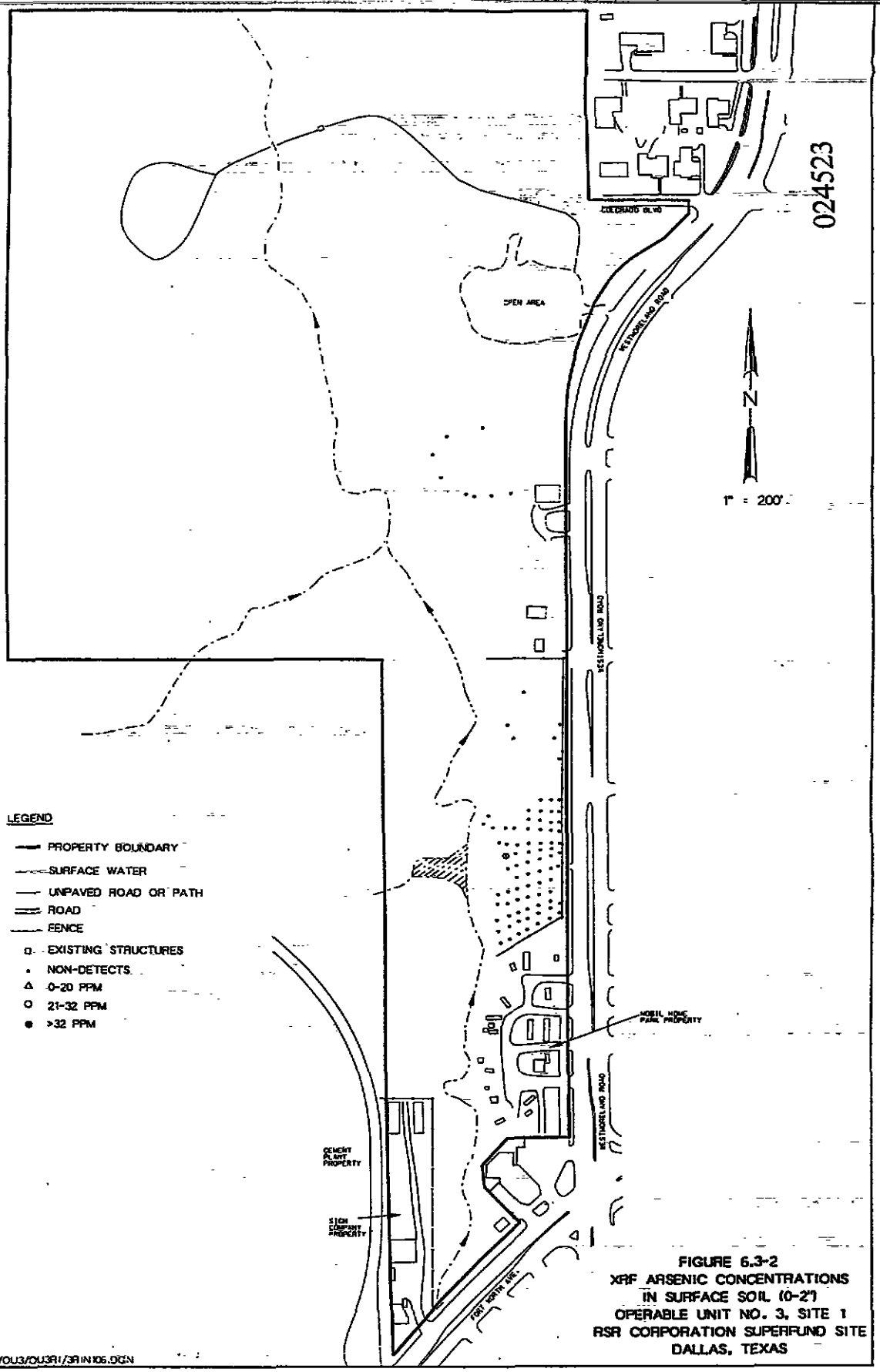


FIGURE 6.3-2
XRF ARSENIC CONCENTRATIONS
IN SURFACE SOIL (0-2")
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

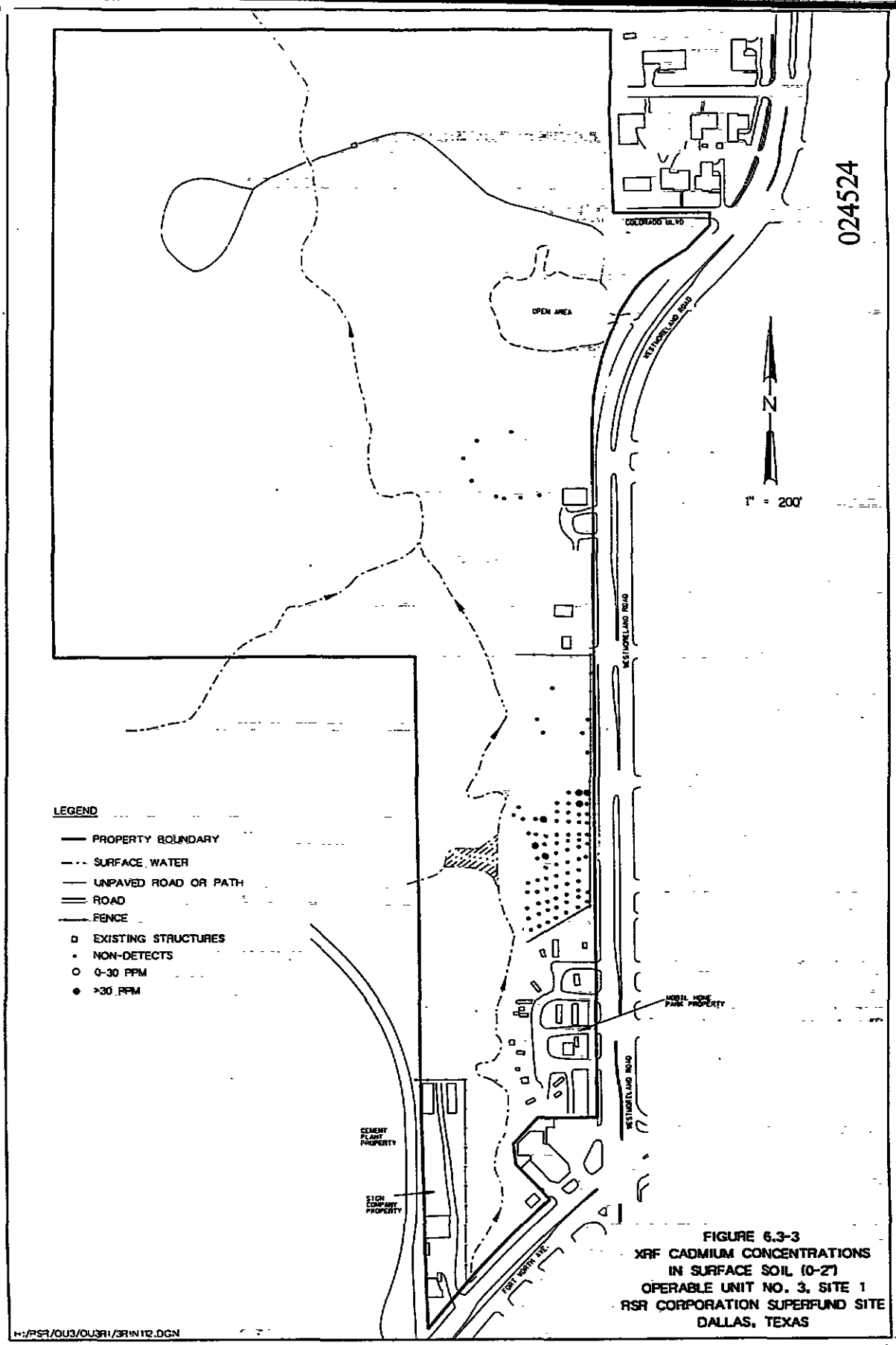


FIGURE 6.3-3
XRF CADMIUM CONCENTRATIONS
IN SURFACE SOIL (0-2')
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

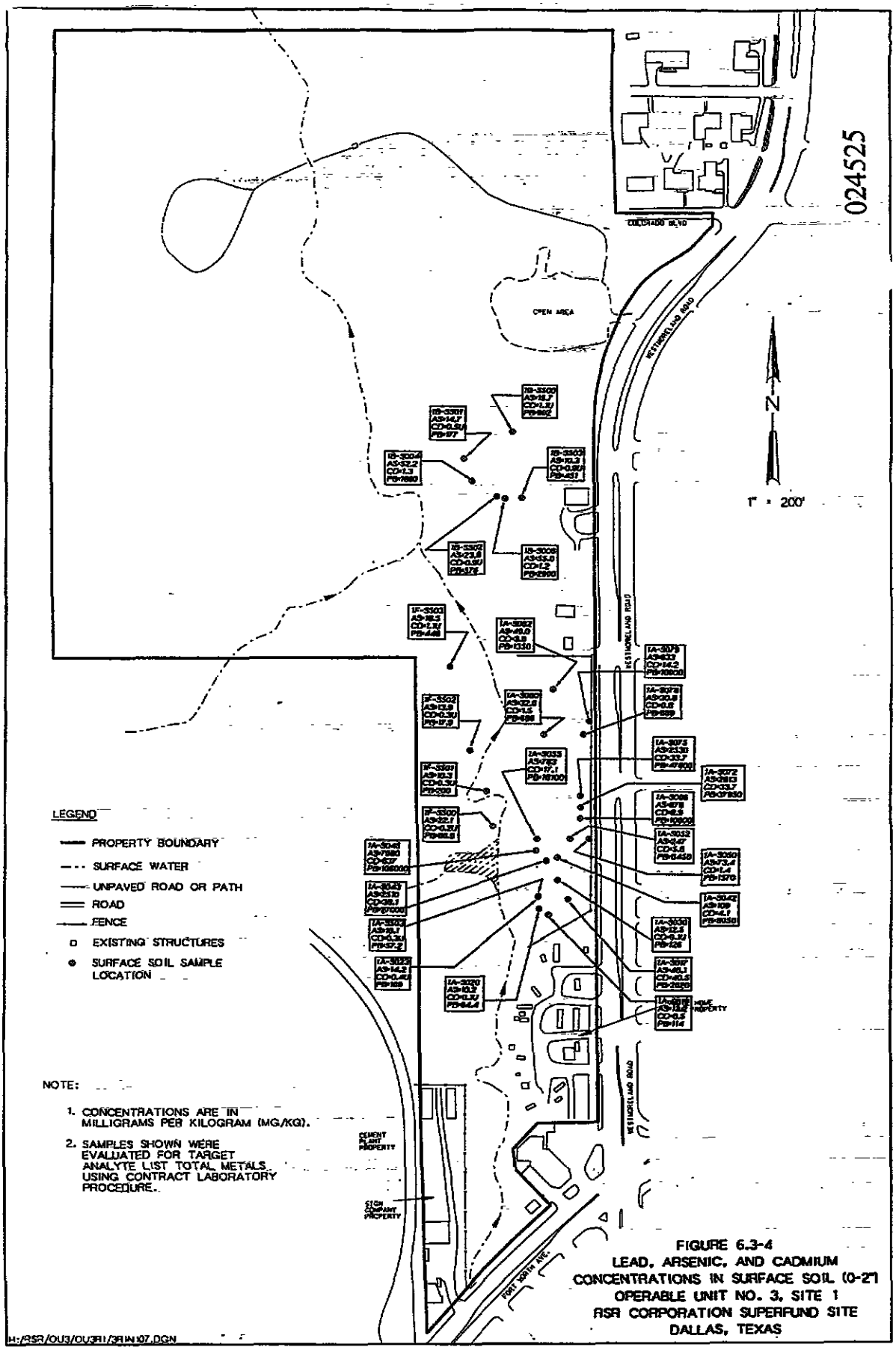


FIGURE 6.3-4
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SURFACE SOIL (0-2')
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

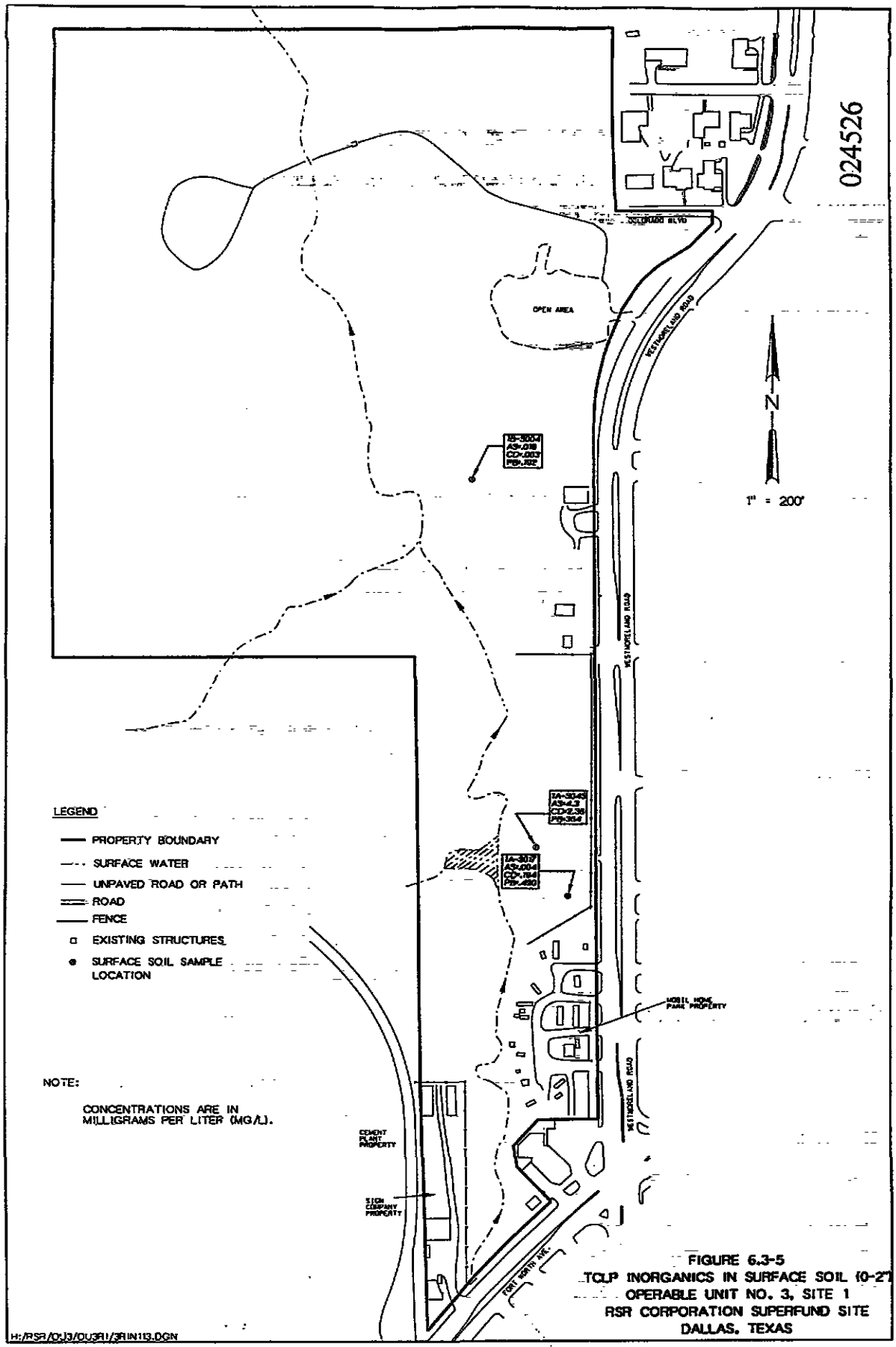


FIGURE 6.3-5
TCLP INORGANICS IN SURFACE SOIL (0-2")
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

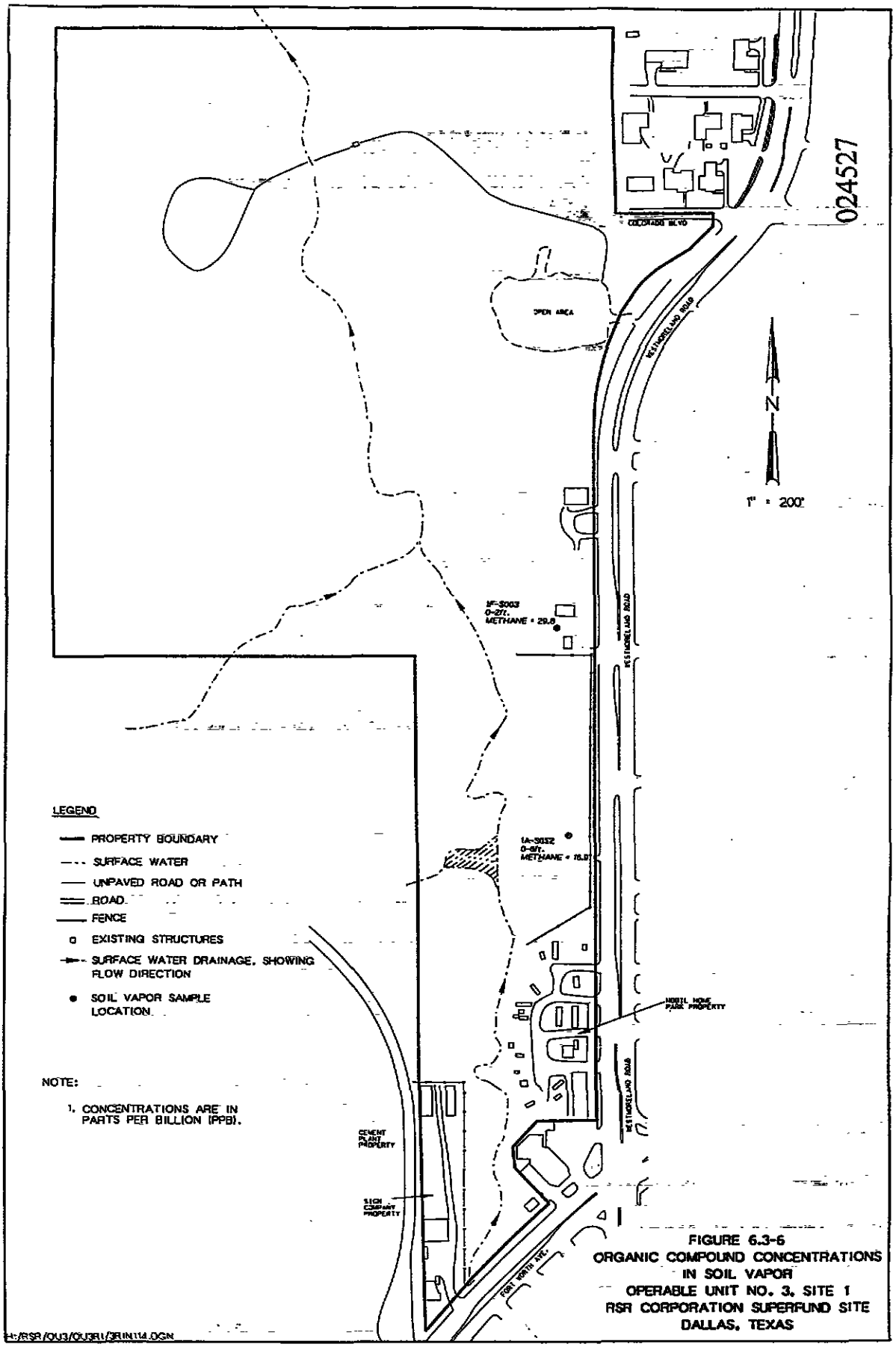


FIGURE 6.3-6
ORGANIC COMPOUND CONCENTRATIONS IN SOIL VAPOR
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

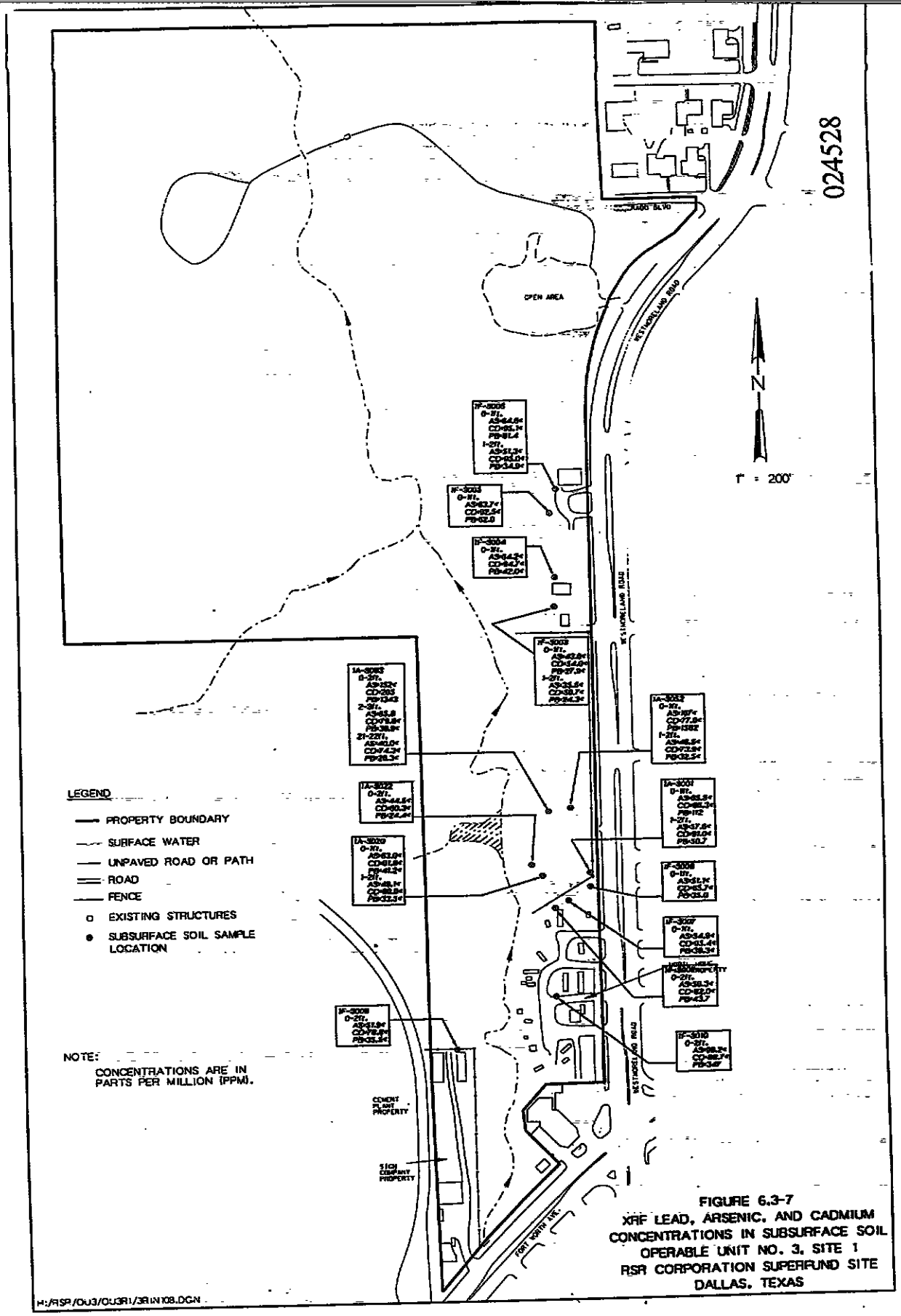


FIGURE 6.3-7
XRF LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SUBSURFACE SOIL
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

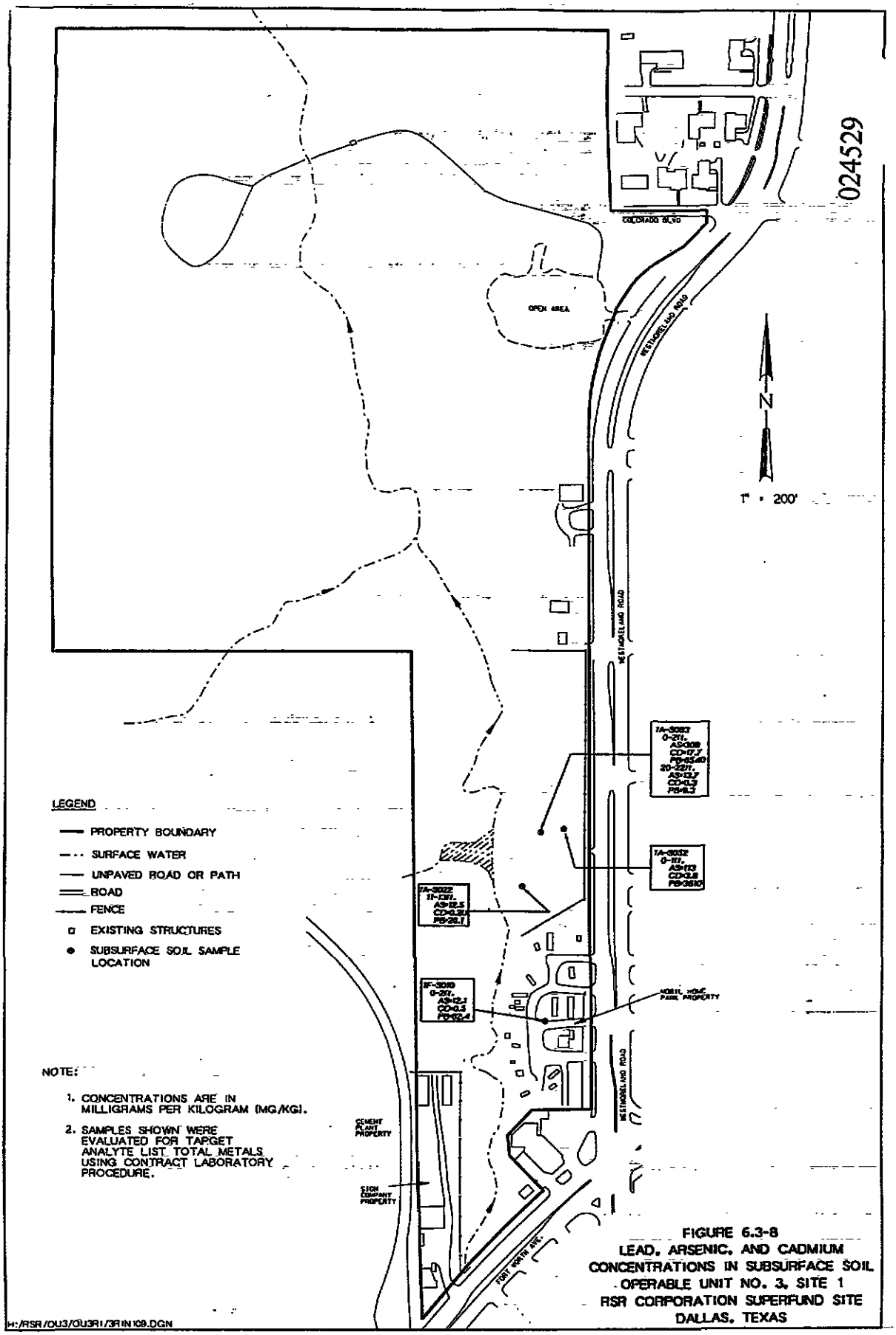


FIGURE 6.3-8
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SUBSURFACE SOIL
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

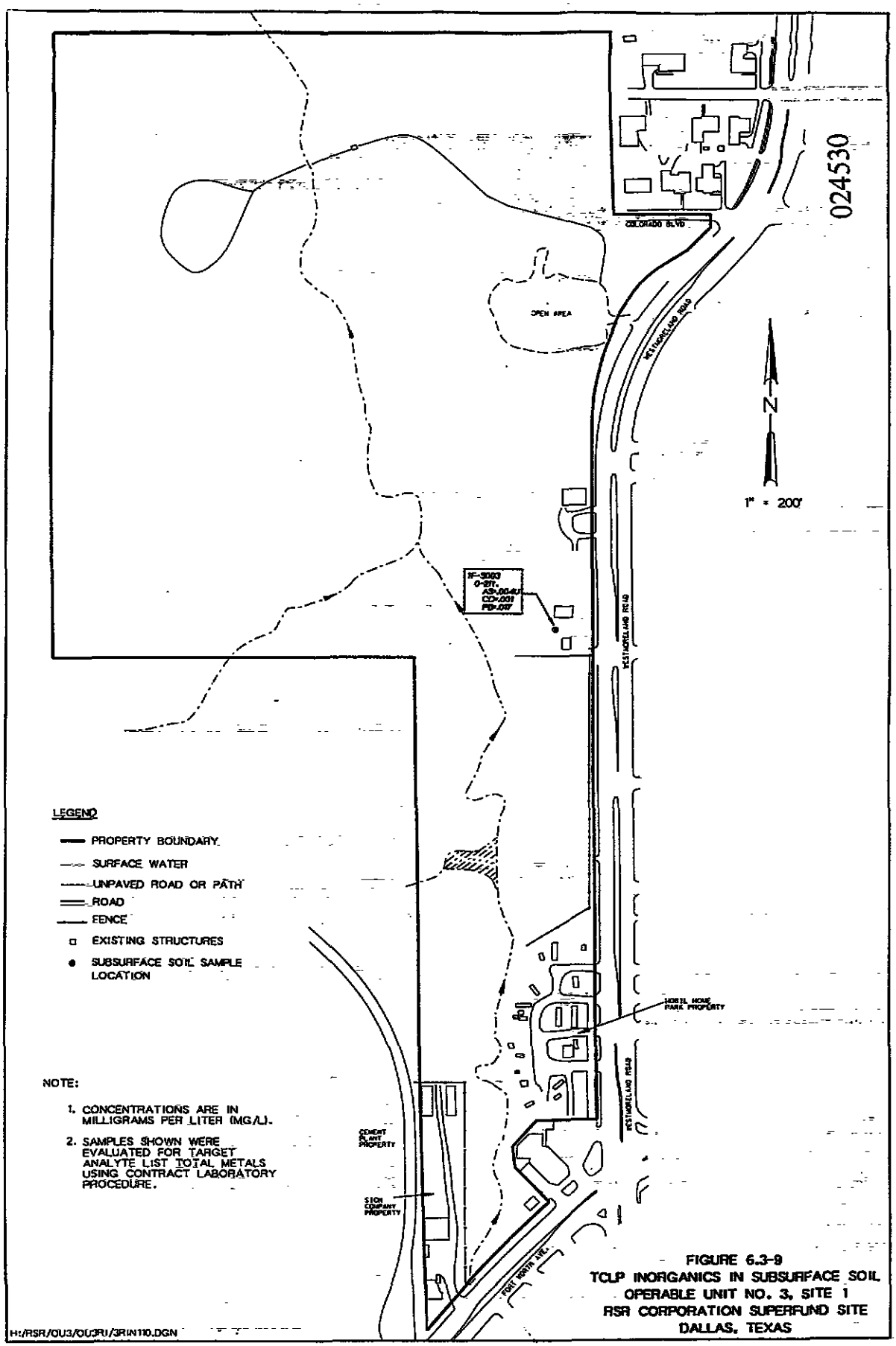


FIGURE 6.3-9
TCLP INORGANICS IN SUBSURFACE SOIL
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

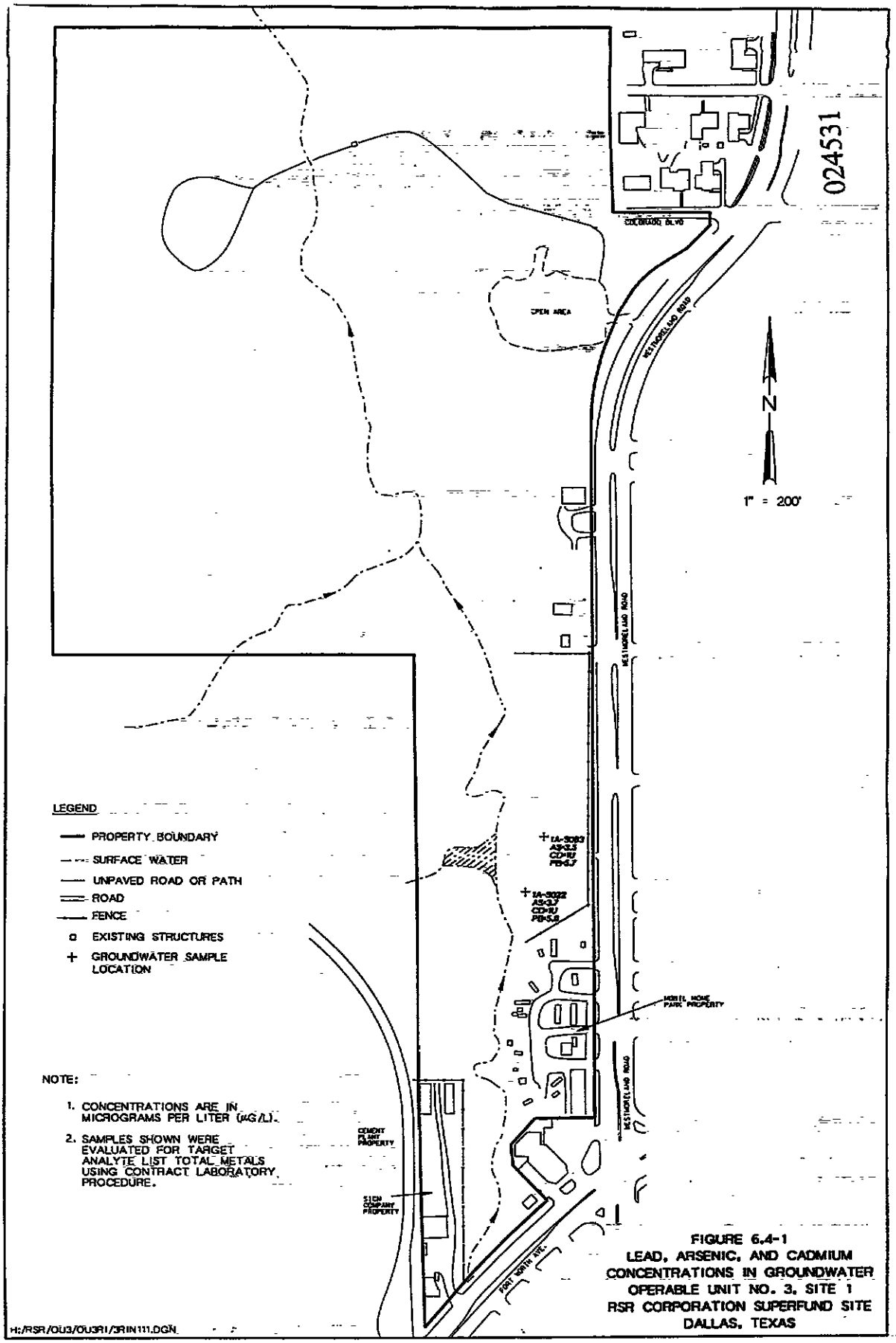


FIGURE 6.4-1
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN GROUNDWATER
OPERABLE UNIT NO. 3, SITE 1
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024532

# Chapter 7
# Nature and Extent of Contamination, Site 3

Chapter 7

# Nature and Extent of Contamination, Site 3

024533

This chapter presents the analytical results of RI field activities conducted during the data gathering and field investigation tasks for Site 3 of OU No. 3. These tasks include the storm sewer investigation, the surface water and sediment investigation, the soil investigation, and the groundwater investigation. The objectives and procedures for each of these tasks, and an explanation of the sample designation system referenced in this chapter, are detailed in **Chapter 3**. Included below is an evaluation of the detected constituents and associated potential source areas, and comparisons to collected background samples and expected regional background concentrations, which were introduced in **Chapter 4**. In **Chapters 10** and **12** of this report, the summarized results are compared to risk-based levels developed as part of the OU No. 3 risk assessments. Technical Memoranda prepared at the conclusion of each field investigation task provide more detailed descriptions of the field activities performed (see **Chapter 3** for specific references).

## 7.1 Storm Sewers and Drainageways

Although two (2) potential sampling locations were identified, no storm sewer or drainageway samples could be collected. One (1) of the potential sampling locations is an outfall for a storm sewer system located at the intersection of Loop 12 and Davis Street, adjacent to Site 3 at the northwest corner of this intersection (illustrated on **Figure 3.6-2**). This location was not sampled due to a lack of water and sediment in the structure, as documented on several occasions during the RI. The second location, a sanitary sewer line that bisects the northern cell of the West Davis Landfill (**City of Dallas Central Wastewater Treatment Plant, 1972**), could not be sampled due to difficulties in accessing the onsite access point (a manhole structure shown on **Figure 3.6-2**).

## 7.2 Surface Water and Sediment Investigation

024534

This section describes the analytical results of the surface water and sediment investigation conducted on Site 3. As described in **Chapter 3**, twenty-one (21) sampling locations (illustrated on **Figure 3.6-2**) were selected on this site. Eleven (11) locations were drainages located onsite (i.e., creeks between landfill cells) and around the site (i.e., Mountain Creek), three (3) were surface water ponds on the TXI Landfill property, and five (5) were surface seeps (one of which was characterized by insufficient flow to collect a water sample during the sampling event). The sampling locations farthest upstream of the site (3E-A006, located on Mountain Creek at the Davis Street bridge, and 3F-A004, located just downstream of the storm sewer outfall at Loop 12 and Davis Street) were selected as background sampling locations. The following sections discuss the analytical results of the surface water and sediment sampling.

### 7.2.1 Surface Water

Water samples were collected from all the locations described above except the surface seep location 3F-A002 (located on the drainage that flows between the northern and southern cells of the West Davis Landfill) due to low flow during the sampling event. The twenty (20) surface water samples were analyzed for TAL inorganics and TCL organics; analytical results (presented in **Appendix C-2**) are described below. Refer to **Appendix B-2** for definitions of the data qualifiers.

#### *7.2.1.1 Inorganic Constituents*

**Table 7.2-1** lists the concentrations of TAL inorganics (total and dissolved) detected in surface water samples, and **Figure 7.2-1** illustrates the locations of these samples, along with concentrations of lead, arsenic, and cadmium.

Total lead concentrations exhibited by seventeen (17) of the surface water samples collected from Site 3 range from 1.2 $\mu$g/L to 1,700 $\mu$g/L. Dissolved lead was detected in

five (5) samples at concentrations up to 21.9 μg/L. The highest total and dissolved lead concentrations were exhibited by the sample collected from 3G-A003, which is located between the drainage separating the northern and southern cells of the West Davis Landfill. Other samples collected from this drainage, and from the eastern pond on the TXI Landfill (3B-A004), a seep on the west side of the TXI Landfill (3B-A001), and from Mountain Creek downstream of this seep (3E-A002), exhibited relatively high total lead concentrations (up to 191 μg/L). Piles of battery casing chips were observed near the TXI Landfill pond, and along the drainage separating the cells of the West Davis Landfill (**EPA, 1995b**).

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Total arsenic was detected in three (3) Site 3 surface water samples at concentrations ranging from 16.6J μg/L to 47.1J^ μg/L, and dissolved arsenic was detected in thirteen (13) samples at concentrations up to 185J μg/L. Similar to the total lead results, the higher concentrations of total and dissolved arsenic were exhibited by the samples collected from the drainage separating the northern and southern cells of the West Davis Landfill (3G-A002 and 3G-A003). Other detections were exhibited by samples collected from the eastern pond on the TXI Landfill (3B-A004) and the TXI Landfill seep (3B-A001 and 3H-A001).

Total cadmium was detected in Site 3 surface water samples collected from Mountain Creek at Davis Street (3E-A006) and from a seep on the West Side of the West Davis Landfill (3D-A001) at concentrations of 0.5 μg/L and 0.98 μg/L, respectively. Dissolved cadmium was not detected in any of the surface water samples collected from Site 3.

The few observed instances where the concentration of a dissolved inorganic constituent in a surface water sample exceeded the total concentration of the same constituent for the same sample can be attributed to the sample collection technique (water was collected separately, in separate sample containers, for dissolved and total analyses) and/or expected variation in analytical results with low level detections.

### *7.2.1.2 Organic Constituents*

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**Table 7.2-2** lists the concentrations of TCL organics detected in the twenty (20) Site 3 surface water samples. Four (4) volatile organics (including acetone, 2-butanone, and 2-hexanone), five (5) semi-volatile organics (including three (3) phthalate compounds), and six (6) pesticide compounds were detected in one or more of twelve (12) surface water samples collected from Site 3 at concentrations up to 4 $\mu$g/L, 11 $\mu$g/L, and 0.77 $\mu$g/L, respectively. The highest concentrations of these analytes generally were exhibited by samples collected from the drainages and seeps on and around the TXI Landfill.

## 7.2.2 Sediment

Sediment samples were collected from the twenty-one (21) surface water sampling locations on Site 3 and analyzed for TAL inorganics and TCL organics; two (2) of these samples also were submitted for TCLP analysis. Analytical results (presented in **Appendix C-2**) are described below. Refer to **Appendix B-2** for definitions of the qualifiers.

### *7.2.2.1 Inorganic Constituents*

**Table 7.2-3** lists the concentrations of TAL inorganics detected in the sediment samples collected from Site 3, and **Figure 7.2-2** illustrates the locations of these samples, along with concentrations of lead, arsenic, and cadmium. Lead and arsenic were detected in nearly all twenty-one (21) samples at concentrations ranging from 11.3J mg/kg to 2,100J mg/kg, and 4J^ mg/kg to 55.8J^ mg/kg, respectively. Cadmium was detected in fourteen (14) samples at concentrations up to 9.1 mg/kg. For comparison purposes, the maximum lead, arsenic, and cadmium concentrations expected in regional background soil are 30 mg/kg, 18 mg/kg, and 11 mg/kg, respectively **(Dragun and Chiasson, 1991)**. Other inorganic constituents which were exhibited by these samples at concentrations greater than their corresponding maximum in regional background soil include antimony and copper, detected at concentrations up to 26.2 mg/kg and 213 mg/kg, respectively; the

corresponding maximum background concentrations for these constituents are 2 mg/kg and 30 mg/kg, respectively (**Dragun and Chiasson, 1991**).

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The highest concentrations of lead (2,100J mg/kg and 1,080J mg/kg) and arsenic (55.8J^ mg/kg and 30J^ mg/kg) were exhibited by sediment samples collected from locations 3G-A002 and 3G-A003, respectively; both samples were collected from the drainage separating the TXI Landfill from the northern cell of the West Davis landfill. Two (2) samples (3F-A001 and 3F-A002) from the drainage separating the northern and southern cells of the West Davis Landfill also exhibited relatively high lead concentrations compared to those from the rest of the Site (427J mg/kg and 237J mg/kg, respectively). These concentrations may be attributed to contaminated soil that has been transported from the landfill ground surfaces (where battery casing chips were observed) to the adjacent drainage channels and surface water bodies via surface water runoff.

### *7.2.2.2 Organic Constituents*

**Table 7.2-4** lists the concentrations of TCL organics detected in the Site 3 sediment samples. Nine (9) semi-volatile organic analytes (including two (2) phthalate compounds) and eleven (11) pesticide compounds were detected in one or more of all twenty-one (21) samples at concentrations up to 0.00034J mg/kg and 0.38J mg/kg, respectively. Most of these analytes also were detected in the samples collected from surface seeps on the southern cell of the West Davis Landfill (3D-A001 and 3F-A002).

### *7.2.2.3 TCLP Constituents*

The two (2) sediment samples (from locations 3B-A001 and 3F-A001) submitted for TCLP organic and inorganic analysis demonstrated low level detections of barium and lead (up to 1.22E and 0.0165BS mg/L, respectively), as listed in **Table 7.2-5**. These concentrations are below the level used to define a waste material as hazardous by the characteristic of toxicity (100 mg/L and 5 mg/L, respectively), as listed in **40 CFR §261.24**. No other TCLP constituents were detected in these samples.

## 7.3 Soil

024538

For purposes of this report, surface soil is defined as the top 2 inches of soil, and subsurface soil is defined as the soil material below this 2-inch horizon. Two primary methods of analysis were utilized on surface and subsurface soils collected from Site 3: in-field X-ray fluorescence (XRF) and laboratory analysis.

XRF was used as a field screening method for the collection of data to estimate inorganic contaminant levels in surface and subsurface soils at OU No. 3. Selected soil samples also were collected for laboratory analysis of TAL inorganics, TCL organics, and other physical and chemical soil parameters. Discrepancies between inorganic data obtained using field XRF methods and inorganic data obtained by offsite laboratory methods generally are considered acceptable if they are within twenty (20) to thirty percent (30%) of each other **(Berry, Personal Communication, 1996)**. Higher discrepancies may be attributed to either: (1) insufficient homogenization of the sample material in the field, which may result in XRF measurements which are either much higher or much lower than what is representative of a particular constituent concentration at a particular grid node, or (2) insufficient digestion of the soil sample by the laboratory, which may result in under-estimation of the concentration of a particular constituent in the laboratory sample. Across the OU No. 3 sites, the average discrepancy between these two sets of analytical results was thirty-three percent (33%).

The following sections summarize both surface and subsurface soil sample analytical and XRF test results; XRF results are addressed qualitatively, while TAL inorganics results are discussed in more detail. The analytical results for surface soil, soil vapor, and subsurface soil are presented in **Appendices C-3** (XRF) and **C-4** (laboratory). Refer to **Appendix B-2** for definitions of the data qualifiers.

### 7.3.1 Surface Soil

XRF analyses were performed at three-hundred six (306) grid nodes established approximately 100 feet apart on Site 3, over the TXI Landfill (Area 3B), the northern and southern cells of the West Davis Landfill (Areas 3C and 3D, respectively), and an area adjacent to the West Davis Landfill where battery casing chips were observed over much of the ground surface (Area 3K). XRF analyses were not conducted on the Dahlstrom Landfill (Area 3A) due to the lack of observable evidence of slag or battery casing chips on the ground surface (which is paved and covered with gravel fill in this area). Nor were XRF analyses conducted within Area 3J due to the fact that surface soil samples were collected from this area for TAL inorganics analysis prior to XRF survey activities being commenced at Site 3. The locations of all Site 3 grid nodes are illustrated on **Figure 3.8-2**.

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The soil at each grid node was prepared for XRF analysis by clearing rocks, leaves, and other debris from a 10-by-10-inch square (centered around the grid node), and mixing the top 2 inches of soil within this area to reduce gross heterogeneity. Three (3) XRF readings were taken at different locations within the 10-by-10-inch square. All inorganics results were saved, and the results for lead, arsenic, and cadmium also were recorded. Based primarily on the XRF results, soil from sixty-four (64) of the grid node locations was collected for laboratory analysis of TAL inorganics. Three (3) of these sixty-four (64) samples also were submitted for TCL organics analysis, and nine (9) were submitted for full TCLP analysis. The samples include three (3) that were selected as background samples (beginning with the prefix "3J-") and analyzed for TAL inorganics; one (1) also was analyzed for TCL organics.

#### *7.3.1.1 Inorganic Constituents*

Illustrations of the ranges in detected concentrations of XRF lead, arsenic, and cadmium in Site 3 surface soil are shown on **Figures 7.3-1**, **7.3-2**, and **7.3-3**, respectively. The XRF lead was detected at one hundred sixty-one (161) grid nodes ranging from 18 mg/kg

to 29,260 mg/kg; arsenic was detected at ninety-six (96) grid nodes at concentrations ranging from 25 mg/kg to 141 mg/kg, and cadmium was detected at only three (3) grid nodes at concentrations between 59 mg/kg and 96 mg/kg. Generally, Area 3D surface soils exhibited the greatest number of high lead and arsenic detections, and two (2) of the relatively high cadmium detections.

024540

**Table 7.3-1** lists the concentrations of TAL inorganics detected in the sixty-four (64) surface soil samples collected from Site 3 for laboratory analysis. **Figure 7.3-4** illustrates the locations of these samples, along with the concentrations of lead, arsenic, and cadmium. The concentrations of lead and arsenic detected in all sixty-four (64) samples ranged from 16.5Jv mg/kg to 71,500 mg/kg, and from 5.75 mg/kg to 127 mg/kg, respectively. Cadmium was detected in thirty-two (32) samples at concentrations up to 8.4 mg/kg.

The highest lead concentrations generally were exhibited by surface soil from Area 3K (71,500 mg/kg at 3K-S014 and 11,900 mg/kg at 3K-S015) and from the perimeter of Area 3D (43,300 mg/kg at 3D-S094). These high concentrations appear to coincide with locations where battery casings and battery casing chips were observed over much of the ground surface.

The maximum lead and arsenic concentrations exhibited by samples collected from the three (3) background locations were 36.3 mg/kg and 6.1Jv mg/kg, respectively. Concentrations of TAL inorganics reported in the surface soil samples also were compared to regional background concentrations expected for this area (**Dragun and Chiasson, 1991**). Concentrations of lead (twenty-eight (28) samples) and antimony (six (6) samples) exceeded expected regional background concentrations by an order of magnitude.

### *7.3.1.2 Organic Constituents*

**Table 7.3-2** shows that a pesticide compound (Aroclor-1254) was the only organic analyte detected in any of the three (3) samples analyzed for TCL organics. This compound was detected in the sample collected from 3C-S500, at a concentration of 0.28J mg/kg.

024541

### *7.3.1.3 TCLP Constituents*

Nine (9) Site 3 surface soil samples were analyzed for TCLP organics and inorganics; a list of concentrations of the detected analytes is provided in **Table 7.3-3**. Seven (7) TCLP inorganic constituents were detected in one or more of these samples. TCLP lead was detected in eight (8) samples; lead concentrations exhibited by two (2) of these samples (9.2 mg/L and 100 mg/L in the samples from 3C-S109 and 3D-S094, respectively, as shown on **Figure 7.3-5**) exceeded the 5 mg/L level used to define a waste material as hazardous by the characteristic of toxicity (**40 CFR §261.24**). TCLP arsenic was detected in five (5) samples up to 0.021B mg/L. TCLP cadmium was detected in seven (7) samples up to 0.0295 mg/L. No TCLP organic constituents were detected.

## 7.3.2 Soil Vapor

Ten (10) soil vapor samples were collected from the seven (7) direct push boring locations on Site 3 as part of the Landfill Gas Investigation at OU No. 3 (locations are illustrated on **Figure 7.3-6**). Site 3 soil vapor analytical results are provided in **Table 7.3-4**. The only organic analytes detected in these samples were chlorobenzene, methane, and vinyl chloride. Chlorobenzene was detected in three (3) samples at concentrations up to 6,700 ppm. Vinyl chloride was detected in four (4) samples at concentrations up to 5,000 ppm. Methane was detected in nine (9) samples at concentrations up to 232,000 ppm (the highest methane concentration was exhibited by the sample collected at location 3A-S003, on the east side of the Dahlstrom Landfill).

Vinyl chloride and methane concentrations generally were highest in the area surrounding the Dahlstrom Landfill, and in the TXI Landfill. During direct push activities on Site 3, landfill material was observed in subsurface soil core samples at all direct push locations on these two landfill cells (EPA, 1995j).

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A soil vapor sample collected from 12 feet bgs at 3B-S024 on the TXI Landfill exhibited a methane concentration of approximately 4,000 ppm. A soil vapor sample collected from 20 feet bgs at the same direct push location exhibited a vinyl chloride concentration of 5,000 ppm and a methane concentration of nearly 7,000 ppm. A vapor sample collected from direct push location 3B-S055 on the TXI Landfill exhibited a chlorobenzene concentration of 2,700 ppm. Landfill material was observed in subsurface soil core samples collected from both locations during the direct push activities (EPA, 1995j).

Several attempts to collect soil vapor samples from the northern cell of the West Davis Landfill were unsuccessful (the equipment could not establish vacuum pressure due to the character of the subsurface materials). The soil vapor sample collected from 20 feet bgs at 3D-S073, located on the southern cell of the West Davis Landfill, exhibited a methane concentration of 1.8 ppm and a chlorobenzene concentration of 2,400 ppm. Due to the limited physical access of this part of the site by the Strataprobe rig, the remainder of the southern cell of the West Davis Landfill could not be characterized fully using direct push methods. Landfill material, including battery casing chips, was observed in subsurface soil core samples collected during the direct push activities on both the northern and southern landfill cells (EPA, 1995j).

Soil vapor samples collected from 10 feet and 20 feet bgs at background location 3J-S001 exhibited low concentrations of methane (2.8 ppm and 2.0 ppm, respectively). The sample collected from 20 feet bgs also exhibited a chlorobenzene concentration of 6,700 ppm. No landfill material was observed in subsurface soil core samples collected from this location (EPA, 1995j).

### 7.3.3 Subsurface Soil

Sixteen (16) direct push borings were advanced at locations around the landfill perimeters on Site 3, to depths between 4 and 31.5 feet bgs. Twenty-one (21) auger borings (ten (10) at direct push locations) were advanced to depths between 13 and 72.5 feet bgs. The boring locations are illustrated on **Figure 3.8-5**.

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During both subtasks, thirty-eight (38) subsurface soil samples were analyzed for inorganics in the field using the XRF. A total of twenty-four (24) of these samples were submitted for TAL inorganics analysis. Twenty-one (21) of these samples also were submitted for TCL organics analysis, and nine (9) were submitted for TCLP organics and inorganics analysis.

#### *7.3.3.1 Inorganic Constituents*

An illustration of the ranges in detected concentrations of XRF lead, arsenic, and cadmium is shown on **Figure 7.3-7**. At Site 3, XRF lead was detected in a greater number of soil samples collected from 0 to 3 feet bgs (12 samples), and at higher concentrations (up to 3,462 mg/kg) than in soil samples collected from greater depths (four (4) samples at concentrations up to 653 mg/kg). The maximum detected concentrations of XRF arsenic and cadmium exhibited by all subsurface soil samples were 78 mg/kg and 198 mg/kg, respectively.

**Table 7.3-5** lists the concentrations of TAL inorganics detected in the subsurface soil samples submitted for laboratory analysis. **Figure 7.3-8** illustrates the locations of these samples, along with concentrations of lead, arsenic, and cadmium. Detected concentrations of lead generally were higher in shallow subsurface samples (0 to 3 feet bgs) than in soil from deeper intervals. Lead concentrations ranged from 7 mg/kg to 302 mg/kg in the seven (7) samples collected from 0 to 3 feet bgs, and up to 82.6 mg/kg in samples collected from depths of 3 to 67 feet bgs. Two exceptions are samples collected from 3 to 6 feet bgs at 3B-S009 and from 6 to 9 feet bgs at 3C-S116 which exhibited lead

concentrations of 247.5 mg/kg and 320 mg/kg, respectively. At boring 3B-S009, battery casing chips were observed in soil core samples collected from depths up to 8 feet bgs. Generally, arsenic concentrations exhibited by the shallow subsurface samples (up to 11 mg/kg) were nearly the same to slightly higher than arsenic concentrations exhibited by samples collected from greater depths (up to 9.7Jv mg/kg). One exception is a sample collected from 6 to 9 feet bgs at 3C-S116 (believed to be near an interval where battery chips and landfill material were encountered) which exhibited an arsenic concentration of 12.8 mg/kg. Cadmium was detected in nine (9) samples up to 1.3J mg/kg (from 58 to 60 feet bgs at 3D-S073).

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At background location 3J-S001 (located at the southeast corner of Site 3), the maximum concentrations of the contaminants of concern exhibited by subsurface samples were 15.2 mg/kg lead and 21.5 mg/kg arsenic. Concentrations of TAL inorganics reported in subsurface soil collected from Site 3 also were compared to expected regional background concentrations in soil (**Dragun and Chiasson, 1991**). Concentrations of the following inorganics significantly exceeded the expected regional concentrations at one or more sampling locations: lead (two (2) samples) and nickel (one (1) sample).

### *7.3.3.2 Organic Constituents*

**Table 7.3-6** presents a list of concentrations of TCL organics detected in the twenty-one (21) subsurface soil samples collected from above the saturated zone in Site 3 borings. One or more of six (6) volatiles, seventeen (17) semi-volatiles, and fourteen (14) pesticide compounds were detected in thirteen (13) of these samples at concentrations up to 0.12 mg/kg (acetone), 40 mg/kg (bis(2)ethylhexylphthalate), and 0.032J mg/kg (methoxychlor), respectively. The sample collected from 7 to 9 feet bgs at 3C-S116 (a boring in which landfill debris was encountered to a depth of approximately 40 feet bgs) demonstrated the highest number of organic analyte detections. Generally, the concentrations of detected organic analytes were slightly higher in soil samples collected from shallower depths at Site 3.

### *7.3.3.3 TCLP Constituents*

Nine (9) Site 3 subsurface soil samples were analyzed for TCLP organics and inorganics; a list of concentrations of detected analytes is provided in **Table 7.3-7**. **Figure 7.3-9** illustrates the locations of these samples, along with the concentrations of TCLP arsenic, cadmium, and lead. Seven (7) TCLP inorganic constituents were detected in one or more of these samples. TCLP lead concentrations exhibited by four (4) of these samples collected from depths between 0 and 12 feet bgs (ranging from 20.5 mg/L to 44.1 mg/L) significantly exceeded the 5 mg/L level used to define waste material as hazardous by the characteristic of toxicity (**40 CFR §261.24**). Two (2) of these samples were observed to contain battery casing chips, and the depths from which the other two (2) samples were collected were in close proximity to battery chips observed either on the ground surface or at a depth in close proximity to the sampled depth.

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## 7.4 Groundwater Investigation

Groundwater sampling at OU no. 3 was conducted first using direct push methods, where possible (during the direct push subtask of the Soil Investigation, described in **EPA, 1995j**), followed by conventional groundwater monitoring well sampling methods (during the Groundwater Investigation, described in **EPA, 1995k**). Subsurface information obtained during the direct push subtask suggest two relatively distinct water-bearing zones on Site 3: one in discontinuous shallow landfill debris zones (encountered at depths ranging from 9 to 20 feet bgs), and another nearly continuous, relatively shallow sand and gravel alluvial zone directly above the Eagle Ford Shale (encountered at depths ranging from 15 to 28 feet bgs). During the subsequent Groundwater Investigation, eight (8) monitoring wells (two (2) per landfill cell) were installed in the landfill water-bearing zone on Site 3, and ten (10) wells were installed in the alluvial water-bearing zone.

This section describes the analytical results of the Site 3 groundwater sampling efforts. The locations of both the direct push sampling locations and the groundwater monitoring

wells are illustrated on **Figure 3.9-2**. The analytical results for both the direct push and monitoring well sampling are presented in detail in **Appendix C-5**, and definitions of the data qualifiers are listed in **Appendix B-2**.

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## 7.4.1 Direct Push Groundwater Sampling

Groundwater samples were collected from direct push borings via tubing inserted through the center of the hollow direct push drive pipe. Nine (9) direct push groundwater samples were analyzed for volatile organics analysis in the field; six (6) of these samples were submitted to the laboratory for TAL total inorganics analysis, and one (1) of these also was submitted for TCL organics analysis. Analytical results are described below.

### *7.4.1.1 Inorganic Constituents*

**Table 7.4-1** lists the concentrations of TAL (total) inorganics detected in the six (6) direct push groundwater samples collected from Site 3, and **Figure 7.4-1** illustrates these sample locations, along with concentrations of lead, arsenic, and cadmium. Total lead was detected in all six (6) samples at concentrations ranging from 9.7 $\mu$g/L to 25,600 $\mu$g/L, and total arsenic and cadmium were detected in five (5) samples each at concentrations up to 365Jv $\mu$g/L and 81.1Jv $\mu$g/L, respectively.

Two (2) groundwater samples collected from the landfill water-bearing zone at borings 3C-S084 (15 feet bgs) and 3C-S116 (12 feet bgs) exhibited the highest concentrations of total lead (25,600 $\mu$g/L and 4,120 $\mu$g/L, respectively) and total antimony (176 $\mu$g/L and 84.2 $\mu$g/L, respectively) of any Site 3 direct push groundwater samples. These levels may be attributed to battery casing chips encountered in the landfill debris at depths up to 12 feet bgs at 3C-S084 and up to 3 feet bgs at 3C-S116.

The groundwater sample collected from background boring 3J-S001 (located east of the West Davis Landfill) exhibited the highest concentrations of arsenic (365J $\mu$g/L) and cadmium (81.1Jv $\mu$g/L), and relatively high concentrations of beryllium (43.5Jv $\mu$g/L),

chromium (917Jv μg/L), and nickel (846Jv μg/L). This location, estimated to be upgradient of the West Davis Landfill boundaries, was selected for collection of background samples because no slag, battery casing chips, or other evidence of surface or subsurface contamination were observed here. Also, the water-bearing zone encountered at this location was comprised of alluvial material (not landfill debris) above Eagle Ford Shale. Therefore, this water-bearing zone is not expected to be hydraulically connected to any of the landfill water-bearing zones on Site 3, and the presence and concentrations of inorganic constituents in groundwater at 3J-S001 may be attributable to offsite contamination sources.

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#### *7.4.1.2 Organic Constituents*

Eight (8) of the groundwater samples collected during the direct push subtask were analyzed for volatile organics using the direct push subcontractor's mobile GC. A split sample was collected from the landfill debris zone (7 to 9 feet bgs) at boring 3C-S006 and submitted to an offsite laboratory for full TCL organics analysis.

**Table 7.4-2** indicates that one or more of eight (8) volatile organic analytes were detected in these samples. The sample collected from the landfill debris zone at 3C-S006 exhibited the highest concentrations of acetone (13 μg/L), chlorobenzene (110 μg/L), and toluene (3 μg/L). The sample collected from the landfill debris zone (13 to 15 feet bgs) at boring 3A-S001 exhibited the highest concentrations of ethylbenzene (5.5 μg/L), tetrachloroethene (11.2 μg/L), and total xylene (7.4 μg/L). Relatively high concentrations of benzene (7.7 μg/L) and 1,2-dichloroethene (total) (29.8 μg/L) also were exhibited by groundwater samples collected from alluvial water-bearing zones at borings 3J-S001 and 3B-S003, respectively.

**Table 7.4-2** also presents other TCL organics results for the sample from 3C-S006. Seven (7) semi-volatile organic analytes were detected at concentrations up to 10 μg/L (1,4-dichlorobenzene), and four (4) pesticide compounds were detected at concentrations up to 1.5 μg/L (Aroclor-1242).

## 7.4.2 Monitoring Well Groundwater Sampling

A total of eighteen (18) monitoring wells were installed on Site 3. Eight (8) shallow wells (two (2) per landfill cell) were screened within the water-bearing landfill debris zones at depths ranging from 9 to 40.5 feet bgs. Ten (10) wells were screened in water-bearing alluvial zones (sand and gravel) at depths ranging from 15 to 72 feet bgs. Fifteen (15) groundwater samples were collected from these wells and submitted for analysis of TAL inorganics (total and dissolved) and TCL organics. No samples were collected from wells 3A-S004, 3B-S041, or 3C-S084 because they did not recharge sufficiently following well development and/or purging. Analytical results for groundwater samples from each water-bearing zone (landfill debris and alluvial) are described in the following paragraphs.

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### *7.4.2.1 Inorganic Constituents*

**Table 7.4-3** lists the concentrations of TAL inorganics (total and dissolved) detected in groundwater samples collected from monitoring wells on Site 3. **Figure 7.4-2** illustrates the locations of these wells, along with concentrations of lead, arsenic, and cadmium.

Total lead and arsenic were detected in all seven (7) groundwater samples collected from the water-bearing landfill debris zones, at concentrations ranging from 8.2Jv $\mu$g/L to 20,700 $\mu$g/L, and from 7.5L $\mu$g/L to 107 $\mu$g/L, respectively. Total cadmium was detected in four (4) of these samples at concentrations up to 29.5J $\mu$g/L. Dissolved lead was detected in one (1) sample at a concentration of 2.9L $\mu$g/L, and dissolved arsenic was detected in five (5) samples at concentrations up to 11.4 $\mu$g/L. TDS concentrations of these samples ranged from 598,000 $\mu$g/L to 4,080,000 $\mu$g/L. The high concentrations of: (1) lead detected in samples from wells 3B-S009, 3B-S056, 3C-S116, 3D-S107, and 3D-S126; (2) arsenic and antimony detected in the sample from well 3B-S009; and (3) chromium in the sample from well 3D-S126 may be attributed to the presence of waste materials in the landfill, including battery casings and battery casing chips (which were

observed in soil core samples to 8 feet bgs at boring location 3B-S009, and to approximately 2 feet bgs at boring locations 3B-S056 and 3D-S107).

Six (6) of the eight (8) groundwater samples collected from wells screened in the water-bearing alluvial zone exhibited total lead concentrations ranging from 6.1 μg/L to 31.6 μg/L. Total arsenic was detected in seven (7) samples at concentrations ranging from 3.1L μg/L to 18.3 μg/L, and total cadmium was detected in four (4) samples at concentrations ranging from 3.1L μg/L to 45.1L μg/L. Dissolved lead was not detected in any of the samples; however, dissolved arsenic was detected in three (3) samples at concentrations up to 6.0L μg/L, and dissolved cadmium was detected in two (2) samples at concentrations up to 26LJ μg/L. TDS concentrations of these samples ranged from 3,840,000 μg/L to 12,000,000 μg/L. The lead concentrations exhibited by groundwater samples collected from wells 3B-S003, 3C-S117, and 3K-S016 may be attributed to migration of inorganic constituents from nearby zones of landfill debris, which includes battery casing chips.

### *7.4.2.2 Organic Constituents*

**Table 7.4-4** lists the concentrations of TCL organics detected in the Site 3 groundwater samples.

Four (4) volatile organic analytes (up to 41 μg/L chlorobenzene), five (5) semi-volatile organic analytes (up to 79 μg/L 4-methylphenol), and eight (8) pesticide compounds (up to 7.4 μg/L 4,4'-DDD) were exhibited by one or more of the groundwater samples collected from wells screened in water-bearing landfill debris zones. Most of the pesticide compounds were detected in the samples from wells 3B-S009 and 3B-S056 at concentrations up to 7.4 μg/L (4,4'-DDD). In addition, 4-methylphenol (79 μg/L) and phenol (33 μg/L) were detected at relatively high concentrations in the sample from 3A-S005.



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Four (4) volatile organic analytes and semi-volatile organic analyte bis(2-ethylhexyl)phthalate were detected in groundwater samples from four (4) wells screened in the water-bearing alluvial zone (3B-S003, 3D-S073, 3K-S016, and 3D-S127). The high concentrations of 1,2-dichloroethene (49 $\mu$g/L) and vinyl chloride (9.5 $\mu$g/L) exhibited by the sample from well 3B-S003 may be due to migration of contaminants from adjacent water-bearing landfill debris zones.

024550

**Table 7.2-1**
**Surface Water TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

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| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | |
| **3B-A001 WL01** | | | |
| | Aluminum | 1,990.00000 J | µg/L |
| | Antimony | 9.10000 | µg/L |
| | Arsenic | 16.60000 J | µg/L |
| | Barium | 565.00000 J | µg/L |
| | Calcium | 148,000.00000 | µg/L |
| | Chromium | 5.70000 | µg/L |
| | Cobalt | 3.10000 | µg/L |
| | Iron | 43,400.00000 J | µg/L |
| | Lead | 125.00000 | µg/L |
| | Magnesium | 47,500.00000 | µg/L |
| | Manganese | 254.00000 | µg/L |
| | Nickel | 12.90000 | µg/L |
| | Potassium | 164,000.00000 | µg/L |
| | Sodium | 342,000.00000 J | µg/L |
| | Vanadium | 8.00000 | µg/L |
| | Zinc | 39.80000 | µg/L |
| **3B-A002 WL01** | | | |
| | Aluminum | 493.00000 J | µg/L |
| | Barium | 26.60000 J | µg/L |
| | Calcium | 67,000.00000 | µg/L |
| | Copper | 33.40000 | µg/L |
| | Iron | 558.00000 J | µg/L |
| | Lead | 11.40000 | µg/L |
| | Magnesium | 5,040.00000 | µg/L |
| | Manganese | 24.60000 | µg/L |
| | Potassium | 3,930.00000 | µg/L |
| | Sodium | 14,600.00000 J | µg/L |
| | Zinc | 18.50000 | µg/L |
| **3B-A003 WL01** | | | |
| | Aluminum | 751.00000 J | µg/L |
| | Barium | 66.80000 J | µg/L |
| | Calcium | 97,800.00000 | µg/L |
| | Copper | 23.60000 | µg/L |
| | Iron | 3,450.00000 J | µg/L |
| | Lead | 12.30000 | µg/L |
| | Magnesium | 10,200.00000 | µg/L |
| | Manganese | 224.00000 | µg/L |
| | Mercury | 0.20000 | µg/L |
| | Potassium | 4,680.00000 | µg/L |
| | Sodium | 23,700.00000 J | µg/L |
| | Zinc | 10.30000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024552

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| 3B-A004 WL01 | | | | |
| | Aluminum | 9,910.00000 | | µg/L |
| | Antimony | 8.10000 | | µg/L |
| | Arsenic | 19.40000 | Jv | µg/L |
| | Barium | 360.00000 | | µg/L |
| | Calcium | 84,600.00000 | | µg/L |
| | Chromium | 18.00000 | | µg/L |
| | Cobalt | 7.60000 | | µg/L |
| | Copper | 53.80000 | J | µg/L |
| | Iron | 37,300.00000 | | µg/L |
| | Lead | 140.00000 | | µg/L |
| | Magnesium | 6,680.00000 | | µg/L |
| | Manganese | 1,170.00000 | | µg/L |
| | Nickel | 21.00000 | | µg/L |
| | Potassium | 5,720.00000 | | µg/L |
| | Sodium | 17,300.00000 | | µg/L |
| | Vanadium | 37.40000 | | µg/L |
| | Zinc | 168.00000 | | µg/L |
| 3D-A001 WL01 | | | | |
| | Barium | 106.00000 | | µg/L |
| | Cadmium | 0.98000 | | µg/L |
| | Calcium | 262,000.00000 | J | µg/L |
| | Cobalt | 4.60000 | | µg/L |
| | Copper | 35.40000 | | µg/L |
| | Iron | 3,300.00000 | J | µg/L |
| | Lead | 16.20000 | | µg/L |
| | Magnesium | 30,200.00000 | J | µg/L |
| | Manganese | 1,020.00000 | J | µg/L |
| | Mercury | 0.33000 | Jv | µg/L |
| | Nickel | 18.20000 | | µg/L |
| | Potassium | 30,300.00000 | J | µg/L |
| | Sodium | 85,100.00000 | J | µg/L |
| | Zinc | 77.20000 | | µg/L |
| 3E-A001 WL01 | | | | |
| | Aluminum | 1,560.00000 | J | µg/L |
| | Barium | 35.90000 | J | µg/L |
| | Calcium | 99,900.00000 | | µg/L |
| | Copper | 36.20000 | | µg/L |
| | Iron | 2,360.00000 | J | µg/L |
| | Lead | 29.70000 | | µg/L |
| | Magnesium | 11,000.00000 | | µg/L |
| | Manganese | 42.80000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.2-1**
**Surface Water TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024553

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Potassium | 5,610.00000 | | µg/L |
| | Sodium | 26,900.00000 | J | µg/L |
| | Zinc | 16.80000 | | µg/L |
| **3E-A002 WL01** | | | | |
| | Aluminum | 1,970.00000 | J | µg/L |
| | Barium | 46.70000 | J | µg/L |
| | Calcium | 138,000.00000 | | µg/L |
| | Copper | 29.20000 | | µg/L |
| | Iron | 8,380.00000 | J | µg/L |
| | Lead | 191.00000 | | µg/L |
| | Magnesium | 16,400.00000 | | µg/L |
| | Manganese | 105.00000 | | µg/L |
| | Potassium | 8,390.00000 | | µg/L |
| | Sodium | 36,600.00000 | J | µg/L |
| | Vanadium | 2.20000 | Jv | µg/L |
| | Zinc | 17.00000 | | µg/L |
| **3E-A003 WL01** | | | | |
| | Aluminum | 1,720.00000 | J | µg/L |
| | Barium | 39.20000 | J | µg/L |
| | Calcium | 128,000.00000 | | µg/L |
| | Copper | 57.40000 | | µg/L |
| | Iron | 2,680.00000 | J | µg/L |
| | Lead | 8.00000 | | µg/L |
| | Magnesium | 14,700.00000 | | µg/L |
| | Manganese | 48.80000 | | µg/L |
| | Potassium | 7,010.00000 | | µg/L |
| | Sodium | 31,700.00000 | J | µg/L |
| | Zinc | 16.90000 | | µg/L |
| **3E-A004 WL01** | | | | |
| | Barium | 33.30000 | J | µg/L |
| | Calcium | 130,000.00000 | | µg/L |
| | Iron | 114.00000 | J | µg/L |
| | Lead | 6.20000 | J | µg/L |
| | Magnesium | 14,900.00000 | | µg/L |
| | Manganese | 18.50000 | Jv | µg/L |
| | Potassium | 6,530.00000 | | µg/L |
| | Sodium | 34,800.00000 | J | µg/L |
| | Zinc | 19.30000 | | µg/L |
| **3E-A005 WL01** | | | | |
| | Aluminum | 4,140.00000 | J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.2-1**
**Surface Water TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024554

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Barium | 45.00000 | | µg/L |
| | Calcium | 97,800.00000 | J | µg/L |
| | Chromium | 6.60000 | | µg/L |
| | Cobalt | 1.30000 | | µg/L |
| | Iron | 2,960.00000 | J | µg/L |
| | Lead | 2.60000 | | µg/L |
| | Magnesium | 10,700.00000 | J | µg/L |
| | Manganese | 52.80000 | J | µg/L |
| | Mercury | 0.23000 | Jv | µg/L |
| | Nickel | 6.00000 | | µg/L |
| | Potassium | 7,510.00000 | J | µg/L |
| | Sodium | 24,200.00000 | J | µg/L |
| | Vanadium | 9.30000 | | µg/L |
| | Zinc | 13.10000 | | µg/L |
| **3E-A006 WL01** | | | | |
| | Aluminum | 2,540.00000 | J | µg/L |
| | Antimony | 2.20000 | | µg/L |
| | Barium | 39.10000 | | µg/L |
| | Cadmium | 0.50000 | | µg/L |
| | Calcium | 98,100.00000 | J | µg/L |
| | Chromium | 4.50000 | | µg/L |
| | Cobalt | 1.10000 | | µg/L |
| | Iron | 1,710.00000 | J | µg/L |
| | Magnesium | 10,600.00000 | J | µg/L |
| | Manganese | 32.50000 | J | µg/L |
| | Nickel | 6.50000 | | µg/L |
| | Potassium | 7,060.00000 | J | µg/L |
| | Sodium | 24,500.00000 | J | µg/L |
| | Vanadium | 6.20000 | | µg/L |
| | Zinc | 12.20000 | | µg/L |
| **3F-A001 WL01** | | | | |
| | Aluminum | 243.00000 | | µg/L |
| | Barium | 35.70000 | | µg/L |
| | Calcium | 149,000.00000 | | µg/L |
| | Copper | 1.60000 | | µg/L |
| | Iron | 229.00000 | J | µg/L |
| | Lead | 1.20000 | | µg/L |
| | Magnesium | 19,000.00000 | | µg/L |
| | Manganese | 34.20000 | | µg/L |
| | Nickel | 2.60000 | | µg/L |
| | Potassium | 4,910.00000 | | µg/L |
| | Sodium | 51,400.00000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024555

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| **3F-A003 WL01** | | | |
| | Aluminum | 166.00000 | µg/L |
| | Barium | 33.70000 | µg/L |
| | Calcium | 149,000.00000 | µg/L |
| | Copper | 1.20000 | µg/L |
| | Iron | 149.00000 J | µg/L |
| | Magnesium | 18,500.00000 | µg/L |
| | Manganese | 32.40000 | µg/L |
| | Nickel | 2.10000 | µg/L |
| | Potassium | 4,110.00000 | µg/L |
| | Sodium | 47,500.00000 | µg/L |
| **3F-A004 WL01** | | | |
| | Aluminum | 189.00000 | µg/L |
| | Barium | 34.70000 | µg/L |
| | Calcium | 138,000.00000 | µg/L |
| | Copper | 1.30000 | µg/L |
| | Iron | 174.00000 J | µg/L |
| | Magnesium | 16,100.00000 | µg/L |
| | Manganese | 53.60000 | µg/L |
| | Nickel | 2.80000 | µg/L |
| | Potassium | 3,980.00000 | µg/L |
| | Sodium | 40,100.00000 | µg/L |
| **3G-A001 WL01** | | | |
| | Barium | 129.00000 J | µg/L |
| | Calcium | 233,000.00000 | µg/L |
| | Copper | 34.60000 | µg/L |
| | Iron | 1,460.00000 J | µg/L |
| | Lead | 5.40000 J | µg/L |
| | Magnesium | 39,700.00000 | µg/L |
| | Manganese | 572.00000 | µg/L |
| | Nickel | 13.30000 | µg/L |
| | Potassium | 32,400.00000 | µg/L |
| | Sodium | 136,000.00000 J | µg/L |
| | Zinc | 7.40000 | µg/L |
| **3G-A002 WL01** | | | |
| | Aluminum | 534.00000 J | µg/L |
| | Barium | 225.00000 J | µg/L |
| | Beryllium | 1.10000 | µg/L |
| | Calcium | 125,000.00000 | µg/L |
| | Copper | 45.90000 | µg/L |
| | Iron | 29,300.00000 J | µg/L |
| | Lead | 289.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024556

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | Magnesium | 29,800.00000 | µg/L |
| | Manganese | 465.00000 | µg/L |
| | Nickel | 11.60000 | µg/L |
| | Potassium | 66,200.00000 | µg/L |
| | Sodium | 105,000.00000 J | µg/L |
| | Zinc | 62.90000 | µg/L |
| 3G-A003 WL01 | | | |
| | Aluminum | 375.00000 J^ | µg/L |
| | Antimony | 26.20000 Jv | µg/L |
| | Arsenic | 47.10000 J^ | µg/L |
| | Barium | 354.00000 J | µg/L |
| | Beryllium | 1.80000 | µg/L |
| | Calcium | 133,000.00000 | µg/L |
| | Copper | 55.70000 | µg/L |
| | Iron | 64,000.00000 J | µg/L |
| | Lead | 1,700.00000 | µg/L |
| | Magnesium | 35,800.00000 | µg/L |
| | Manganese | 372.00000 | µg/L |
| | Nickel | 21.40000 | µg/L |
| | Potassium | 114,000.00000 | µg/L |
| | Sodium | 209,000.00000 J | µg/L |
| | Vanadium | 3.20000 Jv | µg/L |
| | Zinc | 183.00000 | µg/L |
| 3G-A004 WL01 | | | |
| | Aluminum | 348.50000 JC | µg/L |
| | Barium | 225.50000 J | µg/L |
| | Calcium | 215,500.00000 | µg/L |
| | Copper | 55.00000 | µg/L |
| | Iron | 1,600.00000 J | µg/L |
| | Lead | 5.60000 J | µg/L |
| | Magnesium | 40,750.00000 | µg/L |
| | Manganese | 408.00000 | µg/L |
| | Mercury | 0.15000 | µg/L |
| | Potassium | 50,000.00000 | µg/L |
| | Sodium | 112,000.00000 J | µg/L |
| | Zinc | 18.60000 | µg/L |
| 3H-A001 WL01 | | | |
| | Aluminum | 288.00000 J^ | µg/L |
| | Barium | 305.00000 J | µg/L |
| | Calcium | 133,000.00000 | µg/L |
| | Copper | 56.10000 | µg/L |
| | Iron | 5,450.00000 J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.2-1**
**Surface Water TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024557

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Lead | 5.00000 | | µg/L |
| | Magnesium | 44,700.00000 | | µg/L |
| | Manganese | 178.00000 | | µg/L |
| | Nickel | 40.60000 | | µg/L |
| | Potassium | 142,000.00000 | | µg/L |
| | Sodium | 302,000.00000 | J | µg/L |
| | Zinc | 74.80000 | | µg/L |
| **3I-A001 WL01** | | | | |
| | Aluminum | 1,070.00000 | J | µg/L |
| | Barium | 36.90000 | J | µg/L |
| | Calcium | 169,000.00000 | | µg/L |
| | Copper | 55.90000 | | µg/L |
| | Iron | 1,530.00000 | J | µg/L |
| | Lead | 17.00000 | | µg/L |
| | Magnesium | 19,200.00000 | | µg/L |
| | Manganese | 224.00000 | | µg/L |
| | Potassium | 7,480.00000 | | µg/L |
| | Sodium | 47,300.00000 | J | µg/L |
| | Zinc | 32.60000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024558

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TAL DISSOLVED INORGANICS** | | |
| **3B-A001 WL01** | | | |
| | Arsenic | 137.00000 J | µg/L |
| | Barium | 277.00000 | µg/L |
| | Calcium | 106,000.00000 | µg/L |
| | Copper | 10.60000 | µg/L |
| | Iron | 287.00000 | µg/L |
| | Magnesium | 37,500.00000 | µg/L |
| | Manganese | 134.00000 | µg/L |
| | Potassium | 150,000.00000 | µg/L |
| | Sodium | 309,000.00000 | µg/L |
| **3B-A002 WL01** | | | |
| | Antimony | 6.80000 | µg/L |
| | Barium | 25.60000 | µg/L |
| | Beryllium | 1.30000 | µg/L |
| | Calcium | 57,500.00000 | µg/L |
| | Copper | 19.10000 | µg/L |
| | Magnesium | 4,700.00000 | µg/L |
| | Potassium | 4,480.00000 | µg/L |
| | Sodium | 15,700.00000 | µg/L |
| **3B-A003 WL01** | | | |
| | Antimony | 6.70000 | µg/L |
| | Arsenic | 15.10000 J | µg/L |
| | Barium | 30.50000 | µg/L |
| | Beryllium | 1.30000 | µg/L |
| | Calcium | 79,500.00000 | µg/L |
| | Copper | 11.60000 | µg/L |
| | Iron | 73.20000 | µg/L |
| | Magnesium | 9,040.00000 | µg/L |
| | Manganese | 133.00000 | µg/L |
| | Mercury | 0.34000 | µg/L |
| | Potassium | 5,150.00000 | µg/L |
| | Sodium | 25,100.00000 | µg/L |
| **3B-A004 WL01** | | | |
| | Arsenic | 18.70000 J | µg/L |
| | Barium | 27.20000 | µg/L |
| | Beryllium | 1.50000 | µg/L |
| | Calcium | 59,600.00000 | µg/L |
| | Copper | 10.30000 | µg/L |
| | Magnesium | 3,900.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024559

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Manganese | 129.00000 | | µg/L |
| | Potassium | 3,160.00000 | | µg/L |
| | Sodium | 14,800.00000 | | µg/L |
| **3D-A001 WL01** | | | | |
| | Antimony | 3.10000 | Jv | µg/L |
| | Barium | 98.30000 | Jv | µg/L |
| | Calcium | 247,000.00000 | Jv | µg/L |
| | Cobalt | 4.10000 | Jv | µg/L |
| | Copper | 3.10000 | Jv | µg/L |
| | Lead | 4.60000 | Jv | µg/L |
| | Magnesium | 28,800.00000 | Jv | µg/L |
| | Manganese | 902.00000 | Jv | µg/L |
| | Nickel | 14.20000 | Jv | µg/L |
| | Potassium | 32,400.00000 | Jv | µg/L |
| | Selenium | 34.30000 | Jv | µg/L |
| | Sodium | 87,500.00000 | Jv | µg/L |
| | Thallium | 7.40000 | Jv | µg/L |
| | Vanadium | 0.65000 | Jv | µg/L |
| | Zinc | 22.40000 | Jv | µg/L |
| **3E-A001 WL01** | | | | |
| | Antimony | 5.00000 | | µg/L |
| | Arsenic | 20.20000 | J | µg/L |
| | Barium | 32.40000 | | µg/L |
| | Beryllium | 1.20000 | | µg/L |
| | Calcium | 87,000.00000 | | µg/L |
| | Copper | 14.80000 | | µg/L |
| | Magnesium | 10,100.00000 | | µg/L |
| | Manganese | 16.20000 | J | µg/L |
| | Mercury | 0.27000 | | µg/L |
| | Potassium | 6,180.00000 | | µg/L |
| | Sodium | 28,300.00000 | | µg/L |
| | Zinc | 5.40000 | | µg/L |
| **3E-A002 WL01** | | | | |
| | Barium | 32.80000 | | µg/L |
| | Beryllium | 1.20000 | | µg/L |
| | Calcium | 105,000.00000 | | µg/L |
| | Copper | 11.70000 | | µg/L |
| | Magnesium | 13,200.00000 | | µg/L |
| | Manganese | 20.40000 | | µg/L |
| | Potassium | 7,290.00000 | | µg/L |
| | Sodium | 32,000.00000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.2-1**
**Surface Water TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024560

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| **3E-A003 WL01** | | | | |
| | Antimony | 5.20000 | | µg/L |
| | Arsenic | 26.30000 | J | µg/L |
| | Barium | 31.90000 | | µg/L |
| | Beryllium | 1.40000 | | µg/L |
| | Calcium | 103,000.00000 | | µg/L |
| | Copper | 15.20000 | | µg/L |
| | Magnesium | 12,300.00000 | | µg/L |
| | Manganese | 19.10000 | | µg/L |
| | Mercury | 0.40000 | | µg/L |
| | Potassium | 7,060.00000 | | µg/L |
| | Sodium | 31,300.00000 | | µg/L |
| **3E-A004 WL01** | | | | |
| | Aluminum | 243.00000 | J | µg/L |
| | Arsenic | 10.00000 | J | µg/L |
| | Barium | 33.40000 | | µg/L |
| | Calcium | 124,000.00000 | | µg/L |
| | Copper | 7.50000 | | µg/L |
| | Iron | 151.00000 | | µg/L |
| | Lead | 3.50000 | | µg/L |
| | Magnesium | 14,500.00000 | | µg/L |
| | Manganese | 28.90000 | | µg/L |
| | Potassium | 6,800.00000 | | µg/L |
| | Sodium | 34,000.00000 | | µg/L |
| **3E-A005 WL01** | | | | |
| | Barium | 37.00000 | Jv | µg/L |
| | Calcium | 105,000.00000 | Jv | µg/L |
| | Copper | 5.10000 | Jv | µg/L |
| | Magnesium | 11,600.00000 | Jv | µg/L |
| | Manganese | 18.00000 | Jv | µg/L |
| | Nickel | 1.80000 | Jv | µg/L |
| | Potassium | 7,950.00000 | Jv | µg/L |
| | Selenium | 6.70000 | Jv | µg/L |
| | Sodium | 29,200.00000 | J | µg/L |
| | Thallium | 6.20000 | Jv | µg/L |
| | Vanadium | 0.81000 | Jv | µg/L |
| | Zinc | 1.90000 | Jv | µg/L |
| **3E-A006 WL01** | | | | |
| | Barium | 36.70000 | Jv | µg/L |
| | Calcium | 103,000.00000 | Jv | µg/L |
| | Copper | 3.80000 | Jv | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024561

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | Lead | 3.80000 Jv | µg/L |
| | Magnesium | 11,600.00000 Jv | µg/L |
| | Manganese | 14.90000 Jv | µg/L |
| | Nickel | 2.10000 Jv | µg/L |
| | Potassium | 8,020.00000 Jv | µg/L |
| | Sodium | 29,400.00000 J | µg/L |
| | Thallium | 6.50000 Jv | µg/L |
| | Vanadium | 0.99000 Jv | µg/L |
| | Zinc | 1.30000 Jv | µg/L |
| 3F-A001 WL01 | | | |
| | Aluminum | 81.60000 | µg/L |
| | Antimony | 7.60000 | µg/L |
| | Barium | 38.80000 | µg/L |
| | Calcium | 165,000.00000 | µg/L |
| | Copper | 3.00000 | µg/L |
| | Magnesium | 21,400.00000 | µg/L |
| | Manganese | 14.00000 J | µg/L |
| | Nickel | 3.50000 | µg/L |
| | Potassium | 5,370.00000 | µg/L |
| | Selenium | 10.80000 | µg/L |
| | Sodium | 57,800.00000 J | µg/L |
| | Zinc | 7.40000 J^ | µg/L |
| 3F-A003 WL01 | | | |
| | Arsenic | 3.30000 | µg/L |
| | Barium | 34.30000 | µg/L |
| | Calcium | 147,000.00000 | µg/L |
| | Copper | 3.70000 | µg/L |
| | Magnesium | 18,900.00000 | µg/L |
| | Manganese | 25.40000 | µg/L |
| | Nickel | 4.30000 | µg/L |
| | Potassium | 4,110.00000 | µg/L |
| | Selenium | 9.70000 | µg/L |
| | Sodium | 49,000.00000 J | µg/L |
| 3F-A004 WL01 | | | |
| | Aluminum | 50.60000 J^ | µg/L |
| | Arsenic | 4.20000 | µg/L |
| | Barium | 35.90000 | µg/L |
| | Calcium | 142,000.00000 | µg/L |
| | Copper | 4.70000 | µg/L |
| | Magnesium | 17,200.00000 | µg/L |
| | Manganese | 38.40000 | µg/L |
| | Nickel | 4.50000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024562

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Potassium | 4,190.00000 | | µg/L |
| | Selenium | 8.70000 | | µg/L |
| | Sodium | 43,300.00000 | J | µg/L |
| 3G-A001 WL01 | | | | |
| | Antimony | 15.40000 | | µg/L |
| | Arsenic | 29.50000 | J | µg/L |
| | Barium | 119.00000 | | µg/L |
| | Beryllium | 1.50000 | | µg/L |
| | Calcium | 186,000.00000 | | µg/L |
| | Copper | 16.00000 | | µg/L |
| | Magnesium | 33,100.00000 | | µg/L |
| | Manganese | 491.00000 | | µg/L |
| | Nickel | 12.40000 | | µg/L |
| | Potassium | 33,300.00000 | | µg/L |
| | Sodium | 133,000.00000 | | µg/L |
| 3G-A002 WL01 | | | | |
| | Antimony | 30.50000 | | µg/L |
| | Arsenic | 185.00000 | J | µg/L |
| | Barium | 162.00000 | | µg/L |
| | Calcium | 95,400.00000 | | µg/L |
| | Copper | 7.80000 | | µg/L |
| | Iron | 11,400.00000 | | µg/L |
| | Lead | 5.30000 | J | µg/L |
| | Magnesium | 23,000.00000 | | µg/L |
| | Manganese | 378.00000 | | µg/L |
| | Potassium | 66,400.00000 | | µg/L |
| | Sodium | 100,000.00000 | | µg/L |
| | Zinc | 10.20000 | | µg/L |
| 3G-A003 WL01 | | | | |
| | Antimony | 19.60000 | | µg/L |
| | Arsenic | 131.00000 | J | µg/L |
| | Barium | 142.00000 | | µg/L |
| | Calcium | 96,200.00000 | | µg/L |
| | Copper | 11.70000 | | µg/L |
| | Lead | 21.90000 | | µg/L |
| | Magnesium | 29,600.00000 | | µg/L |
| | Manganese | 233.00000 | | µg/L |
| | Potassium | 111,000.00000 | | µg/L |
| | Sodium | 202,000.00000 | | µg/L |
| | Zinc | 11.40000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024563

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| **3G-A004 WL01** | | | | |
| | Antimony | 6.30000 | | µg/L |
| | Arsenic | 17.75000 | J | µg/L |
| | Barium | 202.50000 | | µg/L |
| | Beryllium | 2.80000 | | µg/L |
| | Calcium | 179,000.00000 | | µg/L |
| | Cobalt | 1.75000 | C | µg/L |
| | Copper | 13.27500 | C | µg/L |
| | Iron | 62.10000 | | µg/L |
| | Magnesium | 35,800.00000 | | µg/L |
| | Manganese | 325.00000 | | µg/L |
| | Potassium | 51,250.00000 | | µg/L |
| | Sodium | 108,500.00000 | | µg/L |
| **3H-A001 WL01** | | | | |
| | Antimony | 26.80000 | | µg/L |
| | Arsenic | 143.00000 | J | µg/L |
| | Barium | 232.00000 | | µg/L |
| | Calcium | 99,200.00000 | | µg/L |
| | Copper | 10.70000 | | µg/L |
| | Magnesium | 33,000.00000 | | µg/L |
| | Manganese | 134.00000 | | µg/L |
| | Potassium | 129,000.00000 | | µg/L |
| | Sodium | 272,000.00000 | | µg/L |
| **3I-A001 WL01** | | | | |
| | Barium | 30.10000 | | µg/L |
| | Beryllium | 1.20000 | | µg/L |
| | Calcium | 139,000.00000 | | µg/L |
| | Copper | 7.70000 | | µg/L |
| | Magnesium | 17,000.00000 | | µg/L |
| | Manganese | 177.00000 | | µg/L |
| | Potassium | 7,670.00000 | | µg/L |
| | Sodium | 46,600.00000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.2-2**
**Surface Water TCL Organic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024564

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **3E-A002 WL01** | Methylene Chloride | 3.00000 J | µg/L |
| **3E-A005 WL01** | Acetone | 3.00000 J | µg/L |
| **3G-A002 WL01** | 2-Hexanone | 4.00000 J | µg/L |
| **3G-A003 WL01** | 2-Butanone | 2.00000 | µg/L |
| | **TCL SEMI-VOLATILES** | | |
| **3B-A001 WL01** | Dimethylphthalate | 4.00000 J | µg/L |
| **3B-A003 WL01** | 1,3-Dichlorobenzene | 2.00000 J | µg/L |
| **3E-A001 WL01** | 2-Methylnaphthalene | 1.00000 J | µg/L |
| **3E-A002 WL01** | 1,3-Dichlorobenzene | 2.00000 J | µg/L |
| **3G-A002 WL01** | Dimethylphthalate | 2.00000 J | µg/L |
| **3G-A003 WL01** | 1,3-Dichlorobenzene | 1.00000 J | µg/L |
| **3G-A004 WL01** | bis(2-Ethylhexyl)phthalate | 3.00000 J | µg/L |
| **3H-A001 WL01** | 1,3-Dichlorobenzene<br>Dimethylphthalate | 2.00000 J<br>3.00000 J | µg/L<br>µg/L |
| **3I-A001 WL01** | Diethylphthalate | 11.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers. Samples collected from 3B-A002, 3E-A003, 3E-A004, 3E-A006, 3F-A001, 3F-A002, 3F-A003, 3F-A004, and 3G-A001 did not show detections of TCL organics.*

**Table 7.2-2**
**Surface Water TCL Organic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024565

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | **TCL PESTICIDES** | | |
| **3B-A001 WL01** | | | |
| | alpha-BHC | 0.00770 J | µg/L |
| | gamma-Chlordane | 0.01000 J | µg/L |
| | Heptachlor epoxide | 0.01000 J | µg/L |
| **3B-A003 WL01** | | | |
| | alpha-BHC | 0.00750 J | µg/L |
| **3B-A004 WL01** | | | |
| | Dieldrin | 0.01200 J | µg/L |
| **3D-A001 WL01** | | | |
| | Aroclor-1242 | 0.77000 J | µg/L |
| **3G-A002 WL01** | | | |
| | delta-BHC | 0.00640 J | µg/L |
| | gamma-Chlordane | 0.00870 J | µg/L |
| | Heptachlor epoxide | 0.00590 J | µg/L |
| **3H-A001 WL01** | | | |
| | gamma-Chlordane | 0.00840 J | µg/L |
| | Heptachlor epoxide | 0.00920 J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers. Samples collected from 3B-A002, 3E-A003, 3E-A004, 3E-A006, 3F-A001, 3F-A002, 3F-A003, 3F-A004, and 3G-A001 did not show detections of TCL organics.*

Table 7.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024566

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | | |
| **3B-A001 DL01** | | | | |
| | Aluminum | 20,200.00000 | J | mg/kg |
| | Arsenic | 11.00000 | J | mg/kg |
| | Barium | 103.00000 | | mg/kg |
| | Beryllium | 1.90000 | | mg/kg |
| | Calcium | 57,100.00000 | | mg/kg |
| | Chromium | 34.50000 | | mg/kg |
| | Cobalt | 12.00000 | | mg/kg |
| | Iron | 33,800.00000 | | mg/kg |
| | Magnesium | 4,080.00000 | | mg/kg |
| | Manganese | 487.00000 | | mg/kg |
| | Nickel | 33.30000 | | mg/kg |
| | Potassium | 4,610.00000 | | mg/kg |
| | Sodium | 1,540.00000 | J | mg/kg |
| | Vanadium | 49.20000 | | mg/kg |
| | Zinc | 82.50000 | J^ | mg/kg |
| **3B-A002 DL01** | | | | |
| | Aluminum | 16,600.00000 | J | mg/kg |
| | Arsenic | 9.50000 | | mg/kg |
| | Barium | 84.90000 | | mg/kg |
| | Beryllium | 1.60000 | | mg/kg |
| | Calcium | 94,700.00000 | | mg/kg |
| | Chromium | 27.90000 | | mg/kg |
| | Cobalt | 8.80000 | | mg/kg |
| | Iron | 26,300.00000 | | mg/kg |
| | Lead | 90.80000 | Jv | mg/kg |
| | Magnesium | 3,980.00000 | | mg/kg |
| | Manganese | 296.00000 | | mg/kg |
| | Nickel | 28.30000 | | mg/kg |
| | Potassium | 4,520.00000 | | mg/kg |
| | Sodium | 1,130.00000 | J^ | mg/kg |
| | Vanadium | 36.30000 | | mg/kg |
| | Zinc | 118.00000 | | mg/kg |
| **3B-A003 DL01** | | | | |
| | Aluminum | 12,500.00000 | J | mg/kg |
| | Arsenic | 15.70000 | | mg/kg |
| | Barium | 71.10000 | | mg/kg |
| | Beryllium | 2.50000 | | mg/kg |
| | Calcium | 29,800.00000 | | mg/kg |
| | Chromium | 24.80000 | | mg/kg |
| | Cobalt | 12.90000 | | mg/kg |
| | Iron | 57,400.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024567

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Lead | 139.00000 | Jv | mg/kg |
| | Magnesium | 2,580.00000 | | mg/kg |
| | Manganese | 1,170.00000 | | mg/kg |
| | Mercury | 0.31000 | | mg/kg |
| | Nickel | 30.60000 | | mg/kg |
| | Potassium | 2,750.00000 | | mg/kg |
| | Sodium | 1,270.00000 | J | mg/kg |
| | Vanadium | 51.10000 | | mg/kg |
| | Zinc | 81.90000 | J^ | mg/kg |
| 3B-A004 DL01 | | | | |
| | Aluminum | 16,700.00000 | J | mg/kg |
| | Antimony | 1.90000 | J | mg/kg |
| | Arsenic | 4.00000 | J^ | mg/kg |
| | Barium | 76.30000 | | mg/kg |
| | Beryllium | 0.98000 | | mg/kg |
| | Cadmium | 1.00000 | J | mg/kg |
| | Calcium | 14,500.00000 | J | mg/kg |
| | Chromium | 40.00000 | Jv | mg/kg |
| | Cobalt | 9.60000 | | mg/kg |
| | Copper | 21.20000 | J | mg/kg |
| | Iron | 43,100.00000 | | mg/kg |
| | Lead | 16.30000 | J | mg/kg |
| | Magnesium | 4,090.00000 | J | mg/kg |
| | Manganese | 217.00000 | | mg/kg |
| | Nickel | 22.30000 | J^ | mg/kg |
| | Potassium | 4,520.00000 | J | mg/kg |
| | Selenium | 1.20000 | J | mg/kg |
| | Vanadium | 36.50000 | | mg/kg |
| | Zinc | 89.10000 | J | mg/kg |
| 3D-A001 DL01 | | | | |
| | Aluminum | 11,700.00000 | J | mg/kg |
| | Antimony | 0.71000 | J | mg/kg |
| | Arsenic | 5.40000 | J^ | mg/kg |
| | Barium | 117.00000 | | mg/kg |
| | Beryllium | 0.89000 | | mg/kg |
| | Cadmium | 4.20000 | J^ | mg/kg |
| | Calcium | 123,000.00000 | J | mg/kg |
| | Chromium | 18.70000 | Jv | mg/kg |
| | Cobalt | 14.80000 | | mg/kg |
| | Copper | 60.50000 | J | mg/kg |
| | Iron | 23,700.00000 | | mg/kg |
| | Lead | 44.40000 | J | mg/kg |
| | Magnesium | 2,690.00000 | J | mg/kg |
| | Manganese | 2,380.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024568

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Mercury | 0.38000 | Jv | mg/kg |
| | Nickel | 27.80000 | J^ | mg/kg |
| | Potassium | 3,650.00000 | J | mg/kg |
| | Sodium | 212.00000 | Jv | mg/kg |
| | Vanadium | 31.90000 | | mg/kg |
| | Zinc | 394.00000 | J | mg/kg |
| 3E-A001 DL01 | | | | |
| | Aluminum | 18,100.00000 | J | mg/kg |
| | Arsenic | 14.90000 | | mg/kg |
| | Barium | 225.00000 | | mg/kg |
| | Beryllium | 1.80000 | | mg/kg |
| | Calcium | 74,400.00000 | | mg/kg |
| | Chromium | 31.60000 | | mg/kg |
| | Cobalt | 13.70000 | | mg/kg |
| | Iron | 34,400.00000 | | mg/kg |
| | Lead | 87.50000 | Jv | mg/kg |
| | Magnesium | 3,820.00000 | | mg/kg |
| | Manganese | 675.00000 | | mg/kg |
| | Nickel | 31.60000 | | mg/kg |
| | Potassium | 4,010.00000 | | mg/kg |
| | Sodium | 1,190.00000 | J^ | mg/kg |
| | Vanadium | 44.10000 | | mg/kg |
| | Zinc | 88.20000 | J^ | mg/kg |
| 3E-A002 DL01 | | | | |
| | Aluminum | 16,900.00000 | J | mg/kg |
| | Arsenic | 9.70000 | | mg/kg |
| | Barium | 103.00000 | | mg/kg |
| | Beryllium | 1.70000 | | mg/kg |
| | Calcium | 58,500.00000 | | mg/kg |
| | Chromium | 30.60000 | | mg/kg |
| | Cobalt | 11.20000 | | mg/kg |
| | Iron | 30,200.00000 | | mg/kg |
| | Lead | 43.90000 | Jv | mg/kg |
| | Magnesium | 3,750.00000 | | mg/kg |
| | Manganese | 432.00000 | | mg/kg |
| | Mercury | 1.20000 | | mg/kg |
| | Nickel | 30.40000 | | mg/kg |
| | Potassium | 3,940.00000 | | mg/kg |
| | Sodium | 1,110.00000 | J^ | mg/kg |
| | Vanadium | 40.50000 | | mg/kg |
| | Zinc | 91.60000 | J^ | mg/kg |
| 3E-A003 DL01 | | | | |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024569

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Aluminum | 16,600.00000 | J | mg/kg |
| | Antimony | 14.90000 | J | mg/kg |
| | Arsenic | 9.80000 | J^ | mg/kg |
| | Barium | 119.00000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Cadmium | 0.93000 | J^ | mg/kg |
| | Calcium | 48,100.00000 | J | mg/kg |
| | Chromium | 29.00000 | Jv | mg/kg |
| | Cobalt | 11.60000 | | mg/kg |
| | Copper | 26.90000 | J | mg/kg |
| | Iron | 26,000.00000 | | mg/kg |
| | Lead | 58.30000 | J | mg/kg |
| | Magnesium | 3,240.00000 | J | mg/kg |
| | Manganese | 415.00000 | | mg/kg |
| | Nickel | 27.00000 | J^ | mg/kg |
| | Potassium | 4,030.00000 | J | mg/kg |
| | Sodium | 228.00000 | Jv | mg/kg |
| | Vanadium | 47.20000 | | mg/kg |
| | Zinc | 118.00000 | J | mg/kg |
| 3E-A004 DL01 | | | | |
| | Aluminum | 10,200.00000 | J | mg/kg |
| | Antimony | 2.40000 | J | mg/kg |
| | Arsenic | 29.70000 | J^ | mg/kg |
| | Barium | 74.90000 | | mg/kg |
| | Beryllium | 1.10000 | | mg/kg |
| | Cadmium | 9.10000 | J^ | mg/kg |
| | Calcium | 70,900.00000 | J | mg/kg |
| | Chromium | 34.90000 | Jv | mg/kg |
| | Cobalt | 64.20000 | | mg/kg |
| | Copper | 213.00000 | J | mg/kg |
| | Iron | 210,000.00000 | | mg/kg |
| | Lead | 88.00000 | J | mg/kg |
| | Magnesium | 2,570.00000 | J | mg/kg |
| | Manganese | 1,530.00000 | | mg/kg |
| | Nickel | 62.00000 | J^ | mg/kg |
| | Potassium | 2,660.00000 | J | mg/kg |
| | Silver | 0.42000 | | mg/kg |
| | Vanadium | 41.60000 | | mg/kg |
| | Zinc | 253.00000 | J | mg/kg |
| 3E-A005 DL01 | | | | |
| | Aluminum | 24,100.00000 | J | mg/kg |
| | Arsenic | 8.60000 | J^ | mg/kg |
| | Barium | 119.00000 | | mg/kg |
| | Beryllium | 1.50000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024570

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Cadmium | 1.00000 | J^ | mg/kg |
| | Calcium | 48,000.00000 | J | mg/kg |
| | Chromium | 39.00000 | Jv | mg/kg |
| | Cobalt | 13.00000 | | mg/kg |
| | Copper | 20.50000 | J | mg/kg |
| | Iron | 29,300.00000 | | mg/kg |
| | Lead | 18.10000 | J | mg/kg |
| | Magnesium | 4,490.00000 | J | mg/kg |
| | Manganese | 450.00000 | | mg/kg |
| | Nickel | 29.70000 | J^ | mg/kg |
| | Potassium | 5,820.00000 | J | mg/kg |
| | Sodium | 189.00000 | J^ | mg/kg |
| | Vanadium | 56.00000 | | mg/kg |
| | Zinc | 75.80000 | J | mg/kg |
| 3E-A006 DL01 | | | | |
| | Aluminum | 25,500.00000 | J | mg/kg |
| | Arsenic | 7.00000 | J^ | mg/kg |
| | Barium | 113.00000 | | mg/kg |
| | Beryllium | 1.50000 | | mg/kg |
| | Cadmium | 0.97000 | J^ | mg/kg |
| | Calcium | 41,500.00000 | J | mg/kg |
| | Chromium | 42.20000 | Jv | mg/kg |
| | Cobalt | 14.90000 | | mg/kg |
| | Copper | 18.60000 | J | mg/kg |
| | Iron | 29,600.00000 | J | mg/kg |
| | Lead | 17.80000 | J | mg/kg |
| | Magnesium | 4,480.00000 | J | mg/kg |
| | Manganese | 458.00000 | | mg/kg |
| | Nickel | 29.60000 | J^ | mg/kg |
| | Potassium | 5,820.00000 | J | mg/kg |
| | Sodium | 165.00000 | Jv | mg/kg |
| | Vanadium | 58.80000 | | mg/kg |
| | Zinc | 70.80000 | J | mg/kg |
| 3F-A001 DL01 | | | | |
| | Aluminum | 13,400.00000 | J | mg/kg |
| | Antimony | 3.20000 | J | mg/kg |
| | Arsenic | 10.90000 | J^ | mg/kg |
| | Barium | 86.60000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Cadmium | 1.50000 | J^ | mg/kg |
| | Calcium | 62,300.00000 | J | mg/kg |
| | Chromium | 66.60000 | Jv | mg/kg |
| | Cobalt | 13.80000 | | mg/kg |
| | Copper | 26.20000 | J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.2-3**
**Sediment TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024571

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | *Iron* | 32,400.00000 | | mg/kg |
| | Lead | 427.00000 | J | mg/kg |
| | Magnesium | 3,310.00000 | J | mg/kg |
| | Manganese | 517.00000 | | mg/kg |
| | Nickel | 35.70000 | J^ | mg/kg |
| | Potassium | 3,380.00000 | J | mg/kg |
| | Sodium | 39.70000 | Jv | mg/kg |
| | Vanadium | 42.80000 | | mg/kg |
| | Zinc | 122.00000 | J | mg/kg |
| **3F-A002 DL01** | | | | |
| | Aluminum | 13,100.00000 | J | mg/kg |
| | Antimony | 5.80000 | J | mg/kg |
| | Arsenic | 13.70000 | J^ | mg/kg |
| | Barium | 110.00000 | | mg/kg |
| | Beryllium | 1.00000 | | mg/kg |
| | Cadmium | 3.90000 | J^ | mg/kg |
| | Calcium | 71,000.00000 | J | mg/kg |
| | Chromium | 29.10000 | Jv | mg/kg |
| | Cobalt | 8.40000 | | mg/kg |
| | Copper | 37.60000 | J | mg/kg |
| | *Iron* | 27,700.00000 | | mg/kg |
| | Lead | 237.00000 | J | mg/kg |
| | Magnesium | 3,270.00000 | J | mg/kg |
| | Manganese | 404.00000 | | mg/kg |
| | Nickel | 27.40000 | J^ | mg/kg |
| | Potassium | 4,240.00000 | J | mg/kg |
| | Sodium | 486.00000 | Jv | mg/kg |
| | Vanadium | 33.70000 | | mg/kg |
| | Zinc | 178.00000 | J | mg/kg |
| **3F-A003 DL01** | | | | |
| | Aluminum | 8,210.00000 | J | mg/kg |
| | Arsenic | 13.90000 | J^ | mg/kg |
| | Barium | 52.40000 | | mg/kg |
| | Beryllium | 0.76000 | | mg/kg |
| | Cadmium | 1.30000 | J^ | mg/kg |
| | Calcium | 220,000.00000 | J | mg/kg |
| | Chromium | 16.20000 | Jv | mg/kg |
| | Cobalt | 17.50000 | | mg/kg |
| | Copper | 11.80000 | J | mg/kg |
| | Iron | 24,400.00000 | | mg/kg |
| | Lead | 11.30000 | J | mg/kg |
| | Magnesium | 2,440.00000 | J | mg/kg |
| | Manganese | 1,000.00000 | | mg/kg |
| | Nickel | 25.40000 | J^ | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024572

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Potassium | 2,700.00000 | J | mg/kg |
| | Sodium | 534.00000 | Jv | mg/kg |
| | Vanadium | 32.30000 | | mg/kg |
| | Zinc | 47.80000 | J | mg/kg |
| 3F-A004 DL01 | | | | |
| | Aluminum | 10,400.00000 | J | mg/kg |
| | Arsenic | 6.50000 | J^ | mg/kg |
| | Barium | 71.10000 | | mg/kg |
| | Beryllium | 1.00000 | | mg/kg |
| | Cadmium | 0.64000 | J^ | mg/kg |
| | Calcium | 83,400.00000 | J | mg/kg |
| | Chromium | 19.40000 | Jv | mg/kg |
| | Cobalt | 10.00000 | | mg/kg |
| | Copper | 16.70000 | J | mg/kg |
| | Iron | 18,100.00000 | | mg/kg |
| | Lead | 23.90000 | J | mg/kg |
| | Magnesium | 2,340.00000 | J | mg/kg |
| | Manganese | 615.00000 | | mg/kg |
| | Nickel | 23.30000 | J^ | mg/kg |
| | Potassium | 3,130.00000 | J | mg/kg |
| | Vanadium | 30.90000 | | mg/kg |
| | Zinc | 90.00000 | J | mg/kg |
| 3G-A001 DL01 | | | | |
| | Aluminum | 16,100.00000 | J | mg/kg |
| | Antimony | 3.70000 | J | mg/kg |
| | Arsenic | 10.30000 | J^ | mg/kg |
| | Barium | 106.00000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Cadmium | 1.00000 | J | mg/kg |
| | Calcium | 44,400.00000 | J | mg/kg |
| | Chromium | 29.70000 | Jv | mg/kg |
| | Cobalt | 16.70000 | | mg/kg |
| | Copper | 18.90000 | J | mg/kg |
| | Iron | 28,000.00000 | | mg/kg |
| | Lead | 59.70000 | J | mg/kg |
| | Magnesium | 3,320.00000 | J | mg/kg |
| | Manganese | 810.00000 | | mg/kg |
| | Nickel | 30.90000 | J^ | mg/kg |
| | Potassium | 4,250.00000 | J | mg/kg |
| | Selenium | 0.97000 | J | mg/kg |
| | Sodium | 343.00000 | Jv | mg/kg |
| | Vanadium | 48.20000 | | mg/kg |
| | Zinc | 68.60000 | J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024573

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| 3G-A002 DL01 | | | | |
| | Aluminum | 8,650.00000 | J | mg/kg |
| | Antimony | 26.20000 | J | mg/kg |
| | Arsenic | 55.80000 | J^ | mg/kg |
| | Barium | 426.00000 | | mg/kg |
| | Beryllium | 0.65000 | | mg/kg |
| | Cadmium | 6.40000 | J^ | mg/kg |
| | Calcium | 139,000.00000 | J | mg/kg |
| | Chromium | 12.90000 | Jv | mg/kg |
| | Cobalt | 6.80000 | | mg/kg |
| | Copper | 59.80000 | J | mg/kg |
| | Iron | 106,000.00000 | | mg/kg |
| | Lead | 2,100.00000 | J | mg/kg |
| | Magnesium | 2,930.00000 | J | mg/kg |
| | Manganese | 1,110.00000 | | mg/kg |
| | Nickel | 18.90000 | J^ | mg/kg |
| | Potassium | 2,690.00000 | J | mg/kg |
| | Vanadium | 26.60000 | | mg/kg |
| | Zinc | 294.00000 | J | mg/kg |
| 3G-A003 DL01 | | | | |
| | Aluminum | 18,400.00000 | J | mg/kg |
| | Antimony | 23.60000 | J | mg/kg |
| | Arsenic | 30.00000 | J^ | mg/kg |
| | Barium | 164.00000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Cadmium | 2.50000 | J^ | mg/kg |
| | Calcium | 75,500.00000 | J | mg/kg |
| | Chromium | 32.20000 | Jv | mg/kg |
| | Cobalt | 7.40000 | | mg/kg |
| | Copper | 29.90000 | J | mg/kg |
| | Iron | 51,100.00000 | | mg/kg |
| | Lead | 1,080.00000 | J | mg/kg |
| | Magnesium | 4,410.00000 | J | mg/kg |
| | Manganese | 375.00000 | | mg/kg |
| | Nickel | 25.10000 | J^ | mg/kg |
| | Potassium | 6,220.00000 | J | mg/kg |
| | Sodium | 703.00000 | Jv | mg/kg |
| | Vanadium | 51.90000 | | mg/kg |
| | Zinc | 178.00000 | J | mg/kg |
| 3G-A004 DL01 | | | | |
| | Aluminum | 18,000.00000 | J | mg/kg |
| | Antimony | 2.32000 | J | mg/kg |
| | Arsenic | 7.25000 | J^ | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024574

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Barium | 124.50000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Cadmium | 1.15000 | J^ | mg/kg |
| | Calcium | 49,850.00000 | J | mg/kg |
| | Chromium | 29.95000 | Jv | mg/kg |
| | Cobalt | 9.25000 | | mg/kg |
| | Copper | 30.05000 | J | mg/kg |
| | Iron | 22,100.00000 | | mg/kg |
| | Lead | 75.25000 | J | mg/kg |
| | Magnesium | 3,640.00000 | J | mg/kg |
| | Manganese | 375.50000 | | mg/kg |
| | Nickel | 25.95000 | J^ | mg/kg |
| | Potassium | 5,045.00000 | J | mg/kg |
| | Sodium | 596.50000 | Jv | mg/kg |
| | Vanadium | 47.05000 | | mg/kg |
| | Zinc | 95.25000 | J | mg/kg |
| **3H-A001 DL01** | | | | |
| | Aluminum | 16,400.00000 | J | mg/kg |
| | Arsenic | 11.00000 | | mg/kg |
| | Barium | 117.00000 | | mg/kg |
| | Beryllium | 1.70000 | | mg/kg |
| | Calcium | 51,200.00000 | | mg/kg |
| | Chromium | 30.70000 | | mg/kg |
| | Cobalt | 11.80000 | | mg/kg |
| | Iron | 31,100.00000 | | mg/kg |
| | Lead | 43.30000 | Jv | mg/kg |
| | Magnesium | 4,240.00000 | | mg/kg |
| | Manganese | 421.00000 | | mg/kg |
| | Nickel | 28.40000 | | mg/kg |
| | Potassium | 5,350.00000 | | mg/kg |
| | Sodium | 1,600.00000 | J | mg/kg |
| | Vanadium | 40.20000 | | mg/kg |
| | Zinc | 81.60000 | J^ | mg/kg |
| **3I-A001 DL01** | | | | |
| | Aluminum | 19,600.00000 | J | mg/kg |
| | Arsenic | 11.20000 | | mg/kg |
| | Barium | 113.00000 | | mg/kg |
| | Beryllium | 1.90000 | | mg/kg |
| | Calcium | 61,200.00000 | | mg/kg |
| | Chromium | 33.50000 | | mg/kg |
| | Cobalt | 12.00000 | | mg/kg |
| | Iron | 32,400.00000 | | mg/kg |
| | Lead | 31.60000 | J | mg/kg |
| | Magnesium | 4,260.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024575

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Manganese | 454.00000 | | mg/kg |
| | Nickel | 31.50000 | | mg/kg |
| | Potassium | 4,630.00000 | | mg/kg |
| | Sodium | 1,550.00000 | *J* | mg/kg |
| | Vanadium | 40.50000 | | mg/kg |
| | Zinc | 101.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-4
Sediment TCL Organic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024576

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | **TCL SEMI-VOLATILES** | | |
| **3B-A001 DL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.08300 J | mg/kg |
| | 2-Methylnaphthalene | 0.02500 J | mg/kg |
| **3B-A002 DL01** | | | |
| | bis(2-Chloroethyl)Ether | 0.08000 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.18000 J | mg/kg |
| | Fluoranthene | 0.03100 J | mg/kg |
| | Pyrene | 0.04300 J | mg/kg |
| **3B-A004 DL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.08700 J | mg/kg |
| | Diethylphthalate | 0.04200 J | mg/kg |
| **3D-A001 DL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.05200 J | mg/kg |
| **3E-A001 DL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.11000 J | mg/kg |
| | Pyrene | 0.03100 J | mg/kg |
| **3E-A002 DL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.03800 J | mg/kg |
| **3E-A003 DL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.08800 J | mg/kg |
| **3E-A004 DL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.02900 J | mg/kg |
| **3E-A005 DL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.06400 J | mg/kg |
| **3E-A006 DL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.07800 J | mg/kg |
| **3F-A001 DL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.05700 J | mg/kg |
| | Diethylphthalate | 0.02900 J | mg/kg |
| **3F-A002 DL01** | | | |
| | Benzo(a)anthracene | 0.04600 J | mg/kg |
| | bis(2-Chloroethyl)Ether | 0.23000 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.11000 J | mg/kg |
| | Chrysene | 0.05400 J | mg/kg |
| | Diethylphthalate | 0.04300 J | mg/kg |

* *Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-4
Sediment TCL Organic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024577

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | Fluoranthene | 0.07700 J | mg/kg |
| | Phenanthrene | 0.04000 J | mg/kg |
| | Pyrene | 0.08700 J | mg/kg |
| 3F-A003 DL01 | | | |
| | bis(2-Ethylhexyl)phthalate | 0.03900 J | mg/kg |
| 3F-A004 DL01 | | | |
| | bis(2-Ethylhexyl)phthalate | 0.20000 J | mg/kg |
| | Diethylphthalate | 0.04300 J | mg/kg |
| | Fluoranthene | 0.03200 J | mg/kg |
| | Pyrene | 0.04000 J | mg/kg |
| 3G-A001 DL01 | | | |
| | bis(2-Ethylhexyl)phthalate | 0.03800 J | mg/kg |
| 3G-A002 DL01 | | | |
| | bis(2-Ethylhexyl)phthalate | 0.16000 J | mg/kg |
| | Pyrene | 0.04800 J | mg/kg |
| 3G-A003 DL01 | | | |
| | bis(2-Ethylhexyl)phthalate | 0.18000 J | mg/kg |
| 3G-A004 DL01 | | | |
| | bis(2-Ethylhexyl)phthalate | 0.12600 J | mg/kg |
| | Diethylphthalate | 0.15350 J | mg/kg |
| 3H-A001 DL01 | | | |
| | bis(2-Ethylhexyl)phthalate | 0.07700 J | mg/kg |
| 3I-A001 DL01 | | | |
| | bis(2-Ethylhexyl)phthalate | 0.12000 J | mg/kg |
| | **TCL PESTICIDES** | | |
| 3B-A002 DL01 | | | |
| | alpha-Chlordane | 0.00320 | mg/kg |
| | gamma-Chlordane | 0.01600 | mg/kg |
| | Heptachlor epoxide | 0.00140 J | mg/kg |
| 3B-A003 DL01 | | | |
| | gamma-Chlordane | 0.00073 J | mg/kg |
| 3D-A001 DL01 | | | |
| | Aroclor-1248 | 0.38000 J | mg/kg |
| | Aroclor-1254 | 0.05000 J | mg/kg |
| | alpha-Chlordane | 0.00270 J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-4
Sediment TCL Organic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024578

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | gamma-Chlordane | 0.00420 J | mg/kg |
| | 4,4'-DDD | 0.00120 J | mg/kg |
| | 4,4'-DDE | 0.00240 J | mg/kg |
| | 4,4'-DDT | 0.00140 J | mg/kg |
| | Dieldrin | 0.00500 J | mg/kg |
| | Endosulfan I | 0.00290 J | mg/kg |
| 3E-A001 DL01 | | | |
| | alpha-Chlordane | 0.00035 J | mg/kg |
| | gamma-Chlordane | 0.00050 J | mg/kg |
| | Dieldrin | 0.00077 J | mg/kg |
| 3E-A002 DL01 | | | |
| | Aroclor-1254 | 0.00850 J | mg/kg |
| | gamma-Chlordane | 0.00034 J | mg/kg |
| 3E-A005 DL01 | | | |
| | Aroclor-1254 | 0.02000 J | mg/kg |
| 3E-A006 DL01 | | | |
| | Aroclor-1254 | 0.01600 J | mg/kg |
| 3F-A001 DL01 | | | |
| | Aroclor-1254 | 0.02900 J | mg/kg |
| | 4,4'-DDE | 0.00079 J | mg/kg |
| | Dieldrin | 0.00088 J | mg/kg |
| | Heptachlor epoxide | 0.00036 J | mg/kg |
| 3F-A002 DL01 | | | |
| | gamma-Chlordane | 0.00340 J | mg/kg |
| | 4,4'-DDD | 0.05400 | mg/kg |
| | 4,4'-DDE | 0.01000 J | mg/kg |
| | 4,4'-DDT | 0.01000 J | mg/kg |
| | Dieldrin | 0.00510 J | mg/kg |
| 3G-A001 DL01 | | | |
| | Aroclor-1254 | 0.01600 J | mg/kg |
| | gamma-Chlordane | 0.00058 J | mg/kg |
| | 4,4'-DDE | 0.00076 J | mg/kg |
| | Heptachlor epoxide | 0.00130 J | mg/kg |
| 3G-A002 DL01 | | | |
| | alpha-Chlordane | 0.02500 | mg/kg |
| | gamma-Chlordane | 0.03000 J | mg/kg |
| | 4,4'-DDD | 0.00690 J | mg/kg |
| | 4,4'-DDE | 0.00900 J | mg/kg |
| | 4,4'-DDT | 0.00390 J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-4
Sediment TCL Organic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024579

| Location & Sample Number | Parameter | Result & Qualifier | |
|---|---|---|---|
| 3G-A003 DL01 | | | |
| | gamma-Chlordane | 0.00053 J | mg/kg |
| | Dieldrin | 0.00110 J | mg/kg |
| 3G-A004 DL01 | | | |
| | alpha-Chlordane | 0.00095 J | mg/kg |
| | gamma-Chlordane | 0.00061 J | mg/kg |
| | 4,4'-DDE | 0.00099 J | mg/kg |
| | 4,4'-DDT | 0.00109 J | mg/kg |
| | Dieldrin | 0.00095 J | mg/kg |
| | Endrin | 0.00325 J | mg/kg |
| 3H-A001 DL01 | | | |
| | Aroclor-1254 | 0.02000 J | mg/kg |
| | gamma-Chlordane | 0.00039 J | mg/kg |
| 3I-A001 DL01 | | | |
| | Aroclor-1254 | 0.04500 J | mg/kg |
| | gamma-Chlordane | 0.00055 J | mg/kg |
| | 4,4'-DDE | 0.00079 J | mg/kg |
| | Heptachlor epoxide | 0.00077 J | mg/kg |

* *Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.2-5
Sediment TCLP Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024580

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TCLP INORGANICS** | | |
| **3B-A001 DL01** | | | |
| | Barium | 1.22000 E | mg/L |
| | Lead | 0.00360 BW | mg/L |
| **3F-A001 DL01** | | | |
| | Barium | 0.66900 J | mg/L |
| | Lead | 0.01650 BS | mg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024581

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | | |
| **3B-S003 SL01** | | | | |
| | Aluminum | 12,200.00000 | | mg/kg |
| | Antimony | 5.20000 | Jv | mg/kg |
| | Arsenic | 31.00000 | | mg/kg |
| | Barium | 107.00000 | | mg/kg |
| | Beryllium | 0.85000 | | mg/kg |
| | Cadmium | 0.83000 | | mg/kg |
| | Calcium | 57,400.00000 | J | mg/kg |
| | Chromium | 23.00000 | | mg/kg |
| | Cobalt | 9.20000 | | mg/kg |
| | Copper | 37.50000 | | mg/kg |
| | Iron | 27,400.00000 | | mg/kg |
| | Lead | 1,190.00000 | | mg/kg |
| | Magnesium | 3,000.00000 | | mg/kg |
| | Manganese | 493.00000 | | mg/kg |
| | Mercury | 0.19000 | | mg/kg |
| | Nickel | 29.20000 | | mg/kg |
| | Potassium | 3,640.00000 | | mg/kg |
| | Selenium | 2.90000 | | mg/kg |
| | Sodium | 265.00000 | C | mg/kg |
| | Vanadium | 40.90000 | | mg/kg |
| | Zinc | 149.00000 | | mg/kg |
| **3B-S008 SL01** | | | | |
| | Aluminum | 25,950.00000 | | mg/kg |
| | Antimony | 2.90000 | | mg/kg |
| | Arsenic | 11.35000 | | mg/kg |
| | Barium | 105.50000 | | mg/kg |
| | Beryllium | 1.35000 | | mg/kg |
| | Cadmium | 1.25000 | | mg/kg |
| | Calcium | 50,100.00000 | | mg/kg |
| | Chromium | 35.65000 | | mg/kg |
| | Cobalt | 11.35000 | | mg/kg |
| | Copper | 23.85000 | | mg/kg |
| | Iron | 25,550.00000 | | mg/kg |
| | Lead | 99.20000 | | mg/kg |
| | Magnesium | 4,220.00000 | | mg/kg |
| | Manganese | 442.00000 | J^ | mg/kg |
| | Nickel | 29.80000 | | mg/kg |
| | Potassium | 5,575.00000 | | mg/kg |
| | Selenium | 0.61750 | | mg/kg |
| | Vanadium | 64.25000 | | mg/kg |
| | Zinc | 71.05000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024582

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| 3B-S010 SL01 | | | | |
| | Aluminum | 15,450.00000 | | mg/kg |
| | Antimony | 1.34500 | Jv | mg/kg |
| | Arsenic | 9.80000 | | mg/kg |
| | Barium | 91.75000 | | mg/kg |
| | Beryllium | 0.86500 | | mg/kg |
| | Cadmium | 0.58000 | | mg/kg |
| | Calcium | 98,400.00000 | J | mg/kg |
| | Chromium | 26.50000 | | mg/kg |
| | Cobalt | 8.30000 | | mg/kg |
| | Copper | 20.80000 | | mg/kg |
| | Iron | 22,850.00000 | | mg/kg |
| | Lead | 88.05000 | | mg/kg |
| | Magnesium | 3,870.00000 | | mg/kg |
| | Manganese | 440.50000 | | mg/kg |
| | Nickel | 22.70000 | | mg/kg |
| | Potassium | 3,930.00000 | | mg/kg |
| | Sodium | 485.00000 | ^J | mg/kg |
| | Vanadium | 41.90000 | | mg/kg |
| | Zinc | 77.70000 | | mg/kg |
| 3B-S016 SL01 | | | | |
| | Aluminum | 25,800.00000 | | mg/kg |
| | Antimony | 7.40000 | Jv | mg/kg |
| | Arsenic | 23.30000 | | mg/kg |
| | Barium | 123.00000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Cadmium | 0.73000 | | mg/kg |
| | Calcium | 43,300.00000 | J | mg/kg |
| | Chromium | 43.10000 | | mg/kg |
| | Cobalt | 13.40000 | | mg/kg |
| | Copper | 43.30000 | | mg/kg |
| | Iron | 33,000.00000 | | mg/kg |
| | Lead | 580.00000 | | mg/kg |
| | Magnesium | 4,400.00000 | | mg/kg |
| | Manganese | 518.00000 | | mg/kg |
| | Nickel | 32.90000 | | mg/kg |
| | Potassium | 5,970.00000 | | mg/kg |
| | Selenium | 2.00000 | J | mg/kg |
| | Sodium | 375.00000 | ^J | mg/kg |
| | Vanadium | 54.40000 | | mg/kg |
| | Zinc | 87.30000 | | mg/kg |
| 3B-S021 SL01 | | | | |
| | Aluminum | 29,800.00000 | | mg/kg |
| | Antimony | 6.10000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024583

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Arsenic | 11.60000 | | mg/kg |
| | Barium | 106.00000 | | mg/kg |
| | Beryllium | 1.60000 | | mg/kg |
| | Cadmium | 1.40000 | | mg/kg |
| | Calcium | 52,700.00000 | | mg/kg |
| | Chromium | 44.40000 | | mg/kg |
| | Cobalt | 13.20000 | | mg/kg |
| | Copper | 33.10000 | | mg/kg |
| | Iron | 32,300.00000 | | mg/kg |
| | Lead | 53.50000 | | mg/kg |
| | Magnesium | 5,140.00000 | | mg/kg |
| | Manganese | 461.00000 | J^ | mg/kg |
| | Nickel | 34.70000 | | mg/kg |
| | Potassium | 6,740.00000 | | mg/kg |
| | Selenium | 1.90000 | J | mg/kg |
| | Vanadium | 72.80000 | | mg/kg |
| | Zinc | 84.60000 | | mg/kg |
| 3B-S039 SL01 | | | | |
| | Aluminum | 24,000.00000 | | mg/kg |
| | Antimony | 7.30000 | | mg/kg |
| | Arsenic | 16.20000 | | mg/kg |
| | Barium | 86.40000 | | mg/kg |
| | Beryllium | 1.40000 | | mg/kg |
| | Cadmium | 1.50000 | | mg/kg |
| | Calcium | 31,200.00000 | | mg/kg |
| | Chromium | 43.80000 | | mg/kg |
| | Cobalt | 12.50000 | | mg/kg |
| | Copper | 32.30000 | | mg/kg |
| | Iron | 34,100.00000 | | mg/kg |
| | Lead | 285.00000 | | mg/kg |
| | Magnesium | 4,360.00000 | | mg/kg |
| | Manganese | 351.00000 | J^ | mg/kg |
| | Nickel | 28.50000 | | mg/kg |
| | Potassium | 5,820.00000 | | mg/kg |
| | Selenium | 1.80000 | J | mg/kg |
| | Vanadium | 51.10000 | | mg/kg |
| | Zinc | 90.30000 | | mg/kg |
| 3B-S041 SL01 | | | | |
| | Aluminum | 21,400.00000 | | mg/kg |
| | Antimony | 12.90000 | Jv | mg/kg |
| | Arsenic | 25.00000 | | mg/kg |
| | Barium | 102.00000 | | mg/kg |
| | Beryllium | 0.99000 | | mg/kg |
| | Cadmium | 1.10000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024584

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Calcium | 89,100.00000 | J | mg/kg |
| | Chromium | 38.40000 | | mg/kg |
| | Cobalt | 10.20000 | | mg/kg |
| | Copper | 43.00000 | | mg/kg |
| | Iron | 28,900.00000 | | mg/kg |
| | Lead | 707.00000 | | mg/kg |
| | Magnesium | 4,980.00000 | | mg/kg |
| | Manganese | 359.00000 | | mg/kg |
| | Nickel | 25.20000 | | mg/kg |
| | Potassium | 6,220.00000 | | mg/kg |
| | Selenium | 1.10000 | | mg/kg |
| | Vanadium | 46.40000 | | mg/kg |
| | Zinc | 96.10000 | | mg/kg |
| **3B-S053 SL01** | | | | |
| | Aluminum | 22,400.00000 | | mg/kg |
| | Antimony | 16.10000 | Jv | mg/kg |
| | Arsenic | 23.90000 | | mg/kg |
| | Barium | 140.00000 | | mg/kg |
| | Beryllium | 1.00000 | | mg/kg |
| | Cadmium | 1.50000 | | mg/kg |
| | Calcium | 97,300.00000 | J | mg/kg |
| | Chromium | 39.50000 | | mg/kg |
| | Cobalt | 11.10000 | | mg/kg |
| | Copper | 44.30000 | | mg/kg |
| | Iron | 34,000.00000 | | mg/kg |
| | Lead | 735.00000 | | mg/kg |
| | Magnesium | 5,020.00000 | | mg/kg |
| | Manganese | 341.00000 | | mg/kg |
| | Nickel | 24.80000 | | mg/kg |
| | Potassium | 6,670.00000 | | mg/kg |
| | Selenium | 1.70000 | J | mg/kg |
| | Vanadium | 47.60000 | | mg/kg |
| | Zinc | 111.00000 | | mg/kg |
| **3B-S500 EL01** | | | | |
| | Aluminum | 18,300.00000 | | mg/kg |
| | Antimony | 8.90000 | Jv | mg/kg |
| | Arsenic | 20.20000 | | mg/kg |
| | Barium | 96.70000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Calcium | 33,500.00000 | J | mg/kg |
| | Chromium | 35.00000 | | mg/kg |
| | Cobalt | 14.80000 | | mg/kg |
| | Copper | 40.70000 | | mg/kg |
| | Iron | 34,300.00000 | J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024585

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Lead | 363.00000 | | mg/kg |
| | Magnesium | 3,510.00000 | | mg/kg |
| | Manganese | 556.00000 | Jv | mg/kg |
| | Nickel | 29.10000 | | mg/kg |
| | Potassium | 4,010.00000 | | mg/kg |
| | Silver | 1.50000 | | mg/kg |
| | Sodium | 207.00000 | | mg/kg |
| | Vanadium | 46.20000 | | mg/kg |
| | Zinc | 95.00000 | | mg/kg |
| **3B-S501 EL01** | | | | |
| | Aluminum | 19,800.00000 | | mg/kg |
| | Arsenic | 12.70000 | | mg/kg |
| | Barium | 97.30000 | | mg/kg |
| | Beryllium | 1.50000 | | mg/kg |
| | Calcium | 43,600.00000 | J | mg/kg |
| | Chromium | 30.00000 | | mg/kg |
| | Cobalt | 11.00000 | | mg/kg |
| | Copper | 286.00000 | | mg/kg |
| | Iron | 28,400.00000 | J | mg/kg |
| | Lead | 141.00000 | | mg/kg |
| | Magnesium | 3,850.00000 | | mg/kg |
| | Manganese | 459.00000 | Jv | mg/kg |
| | Nickel | 29.60000 | | mg/kg |
| | Potassium | 4,490.00000 | | mg/kg |
| | Sodium | 143.00000 | ^J | mg/kg |
| | Vanadium | 53.30000 | | mg/kg |
| | Zinc | 95.00000 | | mg/kg |
| **3B-S502 EL01** | | | | |
| | Aluminum | 25,400.00000 | | mg/kg |
| | Antimony | 5.00000 | Jv | mg/kg |
| | Arsenic | 11.00000 | | mg/kg |
| | Barium | 120.00000 | | mg/kg |
| | Beryllium | 1.40000 | | mg/kg |
| | Calcium | 49,400.00000 | J | mg/kg |
| | Chromium | 33.60000 | | mg/kg |
| | Cobalt | 10.70000 | | mg/kg |
| | Copper | 26.70000 | | mg/kg |
| | Iron | 29,300.00000 | J | mg/kg |
| | Lead | 59.00000 | | mg/kg |
| | Magnesium | 4,310.00000 | | mg/kg |
| | Manganese | 486.00000 | Jv | mg/kg |
| | Nickel | 34.10000 | | mg/kg |
| | Potassium | 4,340.00000 | | mg/kg |
| | Vanadium | 67.20000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024586

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Zinc | 75.40000 | | mg/kg |
| 3C-S010 SL01 | | | | |
| | Aluminum | 24,200.00000 | | mg/kg |
| | Antimony | 0.85000 | Jv | mg/kg |
| | Arsenic | 10.90000 | | mg/kg |
| | Barium | 103.00000 | | mg/kg |
| | Beryllium | 1.40000 | | mg/kg |
| | Cadmium | 1.30000 | | mg/kg |
| | Calcium | 53,300.00000 | J | mg/kg |
| | Chromium | 34.60000 | | mg/kg |
| | Cobalt | 12.70000 | J- | mg/kg |
| | Copper | 24.40000 | | mg/kg |
| | Iron | 27,100.00000 | | mg/kg |
| | Lead | 171.00000 | | mg/kg |
| | Magnesium | 4,280.00000 | | mg/kg |
| | Manganese | 495.00000 | | mg/kg |
| | Nickel | 33.40000 | | mg/kg |
| | Potassium | 4,430.00000 | | mg/kg |
| | Selenium | 1.30000 | J | mg/kg |
| | Vanadium | 65.00000 | | mg/kg |
| | Zinc | 81.10000 | | mg/kg |
| 3C-S020 SL01 | | | | |
| | Aluminum | 22,300.00000 | | mg/kg |
| | Antimony | 0.79000 | Jv | mg/kg |
| | Arsenic | 11.50000 | | mg/kg |
| | Barium | 130.00000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Cadmium | 8.40000 | | mg/kg |
| | Calcium | 55,700.00000 | J | mg/kg |
| | Chromium | 45.80000 | | mg/kg |
| | Cobalt | 11.20000 | J- | mg/kg |
| | Copper | 69.90000 | | mg/kg |
| | Iron | 31,800.00000 | | mg/kg |
| | Lead | 328.00000 | | mg/kg |
| | Magnesium | 4,020.00000 | | mg/kg |
| | Manganese | 585.00000 | | mg/kg |
| | Nickel | 43.50000 | | mg/kg |
| | Potassium | 5,310.00000 | | mg/kg |
| | Selenium | 2.00000 | | mg/kg |
| | Silver | 0.36000 | | mg/kg |
| | Sodium | 113.00000 | Jv | mg/kg |
| | Vanadium | 56.10000 | | mg/kg |
| | Zinc | 280.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024587

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| **3C-S027 SL01** | | | | |
| | Aluminum | 11,900.00000 | | mg/kg |
| | Arsenic | 6.00000 | Jv | mg/kg |
| | Barium | 80.90000 | | mg/kg |
| | Beryllium | 0.67000 | | mg/kg |
| | Calcium | 37,400.00000 | | mg/kg |
| | Chromium | 17.90000 | | mg/kg |
| | Cobalt | 8.80000 | | mg/kg |
| | Copper | 21.00000 | | mg/kg |
| | Iron | 15,900.00000 | | mg/kg |
| | Lead | 56.20000 | J | mg/kg |
| | Magnesium | 2,480.00000 | | mg/kg |
| | Manganese | 390.00000 | | mg/kg |
| | Nickel | 22.00000 | | mg/kg |
| | Potassium | 2,610.00000 | | mg/kg |
| | Sodium | 64.10000 | | mg/kg |
| | Vanadium | 36.10000 | | mg/kg |
| | Zinc | 78.30000 | | mg/kg |
| **3C-S030 SL01** | | | | |
| | Aluminum | 20,700.00000 | | mg/kg |
| | Antimony | 1.00000 | Jv | mg/kg |
| | Arsenic | 11.30000 | | mg/kg |
| | Barium | 103.00000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Cadmium | 1.30000 | | mg/kg |
| | Calcium | 58,000.00000 | J | mg/kg |
| | Chromium | 29.00000 | | mg/kg |
| | Cobalt | 12.30000 | J | mg/kg |
| | Copper | 25.00000 | | mg/kg |
| | Iron | 25,000.00000 | | mg/kg |
| | Lead | 87.40000 | | mg/kg |
| | Magnesium | 3,730.00000 | | mg/kg |
| | Manganese | 516.00000 | | mg/kg |
| | Nickel | 32.00000 | | mg/kg |
| | Potassium | 3,910.00000 | | mg/kg |
| | Vanadium | 57.40000 | | mg/kg |
| | Zinc | 79.40000 | | mg/kg |
| **3C-S038 SL01** | | | | |
| | Aluminum | 24,400.00000 | | mg/kg |
| | Antimony | 19.00000 | Jv | mg/kg |
| | Arsenic | 9.30000 | Jv | mg/kg |
| | Barium | 114.00000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024588

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Calcium | 41,700.00000 | | mg/kg |
| | Chromium | 34.40000 | | mg/kg |
| | Cobalt | 12.40000 | | mg/kg |
| | Copper | 27.60000 | | mg/kg |
| | Iron | 26,200.00000 | | mg/kg |
| | Lead | 89.50000 | J | mg/kg |
| | Magnesium | 4,000.00000 | | mg/kg |
| | Manganese | 520.00000 | | mg/kg |
| | Nickel | 35.90000 | | mg/kg |
| | Potassium | 4,740.00000 | | mg/kg |
| | Selenium | 0.37000 | | mg/kg |
| | Sodium | 95.30000 | | mg/kg |
| | Vanadium | 65.60000 | | mg/kg |
| | Zinc | 95.10000 | | mg/kg |
| 3C-S040 SL01 | | | | |
| | Aluminum | 20,700.00000 | | mg/kg |
| | Arsenic | 8.30000 | | mg/kg |
| | Barium | 93.90000 | | mg/kg |
| | Beryllium | 1.05000 | | mg/kg |
| | Calcium | 49,900.00000 | J | mg/kg |
| | Chromium | 28.95000 | | mg/kg |
| | Cobalt | 10.90000 | | mg/kg |
| | Copper | 21.45000 | | mg/kg |
| | Iron | 25,050.00000 | J | mg/kg |
| | Lead | 34.60000 | | mg/kg |
| | Magnesium | 3,710.00000 | | mg/kg |
| | Manganese | 449.00000 | | mg/kg |
| | Nickel | 28.80000 | | mg/kg |
| | Potassium | 5,845.00000 | | mg/kg |
| | Selenium | 1.35000 | J | mg/kg |
| | Sodium | 270.00000 | J | mg/kg |
| | Vanadium | 57.10000 | | mg/kg |
| | Zinc | 70.50000 | | mg/kg |
| 3C-S050 SL01 | | | | |
| | Aluminum | 18,300.00000 | | mg/kg |
| | Arsenic | 7.80000 | | mg/kg |
| | Barium | 109.00000 | | mg/kg |
| | Beryllium | 0.96000 | | mg/kg |
| | Calcium | 44,200.00000 | J | mg/kg |
| | Chromium | 25.10000 | | mg/kg |
| | Cobalt | 9.30000 | | mg/kg |
| | Copper | 20.60000 | | mg/kg |
| | Iron | 22,100.00000 | J | mg/kg |
| | Lead | 104.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024589

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Magnesium | 3,500.00000 | | mg/kg |
| | Manganese | 437.00000 | | mg/kg |
| | Nickel | 24.20000 | | mg/kg |
| | Potassium | 4,560.00000 | | mg/kg |
| | Selenium | 2.00000 | | mg/kg |
| | Sodium | 352.00000 | J | mg/kg |
| | Vanadium | 51.20000 | | mg/kg |
| | Zinc | 78.80000 | | mg/kg |
| 3C-S060 SL01 | | | | |
| | Aluminum | 14,400.00000 | | mg/kg |
| | Arsenic | 8.10000 | | mg/kg |
| | Barium | 97.80000 | | mg/kg |
| | Beryllium | 0.94000 | | mg/kg |
| | Calcium | 46,400.00000 | J | mg/kg |
| | Chromium | 21.80000 | | mg/kg |
| | Cobalt | 10.70000 | | mg/kg |
| | Copper | 19.10000 | | mg/kg |
| | Iron | 23,200.00000 | J | mg/kg |
| | Lead | 40.90000 | | mg/kg |
| | Magnesium | 3,270.00000 | | mg/kg |
| | Manganese | 500.00000 | | mg/kg |
| | Nickel | 24.30000 | | mg/kg |
| | Potassium | 4,990.00000 | | mg/kg |
| | Selenium | 1.60000 | J | mg/kg |
| | Vanadium | 44.10000 | | mg/kg |
| | Zinc | 76.30000 | | mg/kg |
| 3C-S070 SL01 | | | | |
| | Aluminum | 24,500.00000 | | mg/kg |
| | Antimony | 0.52000 | | mg/kg |
| | Arsenic | 9.60000 | | mg/kg |
| | Barium | 117.00000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Calcium | 47,700.00000 | J | mg/kg |
| | Chromium | 32.20000 | | mg/kg |
| | Cobalt | 11.30000 | | mg/kg |
| | Copper | 20.70000 | | mg/kg |
| | Iron | 27,900.00000 | J | mg/kg |
| | Lead | 63.00000 | | mg/kg |
| | Magnesium | 4,200.00000 | | mg/kg |
| | Manganese | 463.00000 | | mg/kg |
| | Nickel | 28.90000 | | mg/kg |
| | Potassium | 5,890.00000 | | mg/kg |
| | Selenium | 1.40000 | J | mg/kg |
| | Vanadium | 60.80000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024590

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Zinc | 72.10000 | | mg/kg |
| 3C-S079 SL01 | | | | |
| | Aluminum | 24,800.00000 | | mg/kg |
| | Antimony | 2.40000 | | mg/kg |
| | Arsenic | 12.30000 | | mg/kg |
| | Barium | 133.00000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Cadmium | 0.15000 | | mg/kg |
| | Calcium | 46,200.00000 | J | mg/kg |
| | Chromium | 38.20000 | | mg/kg |
| | Cobalt | 10.50000 | | mg/kg |
| | Copper | 36.80000 | | mg/kg |
| | Iron | 28,400.00000 | J | mg/kg |
| | Lead | 415.00000 | | mg/kg |
| | Magnesium | 4,240.00000 | | mg/kg |
| | Manganese | 460.00000 | | mg/kg |
| | Nickel | 27.10000 | | mg/kg |
| | Potassium | 6,420.00000 | | mg/kg |
| | Selenium | 1.80000 | | mg/kg |
| | Vanadium | 56.50000 | | mg/kg |
| | Zinc | 187.00000 | | mg/kg |
| 3C-S084 SL01 | | | | |
| | Aluminum | 18,300.00000 | | mg/kg |
| | Antimony | 4.80000 | | mg/kg |
| | Arsenic | 11.50000 | | mg/kg |
| | Barium | 120.00000 | | mg/kg |
| | Beryllium | 1.00000 | | mg/kg |
| | Cadmium | 0.29000 | | mg/kg |
| | Calcium | 42,300.00000 | J | mg/kg |
| | Chromium | 28.40000 | | mg/kg |
| | Cobalt | 9.70000 | | mg/kg |
| | Copper | 31.10000 | | mg/kg |
| | Iron | 27,100.00000 | J | mg/kg |
| | Lead | 2,110.00000 | | mg/kg |
| | Magnesium | 3,010.00000 | | mg/kg |
| | Manganese | 434.00000 | | mg/kg |
| | Nickel | 24.00000 | | mg/kg |
| | Potassium | 5,190.00000 | | mg/kg |
| | Selenium | 2.30000 | J | mg/kg |
| | Vanadium | 50.50000 | | mg/kg |
| | Zinc | 183.00000 | | mg/kg |
| 3C-S086 SL01 | | | | |

* *Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024591

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Aluminum | 23,800.00000 | | mg/kg |
| | Arsenic | 8.50000 | Jv | mg/kg |
| | Barium | 106.00000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Calcium | 43,500.00000 | | mg/kg |
| | Chromium | 33.30000 | | mg/kg |
| | Cobalt | 12.10000 | | mg/kg |
| | Copper | 30.90000 | | mg/kg |
| | Iron | 26,700.00000 | | mg/kg |
| | Lead | 17.70000 | J | mg/kg |
| | Magnesium | 4,380.00000 | | mg/kg |
| | Manganese | 464.00000 | | mg/kg |
| | Nickel | 38.70000 | | mg/kg |
| | Potassium | 4,930.00000 | | mg/kg |
| | Selenium | 0.76000 | | mg/kg |
| | Sodium | 69.20000 | | mg/kg |
| | Vanadium | 66.70000 | | mg/kg |
| | Zinc | 99.30000 | | mg/kg |
| **3C-S090 SL01** | | | | |
| | Aluminum | 16,900.00000 | | mg/kg |
| | Arsenic | 8.90000 | | mg/kg |
| | Barium | 107.00000 | | mg/kg |
| | Beryllium | 1.00000 | | mg/kg |
| | Calcium | 46,800.00000 | J | mg/kg |
| | Chromium | 23.90000 | | mg/kg |
| | Cobalt | 10.90000 | | mg/kg |
| | Copper | 19.70000 | | mg/kg |
| | Iron | 24,700.00000 | J | mg/kg |
| | Lead | 48.70000 | | mg/kg |
| | Magnesium | 3,270.00000 | | mg/kg |
| | Manganese | 479.00000 | | mg/kg |
| | Nickel | 26.40000 | | mg/kg |
| | Potassium | 4,620.00000 | | mg/kg |
| | Vanadium | 48.00000 | | mg/kg |
| | Zinc | 68.50000 | | mg/kg |
| **3C-S092 SL01** | | | | |
| | Aluminum | 22,100.00000 | | mg/kg |
| | Arsenic | 8.10000 | Jv | mg/kg |
| | Barium | 112.00000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Calcium | 52,300.00000 | | mg/kg |
| | Chromium | 31.20000 | | mg/kg |
| | Cobalt | 11.90000 | | mg/kg |
| | Copper | 28.10000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024591.001

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Iron | 26,100.00000 | | mg/kg |
| | Lead | 50.20000 | J | mg/kg |
| | Magnesium | 3,950.00000 | | mg/kg |
| | Manganese | 496.00000 | | mg/kg |
| | Nickel | 35.10000 | | mg/kg |
| | Potassium | 4,720.00000 | | mg/kg |
| | Selenium | 0.40000 | | mg/kg |
| | Sodium | 80.90000 | | mg/kg |
| | Vanadium | 58.90000 | | mg/kg |
| | Zinc | 91.70000 | | mg/kg |
| **3C-S100 SL01** | | | | |
| | Aluminum | 28,600.00000 | | mg/kg |
| | Arsenic | 9.80000 | | mg/kg |
| | Barium | 123.00000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Cadmium | 0.53000 | | mg/kg |
| | Calcium | 49,000.00000 | J | mg/kg |
| | Chromium | 39.20000 | | mg/kg |
| | Cobalt | 11.90000 | | mg/kg |
| | Copper | 25.40000 | | mg/kg |
| | Iron | 29,300.00000 | | mg/kg |
| | Lead | 74.00000 | | mg/kg |
| | Magnesium | 4,700.00000 | | mg/kg |
| | Manganese | 477.00000 | | mg/kg |
| | Nickel | 35.00000 | | mg/kg |
| | Potassium | 6,420.00000 | | mg/kg |
| | Vanadium | 71.50000 | | mg/kg |
| | Zinc | 78.70000 | | mg/kg |
| **3C-S109 SL01** | | | | |
| | Aluminum | 23,000.00000 | Jv | mg/kg |
| | Antimony | 13.30000 | | mg/kg |
| | Arsenic | 24.90000 | | mg/kg |
| | Barium | 934.00000 | | mg/kg |
| | Beryllium | 1.10000 | | mg/kg |
| | Cadmium | 4.20000 | | mg/kg |
| | Calcium | 40,400.00000 | J | mg/kg |
| | Chromium | 288.00000 | | mg/kg |
| | Cobalt | 15.70000 | | mg/kg |
| | Copper | 227.00000 | | mg/kg |
| | Iron | 56,300.00000 | | mg/kg |
| | Lead | 5,170.00000 | | mg/kg |
| | Magnesium | 4,470.00000 | | mg/kg |
| | Manganese | 1,060.00000 | | mg/kg |
| | Mercury | 0.24000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024592

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Nickel | 162.00000 | | mg/kg |
| | Potassium | 5,610.00000 | | mg/kg |
| | Selenium | 2.90000 | | mg/kg |
| | Sodium | 488.00000 | ^J | mg/kg |
| | Vanadium | 53.70000 | | mg/kg |
| | Zinc | 796.00000 | | mg/kg |
| **3C-S113 SL01** | | | | |
| | Aluminum | 11,100.00000 | | mg/kg |
| | Antimony | 22.70000 | Jv | mg/kg |
| | Arsenic | 19.20000 | | mg/kg |
| | Barium | 93.50000 | | mg/kg |
| | Beryllium | 0.56000 | | mg/kg |
| | Cadmium | 1.20000 | | mg/kg |
| | Calcium | 81,600.00000 | J | mg/kg |
| | Chromium | 20.70000 | | mg/kg |
| | Cobalt | 7.40000 | | mg/kg |
| | Copper | 53.30000 | | mg/kg |
| | Iron | 20,900.00000 | | mg/kg |
| | Lead | 1,560.00000 | | mg/kg |
| | Magnesium | 2,550.00000 | | mg/kg |
| | Manganese | 450.00000 | | mg/kg |
| | Mercury | 0.16000 | | mg/kg |
| | Nickel | 21.60000 | | mg/kg |
| | Potassium | 3,670.00000 | | mg/kg |
| | Selenium | 1.40000 | | mg/kg |
| | Sodium | 489.00000 | | mg/kg |
| | Vanadium | 33.60000 | | mg/kg |
| | Zinc | 173.00000 | | mg/kg |
| **3C-S500 EL01** | | | | |
| | Aluminum | 14,100.00000 | | mg/kg |
| | Arsenic | 8.50000 | | mg/kg |
| | Barium | 95.70000 | | mg/kg |
| | Calcium | 51,300.00000 | | mg/kg |
| | Chromium | 22.70000 | | mg/kg |
| | Cobalt | 10.90000 | | mg/kg |
| | Copper | 20.40000 | J^ | mg/kg |
| | Iron | 22,800.00000 | | mg/kg |
| | Lead | 67.30000 | | mg/kg |
| | Magnesium | 2,940.00000 | | mg/kg |
| | Manganese | 469.00000 | | mg/kg |
| | Nickel | 28.30000 | | mg/kg |
| | Potassium | 3,020.00000 | | mg/kg |
| | Sodium | 134.00000 | J^ | mg/kg |
| | Vanadium | 44.70000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024593

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Zinc | 72.90000 | J | mg/kg |
| 3C-S501 EL01 | | | | |
| | Aluminum | 15,400.00000 | | mg/kg |
| | Antimony | 6.40000 | Jv | mg/kg |
| | Arsenic | 9.90000 | | mg/kg |
| | Barium | 101.00000 | | mg/kg |
| | Calcium | 42,700.00000 | | mg/kg |
| | Chromium | 26.80000 | Jv | mg/kg |
| | Cobalt | 10.90000 | | mg/kg |
| | Copper | 21.50000 | J | mg/kg |
| | Iron | 24,000.00000 | | mg/kg |
| | Lead | 50.30000 | Jv | mg/kg |
| | Magnesium | 3,290.00000 | | mg/kg |
| | Manganese | 434.00000 | J | mg/kg |
| | Nickel | 31.00000 | | mg/kg |
| | Potassium | 3,500.00000 | | mg/kg |
| | Vanadium | 49.00000 | | mg/kg |
| | Zinc | 73.80000 | J | mg/kg |
| 3C-S502 EL01 | | | | |
| | Aluminum | 13,400.00000 | | mg/kg |
| | Antimony | 7.50000 | Jv | mg/kg |
| | Arsenic | 11.40000 | | mg/kg |
| | Barium | 121.00000 | | mg/kg |
| | Calcium | 40,900.00000 | | mg/kg |
| | Chromium | 28.90000 | Jv | mg/kg |
| | Cobalt | 10.90000 | | mg/kg |
| | Copper | 45.70000 | J | mg/kg |
| | Iron | 32,700.00000 | | mg/kg |
| | Lead | 361.00000 | Jv | mg/kg |
| | Magnesium | 3,040.00000 | | mg/kg |
| | Manganese | 503.00000 | J | mg/kg |
| | Mercury | 0.10000 | J | mg/kg |
| | Nickel | 36.50000 | | mg/kg |
| | Potassium | 2,960.00000 | | mg/kg |
| | Vanadium | 43.40000 | | mg/kg |
| | Zinc | 198.00000 | J | mg/kg |
| 3C-S503 EL01 | | | | |
| | Aluminum | 12,100.00000 | | mg/kg |
| | Antimony | 5.90000 | Jv | mg/kg |
| | Arsenic | 8.40000 | | mg/kg |
| | Barium | 91.30000 | | mg/kg |
| | Calcium | 47,700.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024594

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Chromium | 26.00000 | Jv | mg/kg |
| | Cobalt | 10.50000 | | mg/kg |
| | Copper | 19.80000 | J | mg/kg |
| | Iron | 21,600.00000 | | mg/kg |
| | Lead | 44.70000 | Jv | mg/kg |
| | Magnesium | 2,680.00000 | | mg/kg |
| | Manganese | 466.00000 | J | mg/kg |
| | Mercury | 0.08000 | J | mg/kg |
| | Nickel | 28.00000 | | mg/kg |
| | Potassium | 2,810.00000 | | mg/kg |
| | Thallium | 0.49000 | | mg/kg |
| | Vanadium | 42.80000 | | mg/kg |
| | Zinc | 72.90000 | J | mg/kg |
| 3D-S004 SL01 | | | | |
| | Aluminum | 17,900.00000 | J | mg/kg |
| | Antimony | 3.20000 | J | mg/kg |
| | Arsenic | 10.00000 | J^ | mg/kg |
| | Barium | 93.80000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Cadmium | 1.20000 | J^ | mg/kg |
| | Calcium | 37,100.00000 | J | mg/kg |
| | Chromium | 30.90000 | Jv | mg/kg |
| | Cobalt | 11.50000 | | mg/kg |
| | Copper | 21.30000 | J | mg/kg |
| | Iron | 25,100.00000 | | mg/kg |
| | Lead | 1,380.00000 | J | mg/kg |
| | Magnesium | 3,450.00000 | J | mg/kg |
| | Manganese | 428.00000 | | mg/kg |
| | Nickel | 26.20000 | J^ | mg/kg |
| | Potassium | 5,170.00000 | J | mg/kg |
| | Vanadium | 48.70000 | | mg/kg |
| | Zinc | 147.00000 | J | mg/kg |
| 3D-S009 SL01 | | | | |
| | Aluminum | 12,300.00000 | | mg/kg |
| | Antimony | 1.80000 | Jv | mg/kg |
| | Arsenic | 7.70000 | | mg/kg |
| | Barium | 83.20000 | | mg/kg |
| | Beryllium | 0.82000 | | mg/kg |
| | Cadmium | 0.97000 | | mg/kg |
| | Calcium | 38,200.00000 | J | mg/kg |
| | Chromium | 27.30000 | | mg/kg |
| | Cobalt | 7.20000 | J^ | mg/kg |
| | Copper | 30.20000 | | mg/kg |
| | Iron | 15,100.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024595

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Lead | 784.00000 | | mg/kg |
| | Magnesium | 2,450.00000 | | mg/kg |
| | Manganese | 335.00000 | | mg/kg |
| | Nickel | 20.30000 | | mg/kg |
| | Potassium | 2,430.00000 | | mg/kg |
| | Selenium | 2.00000 | | mg/kg |
| | Vanadium | 36.10000 | | mg/kg |
| | Zinc | 82.60000 | | mg/kg |
| **3D-S017 SL01** | | | | |
| | Aluminum | 25,300.00000 | | mg/kg |
| | Antimony | 3.00000 | Jv | mg/kg |
| | Arsenic | 14.70000 | | mg/kg |
| | Barium | 123.00000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Cadmium | 3.10000 | | mg/kg |
| | Calcium | 36,800.00000 | J | mg/kg |
| | Chromium | 71.40000 | | mg/kg |
| | Cobalt | 11.20000 | J | mg/kg |
| | Copper | 38.50000 | | mg/kg |
| | Iron | 37,200.00000 | | mg/kg |
| | Lead | 3,420.00000 | | mg/kg |
| | Magnesium | 3,710.00000 | | mg/kg |
| | Manganese | 597.00000 | | mg/kg |
| | Nickel | 30.90000 | | mg/kg |
| | Potassium | 3,780.00000 | | mg/kg |
| | Selenium | 2.20000 | | mg/kg |
| | Vanadium | 58.60000 | | mg/kg |
| | Zinc | 317.00000 | | mg/kg |
| **3D-S028 SL01** | | | | |
| | Aluminum | 12,400.00000 | | mg/kg |
| | Antimony | 20.00000 | | mg/kg |
| | Arsenic | 14.60000 | | mg/kg |
| | Barium | 77.30000 | | mg/kg |
| | Beryllium | 0.57000 | | mg/kg |
| | Cadmium | 1.00000 | | mg/kg |
| | Calcium | 182,000.00000 | J | mg/kg |
| | Chromium | 25.00000 | | mg/kg |
| | Cobalt | 7.60000 | | mg/kg |
| | Copper | 31.40000 | | mg/kg |
| | Iron | 21,000.00000 | J | mg/kg |
| | Lead | 7,280.00000 | | mg/kg |
| | Magnesium | 3,820.00000 | | mg/kg |
| | Manganese | 633.00000 | | mg/kg |
| | Nickel | 35.20000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024596

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Potassium | 3,850.00000 | | mg/kg |
| | Vanadium | 40.50000 | | mg/kg |
| | Zinc | 134.00000 | | mg/kg |
| 3D-S029 SL01 | | | | |
| | Aluminum | 21,700.00000 | | mg/kg |
| | Antimony | 15.00000 | | mg/kg |
| | Arsenic | 14.00000 | | mg/kg |
| | Barium | 85.20000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Calcium | 57,200.00000 | J | mg/kg |
| | Chromium | 31.90000 | | mg/kg |
| | Cobalt | 10.60000 | | mg/kg |
| | Copper | 18.50000 | | mg/kg |
| | Iron | 29,200.00000 | | mg/kg |
| | Lead | 3,890.00000 | | mg/kg |
| | Magnesium | 3,770.00000 | | mg/kg |
| | Manganese | 491.00000 | | mg/kg |
| | Nickel | 25.60000 | | mg/kg |
| | Potassium | 5,580.00000 | | mg/kg |
| | Selenium | 1.60000 | J | mg/kg |
| | Vanadium | 55.70000 | | mg/kg |
| | Zinc | 64.40000 | | mg/kg |
| 3D-S032 SL01 | | | | |
| | Aluminum | 19,600.00000 | | mg/kg |
| | Arsenic | 10.20000 | | mg/kg |
| | Barium | 103.00000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Calcium | 40,100.00000 | | mg/kg |
| | Chromium | 28.50000 | | mg/kg |
| | Cobalt | 11.10000 | | mg/kg |
| | Copper | 23.50000 | | mg/kg |
| | Iron | 24,900.00000 | | mg/kg |
| | Lead | 42.00000 | | mg/kg |
| | Magnesium | 3,750.00000 | | mg/kg |
| | Manganese | 434.00000 | | mg/kg |
| | Nickel | 33.50000 | | mg/kg |
| | Potassium | 4,630.00000 | | mg/kg |
| | Vanadium | 59.90000 | | mg/kg |
| | Zinc | 96.00000 | | mg/kg |
| 3D-S036 SL01 | | | | |
| | Aluminum | 16,900.00000 | | mg/kg |
| | Antimony | 0.48000 | Jv | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024597

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Arsenic | 10.40000 | | mg/kg |
| | Barium | 103.00000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Calcium | 46,800.00000 | | mg/kg |
| | Chromium | 24.50000 | | mg/kg |
| | Cobalt | 11.90000 | | mg/kg |
| | Copper | 23.30000 | | mg/kg |
| | Iron | 25,200.00000 | | mg/kg |
| | Lead | 55.40000 | | mg/kg |
| | Magnesium | 3,430.00000 | | mg/kg |
| | Manganese | 486.00000 | | mg/kg |
| | Nickel | 35.50000 | | mg/kg |
| | Potassium | 4,010.00000 | | mg/kg |
| | Vanadium | 52.00000 | | mg/kg |
| | Zinc | 86.90000 | | mg/kg |
| 3D-S039 SL01 | | | | |
| | Aluminum | 22,700.00000 | | mg/kg |
| | Antimony | 16.50000 | | mg/kg |
| | Arsenic | 22.30000 | | mg/kg |
| | Barium | 202.00000 | | mg/kg |
| | Beryllium | 1.10000 | | mg/kg |
| | Cadmium | 1.80000 | | mg/kg |
| | Calcium | 54,800.00000 | J | mg/kg |
| | Chromium | 60.00000 | | mg/kg |
| | Cobalt | 11.00000 | | mg/kg |
| | Copper | 76.20000 | | mg/kg |
| | Iron | 33,400.00000 | J | mg/kg |
| | Lead | 1,070.00000 | | mg/kg |
| | Magnesium | 4,500.00000 | | mg/kg |
| | Manganese | 463.00000 | | mg/kg |
| | Nickel | 38.40000 | | mg/kg |
| | Potassium | 5,680.00000 | | mg/kg |
| | Selenium | 1.60000 | J | mg/kg |
| | Vanadium | 54.00000 | | mg/kg |
| | Zinc | 375.00000 | | mg/kg |
| 3D-S050 SL01 | | | | |
| | Aluminum | 25,600.00000 | | mg/kg |
| | Arsenic | 11.80000 | | mg/kg |
| | Barium | 91.20000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Calcium | 58,200.00000 | J | mg/kg |
| | Chromium | 37.40000 | | mg/kg |
| | Cobalt | 10.90000 | | mg/kg |
| | Copper | 18.50000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024598

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Iron | 32,300.00000 | J | mg/kg |
| | Lead | 99.10000 | | mg/kg |
| | Magnesium | 4,760.00000 | | mg/kg |
| | Manganese | 397.00000 | | mg/kg |
| | Nickel | 26.40000 | | mg/kg |
| | Potassium | 6,400.00000 | | mg/kg |
| | Vanadium | 60.20000 | | mg/kg |
| | Zinc | 78.90000 | | mg/kg |
| 3D-S056 SL01 | | | | |
| | Aluminum | 17,900.00000 | | mg/kg |
| | Antimony | 0.51000 | Jv | mg/kg |
| | Arsenic | 9.80000 | | mg/kg |
| | Barium | 105.00000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Calcium | 48,300.00000 | | mg/kg |
| | Chromium | 25.60000 | | mg/kg |
| | Cobalt | 11.70000 | | mg/kg |
| | Copper | 20.60000 | | mg/kg |
| | Iron | 24,600.00000 | | mg/kg |
| | Lead | 51.20000 | | mg/kg |
| | Magnesium | 3,590.00000 | | mg/kg |
| | Manganese | 487.00000 | | mg/kg |
| | Nickel | 33.10000 | | mg/kg |
| | Potassium | 4,220.00000 | | mg/kg |
| | Vanadium | 52.80000 | | mg/kg |
| | Zinc | 85.70000 | | mg/kg |
| 3D-S060 SL01 | | | | |
| | Aluminum | 25,600.00000 | | mg/kg |
| | Antimony | 2.30000 | | mg/kg |
| | Arsenic | 11.40000 | | mg/kg |
| | Barium | 111.00000 | | mg/kg |
| | Beryllium | 1.30000 | | mg/kg |
| | Calcium | 56,400.00000 | J | mg/kg |
| | Chromium | 41.30000 | | mg/kg |
| | Cobalt | 10.10000 | | mg/kg |
| | Copper | 29.40000 | | mg/kg |
| | Iron | 30,100.00000 | J | mg/kg |
| | Lead | 795.00000 | | mg/kg |
| | Magnesium | 4,460.00000 | | mg/kg |
| | Manganese | 456.00000 | | mg/kg |
| | Nickel | 32.80000 | | mg/kg |
| | Potassium | 6,490.00000 | | mg/kg |
| | Selenium | 1.40000 | | mg/kg |
| | Vanadium | 61.10000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024599

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Zinc | 129.00000 | | mg/kg |
| 3D-S067 SL01 | | | | |
| | Aluminum | 21,300.00000 | | mg/kg |
| | Arsenic | 10.10000 | | mg/kg |
| | Barium | 115.00000 | | mg/kg |
| | Beryllium | 1.40000 | | mg/kg |
| | Calcium | 51,500.00000 | | mg/kg |
| | Chromium | 29.60000 | | mg/kg |
| | Cobalt | 11.90000 | | mg/kg |
| | Copper | 22.40000 | | mg/kg |
| | Iron | 26,500.00000 | | mg/kg |
| | Lead | 26.70000 | | mg/kg |
| | Magnesium | 4,030.00000 | | mg/kg |
| | Manganese | 502.00000 | | mg/kg |
| | Nickel | 36.20000 | | mg/kg |
| | Potassium | 4,330.00000 | | mg/kg |
| | Vanadium | 59.70000 | | mg/kg |
| | Zinc | 76.00000 | | mg/kg |
| 3D-S070 SL01 | | | | |
| | Aluminum | 15,100.00000 | | mg/kg |
| | Antimony | 2.60000 | | mg/kg |
| | Arsenic | 7.40000 | | mg/kg |
| | Barium | 86.40000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Cadmium | 0.16000 | | mg/kg |
| | Calcium | 89,400.00000 | J | mg/kg |
| | Chromium | 23.20000 | | mg/kg |
| | Cobalt | 7.20000 | | mg/kg |
| | Copper | 16.60000 | | mg/kg |
| | Iron | 20,000.00000 | J | mg/kg |
| | Lead | 316.00000 | | mg/kg |
| | Magnesium | 5,110.00000 | | mg/kg |
| | Manganese | 423.00000 | | mg/kg |
| | Nickel | 18.30000 | | mg/kg |
| | Potassium | 4,890.00000 | | mg/kg |
| | Selenium | 1.30000 | J | mg/kg |
| | Vanadium | 40.20000 | | mg/kg |
| | Zinc | 103.00000 | | mg/kg |
| 3D-S073 SL01 | | | | |
| | Aluminum | 13,500.00000 | | mg/kg |
| | Antimony | 5.40000 | | mg/kg |
| | Arsenic | 10.20000 | | mg/kg |

* *Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024600

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Barium | 93.50000 | mg/kg |
| | Beryllium | 0.70000 | mg/kg |
| | Cadmium | 1.30000 | mg/kg |
| | Calcium | 66,500.00000 J | mg/kg |
| | Chromium | 22.00000 | mg/kg |
| | Cobalt | 11.00000 | mg/kg |
| | Copper | 16.50000 | mg/kg |
| | Iron | 19,600.00000 J | mg/kg |
| | Lead | 2,390.00000 | mg/kg |
| | Magnesium | 2,730.00000 | mg/kg |
| | Manganese | 612.00000 | mg/kg |
| | Nickel | 21.40000 | mg/kg |
| | Potassium | 3,580.00000 | mg/kg |
| | Vanadium | 37.20000 | mg/kg |
| | Zinc | 148.00000 | mg/kg |
| **3D-S080 SL01** | | | |
| | Aluminum | 22,600.00000 J | mg/kg |
| | Arsenic | 9.50000 | mg/kg |
| | Barium | 114.00000 | mg/kg |
| | Beryllium | 1.20000 | mg/kg |
| | Cadmium | 0.33000 | mg/kg |
| | Calcium | 51,100.00000 | mg/kg |
| | Chromium | 33.30000 | mg/kg |
| | Cobalt | 11.50000 | mg/kg |
| | Copper | 24.70000 | mg/kg |
| | Iron | 28,100.00000 | mg/kg |
| | Lead | 28.30000 | mg/kg |
| | Magnesium | 4,020.00000 | mg/kg |
| | Manganese | 428.00000 | mg/kg |
| | Mercury | 0.20000 | mg/kg |
| | Nickel | 34.60000 | mg/kg |
| | Potassium | 5,200.00000 | mg/kg |
| | Sodium | 319.00000 J | mg/kg |
| | Vanadium | 66.80000 | mg/kg |
| | Zinc | 75.30000 | mg/kg |
| **3D-S087 SL01** | | | |
| | Aluminum | 16,700.00000 | mg/kg |
| | Arsenic | 9.50000 | mg/kg |
| | Barium | 98.80000 | mg/kg |
| | Beryllium | 1.20000 | mg/kg |
| | Calcium | 45,200.00000 | mg/kg |
| | Chromium | 25.00000 | mg/kg |
| | Cobalt | 11.60000 | mg/kg |
| | Copper | 22.90000 | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024601

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Iron | 24,100.00000 | | mg/kg |
| | Lead | 47.30000 | | mg/kg |
| | Magnesium | 3,310.00000 | | mg/kg |
| | Manganese | 478.00000 | | mg/kg |
| | Nickel | 32.80000 | | mg/kg |
| | Potassium | 4,190.00000 | | mg/kg |
| | Thallium | 0.68000 | | mg/kg |
| | Vanadium | 52.00000 | | mg/kg |
| | Zinc | 91.30000 | | mg/kg |
| **3D-S090 SL01** | | | | |
| | Aluminum | 25,600.00000 | | mg/kg |
| | Arsenic | 10.60000 | | mg/kg |
| | Barium | 109.00000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Calcium | 46,500.00000 | J | mg/kg |
| | Chromium | 34.20000 | | mg/kg |
| | Cobalt | 11.30000 | | mg/kg |
| | Copper | 23.50000 | | mg/kg |
| | Iron | 28,200.00000 | J | mg/kg |
| | Lead | 64.80000 | | mg/kg |
| | Magnesium | 4,500.00000 | | mg/kg |
| | Manganese | 468.00000 | | mg/kg |
| | Nickel | 30.40000 | | mg/kg |
| | Potassium | 6,310.00000 | | mg/kg |
| | Selenium | 1.70000 | J | mg/kg |
| | Sodium | 304.00000 | J^ | mg/kg |
| | Vanadium | 68.30000 | | mg/kg |
| | Zinc | 85.70000 | | mg/kg |
| **3D-S092 SL01** | | | | |
| | Aluminum | 12,100.00000 | | mg/kg |
| | Antimony | 16.20000 | Jv | mg/kg |
| | Arsenic | 11.50000 | | mg/kg |
| | Barium | 96.40000 | | mg/kg |
| | Beryllium | 0.64000 | | mg/kg |
| | Cadmium | 0.70000 | | mg/kg |
| | Calcium | 111,000.00000 | J | mg/kg |
| | Chromium | 26.30000 | | mg/kg |
| | Cobalt | 7.40000 | | mg/kg |
| | Copper | 21.60000 | | mg/kg |
| | Iron | 19,900.00000 | | mg/kg |
| | Lead | 6,460.00000 | | mg/kg |
| | Magnesium | 3,040.00000 | | mg/kg |
| | Manganese | 629.00000 | | mg/kg |
| | Mercury | 0.16000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024602

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Nickel | 27.20000 | | mg/kg |
| | Potassium | 3,310.00000 | | mg/kg |
| | Selenium | 1.80000 | J | mg/kg |
| | Vanadium | 41.40000 | | mg/kg |
| | Zinc | 157.00000 | | mg/kg |
| 3D-S094 SL01 | | | | |
| | Aluminum | 8,770.00000 | | mg/kg |
| | Antimony | 228.00000 | Jv | mg/kg |
| | Arsenic | 41.90000 | | mg/kg |
| | Barium | 93.20000 | | mg/kg |
| | Beryllium | 0.47000 | | mg/kg |
| | Cadmium | 3.20000 | | mg/kg |
| | Calcium | 32,700.00000 | J | mg/kg |
| | Chromium | 22.00000 | | mg/kg |
| | Cobalt | 5.50000 | | mg/kg |
| | Copper | 96.70000 | | mg/kg |
| | Iron | 13,100.00000 | | mg/kg |
| | Lead | 43,300.00000 | | mg/kg |
| | Magnesium | 1,720.00000 | | mg/kg |
| | Manganese | 372.00000 | | mg/kg |
| | Mercury | 0.18000 | | mg/kg |
| | Nickel | 20.10000 | | mg/kg |
| | Potassium | 2,310.00000 | | mg/kg |
| | Selenium | 2.50000 | | mg/kg |
| | Vanadium | 25.60000 | | mg/kg |
| | Zinc | 153.00000 | | mg/kg |
| 3D-S106 SL01 | | | | |
| | Aluminum | 20,000.00000 | | mg/kg |
| | Antimony | 3.60000 | Jv | mg/kg |
| | Arsenic | 10.80000 | | mg/kg |
| | Barium | 95.20000 | | mg/kg |
| | Beryllium | 0.97000 | | mg/kg |
| | Cadmium | 1.50000 | | mg/kg |
| | Calcium | 60,200.00000 | J | mg/kg |
| | Chromium | 79.90000 | | mg/kg |
| | Cobalt | 10.90000 | | mg/kg |
| | Copper | 105.00000 | | mg/kg |
| | Iron | 30,900.00000 | | mg/kg |
| | Lead | 1,120.00000 | | mg/kg |
| | Magnesium | 3,250.00000 | | mg/kg |
| | Manganese | 596.00000 | | mg/kg |
| | Mercury | 0.16000 | | mg/kg |
| | Nickel | 44.20000 | | mg/kg |
| | Potassium | 4,770.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024603

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Selenium | 1.50000 | J | mg/kg |
| | Vanadium | 50.10000 | | mg/kg |
| | Zinc | 591.00000 | | mg/kg |
| 3D-S117 SL01 | | | | |
| | Aluminum | 2,735.00000 | | mg/kg |
| | Arsenic | 6.60000 | | mg/kg |
| | Barium | 43.15000 | | mg/kg |
| | Beryllium | 0.53000 | | mg/kg |
| | Cadmium | 0.88500 | | mg/kg |
| | Calcium | 222,000.00000 | | mg/kg |
| | Chromium | 8.55000 | | mg/kg |
| | Cobalt | 4.40000 | | mg/kg |
| | Copper | 12.55000 | | mg/kg |
| | Iron | 9,245.00000 | | mg/kg |
| | Lead | 637.00000 | J | mg/kg |
| | Magnesium | 1,830.00000 | | mg/kg |
| | Manganese | 372.00000 | Jv | mg/kg |
| | Nickel | 14.50000 | | mg/kg |
| | Potassium | 1,430.00000 | J | mg/kg |
| | Vanadium | 16.85000 | | mg/kg |
| | Zinc | 68.90000 | | mg/kg |
| 3D-S500 EL01 | | | | |
| | Aluminum | 13,900.00000 | | mg/kg |
| | Arsenic | 9.80000 | | mg/kg |
| | Barium | 94.80000 | | mg/kg |
| | Calcium | 44,300.00000 | | mg/kg |
| | Chromium | 28.10000 | | mg/kg |
| | Cobalt | 11.30000 | | mg/kg |
| | Copper | 38.50000 | | mg/kg |
| | Iron | 24,100.00000 | | mg/kg |
| | Lead | 53.90000 | | mg/kg |
| | Magnesium | 2,930.00000 | | mg/kg |
| | Manganese | 473.00000 | | mg/kg |
| | Mercury | 0.61000 | | mg/kg |
| | Nickel | 32.60000 | | mg/kg |
| | Potassium | 3,380.00000 | | mg/kg |
| | Sodium | 92.00000 | J | mg/kg |
| | Vanadium | 47.10000 | | mg/kg |
| | Zinc | 80.70000 | J | mg/kg |
| 3D-S501 EL01 | | | | |
| | Aluminum | 15,400.00000 | | mg/kg |
| | Antimony | 5.00000 | Jv | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024604

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Arsenic | 10.00000 | | mg/kg |
| | Barium | 99.30000 | | mg/kg |
| | Calcium | 45,600.00000 | | mg/kg |
| | Chromium | 23.60000 | Jv | mg/kg |
| | Cobalt | 11.50000 | | mg/kg |
| | Copper | 23.70000 | J | mg/kg |
| | Iron | 24,800.00000 | | mg/kg |
| | Lead | 151.00000 | Jv | mg/kg |
| | Magnesium | 3,030.00000 | | mg/kg |
| | Manganese | 473.00000 | J | mg/kg |
| | Nickel | 29.60000 | | mg/kg |
| | Potassium | 3,220.00000 | | mg/kg |
| | Vanadium | 50.90000 | | mg/kg |
| | Zinc | 88.00000 | J | mg/kg |
| **3D-S502 EL01** | | | | |
| | Aluminum | 15,800.00000 | | mg/kg |
| | Arsenic | 13.50000 | | mg/kg |
| | Barium | 80.40000 | | mg/kg |
| | Beryllium | 1.00000 | J^ | mg/kg |
| | Calcium | 50,600.00000 | | mg/kg |
| | Chromium | 27.10000 | | mg/kg |
| | Cobalt | 12.50000 | | mg/kg |
| | Copper | 52.20000 | | mg/kg |
| | Iron | 29,200.00000 | | mg/kg |
| | Lead | 149.00000 | | mg/kg |
| | Magnesium | 3,050.00000 | | mg/kg |
| | Manganese | 544.00000 | | mg/kg |
| | Nickel | 31.30000 | | mg/kg |
| | Potassium | 3,460.00000 | | mg/kg |
| | Silver | 1.00000 | | mg/kg |
| | Sodium | 160.00000 | | mg/kg |
| | Vanadium | 43.90000 | | mg/kg |
| | Zinc | 97.90000 | J | mg/kg |
| **3D-S503 EL01** | | | | |
| | Aluminum | 12,900.00000 | | mg/kg |
| | Arsenic | 9.50000 | | mg/kg |
| | Barium | 99.70000 | | mg/kg |
| | Calcium | 45,000.00000 | | mg/kg |
| | Chromium | 25.10000 | | mg/kg |
| | Cobalt | 10.60000 | | mg/kg |
| | Copper | 41.30000 | | mg/kg |
| | Iron | 22,300.00000 | | mg/kg |
| | Lead | 35.80000 | | mg/kg |
| | Magnesium | 2,880.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024605

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Manganese | 426.00000 | mg/kg |
| | Nickel | 29.20000 | mg/kg |
| | Potassium | 2,980.00000 | mg/kg |
| | Vanadium | 43.00000 | mg/kg |
| | Zinc | 89.70000 J | mg/kg |
| **3J-S500 EL01** | | | |
| | Aluminum | 18,650.00000 | mg/kg |
| | Arsenic | 5.75000 | mg/kg |
| | Barium | 93.10000 | mg/kg |
| | Beryllium | 1.15000 J^ | mg/kg |
| | Calcium | 10,450.00000 | mg/kg |
| | Chromium | 51.95000 | mg/kg |
| | Cobalt | 19.65000 | mg/kg |
| | Copper | 33.35000 J^ | mg/kg |
| | Iron | 45,950.00000 | mg/kg |
| | Lead | 36.30000 | mg/kg |
| | Magnesium | 4,335.00000 | mg/kg |
| | Manganese | 412.00000 | mg/kg |
| | Nickel | 35.85000 | mg/kg |
| | Potassium | 3,415.00000 | mg/kg |
| | Silver | 1.50000 | mg/kg |
| | Sodium | 141.00000 J^ | mg/kg |
| | Vanadium | 51.85000 | mg/kg |
| | Zinc | 88.75000 J | mg/kg |
| **3J-S501 EL01** | | | |
| | Aluminum | 22,000.00000 | mg/kg |
| | Antimony | 6.90000 Jv | mg/kg |
| | Arsenic | 6.10000 Jv | mg/kg |
| | Barium | 100.00000 | mg/kg |
| | Calcium | 9,690.00000 | mg/kg |
| | Chromium | 53.60000 Jv | mg/kg |
| | Cobalt | 17.60000 | mg/kg |
| | Copper | 25.40000 J | mg/kg |
| | Iron | 47,200.00000 | mg/kg |
| | Lead | 31.30000 Jv | mg/kg |
| | Magnesium | 4,520.00000 | mg/kg |
| | Manganese | 357.00000 J | mg/kg |
| | Nickel | 32.40000 | mg/kg |
| | Potassium | 3,700.00000 | mg/kg |
| | Vanadium | 59.30000 | mg/kg |
| | Zinc | 82.70000 J | mg/kg |
| **3J-S502 EL01** | | | |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024606

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Aluminum | 19,400.00000 | | mg/kg |
| | Antimony | 7.00000 | Jv | mg/kg |
| | Arsenic | 5.90000 | | mg/kg |
| | Barium | 70.30000 | | mg/kg |
| | Calcium | 8,670.00000 | | mg/kg |
| | Chromium | 54.10000 | Jv | mg/kg |
| | Cobalt | 16.50000 | | mg/kg |
| | Copper | 24.00000 | J | mg/kg |
| | Iron | 43,000.00000 | | mg/kg |
| | Lead | 16.50000 | Jv | mg/kg |
| | Magnesium | 5,360.00000 | | mg/kg |
| | Manganese | 274.00000 | J | mg/kg |
| | Nickel | 32.90000 | | mg/kg |
| | Potassium | 3,980.00000 | | mg/kg |
| | Sodium | 286.00000 | | mg/kg |
| | Vanadium | 46.50000 | | mg/kg |
| | Zinc | 87.60000 | J | mg/kg |
| **3K-S002 SL01** | | | | |
| | Aluminum | 9,180.00000 | | mg/kg |
| | Antimony | 25.60000 | Jv | mg/kg |
| | Arsenic | 48.80000 | | mg/kg |
| | Barium | 134.00000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Cadmium | 2.50000 | | mg/kg |
| | Calcium | 56,300.00000 | | mg/kg |
| | Chromium | 26.60000 | | mg/kg |
| | Cobalt | 13.60000 | | mg/kg |
| | Copper | 69.50000 | | mg/kg |
| | Iron | 30,400.00000 | | mg/kg |
| | Lead | 1,590.00000 | | mg/kg |
| | Magnesium | 3,100.00000 | | mg/kg |
| | Manganese | 517.00000 | Jv | mg/kg |
| | Nickel | 32.60000 | | mg/kg |
| | Potassium | 3,870.00000 | | mg/kg |
| | Vanadium | 37.30000 | | mg/kg |
| | Zinc | 177.00000 | | mg/kg |
| **3K-S005 SL01** | | | | |
| | Aluminum | 5,570.00000 | | mg/kg |
| | Antimony | 122.00000 | Jv | mg/kg |
| | Arsenic | 127.00000 | | mg/kg |
| | Barium | 232.00000 | | mg/kg |
| | Beryllium | 0.66000 | | mg/kg |
| | Cadmium | 5.80000 | | mg/kg |
| | Calcium | 108,000.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024607

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Chromium | 21.30000 | | mg/kg |
| | Cobalt | 7.60000 | | mg/kg |
| | Copper | 72.40000 | | mg/kg |
| | Iron | 21,600.00000 | | mg/kg |
| | Lead | 1,660.00000 | | mg/kg |
| | Magnesium | 3,350.00000 | | mg/kg |
| | Manganese | 333.00000 | Jv | mg/kg |
| | Nickel | 19.20000 | | mg/kg |
| | Potassium | 2,350.00000 | | mg/kg |
| | Vanadium | 20.40000 | | mg/kg |
| | Zinc | 346.00000 | | mg/kg |
| 3K-S014 SL01 | | | | |
| | Aluminum | 8,930.00000 | | mg/kg |
| | Antimony | 154.00000 | Jv | mg/kg |
| | Arsenic | 42.00000 | | mg/kg |
| | Barium | 140.00000 | | mg/kg |
| | Beryllium | 1.10000 | | mg/kg |
| | Cadmium | 3.50000 | | mg/kg |
| | Calcium | 20,200.00000 | | mg/kg |
| | Chromium | 29.00000 | | mg/kg |
| | Cobalt | 13.40000 | | mg/kg |
| | Copper | 50.40000 | | mg/kg |
| | Iron | 29,400.00000 | | mg/kg |
| | Lead | 71,500.00000 | | mg/kg |
| | Magnesium | 2,950.00000 | | mg/kg |
| | Manganese | 327.00000 | Jv | mg/kg |
| | Nickel | 27.50000 | | mg/kg |
| | Potassium | 3,470.00000 | | mg/kg |
| | Selenium | 1.30000 | | mg/kg |
| | Vanadium | 35.00000 | | mg/kg |
| | Zinc | 270.00000 | | mg/kg |
| 3K-S015 SL01 | | | | |
| | Aluminum | 10,000.00000 | | mg/kg |
| | Antimony | 25.00000 | Jv | mg/kg |
| | Arsenic | 27.60000 | | mg/kg |
| | Barium | 115.00000 | | mg/kg |
| | Beryllium | 1.40000 | | mg/kg |
| | Cadmium | 1.60000 | | mg/kg |
| | Calcium | 25,200.00000 | | mg/kg |
| | Chromium | 31.90000 | | mg/kg |
| | Cobalt | 19.80000 | | mg/kg |
| | Copper | 64.20000 | | mg/kg |
| | Iron | 30,400.00000 | | mg/kg |
| | Lead | 11,900.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024608

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Magnesium | 3,040.00000 | | mg/kg |
| | Manganese | 510.00000 | Jv | mg/kg |
| | Nickel | 36.80000 | | mg/kg |
| | Potassium | 3,790.00000 | | mg/kg |
| | Selenium | 1.70000 | J | mg/kg |
| | Vanadium | 42.50000 | | mg/kg |
| | Zinc | 301.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-2**
**Surface Soil TCL Organic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024609

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TCL PESTICIDES** | | |
| **3C-S500 EL01** | | | |
| | Aroclor-1254 | 0.28000 J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers. The sample collected from 3J-S500 did not show detections of TCL organics.*

024610

**Table 7.3-3**
**Surface Soil TCLP Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | | |
|---|---|---|---|---|
| | **TCLP INORGANICS** | | | |
| **3B-S003 SL01** | | | | |
| | Arsenic | 0.00480 | B | mg/L |
| | Barium | 0.58800 | | mg/L |
| | Cadmium | 0.00180 | B | mg/L |
| | Lead | 0.07980 | | mg/L |
| | Selenium | 0.00650 | B* | mg/L |
| | Silver | 0.00110 | J | mg/L |
| **3B-S021 SL01** | | | | |
| | Arsenic | 0.00320 | B | mg/L |
| | Barium | 0.78500 | | mg/L |
| | Cadmium | 0.00210 | B | mg/L |
| | Lead | 0.01960 | B | mg/L |
| | Selenium | 0.00980 | B | mg/L |
| **3B-S053 SL01** | | | | |
| | Arsenic | 0.01190 | B | mg/L |
| | Barium | 0.97200 | | mg/L |
| | Cadmium | 0.00390 | B | mg/L |
| | Lead | 0.15000 | | mg/L |
| | Selenium | 0.00520 | B* | mg/L |
| | Silver | 0.00074 | J | mg/L |
| **3C-S027 SL01** | | | | |
| | Barium | 0.24900 | | mg/L |
| **3C-S079 SL01** | | | | |
| | Barium | 1.32000 | | mg/L |
| | Cadmium | 0.00540 | | mg/L |
| | Lead | 0.30500 | | mg/L |
| | Selenium | 0.00820 | B* | mg/L |
| | Silver | 0.00100 | J | mg/L |
| **3C-S109 SL01** | | | | |
| | Arsenic | 0.00560 | B | mg/L |
| | Barium | 3.64000 | | mg/L |
| | Cadmium | 0.02950 | | mg/L |
| | Chromium | 0.00500 | B | mg/L |
| | Lead | 9.17000 | | mg/L |
| | Selenium | 0.00720 | B* | mg/L |
| | Silver | 0.00100 | J | mg/L |
| **3D-S017 SL01** | | | | |
| | Barium | 0.09110 | B | mg/L |
| | Lead | 0.03260 | | mg/L |
| | Selenium | 0.00900 | B* | mg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-3
Surface Soil TCLP Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024611

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Silver | 0.00190 J | mg/L |
| 3D-S056 SL01 | | | |
| | Barium | 1.35000 | mg/L |
| | Cadmium | 0.00250 B | mg/L |
| | Lead | 0.00760 B | mg/L |
| | Selenium | 0.00450 B | mg/L |
| 3D-S094 SL01 | | | |
| | Arsenic | 0.02100 B | mg/L |
| | Barium | 0.41700 | mg/L |
| | Cadmium | 0.02150 | mg/L |
| | Lead | 100.00000 | mg/L |
| | Selenium | 0.00600 B* | mg/L |
| | Silver | 0.00160 J | mg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-4**
**Soil Vapor Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024612

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|---|
| 3A-S001 UV01 | 10.0-10.0 | | | |
| | | Methane | 6,798.00000 | ppm |
| | | Vinyl Chloride | 4.40000 | ppm |
| 3A-S001 UV02 | 20.0-20.0 | | | |
| | | Methane | 15,666.00000 | ppm |
| 3A-S002 UV01 | 8.0- 8.0 | | | |
| | | Methane | 223,000.00000 | ppm |
| | | Vinyl Chloride | 4.00000 | ppm |
| 3A-S003 UV01 | 15.0-15.0 | | | |
| | | Methane | 232,000.00000 | ppm |
| | | Vinyl Chloride | 2.40000 | ppm |
| 3B-S024 UV01 | 12.0-12.0 | | | |
| | | Methane | 4,159.00000 | ppm |
| 3B-S024 UV02 | 20.0-20.0 | | | |
| | | Methane | 46,667.00000 | ppm |
| | | Vinyl Chloride | 5.00000 | ppm |
| 3B-S055 UV01 | 17.0-17.0 | | | |
| | | Chlorobenzene | 2.70000 | ppm |
| 3D-S073 UV01 | 20.0-20.0 | | | |
| | | Chlorobenzene | 2.40000 | ppm |
| | | Methane | 1.80000 | ppm |
| 3J-S001 UV01 | 10.0-10.0 | | | |
| | | Methane | 2.80000 | ppm |
| 3J-S001 UV02 | 20.0-20.0 | | | |
| | | Chlorobenzene | 6.70000 | ppm |
| | | Methane | 2.00000 | ppm |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024613

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | **TAL TOTAL INORGANICS** | | | |
| **3A-S001 UL02** | **66.0-67.0** | | | | |
| | | Aluminum | 16,100.00000 | J | mg/kg |
| | | Arsenic | 8.30000 | Jv | mg/kg |
| | | Barium | 54.70000 | J | mg/kg |
| | | Beryllium | 1.10000 | | mg/kg |
| | | Cadmium | 1.00000 | J | mg/kg |
| | | Calcium | 69,900.00000 | J | mg/kg |
| | | Chromium | 32.60000 | | mg/kg |
| | | Cobalt | 12.40000 | | mg/kg |
| | | Copper | 29.60000 | | mg/kg |
| | | Iron | 27,100.00000 | J | mg/kg |
| | | Lead | 18.10000 | | mg/kg |
| | | Magnesium | 3,540.00000 | J | mg/kg |
| | | Manganese | 386.00000 | J | mg/kg |
| | | Nickel | 31.80000 | | mg/kg |
| | | Potassium | 3,320.00000 | | mg/kg |
| | | Selenium | 0.46000 | Jv | mg/kg |
| | | Sodium | 1,310.00000 | | mg/kg |
| | | Thallium | 0.39000 | | mg/kg |
| | | Vanadium | 44.50000 | J | mg/kg |
| | | Zinc | 79.30000 | J | mg/kg |
| **3A-S005 UL01** | **6.0- 8.0** | | | | |
| | | Aluminum | 11,700.00000 | | mg/kg |
| | | Arsenic | 9.30000 | | mg/kg |
| | | Barium | 96.10000 | | mg/kg |
| | | Beryllium | 1.10000 | | mg/kg |
| | | Calcium | 77,100.00000 | | mg/kg |
| | | Chromium | 24.00000 | J^ | mg/kg |
| | | Cobalt | 11.20000 | | mg/kg |
| | | Copper | 19.80000 | | mg/kg |
| | | Iron | 25,200.00000 | | mg/kg |
| | | Lead | 57.20000 | | mg/kg |
| | | Magnesium | 4,290.00000 | | mg/kg |
| | | Manganese | 561.00000 | | mg/kg |
| | | Nickel | 28.30000 | | mg/kg |
| | | Potassium | 2,090.00000 | | mg/kg |
| | | Sodium | 1,830.00000 | | mg/kg |
| | | Thallium | 2.90000 | | mg/kg |
| | | Vanadium | 41.60000 | | mg/kg |
| | | Zinc | 62.90000 | | mg/kg |
| **3A-S006 UL02** | **26.0-28.0** | | | | |
| | | Aluminum | 22,000.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-5**
**Subsurface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024614

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|---|
| | | Arsenic | 2.30000 | Jv | mg/kg |
| | | Barium | 40.00000 | | mg/kg |
| | | Beryllium | 1.10000 | | mg/kg |
| | | Calcium | 8,720.00000 | | mg/kg |
| | | Chromium | 85.00000 | | mg/kg |
| | | Cobalt | 20.90000 | | mg/kg |
| | | Copper | 37.30000 | | mg/kg |
| | | Iron | 44,400.00000 | | mg/kg |
| | | Lead | 11.90000 | | mg/kg |
| | | Magnesium | 10,100.00000 | | mg/kg |
| | | Manganese | 237.00000 | | mg/kg |
| | | Nickel | 55.70000 | | mg/kg |
| | | Potassium | 4,650.00000 | | mg/kg |
| | | Sodium | 1,600.00000 | | mg/kg |
| | | Vanadium | 44.90000 | | mg/kg |
| | | Zinc | 95.40000 | | mg/kg |
| 3B-S003 UL01 | 19.0-20.0 | | | | |
| | | Aluminum | 14,600.00000 | | mg/kg |
| | | Arsenic | 8.00000 | | mg/kg |
| | | Barium | 131.00000 | | mg/kg |
| | | Beryllium | 1.20000 | LJ | mg/kg |
| | | Calcium | 63,600.00000 | | mg/kg |
| | | Chromium | 24.40000 | | mg/kg |
| | | Cobalt | 10.80000 | L | mg/kg |
| | | Copper | 18.40000 | | mg/kg |
| | | Iron | 25,300.00000 | | mg/kg |
| | | Lead | 12.80000 | | mg/kg |
| | | Magnesium | 2,930.00000 | | mg/kg |
| | | Manganese | 518.00000 | | mg/kg |
| | | Nickel | 27.50000 | | mg/kg |
| | | Potassium | 2,500.00000 | J | mg/kg |
| | | Selenium | 1.20000 | J | mg/kg |
| | | Sodium | 577.00000 | LJ | mg/kg |
| | | Vanadium | 45.30000 | | mg/kg |
| | | Zinc | 58.80000 | J | mg/kg |
| 3B-S003 UL03 | 39.0-41.0 | | | | |
| | | Aluminum | 13,700.00000 | | mg/kg |
| | | Arsenic | 9.00000 | | mg/kg |
| | | Barium | 100.00000 | | mg/kg |
| | | Beryllium | 1.20000 | LJ | mg/kg |
| | | Calcium | 65,800.00000 | | mg/kg |
| | | Chromium | 30.40000 | | mg/kg |
| | | Cobalt | 17.50000 | | mg/kg |
| | | Copper | 26.70000 | | mg/kg |
| | | Iron | 34,200.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024615

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Lead | 13.20000 | | mg/kg |
| | | Magnesium | 3,390.00000 | | mg/kg |
| | | Manganese | 680.00000 | | mg/kg |
| | | Nickel | 38.90000 | | mg/kg |
| | | Potassium | 2,890.00000 | J | mg/kg |
| | | Selenium | 2.20000 | J | mg/kg |
| | | Sodium | 1,550.00000 | J | mg/kg |
| | | Vanadium | 44.50000 | | mg/kg |
| | | Zinc | 81.60000 | J | mg/kg |
| 3B-S009 UL01 | 3.0- 6.0 | | | | |
| | | Aluminum | 21,050.00000 | | mg/kg |
| | | Antimony | 11.00000 | Jv | mg/kg |
| | | Arsenic | 9.70000 | Jv | mg/kg |
| | | Barium | 112.85000 | | mg/kg |
| | | Beryllium | 1.30000 | | mg/kg |
| | | Cadmium | 0.92000 | J | mg/kg |
| | | Calcium | 56,650.00000 | J | mg/kg |
| | | Chromium | 32.05000 | | mg/kg |
| | | Cobalt | 13.35000 | | mg/kg |
| | | Copper | 28.15000 | | mg/kg |
| | | Iron | 28,900.00000 | | mg/kg |
| | | Lead | 247.50000 | | mg/kg |
| | | Magnesium | 4,065.00000 | | mg/kg |
| | | Manganese | 425.50000 | J | mg/kg |
| | | Nickel | 33.20000 | | mg/kg |
| | | Potassium | 3,425.00000 | | mg/kg |
| | | Sodium | 632.50000 | | mg/kg |
| | | Thallium | 0.15000 | | mg/kg |
| | | Vanadium | 56.35000 | | mg/kg |
| | | Zinc | 78.15000 | | mg/kg |
| 3B-S041 UL02 | 45.0-47.0 | | | | |
| | | Aluminum | 11,600.00000 | | mg/kg |
| | | Arsenic | 7.80000 | | mg/kg |
| | | Barium | 67.20000 | | mg/kg |
| | | Beryllium | 1.10000 | LJ | mg/kg |
| | | Calcium | 56,300.00000 | | mg/kg |
| | | Chromium | 24.30000 | | mg/kg |
| | | Cobalt | 10.50000 | L | mg/kg |
| | | Copper | 22.60000 | | mg/kg |
| | | Iron | 28,500.00000 | | mg/kg |
| | | Lead | 12.10000 | | mg/kg |
| | | Magnesium | 3,040.00000 | | mg/kg |
| | | Manganese | 301.00000 | | mg/kg |
| | | Nickel | 31.40000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-5**
**Subsurface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024616

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Potassium | 2,350.00000 | J | mg/kg |
| | | Selenium | 2.20000 | | mg/kg |
| | | Sodium | 1,510.00000 | J | mg/kg |
| | | Vanadium | 37.10000 | | mg/kg |
| | | Zinc | 72.70000 | J | mg/kg |
| 3B-S047 UL01 | 0.0- 2.0 | | | | |
| | | Aluminum | 1,190.00000 | | mg/kg |
| | | Arsenic | 3.30000 | Jv | mg/kg |
| | | Barium | 37.90000 | | mg/kg |
| | | Beryllium | 0.21000 | | mg/kg |
| | | Cadmium | 0.18000 | | mg/kg |
| | | Calcium | 320,000.00000 | | mg/kg |
| | | Chromium | 8.60000 | | mg/kg |
| | | Cobalt | 2.70000 | | mg/kg |
| | | Copper | 2.00000 | | mg/kg |
| | | Iron | 7,060.00000 | | mg/kg |
| | | Lead | 7.00000 | | mg/kg |
| | | Magnesium | 2,070.00000 | | mg/kg |
| | | Manganese | 296.00000 | | mg/kg |
| | | Nickel | 7.60000 | | mg/kg |
| | | Potassium | 460.00000 | | mg/kg |
| | | Vanadium | 13.40000 | | mg/kg |
| | | Zinc | 14.10000 | | mg/kg |
| 3B-S056 UL01 | 0.0- 2.0 | | | | |
| | | Aluminum | 16,600.00000 | | mg/kg |
| | | Arsenic | 4.60000 | Jv | mg/kg |
| | | Barium | 90.10000 | | mg/kg |
| | | Beryllium | 0.94000 | | mg/kg |
| | | Calcium | 20,000.00000 | | mg/kg |
| | | Chromium | 35.20000 | | mg/kg |
| | | Cobalt | 32.60000 | | mg/kg |
| | | Copper | 21.10000 | | mg/kg |
| | | Iron | 30,500.00000 | | mg/kg |
| | | Lead | 116.00000 | | mg/kg |
| | | Magnesium | 3,950.00000 | | mg/kg |
| | | Manganese | 301.00000 | Jv | mg/kg |
| | | Nickel | 12,200.00000 | J | mg/kg |
| | | Potassium | 3,470.00000 | | mg/kg |
| | | Selenium | 2.90000 | | mg/kg |
| | | Sodium | 1,330.00000 | J^ | mg/kg |
| | | Vanadium | 34.90000 | | mg/kg |
| | | Zinc | 114.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-5**
**Subsurface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024617

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|---|
| **3B-S057 UL01** | **0.0- 2.0** | | | | |
| | | Aluminum | 12,100.00000 | | mg/kg |
| | | Antimony | 4.10000 | Jv | mg/kg |
| | | Arsenic | 10.30000 | | mg/kg |
| | | Barium | 111.00000 | | mg/kg |
| | | Beryllium | 1.10000 | | mg/kg |
| | | Calcium | 45,600.00000 | J | mg/kg |
| | | Chromium | 24.30000 | J^ | mg/kg |
| | | Cobalt | 12.90000 | | mg/kg |
| | | Copper | 28.00000 | | mg/kg |
| | | Iron | 34,500.00000 | | mg/kg |
| | | Lead | 68.10000 | | mg/kg |
| | | Magnesium | 2,980.00000 | | mg/kg |
| | | Manganese | 542.00000 | | mg/kg |
| | | Nickel | 28.30000 | | mg/kg |
| | | Potassium | 2,270.00000 | | mg/kg |
| | | Selenium | 1.10000 | | mg/kg |
| | | Sodium | 522.00000 | | mg/kg |
| | | Thallium | 2.30000 | | mg/kg |
| | | Vanadium | 39.50000 | | mg/kg |
| | | Zinc | 73.90000 | | mg/kg |
| **3C-S006 UL01** | **7.0- 8.0** | | | | |
| | | Aluminum | 9,700.00000 | | mg/kg |
| | | Arsenic | 6.50000 | Jv | mg/kg |
| | | Barium | 67.80000 | | mg/kg |
| | | Beryllium | 0.74000 | | mg/kg |
| | | Calcium | 61,000.00000 | J | mg/kg |
| | | Chromium | 14.80000 | | mg/kg |
| | | Cobalt | 10.00000 | | mg/kg |
| | | Copper | 16.20000 | | mg/kg |
| | | Iron | 20,400.00000 | | mg/kg |
| | | Lead | 13.70000 | J^ | mg/kg |
| | | Magnesium | 2,120.00000 | | mg/kg |
| | | Manganese | 532.00000 | J^ | mg/kg |
| | | Nickel | 19.70000 | | mg/kg |
| | | Potassium | 1,810.00000 | | mg/kg |
| | | Sodium | 208.00000 | | mg/kg |
| | | Vanadium | 33.90000 | | mg/kg |
| | | Zinc | 45.10000 | | mg/kg |
| **3C-S053 UL01** | **17.0-18.0** | | | | |
| | | Aluminum | 16,700.00000 | | mg/kg |
| | | Arsenic | 6.10000 | | mg/kg |
| | | Barium | 88.10000 | | mg/kg |
| | | Beryllium | 0.88000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024618

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Cadmium | 0.31000 | | mg/kg |
| | | Calcium | 59,200.00000 | J | mg/kg |
| | | Chromium | 28.00000 | | mg/kg |
| | | Cobalt | 9.50000 | | mg/kg |
| | | Copper | 19.20000 | | mg/kg |
| | | Iron | 20,700.00000 | | mg/kg |
| | | Lead | 19.00000 | | mg/kg |
| | | Magnesium | 3,030.00000 | | mg/kg |
| | | Manganese | 459.00000 | | mg/kg |
| | | Mercury | 0.12000 | J | mg/kg |
| | | Nickel | 26.00000 | | mg/kg |
| | | Potassium | 3,490.00000 | | mg/kg |
| | | Selenium | 1.80000 | | mg/kg |
| | | Sodium | 575.00000 | | mg/kg |
| | | Vanadium | 49.50000 | | mg/kg |
| | | Zinc | 50.90000 | | mg/kg |
| 3C-S084 UL01 | 0.0- 3.0 | | | | |
| | | Aluminum | 27,900.00000 | | mg/kg |
| | | Arsenic | 8.50000 | | mg/kg |
| | | Barium | 118.00000 | | mg/kg |
| | | Beryllium | 1.30000 | | mg/kg |
| | | Cadmium | 0.46000 | | mg/kg |
| | | Calcium | 50,400.00000 | J | mg/kg |
| | | Chromium | 38.80000 | | mg/kg |
| | | Cobalt | 10.70000 | | mg/kg |
| | | Copper | 26.80000 | | mg/kg |
| | | Iron | 29,300.00000 | | mg/kg |
| | | Lead | 64.20000 | | mg/kg |
| | | Magnesium | 4,570.00000 | | mg/kg |
| | | Manganese | 416.00000 | | mg/kg |
| | | Nickel | 35.20000 | | mg/kg |
| | | Potassium | 5,770.00000 | | mg/kg |
| | | Vanadium | 63.50000 | | mg/kg |
| | | Zinc | 77.60000 | | mg/kg |
| 3C-S084 UL03 | 29.0-30.0 | | | | |
| | | Aluminum | 16,300.00000 | | mg/kg |
| | | Arsenic | 9.00000 | | mg/kg |
| | | Barium | 92.80000 | | mg/kg |
| | | Beryllium | 1.20000 | J | mg/kg |
| | | Calcium | 58,100.00000 | | mg/kg |
| | | Chromium | 32.60000 | | mg/kg |
| | | Cobalt | 12.20000 | L | mg/kg |
| | | Copper | 18.10000 | | mg/kg |
| | | Iron | 31,300.00000 | | mg/kg |
| | | Lead | 13.60000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024619

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Magnesium | 3,600.00000 | | mg/kg |
| | | Manganese | 379.00000 | | mg/kg |
| | | Nickel | 27.90000 | | mg/kg |
| | | Potassium | 3,430.00000 | J | mg/kg |
| | | Selenium | 1.80000 | J | mg/kg |
| | | Sodium | 2,130.00000 | J | mg/kg |
| | | Vanadium | 43.00000 | | mg/kg |
| | | Zinc | 72.60000 | J | mg/kg |
| 3C-S116 UL01 | 6.0- 9.0 | | | | |
| | | Aluminum | 26,000.00000 | | mg/kg |
| | | Antimony | 4.50000 | Jv | mg/kg |
| | | Arsenic | 12.80000 | | mg/kg |
| | | Barium | 118.00000 | | mg/kg |
| | | Beryllium | 1.20000 | | mg/kg |
| | | Cadmium | 0.62000 | | mg/kg |
| | | Calcium | 59,000.00000 | J | mg/kg |
| | | Chromium | 36.40000 | | mg/kg |
| | | Cobalt | 10.20000 | | mg/kg |
| | | Copper | 33.30000 | | mg/kg |
| | | Iron | 28,400.00000 | | mg/kg |
| | | Lead | 320.00000 | | mg/kg |
| | | Magnesium | 4,090.00000 | | mg/kg |
| | | Manganese | 401.00000 | | mg/kg |
| | | Mercury | 0.13000 | | mg/kg |
| | | Nickel | 32.60000 | | mg/kg |
| | | Potassium | 4,640.00000 | | mg/kg |
| | | Selenium | 1.20000 | J | mg/kg |
| | | Vanadium | 64.70000 | | mg/kg |
| | | Zinc | 91.90000 | | mg/kg |
| 3C-S117 UL04 | 50.0-52.0 | | | | |
| | | Aluminum | 6,790.00000 | | mg/kg |
| | | Arsenic | 5.00000 | | mg/kg |
| | | Barium | 21.50000 | | mg/kg |
| | | Beryllium | 0.53000 | | mg/kg |
| | | Cadmium | 0.63000 | | mg/kg |
| | | Calcium | 51,800.00000 | | mg/kg |
| | | Chromium | 17.40000 | | mg/kg |
| | | Cobalt | 4.90000 | | mg/kg |
| | | Copper | 8.50000 | | mg/kg |
| | | Iron | 16,800.00000 | | mg/kg |
| | | Lead | 10.20000 | | mg/kg |
| | | Magnesium | 1,630.00000 | | mg/kg |
| | | Manganese | 233.00000 | J | mg/kg |
| | | Nickel | 15.20000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-5**
**Subsurface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024620

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|---|
| | | Potassium | 1,750.00000 | | mg/kg |
| | | Silver | 0.37000 | | mg/kg |
| | | Sodium | 731.00000 | | mg/kg |
| | | Vanadium | 22.20000 | | mg/kg |
| | | Zinc | 35.60000 | | mg/kg |
| 3D-S073 UL02 | 58.0-60.0 | | | | |
| | | Aluminum | 5,590.00000 | | mg/kg |
| | | Arsenic | 6.40000 | | mg/kg |
| | | Barium | 42.10000 | | mg/kg |
| | | Cadmium | 1.30000 | J^ | mg/kg |
| | | Calcium | 80,100.00000 | J | mg/kg |
| | | Chromium | 17.50000 | | mg/kg |
| | | Cobalt | 8.60000 | | mg/kg |
| | | Copper | 14.60000 | | mg/kg |
| | | Iron | 26,300.00000 | | mg/kg |
| | | Lead | 7.20000 | J^ | mg/kg |
| | | Magnesium | 2,420.00000 | | mg/kg |
| | | Manganese | 309.00000 | | mg/kg |
| | | Nickel | 24.50000 | | mg/kg |
| | | Potassium | 1,700.00000 | J | mg/kg |
| | | Selenium | 2.50000 | J^ | mg/kg |
| | | Sodium | 1,610.00000 | | mg/kg |
| | | Vanadium | 19.70000 | | mg/kg |
| | | Zinc | 60.20000 | | mg/kg |
| 3D-S107 UL01 | 0.0- 0.5 | | | | |
| | | Aluminum | 8,710.00000 | | mg/kg |
| | | Arsenic | 11.00000 | | mg/kg |
| | | Barium | 70.10000 | | mg/kg |
| | | Beryllium | 0.87000 | L | mg/kg |
| | | Cadmium | 0.66000 | L | mg/kg |
| | | Calcium | 58,800.00000 | | mg/kg |
| | | Chromium | 17.70000 | J | mg/kg |
| | | Cobalt | 9.30000 | L | mg/kg |
| | | Copper | 19.30000 | | mg/kg |
| | | Iron | 25,400.00000 | J | mg/kg |
| | | Lead | 302.00000 | | mg/kg |
| | | Magnesium | 1,990.00000 | | mg/kg |
| | | Manganese | 420.00000 | | mg/kg |
| | | Nickel | 22.10000 | | mg/kg |
| | | Potassium | 2,170.00000 | J | mg/kg |
| | | Selenium | 1.90000 | J | mg/kg |
| | | Sodium | 395.00000 | L | mg/kg |
| | | Thallium | 1.30000 | L | mg/kg |
| | | Vanadium | 33.40000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024621

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Zinc | 75.20000 | | mg/kg |
| 3D-S126 UL01 | 0.0- 2.0 | | | | |
| | | Aluminum | 25,900.00000 | | mg/kg |
| | | Arsenic | 7.50000 | | mg/kg |
| | | Barium | 116.00000 | | mg/kg |
| | | Beryllium | 1.40000 | | mg/kg |
| | | Calcium | 62,000.00000 | J | mg/kg |
| | | Chromium | 35.60000 | | mg/kg |
| | | Cobalt | 12.80000 | | mg/kg |
| | | Copper | 27.50000 | | mg/kg |
| | | Iron | 29,400.00000 | | mg/kg |
| | | Lead | 32.30000 | J^ | mg/kg |
| | | Magnesium | 4,360.00000 | | mg/kg |
| | | Manganese | 498.00000 | J^ | mg/kg |
| | | Nickel | 33.00000 | | mg/kg |
| | | Potassium | 4,030.00000 | | mg/kg |
| | | Sodium | 121.00000 | | mg/kg |
| | | Thallium | 0.22000 | | mg/kg |
| | | Vanadium | 64.00000 | | mg/kg |
| | | Zinc | 81.30000 | | mg/kg |
| 3D-S127 UL05 | 50.0-51.0 | | | | |
| | | Aluminum | 4,730.00000 | | mg/kg |
| | | Arsenic | 2.40000 | L | mg/kg |
| | | Barium | 25.00000 | L | mg/kg |
| | | Calcium | 71,000.00000 | | mg/kg |
| | | Chromium | 12.00000 | J | mg/kg |
| | | Cobalt | 5.60000 | L | mg/kg |
| | | Copper | 10.80000 | | mg/kg |
| | | Iron | 13,000.00000 | J | mg/kg |
| | | Lead | 5.90000 | | mg/kg |
| | | Magnesium | 1,640.00000 | | mg/kg |
| | | Manganese | 248.00000 | | mg/kg |
| | | Nickel | 15.50000 | | mg/kg |
| | | Potassium | 1,360.00000 | J | mg/kg |
| | | Sodium | 1,200.00000 | L | mg/kg |
| | | Vanadium | 19.70000 | | mg/kg |
| | | Zinc | 44.10000 | | mg/kg |
| 3J-S001 UL02 | 11.0-12.0 | | | | |
| | | Aluminum | 13,500.00000 | | mg/kg |
| | | Arsenic | 21.50000 | | mg/kg |
| | | Barium | 86.50000 | | mg/kg |
| | | Beryllium | 1.40000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.3-5**
**Subsurface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024622

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Calcium | 101,000.00000 | | mg/kg |
| | | Chromium | 27.10000 | | mg/kg |
| | | Cobalt | 15.50000 | | mg/kg |
| | | Copper | 17.00000 | | mg/kg |
| | | Iron | 43,000.00000 | | mg/kg |
| | | Lead | 15.20000 | | mg/kg |
| | | Magnesium | 3,310.00000 | | mg/kg |
| | | Manganese | 724.00000 | | mg/kg |
| | | Nickel | 36.10000 | | mg/kg |
| | | Potassium | 3,200.00000 | | mg/kg |
| | | Sodium | 1,490.00000 | | mg/kg |
| | | Vanadium | 52.60000 | | mg/kg |
| | | Zinc | 92.60000 | | mg/kg |
| 3J-S001 UL04 | 51.0-53.0 | | | | |
| | | Aluminum | 15,900.00000 | | mg/kg |
| | | Arsenic | 3.70000 | | mg/kg |
| | | Barium | 61.10000 | | mg/kg |
| | | Calcium | 18,700.00000 | | mg/kg |
| | | Chromium | 42.10000 | | mg/kg |
| | | Cobalt | 16.30000 | | mg/kg |
| | | Copper | 20.20000 | | mg/kg |
| | | Iron | 39,300.00000 | | mg/kg |
| | | Lead | 12.20000 | | mg/kg |
| | | Magnesium | 5,770.00000 | | mg/kg |
| | | Manganese | 180.00000 | | mg/kg |
| | | Nickel | 46.60000 | | mg/kg |
| | | Potassium | 4,320.00000 | J | mg/kg |
| | | Sodium | 3,610.00000 | J | mg/kg |
| | | Vanadium | 28.80000 | | mg/kg |
| | | Zinc | 86.40000 | | mg/kg |
| 3K-S002 UL01 | 0.0- 3.0 | | | | |
| | | Aluminum | 18,000.00000 | | mg/kg |
| | | Antimony | 2.90000 | | mg/kg |
| | | Arsenic | 8.30000 | | mg/kg |
| | | Barium | 95.60000 | | mg/kg |
| | | Beryllium | 1.50000 | | mg/kg |
| | | Calcium | 26,100.00000 | | mg/kg |
| | | Chromium | 46.10000 | | mg/kg |
| | | Cobalt | 19.60000 | | mg/kg |
| | | Copper | 32.30000 | | mg/kg |
| | | Iron | 39,500.00000 | | mg/kg |
| | | Lead | 145.00000 | | mg/kg |
| | | Magnesium | 5,980.00000 | | mg/kg |
| | | Manganese | 515.00000 | | mg/kg |
| | | Nickel | 36.20000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024623

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Potassium | 3,770.00000 | | mg/kg |
| | | Selenium | 0.78000 | | mg/kg |
| | | Sodium | 1,780.00000 | | mg/kg |
| | | Vanadium | 41.90000 | | mg/kg |
| | | Zinc | 97.10000 | | mg/kg |
| 3K-S016 UL01 | 51.0-52.0 | | | | |
| | | Aluminum | 16,100.00000 | | mg/kg |
| | | Antimony | 4.30000 | Jv | mg/kg |
| | | Arsenic | 8.40000 | | mg/kg |
| | | Barium | 117.00000 | | mg/kg |
| | | Beryllium | 1.30000 | | mg/kg |
| | | Calcium | 41,800.00000 | J | mg/kg |
| | | Chromium | 45.20000 | J^ | mg/kg |
| | | Cobalt | 18.90000 | | mg/kg |
| | | Copper | 33.90000 | | mg/kg |
| | | Iron | 50,000.00000 | | mg/kg |
| | | Lead | 82.60000 | | mg/kg |
| | | Magnesium | 5,230.00000 | | mg/kg |
| | | Manganese | 288.00000 | | mg/kg |
| | | Nickel | 48.60000 | | mg/kg |
| | | Potassium | 3,380.00000 | | mg/kg |
| | | Selenium | 1.20000 | | mg/kg |
| | | Sodium | 2,390.00000 | | mg/kg |
| | | Thallium | 2.70000 | | mg/kg |
| | | Vanadium | 38.80000 | | mg/kg |
| | | Zinc | 116.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

024624

Table 7.3-6
Subsurface Soil TCL Organic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|---|
| | | **TCL VOLATILES** | | |
| 3A-S001 UL02 | 66.0-67.0 | | | |
| | | Acetone | 0.01100 J | mg/kg |
| 3A-S005 UL01 | 6.0- 8.0 | | | |
| | | Acetone | 0.12000 | mg/kg |
| 3B-S047 UL01 | 0.0- 2.0 | | | |
| | | Methylene Chloride | 0.00400 J | mg/kg |
| 3C-S006 UL01 | 7.0- 8.0 | | | |
| | | Chlorobenzene | 0.00900 J | mg/kg |
| 3C-S053 UL01 | 17.0-18.0 | | | |
| | | Acetone | 0.09200 J | mg/kg |
| | | 2-Butanone | 0.01800 | mg/kg |
| | | Carbon Disulfide | 0.00500 J | mg/kg |
| | | Chlorobenzene | 0.01500 | mg/kg |
| 3C-S116 UL01 | 7.0- 9.0 | | | |
| | | 2-Butanone | 0.00600 J | mg/kg |
| 3D-S107 UL01 | 0.0- 0.5 | | | |
| | | Acetone | 0.00900 J | mg/kg |
| 3D-S127 UL05 | 50.0-51.0 | | | |
| | | Acetone | 0.02600 J | mg/kg |
| | | Ethylbenzene | 0.00500 J | mg/kg |
| 3J-S001 UL04 | 51.0-53.0 | | | |
| | | Acetone | 0.02000 | mg/kg |
| | | Carbon Disulfide | 0.00200 J | mg/kg |
| | | **TCL SEMI-VOLATILES** | | |
| 3A-S001 UL02 | 66.0-67.0 | | | |
| | | bis(2-Ethylhexyl)phthalate | 0.04700 J | mg/kg |
| | | Di-n-butylphthalate | 0.12000 J | mg/kg |
| 3B-S009 UL01 | 3.0- 6.0 | | | |
| | | bis(2-Ethylhexyl)phthalate | 7.53300 J | mg/kg |
| 3B-S047 UL01 | 0.0- 2.0 | | | |
| | | Benzo(a)anthracene | 0.05300 J | mg/kg |

* *Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers. The samples collected from 3A-S006, 3B-S003, 3B-S041, 3C-S084, 3D-S073, 3J-S001 (11-12 feet bgs), and 3K-S016 did not show detections of TCL organics.*

024625

Table 7.3-6
Subsurface Soil TCL Organic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | |
|---|---|---|---|---|
| | | Benzo(a)pyrene | 0.05700 J | mg/kg |
| | | Benzo(b)fluoranthene | 0.04800 J | mg/kg |
| | | Benzo(g,h,i)perylene | 0.04000 J | mg/kg |
| | | Chrysene | 0.14000 J | mg/kg |
| | | Di-n-octylphthalate | 0.04400 J | mg/kg |
| | | Fluoranthene | 0.06000 J | mg/kg |
| | | Fluorene | 0.04800 J | mg/kg |
| | | Pyrene | 0.18000 J | mg/kg |
| 3B-S056 UL01 | 0.0- 2.0 | | | |
| | | bis(2-Ethylhexyl)phthalate | 0.04200 J | mg/kg |
| 3B-S057 UL01 | 0.0- 2.0 | | | |
| | | bis(2-Ethylhexyl)phthalate | 0.05100 J | mg/kg |
| 3C-S006 UL01 | 7.0- 8.0 | | | |
| | | bis(2-Ethylhexyl)phthalate | 0.09600 J | mg/kg |
| 3C-S053 UL01 | 17.0-18.0 | | | |
| | | Di-n-butylphthalate | 0.04500 J | mg/kg |
| 3C-S116 UL01 | 7.0- 9.0 | | | |
| | | Acenaphthene | 0.68000 J | mg/kg |
| | | Benzo(a)anthracene | 0.61000 J | mg/kg |
| | | Benzo(a)pyrene | 0.63000 J | mg/kg |
| | | Benzo(b)fluoranthene | 1.20000 J | mg/kg |
| | | Benzo(k)fluoranthene | 1.10000 J | mg/kg |
| | | bis(2-Ethylhexyl)phthalate | 40.00000 | mg/kg |
| | | Chrysene | 0.81000 J | mg/kg |
| | | Dibenzofuran | 0.54000 J | mg/kg |
| | | Fluoranthene | 1.30000 J | mg/kg |
| | | Fluorene | 0.57000 J | mg/kg |
| | | 2-Methylnaphthalene | 0.74000 J | mg/kg |
| | | Naphthalene | 1.40000 J | mg/kg |
| | | Phenanthrene | 1.20000 J | mg/kg |
| | | Pyrene | 1.30000 J | mg/kg |
| 3D-S107 UL01 | 0.0- 0.5 | | | |
| | | bis(2-Ethylhexyl)phthalate | 0.18000 J | mg/kg |
| | | Fluoranthene | 0.05300 J | mg/kg |
| | | Pyrene | 0.05700 J | mg/kg |
| 3D-S126 UL01 | 0.0- 2.0 | | | |
| | | bis(2-Ethylhexyl)phthalate | 0.47000 J | mg/kg |
| | | Di-n-octylphthalate | 0.10000 J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers. The samples collected from 3A-S006, 3B-S003, 3B-S041, 3C-S084, 3D-S073, 3J-S001 (11-12 feet bgs), and 3K-S016 did not show detections of TCL organics.*

024626

Table 7.3-6
Subsurface Soil TCL Organic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | |
|---|---|---|---|---|
| 3D-S127 UL05 | 50.0-51.0 | | | |
| | | bis(2-Ethylhexyl)phthalate | 0.08200 J | mg/kg |
| | | **TCL PESTICIDES** | | |
| 3B-S009 UL01 | 3.0- 6.0 | | | |
| | | gamma-Chlordane | 0.00067 J | mg/kg |
| | | Heptachlor epoxide | 0.00067 J | mg/kg |
| 3B-S047 UL01 | 0.0- 2.0 | | | |
| | | alpha-Chlordane | 0.00110 J | mg/kg |
| | | Endrin ketone | 0.00300 J | mg/kg |
| 3B-S056 UL01 | 0.0- 2.0 | | | |
| | | alpha-Chlordane | 0.00022 J | mg/kg |
| | | gamma-Chlordane | 0.00039 J | mg/kg |
| | | 4,4'-DDD | 0.00036 J | mg/kg |
| | | 4,4'-DDE | 0.00020 J | mg/kg |
| | | 4,4'-DDT | 0.00083 J | mg/kg |
| | | Dieldrin | 0.00078 J | mg/kg |
| | | Endosulfan sulfate | 0.00012 J | mg/kg |
| | | Methoxychlor | 0.00036 J | mg/kg |
| 3C-S006 UL01 | 7.0- 8.0 | | | |
| | | Aroclor-1254 | 0.00590 J | mg/kg |
| 3C-S116 UL01 | 7.0- 9.0 | | | |
| | | alpha-Chlordane | 0.00900 J | mg/kg |
| | | gamma-Chlordane | 0.01200 J | mg/kg |
| | | Dieldrin | 0.00420 J | mg/kg |
| | | Endosulfan sulfate | 0.00039 J | mg/kg |
| | | Endrin ketone | 0.00095 J | mg/kg |
| | | Methoxychlor | 0.03200 J | mg/kg |
| 3D-S126 UL01 | 0.0- 2.0 | | | |
| | | Aldrin | 0.00039 J | mg/kg |
| | | Aroclor-1242 | 0.02000 J | mg/kg |
| | | gamma-BHC (Lindane) | 0.00047 J | mg/kg |
| | | gamma-Chlordane | 0.00055 J | mg/kg |
| | | Dieldrin | 0.00240 J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers. The samples collected from 3A-S006, 3B-S003, 3B-S041, 3C-S084, 3D-S073, 3J-S001 (11-12 feet bgs), and 3K-S016 did not show detections of TCL organics.*

Table 7.3-7
Subsurface Soil TCLP Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024627

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | **TCLP INORGANICS** | | | |
| 3B-S003 UL03 | 39.0-41.0 | | | | |
| | | Barium | 0.13700 | B | mg/L |
| | | Cadmium | 0.00400 | B | mg/L |
| | | Selenium | 0.00580 | B | mg/L |
| 3B-S009 UL03 | 6.0- 8.0 | | | | |
| | | Arsenic | 0.15200 | | mg/L |
| | | Barium | 0.56900 | | mg/L |
| | | Cadmium | 0.01020 | | mg/L |
| | | Chromium | 0.01450 | | mg/L |
| | | Lead | 44.10000 | | mg/L |
| | | Selenium | 0.00860 | B | mg/L |
| 3C-S084 UL02 | 9.0-12.0 | | | | |
| | | Arsenic | 0.01110 | B | mg/L |
| | | Barium | 0.95000 | | mg/L |
| | | Cadmium | 0.02160 | | mg/L |
| | | Chromium | 0.06970 | | mg/L |
| | | Lead | 20.50000 | | mg/L |
| | | Selenium | 0.01080 | BJ | mg/L |
| 3D-S073 UL01 | 0.0- 3.0 | | | | |
| | | Arsenic | 0.00760 | B | mg/L |
| | | Barium | 0.98200 | | mg/L |
| | | Cadmium | 0.02040 | | mg/L |
| | | Lead | 38.10000 | | mg/L |
| | | Selenium | 0.00880 | BJ | mg/L |
| 3D-S107 UL02 | 0.6- 1.2 | | | | |
| | | Barium | 1.14000 | | mg/L |
| | | Cadmium | 0.00610 | | mg/L |
| | | Lead | 21.90000 | | mg/L |
| | | Selenium | 0.00720 | B | mg/L |
| 3D-S125 UL01 | 0.2- 1.0 | | | | |
| | | Barium | 0.68300 | | mg/L |
| | | Cadmium | 0.02080 | | mg/L |
| | | Lead | 1.04000 | | mg/L |
| 3D-S127 UL01 | 14.0-16.0 | | | | |
| | | Barium | 0.99200 | | mg/L |
| | | Cadmium | 0.00180 | B | mg/L |
| | | Lead | 0.00380 | B | mg/L |
| 3D-S127 UL02 | 1.0- 1.5 | | | | |
| | | Barium | 1.05000 | | mg/L |
| | | Cadmium | 0.00290 | B | mg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.3-7
Subsurface Soil TCLP Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024628

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|---|
| | | Lead | 0.00840 B | mg/L |
| | | Selenium | 0.00520 B | mg/L |
| 3J-S001 UL01 | 0.0- 3.0 | | | |
| | | Barium | 0.65600 | mg/L |
| | | Cadmium | 0.00420 B | mg/L |
| | | Selenium | 0.00680 B* | mg/L |
| | | Silver | 0.00076 J | mg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-1
Groundwater Direct Push TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024629

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | | |
| **3B-S041 GD01** | | | | |
| | Aluminum | 19,900.00000 | J | µg/L |
| | Arsenic | 7.40000 | | µg/L |
| | Barium | 93.70000 | | µg/L |
| | Beryllium | 1.30000 | | µg/L |
| | Cadmium | 0.75000 | | µg/L |
| | Calcium | 538,000.00000 | | µg/L |
| | Chromium | 29.70000 | | µg/L |
| | Cobalt | 38.10000 | | µg/L |
| | Copper | 25.70000 | | µg/L |
| | Iron | 22,300.00000 | | µg/L |
| | Lead | 19.10000 | | µg/L |
| | Magnesium | 69,400.00000 | | µg/L |
| | Manganese | 7,360.00000 | | µg/L |
| | Mercury | 0.31000 | | µg/L |
| | Nickel | 47.50000 | | µg/L |
| | Potassium | 24,500.00000 | | µg/L |
| | Selenium | 8.10000 | J | µg/L |
| | Sodium | 134,000.00000 | | µg/L |
| | Vanadium | 56.10000 | | µg/L |
| | Zinc | 55.40000 | | µg/L |
| **3C-S006 GD01** | | | | |
| | Aluminum | 1,140.00000 | J | µg/L |
| | Barium | 182.00000 | | µg/L |
| | Calcium | 167,000.00000 | | µg/L |
| | Chromium | 2.80000 | | µg/L |
| | Cobalt | 1.30000 | | µg/L |
| | Iron | 20,000.00000 | | µg/L |
| | Lead | 9.70000 | | µg/L |
| | Magnesium | 28,000.00000 | | µg/L |
| | Manganese | 535.00000 | | µg/L |
| | Mercury | 0.60000 | | µg/L |
| | Nickel | 4.70000 | | µg/L |
| | Potassium | 42,700.00000 | | µg/L |
| | Sodium | 66,900.00000 | | µg/L |
| | Vanadium | 3.10000 | | µg/L |
| | Zinc | 63.80000 | | µg/L |
| **3C-S053 GD01** | | | | |
| | Aluminum | 87,800.00000 | J | µg/L |
| | Arsenic | 63.20000 | | µg/L |
| | Barium | 1,140.00000 | | µg/L |
| | Beryllium | 5.00000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-1
Groundwater Direct Push TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024630

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | Cadmium | 4.80000 | µg/L |
| | Calcium | 529,000.00000 | µg/L |
| | Chromium | 132.00000 | µg/L |
| | Cobalt | 71.20000 | µg/L |
| | Copper | 108.00000 | µg/L |
| | Iron | 130,000.00000 | µg/L |
| | Lead | 97.40000 | µg/L |
| | Magnesium | 43,900.00000 | µg/L |
| | Manganese | 5,610.00000 | µg/L |
| | Mercury | 0.71000 | µg/L |
| | Nickel | 179.00000 | µg/L |
| | Potassium | 32,600.00000 | µg/L |
| | Selenium | 5.40000 | µg/L |
| | Sodium | 267,000.00000 | µg/L |
| | Vanadium | 242.00000 | µg/L |
| | Zinc | 449.00000 | µg/L |
| 3C-S084 GD01 | | | |
| | Aluminum | 72,400.00000 J | µg/L |
| | Antimony | 176.00000 | µg/L |
| | Arsenic | 69.30000 | µg/L |
| | Barium | 785.00000 | µg/L |
| | Beryllium | 3.00000 | µg/L |
| | Cadmium | 12.00000 | µg/L |
| | Calcium | 218,000.00000 | µg/L |
| | Chromium | 444.00000 | µg/L |
| | Cobalt | 46.20000 | µg/L |
| | Copper | 261.00000 | µg/L |
| | Iron | 144,000.00000 | µg/L |
| | Lead | 25,600.00000 | µg/L |
| | Magnesium | 40,100.00000 | µg/L |
| | Manganese | 1,660.00000 | µg/L |
| | Mercury | 3.20000 | µg/L |
| | Nickel | 146.00000 | µg/L |
| | Potassium | 122,000.00000 | µg/L |
| | Selenium | 7.60000 | µg/L |
| | Sodium | 230,000.00000 | µg/L |
| | Thallium | 6.50000 | µg/L |
| | Vanadium | 160.00000 | µg/L |
| | Zinc | 1,480.00000 | µg/L |
| 3C-S116 GD01 | | | |
| | Aluminum | 40,900.00000 J | µg/L |
| | Antimony | 84.20000 | µg/L |
| | Arsenic | 57.20000 | µg/L |
| | Barium | 548.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.4-1**
**Groundwater Direct Push TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024631

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Beryllium | 1.90000 | µg/L |
| | Cadmium | 11.30000 | µg/L |
| | Calcium | 217,000.00000 | µg/L |
| | Chromium | 125.00000 | µg/L |
| | Cobalt | 54.70000 | µg/L |
| | Copper | 138.00000 | µg/L |
| | Iron | 226,000.00000 | µg/L |
| | Lead | 4,120.00000 | µg/L |
| | Magnesium | 34,500.00000 | µg/L |
| | Manganese | 2,350.00000 | µg/L |
| | Mercury | 0.99000 | µg/L |
| | Nickel | 144.00000 | µg/L |
| | Potassium | 84,400.00000 | µg/L |
| | Selenium | 9.90000 | µg/L |
| | Sodium | 321,000.00000 | µg/L |
| | Thallium | 8.10000 | µg/L |
| | Vanadium | 111.00000 | µg/L |
| | Zinc | 734.00000 | µg/L |
| **3J-S001 GD01** | | | |
| | Aluminum | 6,100,000.00000 Jv | µg/L |
| | Antimony | 6.70000 Jv | µg/L |
| | Arsenic | 365.00000 Jv | µg/L |
| | Barium | 2,870.00000 Jv | µg/L |
| | Beryllium | 43.50000 Jv | µg/L |
| | Cadmium | 81.10000 Jv | µg/L |
| | Calcium | 2,420,000.00000 Jv | µg/L |
| | Chromium | 917.00000 Jv | µg/L |
| | Cobalt | 383.00000 Jv | µg/L |
| | Copper | 622.00000 Jv | µg/L |
| | Iron | 1,230,000.00000 Jv | µg/L |
| | Lead | 667.00000 Jv | µg/L |
| | Magnesium | 184,000.00000 Jv | µg/L |
| | Manganese | 13,300.00000 Jv | µg/L |
| | Mercury | 2.10000 Jv | µg/L |
| | Nickel | 846.00000 Jv | µg/L |
| | Potassium | 148,000.00000 Jv | µg/L |
| | Sodium | 557,000.00000 Jv | µg/L |
| | Vanadium | 1,050.00000 Jv | µg/L |
| | Zinc | 2,740.00000 Jv | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-2
Groundwater Direct Push TCL Organic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024632

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **FIELD VOLATILES** | | |
| **3A-S001 GD01** | | | |
| | Ethylbenzene | 5.50000 | µg/L |
| | Tetrachloroethene | 11.20000 | µg/L |
| | Xylene (total) | 7.40000 | µg/L |
| **3B-S003 GD01** | | | |
| | 1,2-Dichloroethene (total) | 29.80000 | µg/L |
| **3B-S041 GD01** | | | |
| | 1,2-Dichloroethene (total) | 1.20000 | µg/L |
| **3B-S047 GD01** | | | |
| | 1,2-Dichloroethene (total) | 4.50000 | µg/L |
| | 1,1-Dichloroethene | 2.90000 | µg/L |
| | Ethylbenzene | 1.40000 | µg/L |
| | Toluene | 2.90000 | µg/L |
| | Xylene (total) | 4.90000 | µg/L |
| **3C-S006 GD01** | | | |
| | Benzene | 3.40000 | µg/L |
| | Chlorobenzene | 47.10000 | µg/L |
| **3C-S053 GD01** | | | |
| | Chlorobenzene | 12.40000 | µg/L |
| **3C-S116 GD01** | | | |
| | Benzene | 1.20000 | µg/L |
| | Ethylbenzene | 1.80000 | µg/L |
| | Tetrachloroethene | 1.10000 | µg/L |
| | Toluene | 1.10000 | µg/L |
| | Xylene (total) | 4.70000 | µg/L |
| **3J-S001 GD01** | | | |
| | Benzene | 7.70000 | µg/L |
| | **TCL VOLATILES** | | |
| **3C-S006 GD01** | | | |
| | Acetone | 13.00000 | µg/L |
| | Benzene | 6.00000 J | µg/L |
| | Chlorobenzene | 110.00000 J | µg/L |
| | Toluene | 3.00000 J | µg/L |

* *Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-2
Groundwater Direct Push TCL Organic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024633

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TCL SEMI-VOLATILES** | | |
| **3C-S006 GD01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.90000 J | µg/L |
| | Butylbenzylphthalate | 0.90000 J | µg/L |
| | 4-Chloro-3-Methylphenol | 9.00000 J | µg/L |
| | 2-Chlorophenol | 2.00000 J | µg/L |
| | 1,4-Dichlorobenzene | 10.00000 | µg/L |
| | Naphthalene | 1.00000 J | µg/L |
| | N-Nitrosodiphenylamine (1) | 2.00000 J | µg/L |
| | **TCL PESTICIDES** | | |
| **3C-S006 GD01** | | | |
| | Aroclor-1242 | 1.50000 J | µg/L |
| | gamma-Chlordane | 0.00450 Jv | µg/L |
| | 4,4'-DDE | 0.01200 Jv | µg/L |
| | Heptachlor epoxide | 0.01700 Jv | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-3
Groundwater Monitoring Well TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024634

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | |
| | **WELLS SCREENED IN THE LANDFILL WATER-BEARING ZONE** | | |
| **3A-S005 GW01** | | | |
| | Aluminum | 113,000.00000 J | µg/L |
| | Arsenic | 28.30000 | µg/L |
| | Barium | 612.00000 | µg/L |
| | Beryllium | 8.50000 | µg/L |
| | Cadmium | 29.50000 J | µg/L |
| | Calcium | 284,000.00000 | µg/L |
| | Chromium | 237.00000 | µg/L |
| | Cobalt | 46.40000 L | µg/L |
| | Copper | 106.00000 | µg/L |
| | Iron | 148,000.00000 J | µg/L |
| | Lead | 122.00000 | µg/L |
| | Magnesium | 65,700.00000 | µg/L |
| | Manganese | 2,220.00000 | µg/L |
| | Nickel | 138.00000 | µg/L |
| | Potassium | 59,100.00000 | µg/L |
| | Selenium | 12.10000 | µg/L |
| | Sodium | 561,000.00000 | µg/L |
| | Vanadium | 268.00000 | µg/L |
| | Zinc | 393.00000 J | µg/L |
| **3B-S009 GW01** | | | |
| | Aluminum | 65,700.00000 J | µg/L |
| | Antimony | 177.00000 | µg/L |
| | Arsenic | 107.00000 | µg/L |
| | Barium | 799.00000 | µg/L |
| | Calcium | 281,000.00000 | µg/L |
| | Chromium | 126.00000 | µg/L |
| | Cobalt | 26.40000 L | µg/L |
| | Copper | 156.00000 | µg/L |
| | Iron | 122,000.00000 J | µg/L |
| | Lead | 20,700.00000 | µg/L |
| | Magnesium | 49,300.00000 | µg/L |
| | Manganese | 1,580.00000 | µg/L |
| | Mercury | 0.57000 | µg/L |
| | Nickel | 102.00000 | µg/L |
| | Potassium | 106,000.00000 | µg/L |
| | Selenium | 8.60000 | µg/L |
| | Silver | 2.80000 L | µg/L |
| | Sodium | 244,000.00000 | µg/L |
| | Thallium | 4.80000 L | µg/L |
| | Vanadium | 157.00000 | µg/L |
| | Zinc | 1,850.00000 J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-3
Groundwater Monitoring Well TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024635

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| 3B-S056 GW01 | | | | |
| | Aluminum | 59,300.00000 | | µg/L |
| | Antimony | 28.70000 | LJv | µg/L |
| | Arsenic | 38.50000 | | µg/L |
| | Barium | 695.00000 | J | µg/L |
| | Beryllium | 4.10000 | LJ^ | µg/L |
| | Cadmium | 7.50000 | | µg/L |
| | Calcium | 226,000.00000 | | µg/L |
| | Chromium | 125.00000 | J | µg/L |
| | Cobalt | 41.40000 | L | µg/L |
| | Copper | 107.00000 | | µg/L |
| | Iron | 105,000.00000 | J | µg/L |
| | Lead | 4,370.00000 | | µg/L |
| | Magnesium | 71,100.00000 | J | µg/L |
| | Manganese | 984.00000 | J | µg/L |
| | Nickel | 1,300.00000 | | µg/L |
| | Potassium | 160,000.00000 | J | µg/L |
| | Sodium | 500,000.00000 | | µg/L |
| | Vanadium | 138.00000 | J | µg/L |
| | Zinc | 1,110.00000 | | µg/L |
| 3C-S006 GW01 | | | | |
| | Arsenic | 7.50000 | L | µg/L |
| | Barium | 170.00000 | LJ | µg/L |
| | Calcium | 139,000.00000 | | µg/L |
| | Copper | 6.50000 | LJv | µg/L |
| | Iron | 20,700.00000 | J | µg/L |
| | Lead | 8.20000 | Jv | µg/L |
| | Magnesium | 15,600.00000 | J | µg/L |
| | Manganese | 1,010.00000 | J | µg/L |
| | Potassium | 21,400.00000 | J | µg/L |
| | Sodium | 26,800.00000 | | µg/L |
| | Zinc | 41.20000 | J^ | µg/L |
| 3C-S116 GW01 | | | | |
| | Aluminum | 58,300.00000 | | µg/L |
| | Arsenic | 17.40000 | | µg/L |
| | Barium | 264.00000 | J | µg/L |
| | Beryllium | 4.10000 | LJ^ | µg/L |
| | Calcium | 661,000.00000 | | µg/L |
| | Chromium | 91.40000 | J | µg/L |
| | Cobalt | 39.60000 | L | µg/L |
| | Copper | 50.90000 | | µg/L |
| | Iron | 58,700.00000 | J | µg/L |
| | Lead | 561.00000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-3
Groundwater Monitoring Well TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024636

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Magnesium | 106,000.00000 | J | µg/L |
| | Manganese | 10,400.00000 | J | µg/L |
| | Nickel | 90.00000 | | µg/L |
| | Potassium | 38,700.00000 | J | µg/L |
| | Sodium | 574,000.00000 | | µg/L |
| | Thallium | 13.10000 | Jv | µg/L |
| | Vanadium | 140.00000 | J | µg/L |
| | Zinc | 896.00000 | | µg/L |
| 3D-S107 GW01 | | | | |
| | Aluminum | 80,400.00000 | J | µg/L |
| | Antimony | 4.60000 | LJv | µg/L |
| | Arsenic | 21.50000 | | µg/L |
| | Barium | 445.00000 | | µg/L |
| | Beryllium | 5.00000 | L | µg/L |
| | Cadmium | 7.10000 | | µg/L |
| | Calcium | 212,000.00000 | | µg/L |
| | Chromium | 195.00000 | | µg/L |
| | Cobalt | 43.30000 | L | µg/L |
| | Copper | 103.00000 | | µg/L |
| | Iron | 134,000.00000 | | µg/L |
| | Lead | 282.00000 | | µg/L |
| | Magnesium | 42,800.00000 | | µg/L |
| | Manganese | 1,200.00000 | Jv | µg/L |
| | Mercury | 0.26000 | J^ | µg/L |
| | Nickel | 119.00000 | | µg/L |
| | Potassium | 40,800.00000 | J | µg/L |
| | Selenium | 8.20000 | | µg/L |
| | Sodium | 48,100.00000 | | µg/L |
| | Thallium | 7.40000 | L | µg/L |
| | Vanadium | 190.00000 | | µg/L |
| | Zinc | 554.00000 | | µg/L |
| 3D-S126 GW01 | | | | |
| | Aluminum | 85,300.00000 | J | µg/L |
| | Arsenic | 30.60000 | | µg/L |
| | Barium | 993.00000 | | µg/L |
| | Beryllium | 4.70000 | L | µg/L |
| | Cadmium | 9.10000 | J | µg/L |
| | Calcium | 269,000.00000 | | µg/L |
| | Chromium | 205.00000 | | µg/L |
| | Cobalt | 34.70000 | L | µg/L |
| | Copper | 187.00000 | | µg/L |
| | Iron | 145,000.00000 | J | µg/L |
| | Lead | 699.00000 | J | µg/L |
| | Magnesium | 42,500.00000 | J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-3
Groundwater Monitoring Well TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024637

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Manganese | 1,590.00000 | J^ | µg/L |
| | Mercury | 3.90000 | Jv | µg/L |
| | Nickel | 120.00000 | | µg/L |
| | Potassium | 80,600.00000 | | µg/L |
| | Selenium | 11.40000 | | µg/L |
| | Silver | 10.20000 | | µg/L |
| | Sodium | 153,000.00000 | | µg/L |
| | Vanadium | 210.00000 | J | µg/L |
| | Zinc | 2,230.00000 | J | µg/L |
| **TAL TOTAL INORGANICS** | | | | |
| **WELLS SCREENED IN THE ALLUVIAL WATER-BEARING ZONE** | | | | |
| **3A-S001 GW01** | | | | |
| | Aluminum | 2,530.00000 | J | µg/L |
| | Arsenic | 4.30000 | L | µg/L |
| | Barium | 23.95000 | L | µg/L |
| | Cadmium | 16.87500 | | µg/L |
| | Calcium | 320,500.00000 | | µg/L |
| | Iron | 7,970.00000 | J | µg/L |
| | Magnesium | 48,400.00000 | | µg/L |
| | Manganese | 168.00000 | | µg/L |
| | Nickel | 5.95000 | L | µg/L |
| | Potassium | 14,000.00000 | | µg/L |
| | Sodium | 999,000.00000 | | µg/L |
| | Vanadium | 5.85000 | L | µg/L |
| | Zinc | 31.35000 | J | µg/L |
| **3A-S006 GW01** | | | | |
| | Aluminum | 24,100.00000 | J | µg/L |
| | Arsenic | 3.10000 | L | µg/L |
| | Barium | 48.20000 | L | µg/L |
| | Cadmium | 30.40000 | J | µg/L |
| | Calcium | 323,000.00000 | | µg/L |
| | Chromium | 64.00000 | | µg/L |
| | Copper | 19.10000 | L | µg/L |
| | Iron | 30,000.00000 | J | µg/L |
| | Lead | 6.50000 | | µg/L |
| | Magnesium | 115,000.00000 | | µg/L |
| | Manganese | 1,610.00000 | | µg/L |
| | Nickel | 38.90000 | LJ~ | µg/L |
| | Potassium | 31,500.00000 | | µg/L |
| | Selenium | 4.20000 | L | µg/L |
| | Sodium | 732,000.00000 | | µg/L |
| | Vanadium | 62.30000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.4-3**
**Groundwater Monitoring Well TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024638

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Zinc | 78.20000 | J | µg/L |
| **3B-S003 GW01** | | | | |
| | Aluminum | 43,800.00000 | J | µg/L |
| | Antimony | 1.62500 | LJv | µg/L |
| | Arsenic | 18.30000 | | µg/L |
| | Barium | 222.50000 | L | µg/L |
| | Beryllium | 2.40000 | LJ^ | µg/L |
| | Cadmium | 3.10000 | L | µg/L |
| | Calcium | 712,000.00000 | | µg/L |
| | Chromium | 52.10000 | | µg/L |
| | Cobalt | 32.75000 | L | µg/L |
| | Copper | 38.75000 | | µg/L |
| | Iron | 49,900.00000 | | µg/L |
| | Lead | 31.60000 | | µg/L |
| | Magnesium | 104,500.00000 | | µg/L |
| | Manganese | 7,260.00000 | Jv | µg/L |
| | Nickel | 85.55000 | | µg/L |
| | Potassium | 27,850.00000 | J | µg/L |
| | Selenium | 5.65000 | J | µg/L |
| | Sodium | 439,000.00000 | | µg/L |
| | Thallium | 3.47500 | L | µg/L |
| | Vanadium | 96.70000 | | µg/L |
| | Zinc | 161.00000 | | µg/L |
| **3C-S117 GW01** | | | | |
| | Aluminum | 37,200.00000 | | µg/L |
| | Arsenic | 15.90000 | | µg/L |
| | Barium | 140.00000 | LJ | µg/L |
| | Calcium | 406,000.00000 | | µg/L |
| | Cobalt | 21.00000 | L | µg/L |
| | Copper | 31.70000 | | µg/L |
| | Lead | 20.60000 | | µg/L |
| | Nickel | 56.40000 | | µg/L |
| | Potassium | 36,700.00000 | J | µg/L |
| | Sodium | 954,000.00000 | | µg/L |
| | Thallium | 3.90000 | LJv | µg/L |
| | Vanadium | 103.00000 | J | µg/L |
| | Zinc | 155.00000 | | µg/L |
| **3D-S073 GW01** | | | | |
| | Aluminum | 931.00000 | J^ | µg/L |
| | Barium | 26.00000 | L | µg/L |
| | Calcium | 508,000.00000 | | µg/L |
| | Iron | 1,250.00000 | J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-3
Groundwater Monitoring Well TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024639

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Magnesium | 164,000.00000 | | µg/L |
| | Manganese | 305.00000 | | µg/L |
| | Potassium | 40,200.00000 | | µg/L |
| | Sodium | 1,870,000.00000 | | µg/L |
| | Vanadium | 1.90000 | LJv | µg/L |
| | Zinc | 110.00000 | J | µg/L |
| 3D-S127 GW01 | | | | |
| | Aluminum | 10,700.00000 | J | µg/L |
| | Arsenic | 5.60000 | L | µg/L |
| | Barium | 58.30000 | L | µg/L |
| | Calcium | 325,000.00000 | | µg/L |
| | Chromium | 20.10000 | | µg/L |
| | Cobalt | 7.80000 | L | µg/L |
| | Copper | 24.50000 | L | µg/L |
| | Iron | 13,000.00000 | | µg/L |
| | Lead | 6.60000 | | µg/L |
| | Magnesium | 76,400.00000 | | µg/L |
| | Manganese | 2,700.00000 | Jv | µg/L |
| | Nickel | 18.50000 | L | µg/L |
| | Potassium | 20,000.00000 | J | µg/L |
| | Sodium | 1,030,000.00000 | | µg/L |
| | Vanadium | 29.90000 | L | µg/L |
| | Zinc | 77.00000 | | µg/L |
| 3J-S001 GW01 | | | | |
| | Aluminum | 15,400.00000 | J | µg/L |
| | Arsenic | 5.00000 | L | µg/L |
| | Barium | 96.00000 | L | µg/L |
| | Cadmium | 45.10000 | L | µg/L |
| | Calcium | 449,000.00000 | | µg/L |
| | Chromium | 29.70000 | L | µg/L |
| | Copper | 13.80000 | L | µg/L |
| | Iron | 12,700.00000 | J | µg/L |
| | Lead | 6.10000 | | µg/L |
| | Magnesium | 293,000.00000 | | µg/L |
| | Manganese | 1,770.00000 | | µg/L |
| | Nickel | 24.10000 | L | µg/L |
| | Potassium | 39,800.00000 | | µg/L |
| | Sodium | 2,780,000.00000 | | µg/L |
| | Vanadium | 29.30000 | L | µg/L |
| | Zinc | 63.20000 | J | µg/L |
| 3K-S016 GW01 | | | | |
| | Aluminum | 6,080.00000 | J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.4-3**
**Groundwater Monitoring Well TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024640

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Arsenic | 3.50000 | L | µg/L |
| | Barium | 54.30000 | L | µg/L |
| | Calcium | 387,000.00000 | | µg/L |
| | Chromium | 13.30000 | | µg/L |
| | Cobalt | 4.70000 | L | µg/L |
| | Copper | 19.50000 | L | µg/L |
| | Iron | 8,450.00000 | | µg/L |
| | Lead | 26.90000 | | µg/L |
| | Magnesium | 155,000.00000 | | µg/L |
| | Manganese | 1,170.00000 | Jv | µg/L |
| | Nickel | 19.60000 | L | µg/L |
| | Potassium | 30,800.00000 | J | µg/L |
| | Sodium | 1,150,000.00000 | | µg/L |
| | Vanadium | 14.30000 | L | µg/L |
| | Zinc | 115.00000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-3
Groundwater Monitoring Well TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024641

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TAL DISSOLVED INORGANICS** | | |
| | **WELLS SCREENED IN THE LANDFILL WATER-BEARING ZONE** | | |
| **3A-S005 GW01** | | | |
| | Arsenic | 6.80000 L | µg/L |
| | Barium | 220.00000 | µg/L |
| | Calcium | 193,000.00000 | µg/L |
| | Iron | 2,330.00000 J | µg/L |
| | Magnesium | 43,300.00000 | µg/L |
| | Manganese | 813.00000 | µg/L |
| | Nickel | 4.30000 L | µg/L |
| | Potassium | 32,200.00000 | µg/L |
| | Sodium | 612,000.00000 | µg/L |
| | Vanadium | 1.10000 LJv | µg/L |
| | Zinc | 3.90000 J | µg/L |
| **3B-S009 GW01** | | | |
| | Antimony | 8.30000 L | µg/L |
| | Arsenic | 11.40000 | µg/L |
| | Barium | 300.00000 | µg/L |
| | Calcium | 178,000.00000 | µg/L |
| | Iron | 2,470.00000 J | µg/L |
| | Lead | 2.90000 L | µg/L |
| | Magnesium | 40,600.00000 | µg/L |
| | Manganese | 456.00000 | µg/L |
| | Potassium | 93,000.00000 | µg/L |
| | Sodium | 242,000.00000 | µg/L |
| | Zinc | 7.80000 LJ | µg/L |
| **3B-S056 GW01** | | | |
| | Antimony | 5.60000 LJv | µg/L |
| | Arsenic | 6.00000 L | µg/L |
| | Barium | 376.00000 J | µg/L |
| | Calcium | 170,000.00000 | µg/L |
| | Chromium | 2.30000 LJ | µg/L |
| | Cobalt | 8.40000 L | µg/L |
| | Copper | 3.80000 LJv | µg/L |
| | Iron | 8,250.00000 J | µg/L |
| | Magnesium | 65,200.00000 J | µg/L |
| | Manganese | 413.00000 J | µg/L |
| | Nickel | 50.50000 | µg/L |
| | Potassium | 158,000.00000 J | µg/L |
| | Sodium | 543,000.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 7.4-3**
**Groundwater Monitoring Well TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024642

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| **3C-S006 GW01** | | | |
| | Arsenic | 4.00000 L | µg/L |
| | Barium | 144.00000 LJ | µg/L |
| | Calcium | 143,000.00000 | µg/L |
| | Iron | 8,640.00000 J | µg/L |
| | Magnesium | 16,100.00000 J | µg/L |
| | Manganese | 1,020.00000 J | µg/L |
| | Potassium | 22,200.00000 J | µg/L |
| | Sodium | 28,100.00000 | µg/L |
| **3C-S116 GW01** | | | |
| | Antimony | 8.30000 LJv | µg/L |
| | Barium | 46.30000 LJ | µg/L |
| | Calcium | 612,000.00000 | µg/L |
| | Cobalt | 16.70000 L | µg/L |
| | Iron | 2,360.00000 J | µg/L |
| | Magnesium | 106,000.00000 J | µg/L |
| | Manganese | 10,300.00000 J | µg/L |
| | Nickel | 31.00000 L | µg/L |
| | Potassium | 24,600.00000 J | µg/L |
| | Sodium | 589,000.00000 | µg/L |
| | Thallium | 6.80000 LJv | µg/L |
| **3D-S107 GW01** | | | |
| | Aluminum | 111.00000 L | µg/L |
| | Barium | 126.00000 L | µg/L |
| | Calcium | 174,000.00000 | µg/L |
| | Chromium | 1.10000 L | µg/L |
| | Cobalt | 6.40000 L | µg/L |
| | Copper | 5.30000 L | µg/L |
| | Iron | 1,440.00000 | µg/L |
| | Magnesium | 27,400.00000 | µg/L |
| | Manganese | 427.00000 | µg/L |
| | Nickel | 8.90000 L | µg/L |
| | Potassium | 27,600.00000 J | µg/L |
| | Sodium | 67,300.00000 | µg/L |
| | Vanadium | 1.20000 L | µg/L |
| | Zinc | 18.40000 L | µg/L |
| **3D-S126 GW01** | | | |
| | Arsenic | 3.50000 L | µg/L |
| | Barium | 451.00000 | µg/L |
| | Calcium | 144,000.00000 | µg/L |
| | Iron | 3,550.00000 J | µg/L |
| | Magnesium | 30,600.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-3
Groundwater Monitoring Well TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024643

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Manganese | 217.00000 | µg/L |
| | Nickel | 6.40000 L | µg/L |
| | Potassium | 63,400.00000 J | µg/L |
| | Sodium | 148,000.00000 | µg/L |
| | Vanadium | 0.54000 LJv | µg/L |
| | Zinc | 3.30000 LJ | µg/L |

TAL DISSOLVED INORGANICS
WELLS SCREENED IN THE ALLUVIAL WATER-BEARING ZONE

| | | | |
|---|---|---|---|
| 3A-S001 GW01 | | | |
| | Arsenic | 3.50000 L | µg/L |
| | Barium | 16.10000 L | µg/L |
| | Cadmium | 26.00000 LJ | µg/L |
| | Calcium | 298,000.00000 | µg/L |
| | Iron | 623.50000 J | µg/L |
| | Magnesium | 45,900.00000 | µg/L |
| | Manganese | 130.50000 | µg/L |
| | Nickel | 3.00000 L | µg/L |
| | Potassium | 12,300.00000 | µg/L |
| | Sodium | 947,500.00000 | µg/L |
| | Zinc | 1.77500 LJ | µg/L |
| 3A-S006 GW01 | | | |
| | Barium | 13.70000 LJ | µg/L |
| | Calcium | 296,000.00000 | µg/L |
| | Magnesium | 103,000.00000 | µg/L |
| | Manganese | 1,330.00000 | µg/L |
| | Potassium | 22,300.00000 | µg/L |
| | Sodium | 693,000.00000 | µg/L |
| 3B-S003 GW01 | | | |
| | Arsenic | 2.70000 L | µg/L |
| | Barium | 52.00000 L | µg/L |
| | Cadmium | 0.30500 L | µg/L |
| | Calcium | 625,500.00000 | µg/L |
| | Cobalt | 18.35000 L | µg/L |
| | Copper | 4.10000 L | µg/L |
| | Iron | 7,170.00000 | µg/L |
| | Magnesium | 99,400.00000 | µg/L |
| | Manganese | 6,825.00000 | µg/L |
| | Nickel | 37.95000 L | µg/L |
| | Potassium | 16,800.00000 J | µg/L |
| | Sodium | 441,500.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-3
Groundwater Monitoring Well TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024644

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Thallium | 3.52500 | L | µg/L |
| | Vanadium | 0.97500 | L | µg/L |
| | Zinc | 48.35000 | | µg/L |
| **3C-S117 GW01** | | | | |
| | Arsenic | 6.00000 | L | µg/L |
| | Barium | 28.10000 | LJ | µg/L |
| | Calcium | 367,000.00000 | | µg/L |
| | Cobalt | 6.70000 | L | µg/L |
| | Iron | 808.00000 | J | µg/L |
| | Magnesium | 69,800.00000 | J | µg/L |
| | Manganese | 2,340.00000 | J | µg/L |
| | Potassium | 24,000.00000 | J | µg/L |
| | Sodium | 964,000.00000 | | µg/L |
| **3D-S073 GW01** | | | | |
| | Antimony | 5.50000 | L | µg/L |
| | Barium | 20.70000 | L | µg/L |
| | Calcium | 450,000.00000 | | µg/L |
| | Magnesium | 147,000.00000 | | µg/L |
| | Manganese | 268.00000 | | µg/L |
| | Potassium | 35,900.00000 | | µg/L |
| | Sodium | 1,610,000.00000 | | µg/L |
| | Zinc | 10.90000 | LJ | µg/L |
| **3D-S127 GW01** | | | | |
| | Barium | 20.80000 | L | µg/L |
| | Calcium | 327,000.00000 | | µg/L |
| | Cobalt | 4.40000 | L | µg/L |
| | Copper | 3.10000 | L | µg/L |
| | Iron | 88.40000 | LJ^ | µg/L |
| | Magnesium | 78,000.00000 | | µg/L |
| | Manganese | 2,680.00000 | | µg/L |
| | Nickel | 4.00000 | L | µg/L |
| | Potassium | 15,500.00000 | J | µg/L |
| | Sodium | 1,050,000.00000 | | µg/L |
| | Zinc | 23.40000 | | µg/L |
| **3J-S001 GW01** | | | | |
| | Barium | 22.00000 | L | µg/L |
| | Calcium | 423,000.00000 | | µg/L |
| | Copper | 2.60000 | LJv | µg/L |
| | Magnesium | 284,000.00000 | | µg/L |
| | Manganese | 1,590.00000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-3
Groundwater Monitoring Well TAL Inorganic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024645

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Nickel | 7.10000 L | µg/L |
| | Potassium | 32,700.00000 | µg/L |
| | Sodium | 2,580,000.00000 | µg/L |
| | Thallium | 4.40000 L | µg/L |
| | Vanadium | 0.70000 LJv | µg/L |
| | Zinc | 6.70000 LJ | µg/L |
| **3K-S016 GW01** | | | |
| | Barium | 38.10000 L | µg/L |
| | Calcium | 387,000.00000 | µg/L |
| | Cobalt | 2.10000 L | µg/L |
| | Copper | 9.40000 L | µg/L |
| | Magnesium | 152,000.00000 | µg/L |
| | Manganese | 1,010.00000 | µg/L |
| | Nickel | 6.50000 L | µg/L |
| | Potassium | 24,900.00000 J | µg/L |
| | Sodium | 1,120,000.00000 | µg/L |
| | Vanadium | 0.62000 L | µg/L |
| | Zinc | 49.60000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-4
Groundwater Monitoring Well TCL Organic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024646

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| | **WELLS SCREENED IN THE LANDFILL WATER-BEARING ZONE** | | |
| **3A-S005 GW01** | | | |
| | Acetone | 25.00000 | µg/L |
| | 2-Butanone | 5.00000 J | µg/L |
| **3B-S056 GW01** | | | |
| | Acetone | 9.00000 J | µg/L |
| **3C-S006 GW01** | | | |
| | Acetone | 8.00000 J | µg/L |
| | Chlorobenzene | 41.00000 | µg/L |
| **3D-S107 GW01** | | | |
| | Ethylbenzene | 4.00000 J | µg/L |
| | **WELLS SCREENED IN THE ALLUVIAL WATER-BEARING ZONE** | | |
| **3B-S003 GW01** | | | |
| | 1,2-Dichloroethene (total) | 49.00000 | µg/L |
| | Ethylbenzene | 4.00000 J | µg/L |
| | Vinyl Chloride | 9.50000 | µg/L |
| **3D-S073 GW01** | | | |
| | Acetone | 10.00000 | µg/L |
| **3K-S016 GW01** | | | |
| | Ethylbenzene | 3.00000 Jv | µg/L |
| | **TCL SEMI-VOLATILES** | | |
| | **WELLS SCREENED IN THE LANDFILL WATER-BEARING ZONE** | | |
| **3A-S005 GW01** | | | |
| | 4-Methylphenol | 79.00000 | µg/L |
| | Phenol | 33.00000 | µg/L |
| **3B-S009 GW01** | | | |
| | bis(2-Ethylhexyl)phthalate | 14.00000 | µg/L |
| **3B-S056 GW01** | | | |
| | bis(2-Ethylhexyl)phthalate | 16.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 7.4-4
Groundwater Monitoring Well TCL Organic Analytical Data
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas

024647

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| 3D-S107 GW01 | | | |
| | bis(2-Ethylhexyl)phthalate | 3.00000 J | µg/L |
| | 1,4-Dichlorobenzene | 4.00000 J | µg/L |
| 3D-S126 GW01 | | | |
| | 2-Methylnaphthalene | 9.00000 J | µg/L |
| **WELLS SCREENED IN THE ALLUVIAL WATER-BEARING ZONE** | | | |
| 3B-S003 GW01 | | | |
| | bis(2-Ethylhexyl)phthalate | 4.00000 J | µg/L |
| 3D-S073 GW01 | | | |
| | bis(2-Ethylhexyl)phthalate | 14.00000 | µg/L |
| 3D-S127 GW01 | | | |
| | bis(2-Ethylhexyl)phthalate | 3.00000 J | µg/L |
| **TCL PESTICIDES** | | | |
| **WELLS SCREENED IN THE LANDFILL WATER-BEARING ZONE** | | | |
| 3B-S009 GW01 | | | |
| | alpha-Chlordane | 0.06100 J | µg/L |
| | gamma-Chlordane | 0.13000 | µg/L |
| | 4,4'-DDD | 0.11000 | µg/L |
| | 4,4'-DDE | 0.08500 J | µg/L |
| | Dieldrin | 0.08500 J | µg/L |
| 3B-S056 GW01 | | | |
| | Aldrin | 0.64000 | µg/L |
| | alpha-Chlordane | 0.17000 J | µg/L |
| | gamma-Chlordane | 0.41000 | µg/L |
| | 4,4'-DDD | 7.40000 | µg/L |
| | 4,4'-DDE | 0.23000 | µg/L |
| | 4,4'-DDT | 6.10000 | µg/L |
| | Dieldrin | 0.24000 | µg/L |
| 3C-S116 GW01 | | | |
| | Aroclor-1248 | 0.70000 J | µg/L |
| 3D-S126 GW01 | | | |
| | Aroclor-1248 | 6.10000 | µg/L |
| | 4,4'-DDE | 0.14000 | µg/L |
| | Dieldrin | 0.09000 J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

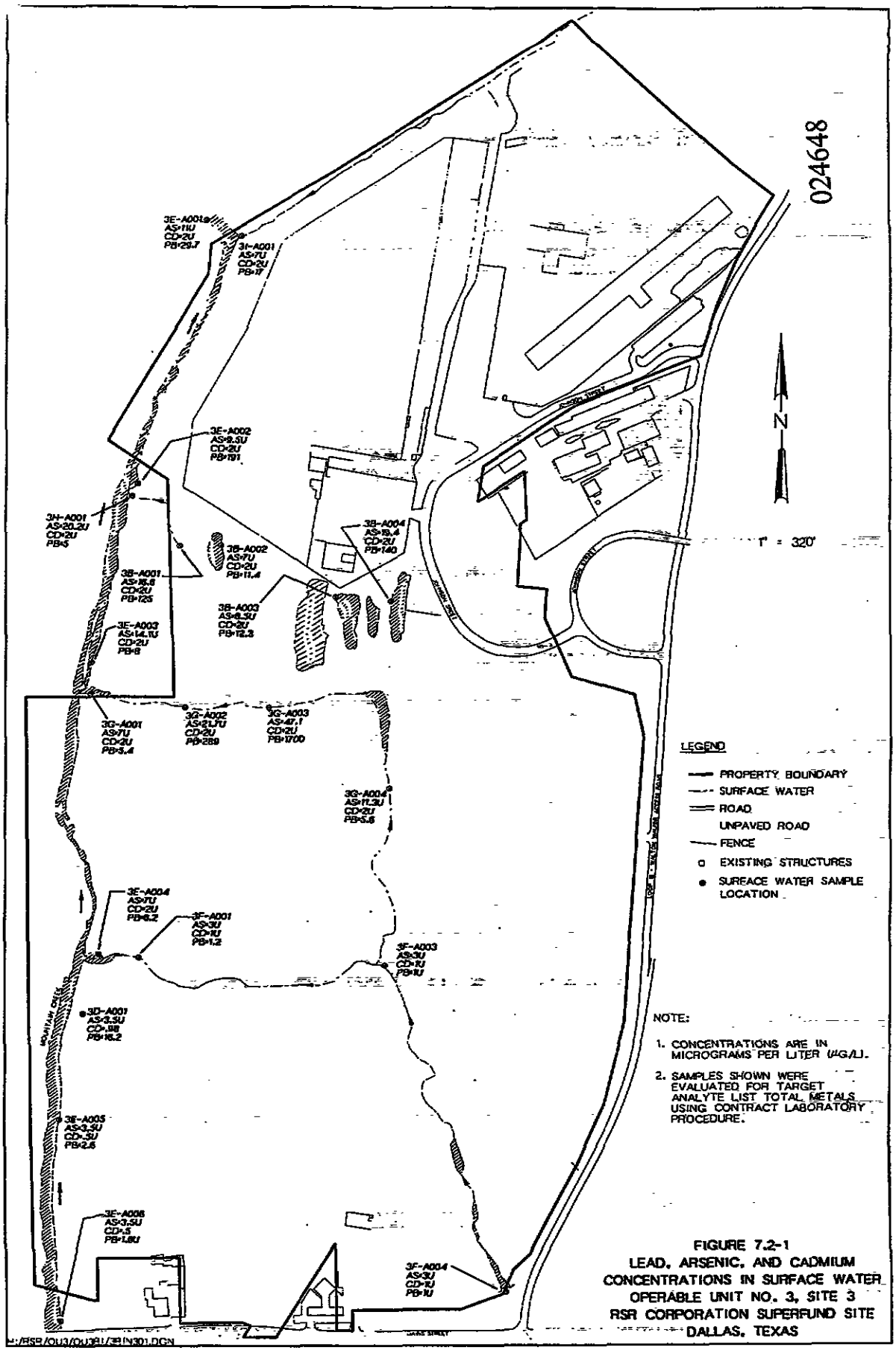


FIGURE 7.2-1
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SURFACE WATER
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

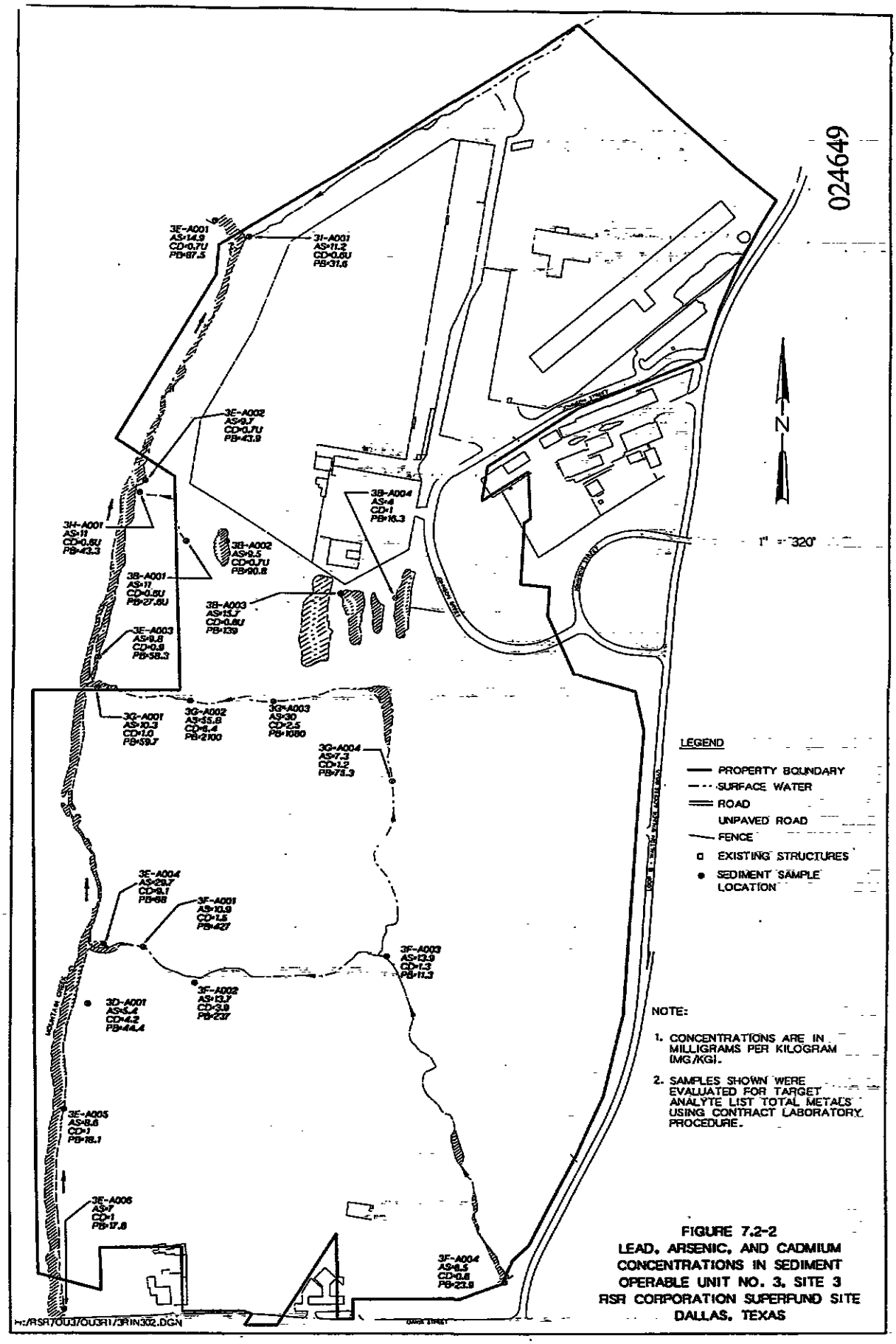


FIGURE 7.2-2
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SEDIMENT
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

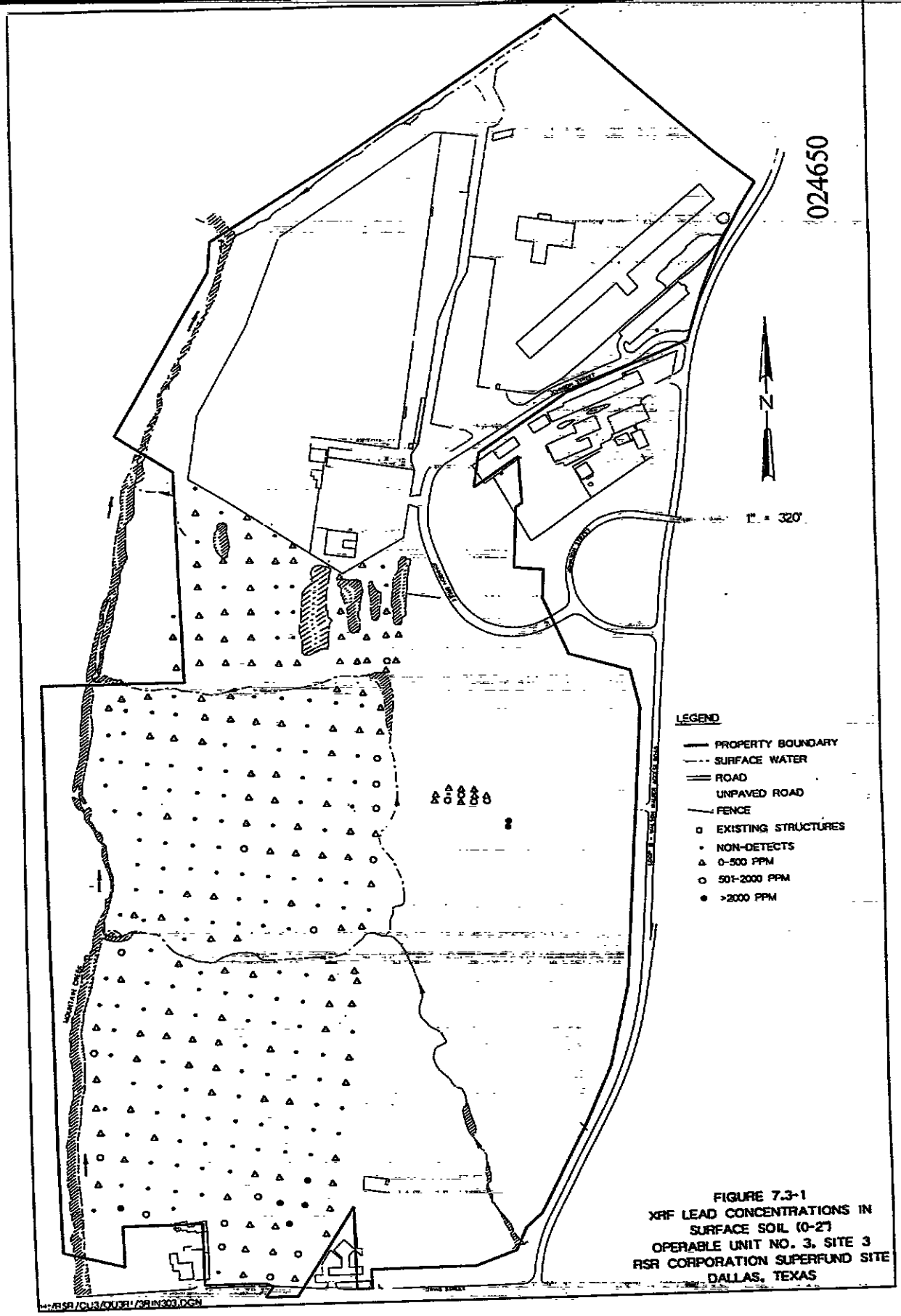


FIGURE 7.3-1
XRF LEAD CONCENTRATIONS IN
SURFACE SOIL (0-2')
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

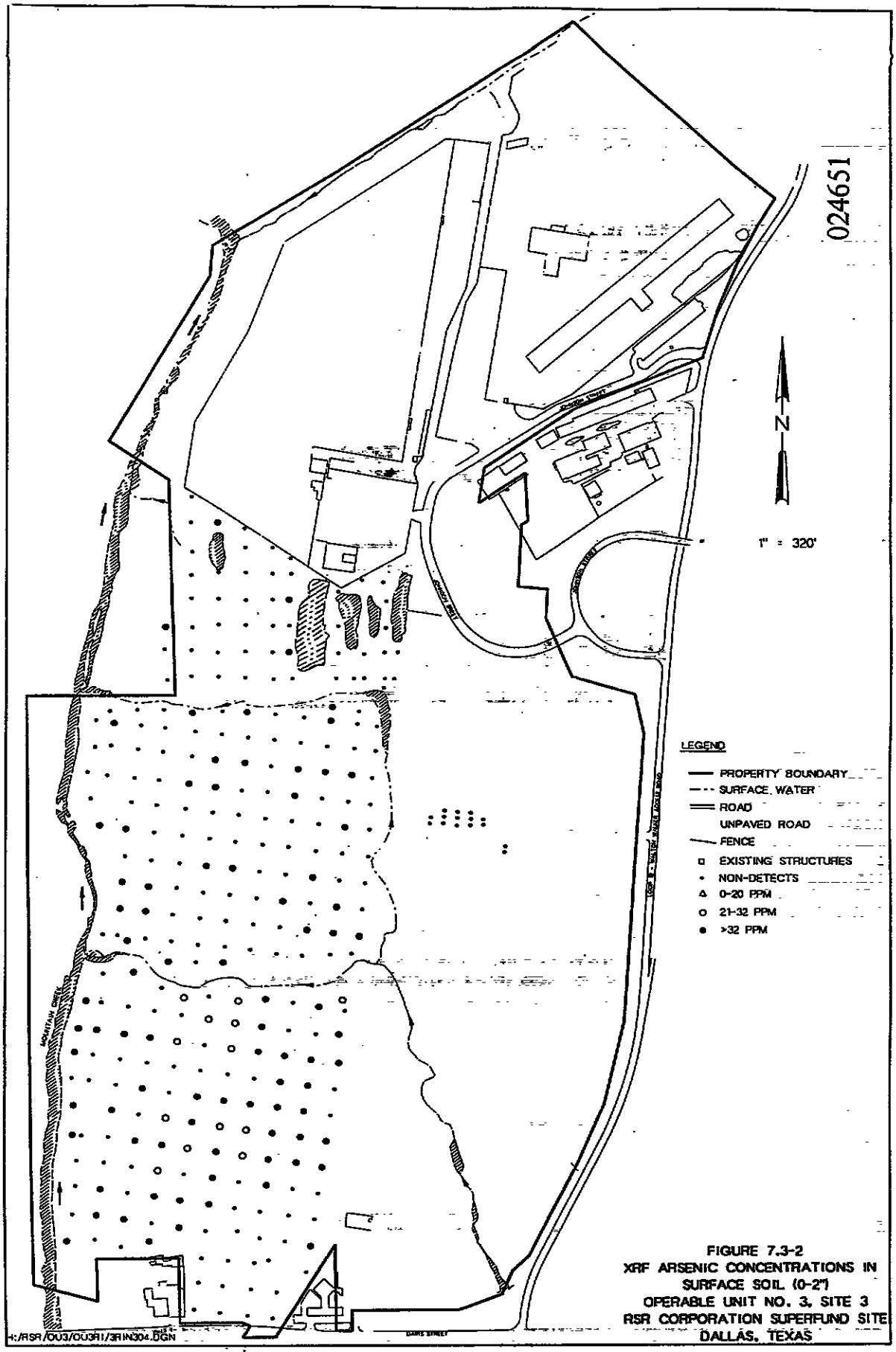


FIGURE 7.3-2
XRF ARSENIC CONCENTRATIONS IN SURFACE SOIL (0-2")
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

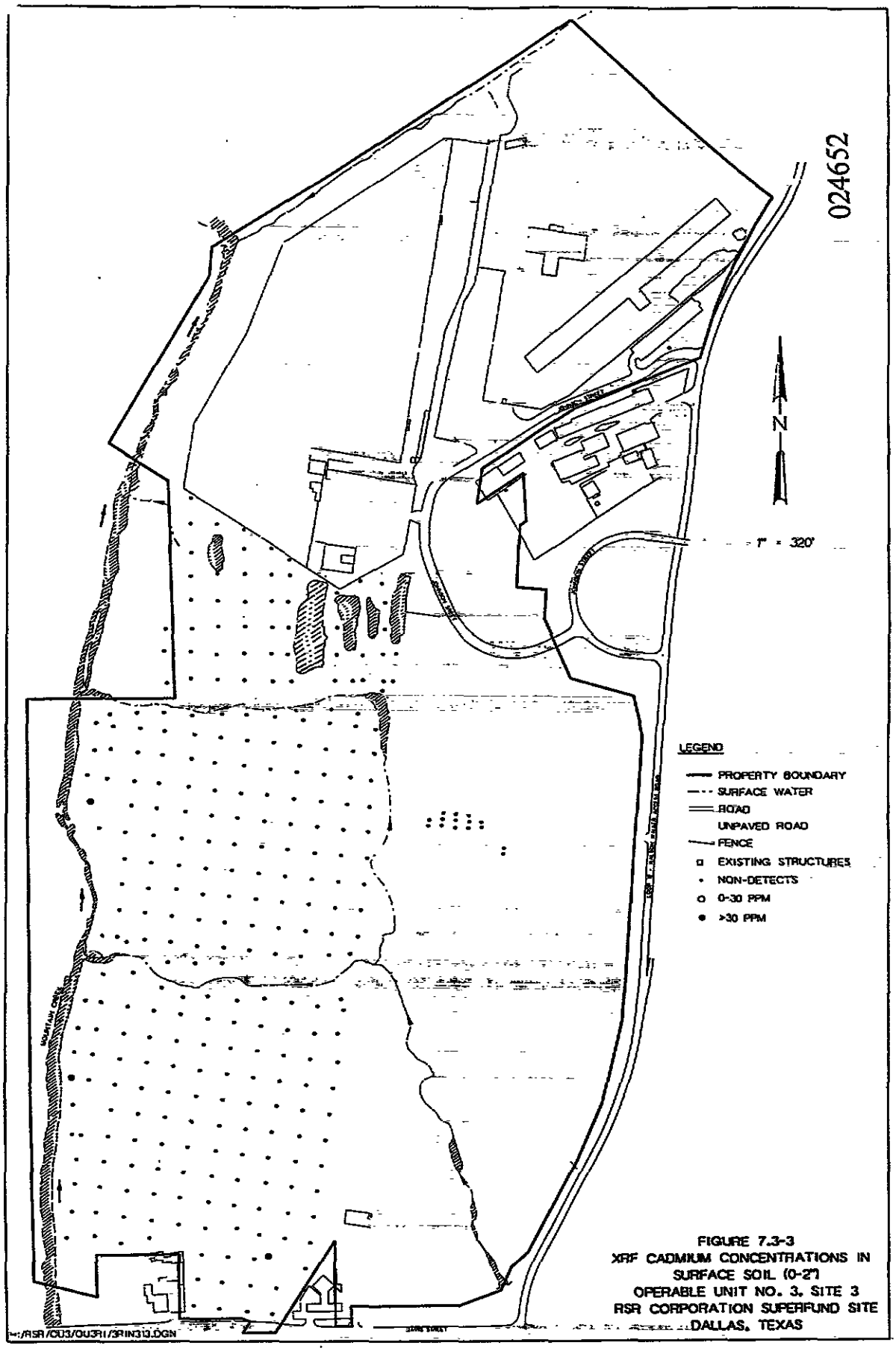


FIGURE 7.3-3
XRF CADMIUM CONCENTRATIONS IN
SURFACE SOIL (0-2")
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

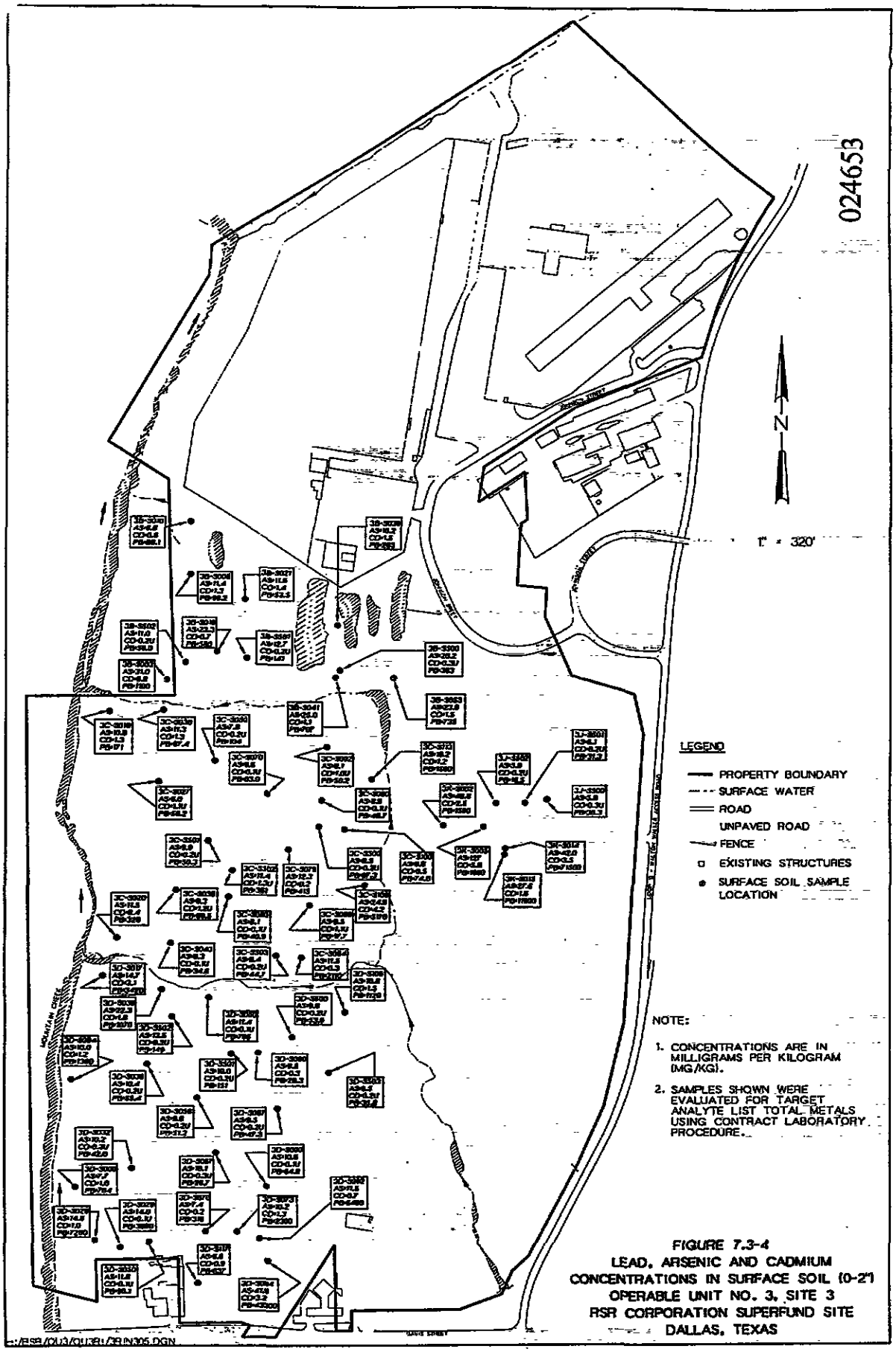


FIGURE 7.3-4
LEAD, ARSENIC AND CADMIUM CONCENTRATIONS IN SURFACE SOIL (0-2')
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

L:/RSR/OU3/OU3B1/3BIN305.DGN

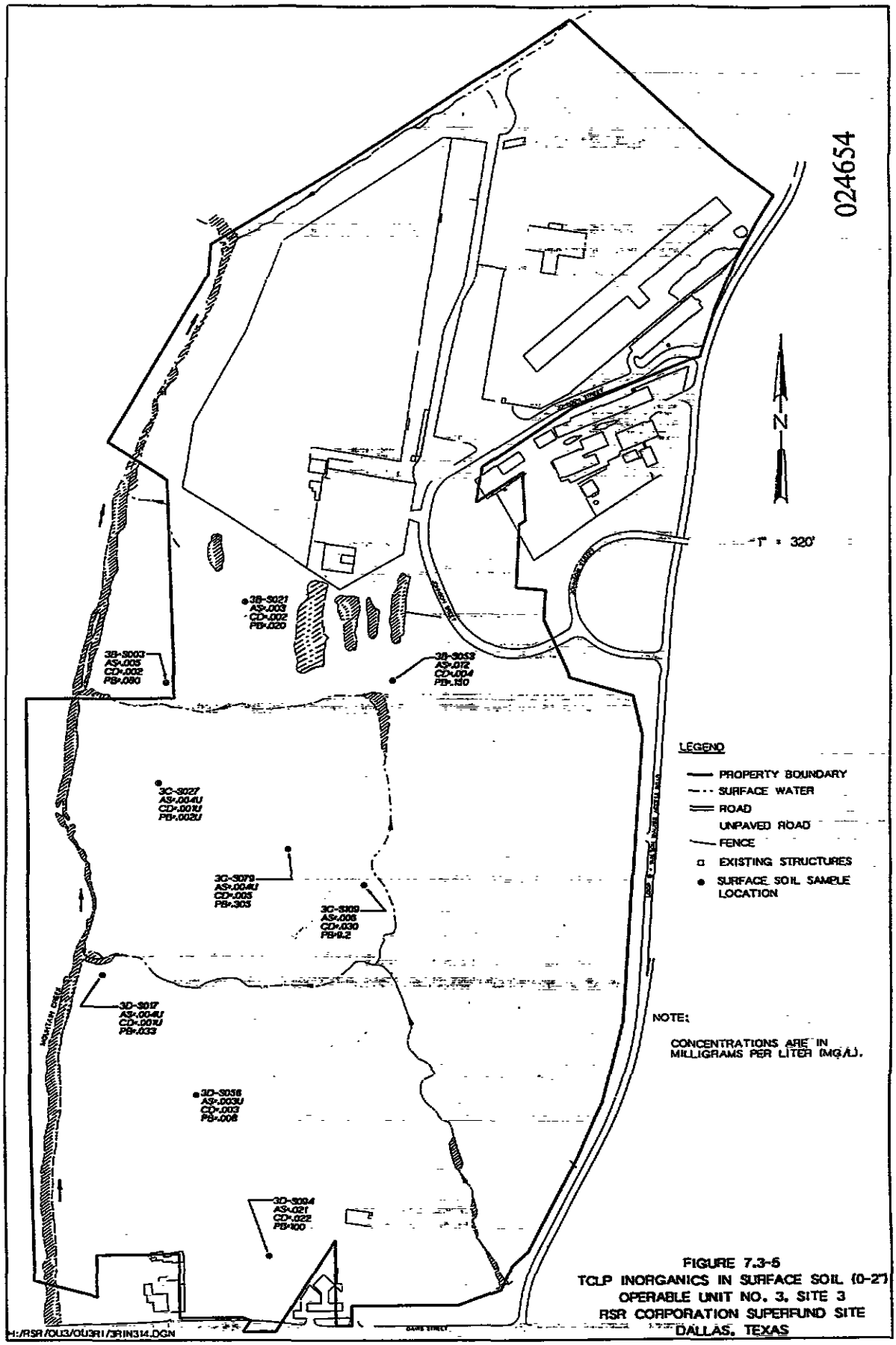


FIGURE 7.3-5
TCLP INORGANICS IN SURFACE SOIL (0-2')
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

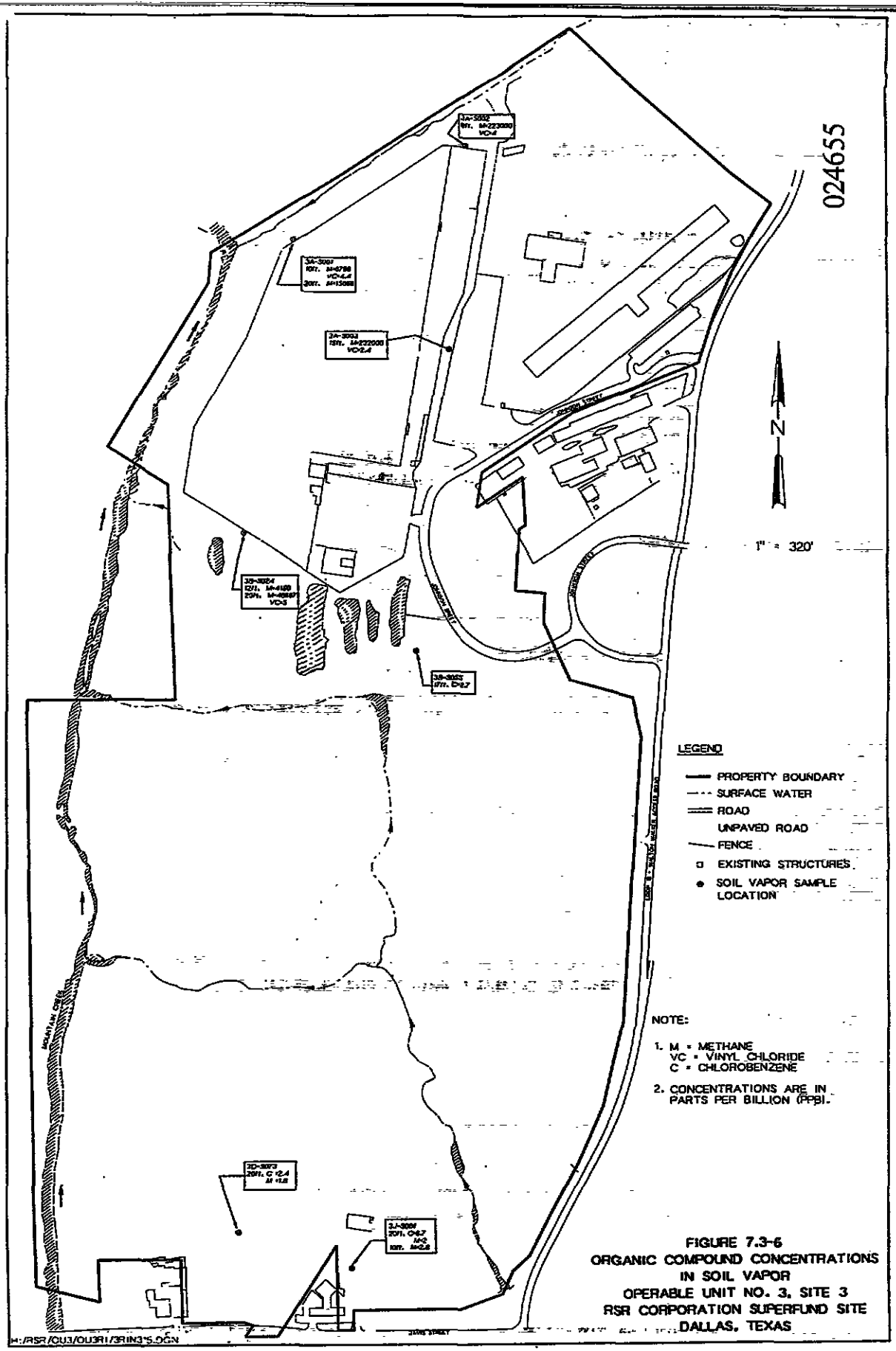


FIGURE 7.3-6
ORGANIC COMPOUND CONCENTRATIONS
IN SOIL VAPOR
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

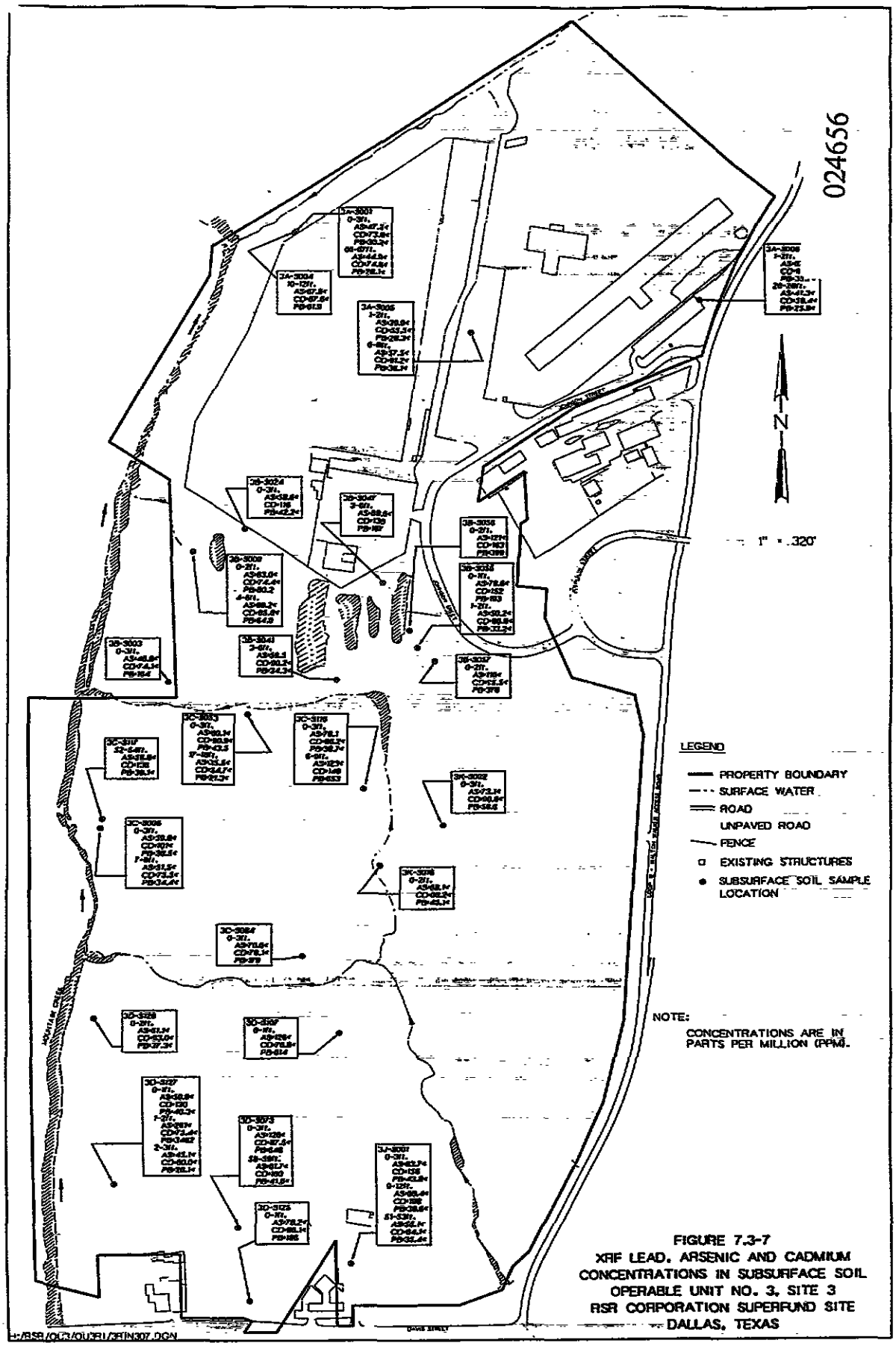


FIGURE 7.3-7
XRF LEAD, ARSENIC AND CADMIUM CONCENTRATIONS IN SUBSURFACE SOIL
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

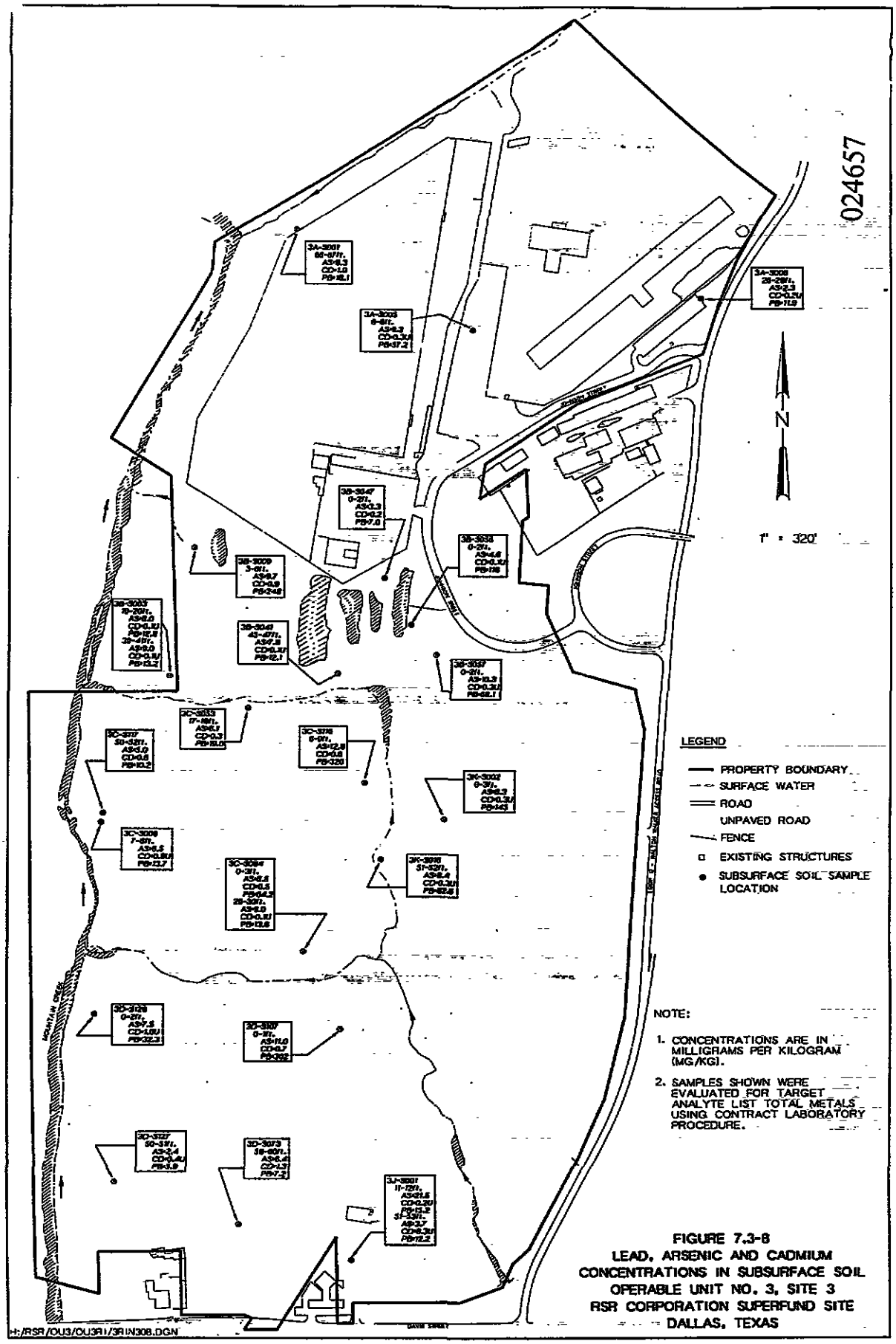


FIGURE 7.3-8
LEAD, ARSENIC AND CADMIUM CONCENTRATIONS IN SUBSURFACE SOIL
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

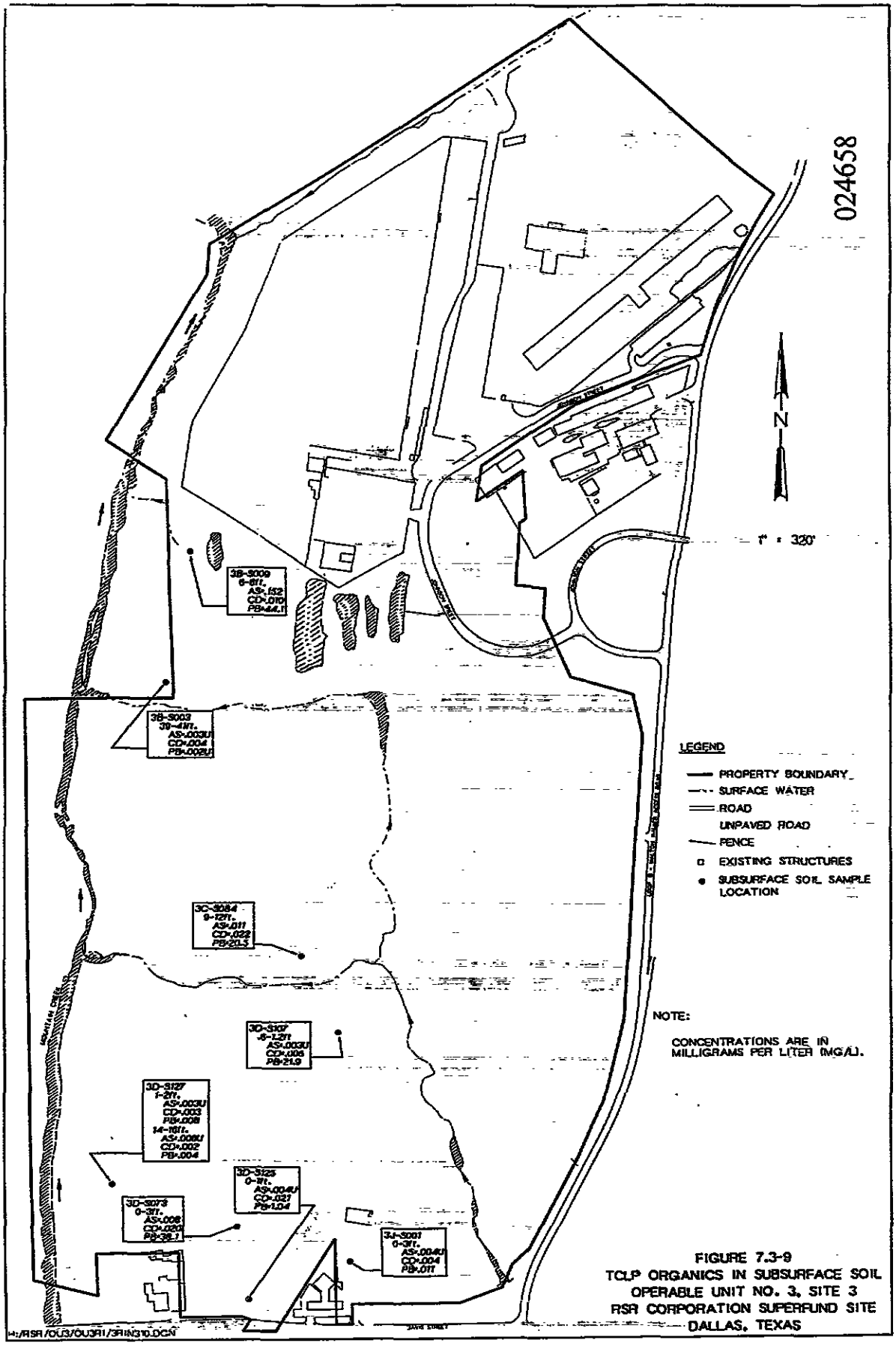


FIGURE 7.3-9
TCLP ORGANICS IN SUBSURFACE SOIL
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

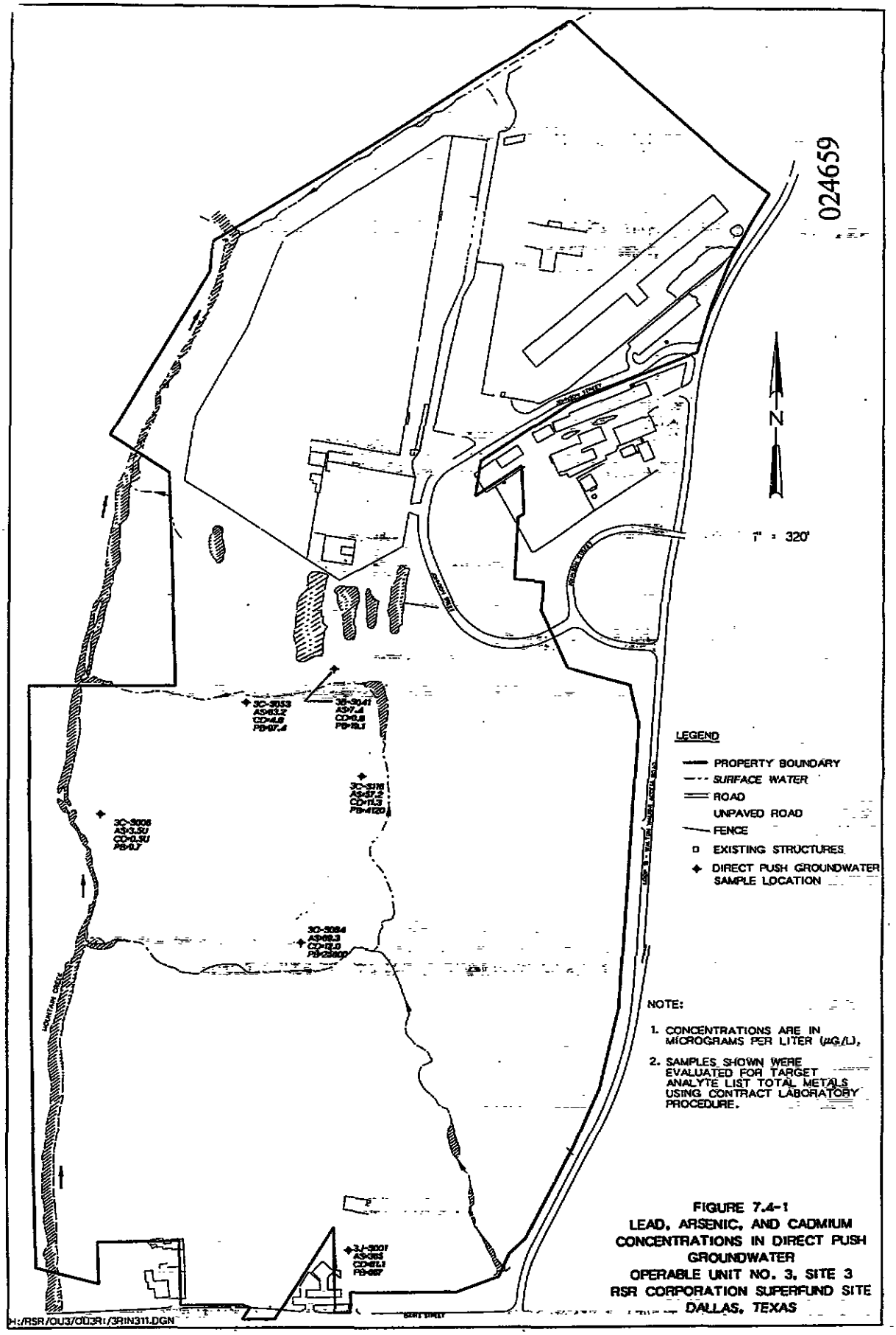


FIGURE 7.4-1
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN DIRECT PUSH GROUNDWATER
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

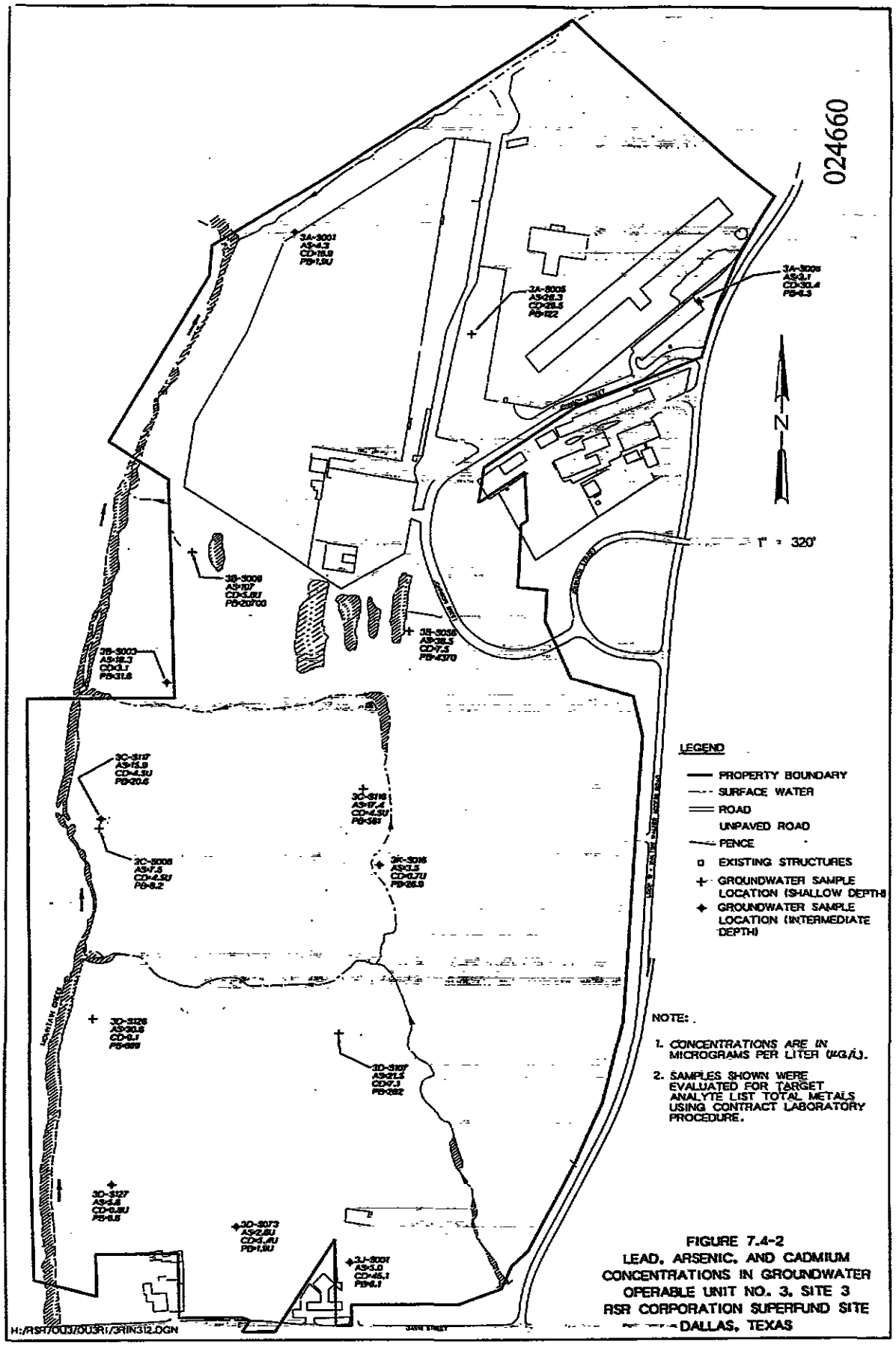


FIGURE 7.4-2
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN GROUNDWATER
OPERABLE UNIT NO. 3, SITE 3
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024661

# Chapter 8
# Nature and Extent of Contamination, Site 4

024662

# Chapter 8
# Nature and Extent of Contamination, Site 4

This chapter presents the analytical results of RI field activities conducted during the data gathering and field investigation tasks for Site 4 of OU No. 3. These tasks include the storm sewer investigation, the surface water and sediment investigation, the soil investigation, and the groundwater investigation. The objectives and procedures for each of these tasks, and an explanation of the sample designation system referenced in this chapter, are detailed in **Chapter 3**. Included below is an evaluation of the detected constituents and associated potential source areas, and comparisons to collected background samples and expected regional background concentrations, which were introduced in **Chapter 4**. In **Chapters 10** and **12** of this report, the summarized results are compared to risk-based levels developed as part of the OU No. 3 risk assessments. Technical Memoranda prepared at the conclusion of each field investigation task provide additional detailed descriptions of the field activities performed (see **Chapter 3** for specific references).

## 8.1 Storm Sewers and Drainageways

This section describes the analytical results of the water and sediment sampling conducted for storm sewers and drainageways on Site 4, as discussed in **Chapter 3**. Six (6) sample locations were selected on Site 4. Stormwater samples were collected from all six (6) locations, and sediment samples were collected from four (4) of these locations; sediment samples were not collected from 4D-P003 and 4D-P004 due to small quantities of sediment observed in the structures at these locations during the RI field activities at Site 4.

As illustrated on **Figure 3.6-3**, storm sewer inlet locations 4D-P001, 4D-P002, and 4D-P004, and location 4D-P003 (within the open concrete drainageway) are located on and

around Jaycee Park. Storm sewer inlet locations 4A-P001 and 4A-P002 are located along the west side of Iroquois Street, east of the Vilbig Landfill. Locations 4A-P001 and 4A-P002 are downgradient receptors for the storm water collection system on Jaycee Park and in the surrounding neighborhood **(City of Dallas Storm Sewer Locator Map No. 520, not dated).**

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### 8.1.1 Stormwater

The water sampled from each of the six (6) storm sewer sampling locations described above were analyzed for TAL inorganics and TCL organics; analytical results are described below. Refer to **Appendix B-2** for the definitions of the data qualifiers. **Appendix C-1** presents the analytical results by location number.

#### *8.1.1.1 Inorganic Constituents*

**Table 8.1-1** lists the concentrations of TAL inorganics (total and dissolved) detected in these samples, and **Figure 8.1-1** illustrates the locations of these samples, along with the concentrations of total lead, arsenic, and cadmium.

The water sample collected from storm sewer inlet location 4A-P001 (on the east side of the Vilbig Landfill) exhibited the highest number of total TAL inorganic constituents, including lead, arsenic, and cadmium, which were detected at concentrations of 3,720 $\mu$g/L, 105 $\mu$g/L, and 13.3 $\mu$g/L, respectively. The elevated concentrations exhibited by this sample could be attributed to high levels of inorganic constituents in stormwater runoff from Iroquois and Gallagher Streets, or from uncontrolled surface dumping in the vicinity of this inlet, which was observed to have occurred frequently during the course of the RI field activities at Site 4 **(EPA, 1995b)**. Total lead was detected in four (4) other samples at concentrations up to 41.1 $\mu$g/L, and dissolved lead was detected in two (2) samples at concentrations of 1.4 $\mu$g/L (4D-P003) and 4.8J $\mu$g/L (4A-P001). Total arsenic was detected in two (2) other samples at concentrations up to 13.5 $\mu$g/L, and

dissolved arsenic was detected in two (2) samples at concentrations of 38.8 $\mu$g/L (4D-P001) and 45.2 $\mu$g/L (4A-P001). Cadmium (total or dissolved) was not detected in any other stormwater samples collected from Site 4.

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The few observed instances where the concentration of a dissolved inorganic constituent in a stormwater sample exceeded the total concentration of the same constituent for the same sample can be attributed to the sample collection technique (water was collected separately, in separate sample containers, for dissolved and total analyses) and/or expected variation in analytical results with low level detections.

#### *8.1.1.2 Organic Constituents*

The greatest number of TCL organic compound detections (including volatiles, semi-volatiles, and pesticides) were exhibited by the samples collected from storm sewer inlet 4D-P002 (located on the northern portion of Jaycee Park, or Area 4D) and curb inlet 4D-P004 (located off Tumalo Trail west of the park), as shown in **Table 8.1-2**. All detected concentrations of organics were below 13B $\mu$g/L (the concentration of methylene chloride exhibited by the sample from the open concrete drainage channel location 4D-P003).

### 8.1.2 Storm Sewer Sediment

The sediment samples (4A-P001 and 4A-P002) collected from two (2) storm sewer inlets off Iroquois Street were analyzed for TAL inorganics, TCL organics, and TCLP organics and inorganics. Sediment from the inlets at locations 4D-P001 and 4D-P002 also were submitted for analysis of TCLP organics and inorganics. Refer to **Appendix B-2** for definitions of the data qualifiers. **Appendix C-1** presents the analytical results, described below, by location number.

### *8.1.2.1 Inorganic Constituents*

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**Table 8.1-3** lists the concentrations of TAL inorganics detected in the sediment samples collected from Site 4, and **Figure 8.1-2** illustrates the locations of these samples, along with concentrations of lead, arsenic, and cadmium. Lead was detected in the samples from 4A-P001 and 4A-P002 at concentrations of 211JV mg/kg and 4,220J mg/kg, respectively, compared to the 30 mg/kg lead expected to occur in regional background soils **(Dragun and Chiasson, 1991)**. The arsenic concentrations exhibited by these samples (6.2 mg/kg and 7.8J mg/kg, respectively) and the cadmium concentration exhibited by the sample from 4A-P002 (0.73 mg/kg) were below the expected regional background levels of 18 mg/kg and 11 mg/kg, respectively **(Dragun and Chiasson, 1991)**.

### *8.1.2.2 Organic Constituents*

**Table 8.1-4** lists the concentrations of analytes detected in the two (2) samples collected for TCL organics analysis. Although all detected organic compounds were measured at concentrations below 2.2 mg/kg, twice as many were detected in the sample from 4A-P001 as in the sample from 4A-P002. No volatile organics were detected in either sample, and seventeen (17) semi-volatiles and six (6) pesticides were detected at concentrations up to 2.2J mg/kg.

### *8.1.2.3 TCLP Constituents*

One (1) or more of the four (4) sediment samples analyzed for TCLP constituents exhibited detections of five (5) inorganic analytes. As shown in **Table 8.1-5**, TCLP lead was detected in three (3) samples at concentrations up to 0.187 mg/L (4A-P001), and TCLP arsenic was detected in one (1) sample at a concentration of 0.0056B mg/L (4A-P001). TCLP cadmium was detected in three (3) samples up to 0.0108 $\mu$g/L. TCLP

cadmium was detected in three (3) samples up to 0.0108 $\mu g/L$. No TCLP organic constituents were detected in any of these samples.

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## 8.2 Surface Water and Sediment

This section describes the analytical results of the surface water and sediment investigation conducted on Site 4. As described in **Chapter 3**, seven (7) sampling locations (illustrated on **Figure 3.7-3**) were selected on Site 4: four (4) of these are located within the drainage that flows east between the north side of Site 4 and the south side of the Trinity River Levee (samples beginning with the prefix "4F-"), and three (3) are located within the Old Channel of the West Fork of the Trinity River that flows west and north toward the levee (samples beginning with the prefix "4E-"). These drainage channels, located on the southwestern, western, and northern sides of Site 4, receive surface water runoff from the landfills comprising this site, which is characterized by slag and battery casing chips over much of the ground surface. Sample location 4E-A003, the most upstream location, is considered to be most representative of background surface water on Site 4.

### 8.2.1 Surface Water

The seven (7) surface water samples collected from the locations described above were analyzed for TAL inorganics and TCL organics; analytical results (presented in **Appendix C-2**) are described below. Refer to **Appendix B-2** for definitions of the data qualifiers.

### *8.2.1.1 Inorganic Constituents*

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**Table 8.2-1** lists the concentrations of TAL inorganics (total and dissolved) detected in the seven (7) Site 4 surface water samples, and **Figure 8.2-1** illustrates the locations of these samples, along with concentrations of lead, arsenic, and cadmium.

Total lead was detected in two (2) of the three (3) samples collected from the Old Channel of the Trinity River at concentrations of 8 $\mu$g/L (4E-A002) and 6.1 $\mu$g/L (4E-A001), and in three (3) of the four (4) samples collected from the levee drainage at concentrations ranging from 3.7 $\mu$g/L to 8.2 $\mu$g/L (4F-A004). Dissolved lead was detected in three (3) samples collected from the levee drainage, and in one (1) sample collected from the downstream location of the Old Channel at concentrations up to 6 $\mu$g/L (4F-A002). Total and dissolved arsenic were detected in nearly all Site 4 surface water samples at concentrations up to 181 $\mu$g/L (4E-A001) and 140 $\mu$g/L (4F-A003), respectively. Neither total nor dissolved cadmium were detected in any of the Site 4 surface water samples. Although there is no apparent pattern to the occurrence of the lead and arsenic in these water samples, the contamination may be the result of localized runoff from contaminated areas on the landfill surface on the western side of the site.

The few observed instances where the concentration of a dissolved inorganic constituent in a surface water sample exceeded the total concentration of the same constituent for the same sample can be attributed to the sample collection technique (water was collected separately, in separate sample containers, for dissolved and total analyses) and/or expected variation in analytical results with low level detections.

### *8.2.1.2 Organic Constituents*

**Table 8.2-2** lists the concentrations of detected TCL organic compounds in Site 4 surface water samples, which were detected only in levee drainage channel samples. Two (2) volatile organics (chlorobenzene and methylene chloride), three (3) semi-volatiles (di-n-

butylphthalate, 1,3-dichlorobenzene, and 2-methylphenol), and two (2) pesticides (endosulfan I and heptachlor epoxide) were detected in one (1) or more of these four (4) samples at concentrations up to 9B $\mu$g/L (methylene chloride).

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### 8.2.2 Sediment

Sediment samples were collected from the seven (7) surface water sampling locations on Site 4 and analyzed for TAL inorganics and TCL organics; samples from two (2) of these locations also were submitted for TCLP analysis. Analytical results (presented in **Appendix C-2**) are described below. Refer to **Appendix B-2** for definitions of the data qualifiers.

#### *8.2.2.1 Inorganic Constituents*

**Table 8.2-3** lists the concentrations of TAL inorganics detected in the sediment samples collected from Site 4, and **Figure 8.2-2** illustrates the locations of these samples, along with concentrations of lead, arsenic, and cadmium. Lead was detected in four (4) samples (one (1) from the Old Channel, and three (3) from the levee drainage) at concentrations ranging from 41.7J mg/kg (4F-A004) to 265JV mg/kg (4F-A001). Arsenic was detected in three (3) of the four (4) samples collected from the levee drainage at concentrations ranging from 7JV mg/kg (4F-A004) to 19.2 mg/kg (4F-A003), and cadmium was detected only in the sample collected from 4F-A001 at a concentration of 4.6J mg/kg. For comparison, the expected regional background levels of these constituents are 30 mg/kg lead, 18 mg/kg arsenic and 11 mg/kg cadmium **(Dragun and Chiasson, 1991)**.

Inorganic constituent concentrations generally were higher in sediment samples collected from the levee drainage than in those collected from the Old Channel of the Trinity River. In particular, lead, arsenic, and zinc concentrations exhibited by the sample from 4F-A001 and 4F-A003 (near the northwest corner of Site 4) were the highest of any Site

4 sediment samples. These inorganic constituent levels may be attributed to relatively localized contamination sources (for example, runoff or groundwater recharge of the levee drainage in this area from a portion of the landfill where battery chips were present on the ground surface or in the subsurface).

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### *8.2.2.2 Organic Constituents*

**Table 8.2-4** lists the concentrations of TCL organics detected in the Site 4 sediment samples. A volatile organic constituent sometimes considered a laboratory contaminant, 2-butanone, was reported in one (1) sample (4E-A002) at a concentration of 0.008J mg/kg. Twenty-one (21) semi-volatile organic compounds were detected in one or more samples at concentrations up to 3.7J mg/kg (pyrene at 4F-A001), and thirteen (13) pesticide compounds were detected in sediment samples at concentrations ranging up to 0.01J mg/kg (Aroclor-1260 in sample 4F-A004). Each of the seven (7) samples exhibited several organic constituents each. However, the samples collected from 4F-A001 and 4F-A004 (locations farthest downstream and upstream, respectively, along the levee drainage) exhibited a higher number of detections than the other samples.

### *8.2.2.3 TCLP Constituents*

The sediment samples from 4E-A002 and 4F-A004, analyzed for TCLP inorganics and organics, exhibited low level detections of four (4) TCLP inorganic constituents (lead, arsenic, cadmium, and barium), as shown in **Table 8.2-5**. Detected concentrations were up to 0.573 mg/L (barium), none of which exceeded the corresponding levels for these constituents used to define the hazardous characteristics of a hazardous waste by the characteristic of toxicity (**40 CFR § 261.24**).

## 8.3 Soil Investigation

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For purposes of this report, surface soil is defined as the top 2 inches of soil, and subsurface soil is defined as the soil encountered below this 2-inch horizon. Two (2) primary methods of analysis were utilized on the surface and subsurface soil: in-field X-ray fluorescence (XRF) and laboratory analysis.

XRF was used as a field screening method for the collection of data to estimate the inorganic contaminant levels in surface and subsurface soil at OU No. 3. Selected soil samples also were collected for laboratory analysis of inorganics, organics, and other physical and chemical soil parameters. Discrepancies between inorganic data obtained using field XRF methods and inorganic data obtained by offsite laboratory methods generally are considered acceptable if they are within twenty (20) to thirty percent (30%) of each other **(Berry, Personal Communication, 1996)**. Higher discrepancies may be attributed to either: (1) insufficient homogenization of the sample material in the field, which may result in XRF measurements which are either much higher or much lower than what is representative of a particular constituent concentration at a particular grid node, or (2) insufficient digestion of the soil sample by the laboratory, which may result in under-estimation of the concentration of a particular constituent in the laboratory sample. Across the OU No. 3 sites, the average discrepancy between these two sets of analytical results was thirty-three percent (33%).

The following sections summarize both surface and subsurface soil sample analytical and XRF test results; XRF results are addressed qualitatively, while TAL inorganics results are discussed in more detail. The analytical results for surface soil, soil vapor, and subsurface soil are presented in **Appendices C-3** (XRF) and **C-4** (laboratory). Refer to **Appendix B-2** for definitions of the data qualifiers.

## 8.3.1 Surface Soil

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XRF analyses were performed at three-hundred forty-two (342) surface soil grid nodes established approximately 100 feet apart on Site 4, at the Vilbig Landfill (Area 4A), the Nomas Landfill (Area 4B), and the West Dallas Landfill (Area 4C), and approximately 50 feet apart on Jaycee Park (Area 4D). The locations of all the Site 4 grid nodes are illustrated on **Figure 3.10-3**.

The soil at each grid node was prepared for XRF analysis by clearing rocks, leaves, and other debris from a 10-by-10-inch square (centered around the grid node), and mixing the top 2 inches of soil within this area to reduce gross heterogeneity. Three (3) XRF readings were taken at different locations within the 10-by-10-inch square. All inorganics results were saved, and the results for lead, arsenic, and cadmium also were recorded. Based primarily on the XRF results, soil from eighty (80) of the grid node locations was collected for laboratory analysis of TAL inorganics. Eleven (11) of these samples were analyzed for TCLP, and one (1) was analyzed for TCL organics. Three (3) additional background samples (samples beginning with the prefix "4H-") were also collected and analyzed for TAL inorganics; one (1) of these samples also was analyzed for TCL organics.

### *8.3.1.1 Inorganic Constituents*

Illustrations of the ranges in concentrations of XRF lead, arsenic, and cadmium detected in the Site 4 surface soil samples are shown on **Figures 8.3-1, 8.3-2,** and **8.3-3**, respectively. XRF lead was detected at concentrations above the detection limit (up to 2,485 mg/kg) at one hundred ninety-four (194) grid nodes; as shown on **Figure 8.3-1**, higher lead concentrations were exhibited by samples collected from the center of the West Dallas Landfill (Area 4C). XRF arsenic was detected at sixty-seven (67) grid nodes at concentrations up to 63 mg/kg; higher arsenic levels were exhibited by samples collected primarily from the Jaycee Park Landfill (Area 4D) and the eastern side of the

Vilbig Landfill (Area 4A), as shown on **Figure 8.3-2**. XRF cadmium was detected at only five (5) grid nodes at concentrations up to 79 mg/kg.

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A list of the concentrations of TAL inorganics detected in surface soil samples collected for laboratory analysis on Site 4 is presented in **Table 8.3-1**. The locations of these samples, along with concentrations of lead, arsenic, and cadmium are provided in **Figures 8.3-4** and **8.3-5**.

Lead was detected in all of these samples at concentrations ranging from 9.1J mg/kg to 6,390J mg/kg (4C-S112, located within the partially-fenced area). Arsenic was detected in seventy-three (73) samples at concentrations up to 186 mg/kg (again, at 4C-S112). As shown, the highest lead and arsenic concentrations in surface soil on Site 4 generally were exhibited by samples from the West Dallas Landfill (Area 4C). These elevated lead concentrations appear to coincide somewhat with the presence of battery casing chips on the ground surface; portions of the partially-fenced area at the north end of Claibourne Boulevard is where the most widespread occurrence of battery chips was observed during the RI **(EPA, 1995b)**. Concentrations of lead and arsenic in surface soil samples outside these areas generally were lower by an order of magnitude or more. Cadmium was detected in forty-nine (49) samples at concentrations up to 8.7 mg/kg; the highest detected concentration of cadmium also was exhibited by a soil sample from Area 4C (4C-S052).

The maximum concentrations measured in samples collected from the three (3) background locations on Site 4 were 31.5JV mg/kg lead and 4.8JV mg/kg arsenic (cadmium was not detected in any background samples). Concentrations of TAL inorganics reported in the surface soil samples also were compared to regional background concentrations expected for this area **(Dragun and Chiasson, 1991)**. Concentrations of the following inorganic constituents exceeded expected regional background concentrations at one or more sampling locations by an order of magnitude or more: lead (thirty-six (36) samples), arsenic (one (1) sample), antimony (five (5) samples), copper (four (4) samples), and zinc (four (4) samples).

### *8.3.1.2 Organic Constituents*

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Table 8.3-2 lists the concentrations of organic analytes detected in the Site 4 surface soil samples collected for TCL organics analysis (4C-S077 and 4H-S500). One (1) volatile, four (4) semi-volatiles, and one (1) pesticide were detected in the sample from 4C-S077 at concentrations up to 0.35J mg/kg (bis(2-ethylhexyl)phthalate). No TCL organics were detected in the background sample from Site 4.

### *8.3.1.3 TCLP Constituents*

A list of concentrations of TCLP organics and inorganics detected in surface soil samples submitted for TCLP analysis are presented in **Table 8.3-3**. **Figure 8.3-6** illustrates these sample locations, along with concentration of TCLP lead, arsenic, and cadmium. Six (6) inorganic constituents, including lead, arsenic, and cadmium, were detected in one (1) or more of these samples at concentrations up to 1.66J mg/L (barium at 4C-S021). Volatile compound 2-butanone also was detected in the sample from 4D-S066 at a concentration of 0.05 mg/L.

## 8.3.2 Soil Vapor

Two (2) soil vapor samples were collected from one direct push boring on Site 4 (4C-S110, illustrated on **Figure 3.9-3**) as part of the Landfill Gas Investigation at OU No. 3. **Table 8.3-4** provides the analytical data for these two samples. Methane was the only constituent detected in these samples at concentrations of 2.3 ppm (10 feet bgs) and 1.9 ppm (20 feet bgs.) Landfill material, including battery casing chips, was observed on the ground surface at this location (**EPA, 1995b**), but not in subsurface soil core samples (**EPA, 1995j**).

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### 8.3.3 Subsurface Soil

On Site 4, nineteen (19) direct push borings were advanced at locations based on the surface soil XRF results and proximity of the boring to the expected landfill perimeter (to minimize the risk of encountering landfill gas and to obtain information on landfill extent). These locations had to be modified somewhat to account for accessibility of the selected locations to the direct push rig. These borings were advanced to refusal (which generally occurred at the top of the Eagle Ford Shale formation) at depths ranging from 7 feet to 27 feet bgs. Subsequently, fourteen (14) auger borings (nine (9) at direct push locations) were advanced to depths between 14 and 26.5 feet bgs. These soil boring locations are illustrated on **Figure 3.10-6**.

During both direct push and auger drilling activities, forty-five (45) subsurface soil samples were analyzed for inorganics in the field using the XRF. A total of thirty-two (32) of these samples were submitted for TAL inorganics analysis. Fifteen (15) of these samples also were submitted for TCL organics analysis, and four (4) were submitted for TCLP organics and inorganics analysis (three (3) of the samples submitted for TCLP were collected from soil cores containing battery casing chips). The analytical results are described below.

#### *8.3.3.1 Inorganic Constituents*

An illustration of the ranges in concentrations of XRF lead, arsenic, and cadmium detected in Site 4 subsurface soil samples is shown in **Figure 8.3-8**. Subsurface soil samples collected from 0 to 3 feet bgs exhibited XRF concentrations of lead, arsenic, and cadmium of up to 14,031 mg/kg (4B-S003), 63.2 mg/kg (4A-S060), and 115 mg/kg (4C-S110), respectively. Samples collected from depths greater than 3 feet bgs exhibited maximum concentrations of lead, arsenic, and cadmium of 1,357 mg/kg (4C-S057, 21 to 23 feet bgs), 60.4 mg/kg (4A-S030, 9 to 12 feet bgs), and 98.4 mg/kg (4B-S023, 9 to 10 feet bgs), respectively.

A list of TAL inorganics detected in subsurface soil samples submitted for laboratory analysis is presented in **Table 8.3-5**. The locations of these samples, along with the detected concentrations of lead, arsenic, and cadmium, are illustrated in **Figure 8.3-9**. Similar to the XRF results, inorganic concentrations generally were higher in shallow subsurface samples than in soil from the deeper intervals. Lead concentrations ranged from 12.6 mg/kg to 11,500J mg/kg (4C-S093) in the eight (8) samples collected from 0 to 3 feet bgs, and lead was detected at concentrations up to 2,060 mg/kg (4C-S057) in twenty-three (23) samples collected from 3 to 26.5 feet bgs. Similarly, arsenic and cadmium concentrations were detected at concentrations up to 114J mg/kg (4C-S093) and 15.1 mg/kg (4C-S016), respectively, in samples collected from 0 to 3 feet bgs, and up to 58.5 mg/kg (4C-S105) and 4.8 mg/kg (4C-S057), respectively, in samples collected from 3 to 26.5 feet bgs.

One exception is a sample collected from 4C-S057, where the concentrations of lead and arsenic in samples collected from 21 to 23 feet bgs (2,060 mg/kg and 27.8 mg/kg, respectively) were nearly identical to lead and arsenic concentrations in the sample collected from 0 to 3 feet bgs (2,590 mg/kg and 27.1 mg/kg, respectively). In this soil boring, battery casing chips were encountered in core samples to approximately 15 feet bgs.

Analytical results indicate that concentrations of inorganics detected in the shallow subsurface (0 to 3 feet bgs) generally are higher on Area 4C. Exceptions include locations where battery casing chips were encountered in the subsurface (for example, boring 4C-S057).

At background location 4D-S082 (located near the northeast corner of Jaycee Park) the concentrations of inorganics exhibited by a subsurface soil sample collected from this boring (9 to 12 feet bgs) were 10.2 mg/kg lead and 5.7 mg/kg arsenic; cadmium was not detected. The concentrations of TAL inorganics reported in subsurface soil samples collected from Site 4 also were compared to those expected in regional background soil (**Dragun and Chiasson, 1991**). Concentrations of the following inorganics exceeded the



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expected regional background concentrations at one or more boring locations by an order of magnitude or more: lead (eight (8) samples), antimony (four (4) samples), copper (six (6) samples), and zinc (five (5) samples).

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### *8.3.3.2 Organic Constituents*

A list of concentrations of TCL organics detected in selected subsurface soil samples collected from above the saturated zone in Site 4 soil borings is presented in **Table 8.3-6**. One (1) or more of thirty-four (34) organic constituents (including three (3) phthalate compounds, 2-butanone, and acetone) were detected in these samples at concentrations up to 0.33J mg/kg (di-n-butylphthalate).

### *8.3.3.3 TCLP Constituents*

A list of concentrations of organic and inorganic constituents detected in the four (4) subsurface soil samples submitted for TCLP analysis are presented in **Table 8.3-7**. **Figure 8.3-10** illustrates the locations of these samples, along with concentrations of TCLP lead, arsenic, and cadmium. Six (6) inorganic constituents, including lead (detected in all four (4) samples), and arsenic (detected in one (1) sample), and cadmium (detected in three (3) samples) were exhibited at concentrations no greater than 5.87 mg/L (lead at 4B-S003). The TCLP lead concentration in the sample from 4B-S003 (5.87 mg/L) is slightly higher than the TCLP lead level used to define a hazardous waste by the characteristic of toxicity **(40 CFR § 261.24)**. No TCLP organic constituents were detected.

## 8.4 Groundwater Investigation

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This section describes the analytical results of the groundwater investigation on Site 4. Thirteen (13) monitoring wells were installed on Site 4; as illustrated on **Figure 3.11-3**, four (4) wells were installed on the Vilbig Landfill (Area 4A), two (2) were installed on the Nomas Landfill (Area 4B), five (5) were installed on the West Dallas Landfill (Area 4C), and two (2) were installed in the Jaycee Park Landfill area (Area 4D). One (1) of the Area 4D wells (4D-S083) was designated as a background well, because no evidence of landfill debris, slag, battery casing chips, or other signs of contamination were observed on the surface or in the subsurface at this location. Each of the wells was screened in a water-bearing sand and gravel (which in some locations had been displaced by or mixed with landfill debris) directly overlying the Eagle Ford Shale, at depths ranging from 13 to 26 feet bgs. The groundwater samples collected from these wells were analyzed for TAL inorganics and TCL organics; analytical results, presented by location number in **Appendix C-5**, are described below. Refer to **Appendix B-2** for definitions of the data qualifiers.

### 8.4.1 Inorganic Constituents

A list of concentrations of TAL inorganics (total and dissolved) detected in the groundwater samples collected from monitoring wells on Site 4 is provided in **Table 8.4-1**. **Figure 8.4-1** illustrates the locations of these wells, along with concentrations of lead, arsenic, and cadmium. Total lead was detected in all thirteen (13) groundwater samples at concentrations ranging from 7.6 $\mu$g/L to 2,010 $\mu$g/L (4C-S057). Total arsenic was detected in twelve (12) samples at concentrations up to 142 $\mu$g/L (4C-S110), and total cadmium was detected in only one (1) sample at 3.4 $\mu$g/L (4C-S057). Dissolved arsenic was detected in ten (10) samples at concentrations up to 21.5 $\mu$g/L (4C-S110); dissolved lead and cadmium were not detected in any of these samples.

In general, the distribution of inorganics detected in groundwater of Site 4 demonstrate no particular geographic pattern. Lead and arsenic concentrations exhibited by Site 4 groundwater samples were slightly higher in wells located along the southern perimeter of Site 4 and within Area 4A. Significantly high concentrations of these constituents, as exhibited by samples from wells within Area 4C (4C-S057 and 4C-S110), may be attributed to nearby isolated contamination sources; battery casing chips were observed within the subsurface core samples at each of these well locations.

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The groundwater sample from background well 4D-S083 exhibited total lead and arsenic concentrations of 7.75 $\mu$g/L and 6.5 $\mu$g/L, respectively (neither total cadmium nor dissolved species of lead, arsenic, or cadmium, were detected in the background groundwater sample). TDS concentrations in these samples ranged from 659,000 $\mu$g/L to 1,870,000 $\mu$g/L (4C-S021).

### 8.4.2 Organic Constituents

**Table 8.4-2** provides a list of concentrations of TCL organics detected in groundwater samples collected from Site 4 monitoring wells. One (1) or more of four (4) volatiles (including acetone, 2-butanone, and chlorobenzene) were detected in eleven (11) samples at concentrations up to 300 $\mu$g/L, one or more of thirteen (13) semi-volatiles (including three (3) phthalate compounds) were detected in eleven (11) of these samples at concentrations up to 18 $\mu$g/L, and one (1) or more of seven (7) pesticides were detected in seven (7) samples at concentrations up to 0.036JV $\mu$g/L. No organics were detected in the background groundwater sample.

The highest concentrations of many of these constituents, including benzene and chlorobenzene (25 $\mu$g/L and 300 $\mu$g/L, respectively), were exhibited by the sample collected from well 4B-S023, located on the southeastern side of Area 3B (adjacent to Nomas Street). Benzene also was detected at a significant concentration in the sample collected from 4A-S047, located on the south side of Area 4A.

Table 8.1-1
Stormwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

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| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | | |
| **4A-P001 WL01** | | | | |
| | Aluminum | 105,000.00000 | | µg/L |
| | Antimony | 34.20000 | J^ | µg/L |
| | Arsenic | 105.00000 | | µg/L |
| | Barium | 1,560.00000 | | µg/L |
| | Beryllium | 10.00000 | | µg/L |
| | Cadmium | 13.30000 | | µg/L |
| | Calcium | 674,000.00000 | | µg/L |
| | Chromium | 167.00000 | | µg/L |
| | Cobalt | 60.30000 | | µg/L |
| | Copper | 516.00000 | | µg/L |
| | Iron | 120,000.00000 | | µg/L |
| | Lead | 3,720.00000 | | µg/L |
| | Magnesium | 30,800.00000 | | µg/L |
| | Manganese | 4,820.00000 | | µg/L |
| | Nickel | 243.00000 | | µg/L |
| | Potassium | 34,700.00000 | | µg/L |
| | Sodium | 28,000.00000 | | µg/L |
| | Vanadium | 283.00000 | | µg/L |
| | Zinc | 2,270.00000 | | µg/L |
| **4A-P002 WL01** | | | | |
| | Aluminum | 1,630.00000 | | µg/L |
| | Antimony | 4.30000 | | µg/L |
| | Barium | 110.00000 | | µg/L |
| | Calcium | 218,000.00000 | | µg/L |
| | Chromium | 4.10000 | | µg/L |
| | Cobalt | 4.10000 | | µg/L |
| | Copper | 7.00000 | vJ | µg/L |
| | Iron | 2,030.00000 | | µg/L |
| | Lead | 41.10000 | | µg/L |
| | Magnesium | 17,700.00000 | | µg/L |
| | Manganese | 1,190.00000 | | µg/L |
| | Nickel | 13.10000 | | µg/L |
| | Potassium | 4,110.00000 | | µg/L |
| | Sodium | 146,000.00000 | | µg/L |
| | Vanadium | 4.10000 | | µg/L |
| | Zinc | 37.90000 | | µg/L |
| **4D-P001 WL01** | | | | |
| | Aluminum | 419.00000 | | µg/L |
| | Barium | 75.20000 | | µg/L |
| | Calcium | 48,500.00000 | | µg/L |
| | Iron | 2,170.00000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.1-1
Stormwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

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| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Lead | 10.20000 | | µg/L |
| | Magnesium | 4,670.00000 | | µg/L |
| | Manganese | 74.50000 | | µg/L |
| | Potassium | 6,300.00000 | | µg/L |
| | Sodium | 18,700.00000 | | µg/L |
| | Zinc | 34.20000 | | µg/L |
| 4D-P002 WL01 | | | | |
| | Aluminum | 827.00000 | | µg/L |
| | Barium | 53.80000 | | µg/L |
| | Calcium | 36,900.00000 | | µg/L |
| | Copper | 20.70000 | J^ | µg/L |
| | Iron | 1,830.00000 | | µg/L |
| | Lead | 20.40000 | | µg/L |
| | Magnesium | 4,160.00000 | | µg/L |
| | Manganese | 59.30000 | | µg/L |
| | Potassium | 4,950.00000 | | µg/L |
| | Sodium | 18,500.00000 | | µg/L |
| | Vanadium | 3.40000 | | µg/L |
| | Zinc | 86.80000 | | µg/L |
| 4D-P003 WL01 | | | | |
| | Aluminum | 516.00000 | | µg/L |
| | Arsenic | 1.60000 | | µg/L |
| | Barium | 25.10000 | | µg/L |
| | Calcium | 21,100.00000 | | µg/L |
| | Iron | 508.00000 | | µg/L |
| | Magnesium | 912.00000 | | µg/L |
| | Manganese | 6.90000 | | µg/L |
| | Potassium | 4,040.00000 | | µg/L |
| | Sodium | 913.00000 | | µg/L |
| | Vanadium | 4.10000 | | µg/L |
| | Zinc | 16.40000 | | µg/L |
| 4D-P004 WL01 | | | | |
| | Aluminum | 5,105.00000 | | µg/L |
| | Antimony | 4.65000 | | µg/L |
| | Arsenic | 13.50000 | | µg/L |
| | Barium | 99.50000 | | µg/L |
| | Calcium | 81,350.00000 | | µg/L |
| | Chromium | 10.20000 | | µg/L |
| | Cobalt | 3.15000 | | µg/L |
| | Copper | 23.75000 | | µg/L |
| | Iron | 4,580.00000 | | µg/L |
| | Lead | 31.90000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.1-1**
**Stormwater TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

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| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Magnesium | 3,920.00000 | µg/L |
| | Manganese | 319.50000 | µg/L |
| | Nickel | 12.15000 | µg/L |
| | Potassium | 15,100.00000 | µg/L |
| | Selenium | 2.30000 | µg/L |
| | Sodium | 14,300.00000 | µg/L |
| | Vanadium | 13.40000 | µg/L |
| | Zinc | 100.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.1-1
Stormwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024682

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TAL DISSOLVED INORGANICS** | | |
| **4A-P001 WL01** | | | |
| | Arsenic | 45.20000 | µg/L |
| | Barium | 67.80000 J | µg/L |
| | Calcium | 57,400.00000 | µg/L |
| | Lead | 4.80000 J | µg/L |
| | Magnesium | 4,850.00000 | µg/L |
| | Manganese | 121.00000 | µg/L |
| | Potassium | 7,700.00000 | µg/L |
| | Sodium | 33,000.00000 | µg/L |
| | Vanadium | 2.50000 | µg/L |
| | Zinc | 5.70000 | µg/L |
| **4A-P002 WL01** | | | |
| | Antimony | 7.30000 | µg/L |
| | Arsenic | 3.30000 | µg/L |
| | Barium | 90.80000 | µg/L |
| | Calcium | 212,000.00000 | µg/L |
| | Cobalt | 2.70000 | µg/L |
| | Copper | 35.60000 | µg/L |
| | Magnesium | 17,700.00000 | µg/L |
| | Manganese | 767.00000 | µg/L |
| | Nickel | 10.00000 | µg/L |
| | Potassium | 3,840.00000 | µg/L |
| | Selenium | 11.50000 | µg/L |
| | Sodium | 150,000.00000 | µg/L |
| **4D-P001 WL01** | | | |
| | Arsenic | 38.80000 | µg/L |
| | Barium | 70.50000 J | µg/L |
| | Calcium | 48,400.00000 | µg/L |
| | Iron | 645.00000 | µg/L |
| | Magnesium | 4,650.00000 | µg/L |
| | Manganese | 69.30000 | µg/L |
| | Potassium | 7,070.00000 | µg/L |
| | Sodium | 20,300.00000 | µg/L |
| | Zinc | 8.70000 | µg/L |
| **4D-P002 WL01** | | | |
| | Arsenic | 12.70000 | µg/L |
| | Barium | 27.90000 J | µg/L |
| | Calcium | 33,900.00000 | µg/L |
| | Iron | 77.50000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.1-1**
**Stormwater TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

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| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Magnesium | 4,110.00000 | µg/L |
| | Manganese | 25.50000 | µg/L |
| | Potassium | 5,470.00000 | µg/L |
| | Sodium | 20,300.00000 | µg/L |
| | Zinc | 4.10000 | µg/L |
| **4D-P003 WL01** | | | |
| | Barium | 20.70000 | µg/L |
| | Calcium | 20,400.00000 | µg/L |
| | Iron | 46.70000 | µg/L |
| | Lead | 1.40000 | µg/L |
| | Magnesium | 827.00000 | µg/L |
| | Manganese | 1.90000 | µg/L |
| | Nickel | 16.70000 | µg/L |
| | Potassium | 4,070.00000 | µg/L |
| | Sodium | 938.00000 | µg/L |
| | Vanadium | 3.10000 | µg/L |
| | Zinc | 5.40000 | µg/L |
| **4D-P004 WL01** | | | |
| | Antimony | 6.45000 | µg/L |
| | Arsenic | 14.75000 | µg/L |
| | Barium | 70.70000 | µg/L |
| | Calcium | 71,800.00000 | µg/L |
| | Chromium | 2.25000 | µg/L |
| | Cobalt | 1.55000 | µg/L |
| | Copper | 14.90000 | µg/L |
| | Iron | 16.90000 | µg/L |
| | Magnesium | 3,245.00000 | µg/L |
| | Manganese | 216.00000 | µg/L |
| | Nickel | 7.00000 | µg/L |
| | Potassium | 15,200.00000 | µg/L |
| | Selenium | 5.35000 J | µg/L |
| | Sodium | 14,500.00000 | µg/L |
| | Vanadium | 2.55000 | µg/L |
| | Zinc | 11.15000 ^J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.1-2
Stormwater TCL Organic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024684

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **4A-P002 WL01** | | | |
| | Acetone | 1.00000 J | µg/L |
| **4D-P001 WL01** | | | |
| | Acetone | 2.00000 J | µg/L |
| | Bromodichloromethane | 1.00000 J | µg/L |
| | Dibromochloromethane | 1.00000 J | µg/L |
| **4D-P002 WL01** | | | |
| | Acetone | 3.00000 J | µg/L |
| | Bromodichloromethane | 4.00000 J | µg/L |
| | Dibromochloromethane | 3.00000 J | µg/L |
| **4D-P003 WL01** | | | |
| | Methylene Chloride | 13.00000 B | µg/L |
| **4D-P004 WL01** | | | |
| | Acetone | 9.00000 J | µg/L |
| | 4-Methyl-2-Pentanone | 3.00000 J | µg/L |
| | **TCL SEMI-VOLATILES** | | |
| **4A-P001 WL01** | | | |
| | Fluoranthene | 0.70000 J | µg/L |
| | Pyrene | 0.90000 J | µg/L |
| **4A-P002 WL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 1.00000 J | µg/L |
| | Fluoranthene | 0.60000 J | µg/L |
| **4D-P002 WL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 1.00000 J | µg/L |
| | Pyrene | 0.70000 J | µg/L |
| **4D-P004 WL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 3.00000 J | µg/L |
| | 2-Methylphenol | 1.50000 J | µg/L |
| | **TCL PESTICIDES** | | |
| **4A-P001 WL01** | | | |
| | beta-BHC | 0.00620 J | µg/L |
| **4D-P002 WL01** | | | |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.1-2
Stormwater TCL Organic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024685

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Aldrin | 0.00630 J | µg/L |
| | beta-BHC | 0.00820 J | µg/L |
| **4D-P004 WL01** | | | |
| | alpha-BHC | 0.00715 J | µg/L |
| | Endosulfan I | 0.00755 Jv | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.1-3
Storm Sewer Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024686

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | | |
| **4A-P001 DL01** | | | | |
| | Aluminum | 11,100.00000 | | mg/kg |
| | Antimony | 3.60000 | | mg/kg |
| | Arsenic | 6.20000 | | mg/kg |
| | Barium | 119.00000 | | mg/kg |
| | Beryllium | 0.94000 | | mg/kg |
| | Calcium | 57,600.00000 | | mg/kg |
| | Chromium | 22.20000 | | mg/kg |
| | Cobalt | 6.20000 | | mg/kg |
| | Copper | 78.90000 | | mg/kg |
| | Iron | 15,700.00000 | | mg/kg |
| | Lead | 211.00000 | Jv | mg/kg |
| | Magnesium | 2,540.00000 | | mg/kg |
| | Manganese | 448.00000 | Jv | mg/kg |
| | Nickel | 18.90000 | | mg/kg |
| | Potassium | 2,450.00000 | | mg/kg |
| | Sodium | 1,020.00000 | J | mg/kg |
| | Vanadium | 30.10000 | | mg/kg |
| | Zinc | 168.00000 | | mg/kg |
| **4A-P002 DL01** | | | | |
| | Aluminum | 770.00000 | J | mg/kg |
| | Antimony | 21.00000 | Jv | mg/kg |
| | Arsenic | 7.80000 | J | mg/kg |
| | Barium | 28.90000 | Jv | mg/kg |
| | Beryllium | 0.33000 | | mg/kg |
| | Cadmium | 0.73000 | | mg/kg |
| | Calcium | 83,500.00000 | | mg/kg |
| | Chromium | 7.00000 | | mg/kg |
| | Cobalt | 4.40000 | | mg/kg |
| | Copper | 43.60000 | Jv | mg/kg |
| | Iron | 13,400.00000 | | mg/kg |
| | Lead | 4,220.00000 | J | mg/kg |
| | Magnesium | 765.00000 | | mg/kg |
| | Manganese | 570.00000 | Jv | mg/kg |
| | Nickel | 8.90000 | | mg/kg |
| | Potassium | 173.00000 | | mg/kg |
| | Sodium | 179.00000 | vJ | mg/kg |
| | Vanadium | 10.70000 | J | mg/kg |
| | Zinc | 48.00000 | Jv | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.1-4
Storm Sewer Sediment TCL Organic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

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| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TCL SEMI-VOLATILES** | | |
| **4A-P001 DL01** | | | |
| | Acenaphthene | 0.03700 J | mg/kg |
| | Anthracene | 0.07500 J | mg/kg |
| | Benzo(a)anthracene | 0.52000 J | mg/kg |
| | Benzo(a)pyrene | 0.48000 J | mg/kg |
| | Benzo(b)fluoranthene | 0.88000 J | mg/kg |
| | Benzo(g,h,i)perylene | 0.65000 J | mg/kg |
| | Benzo(k)fluoranthene | 0.39000 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 1.00000 J | mg/kg |
| | Butylbenzylphthalate | 0.20000 J | mg/kg |
| | Chrysene | 0.66000 J | mg/kg |
| | Di-n-butylphthalate | 0.19000 J | mg/kg |
| | Fluoranthene | 0.93000 | mg/kg |
| | Indeno(1,2,3-cd)pyrene | 0.54000 J | mg/kg |
| | 4-Methylphenol | 0.06700 J | mg/kg |
| | Phenanthrene | 0.61000 | mg/kg |
| | Pyrene | 2.20000 J | mg/kg |
| **4A-P002 DL01** | | | |
| | Benzo(a)pyrene | 0.02200 J | mg/kg |
| | Benzo(b)fluoranthene | 0.03200 J | mg/kg |
| | Benzo(k)fluoranthene | 0.02400 J | mg/kg |
| | Butylbenzylphthalate | 0.07100 J | mg/kg |
| | Chrysene | 0.04000 J | mg/kg |
| | Di-n-octylphthalate | 0.03200 J | mg/kg |
| | Fluoranthene | 0.03600 J | mg/kg |
| | Pyrene | 0.04300 J | mg/kg |
| | **TCL PESTICIDES** | | |
| **4A-P001 DL01** | | | |
| | alpha-Chlordane | 0.00160 J | mg/kg |
| | gamma-Chlordane | 0.00140 J | mg/kg |
| | 4,4'-DDD | 0.00081 J | mg/kg |
| | 4,4'-DDE | 0.00120 J | mg/kg |
| | 4,4'-DDT | 0.00180 J | mg/kg |
| | Dieldrin | 0.00100 J | mg/kg |
| **4A-P002 DL01** | | | |
| | alpha-Chlordane | 0.00065 J | mg/kg |
| | gamma-Chlordane | 0.00010 J | mg/kg |
| | 4,4'-DDD | 0.00047 J | mg/kg |
| | 4,4'-DDE | 0.00048 J | mg/kg |
| | 4,4'-DDT | 0.00110 J | mg/kg |
| | Dieldrin | 0.00079 J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

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**Table 8.1-5**
**Storm Sewer Sediment TCLP Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| **4A-P001 DL01** | | | |
| | Arsenic | 0.00560 B | mg/L |
| | Barium | 1.03000 J | mg/L |
| | Cadmium | 0.00770 | mg/L |
| | Lead | 0.18700 | mg/L |
| **4A-P002 DL01** | | | |
| | Barium | 0.82500 | mg/L |
| | Cadmium | 0.00064 B | mg/L |
| | Selenium | 0.00990 B* | mg/L |
| **4D-P001 DL01** | | | |
| | Barium | 1.30000 J | mg/L |
| | Cadmium | 0.01080 | mg/L |
| | Lead | 0.02440 S | mg/L |
| **4D-P002 DL01** | | | |
| | Barium | 0.20500 J | mg/L |
| | Lead | 0.00300 J | mg/L |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers.*

Table 8.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024689

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | |
| **4E-A001 WL01** | | | |
| | Aluminum | 161.00000 | µg/L |
| | Antimony | 30.00000 | µg/L |
| | Arsenic | 181.00000 | µg/L |
| | Barium | 255.00000 | µg/L |
| | Calcium | 113,000.00000 | µg/L |
| | Cobalt | 5.00000 | µg/L |
| | Copper | 24.30000 | µg/L |
| | Iron | 8,390.00000 | µg/L |
| | Lead | 6.10000 | µg/L |
| | Magnesium | 18,600.00000 | µg/L |
| | Manganese | 1,020.00000 | µg/L |
| | Mercury | 0.20000 | µg/L |
| | Potassium | 29,800.00000 | µg/L |
| | Sodium | 171,000.00000 | µg/L |
| **4E-A002 WL01** | | | |
| | Aluminum | 149.00000 | µg/L |
| | Barium | 43.30000 | µg/L |
| | Calcium | 116,000.00000 | µg/L |
| | Copper | 13.30000 | µg/L |
| | Iron | 1,030.00000 | µg/L |
| | Lead | 8.00000 | µg/L |
| | Magnesium | 13,000.00000 | µg/L |
| | Manganese | 133.00000 | µg/L |
| | Mercury | 0.26000 | µg/L |
| | Potassium | 5,770.00000 | µg/L |
| | Sodium | 61,900.00000 | µg/L |
| | Zinc | 10.50000 | µg/L |
| **4E-A003 WL01** | | | |
| | Aluminum | 84.80000 | µg/L |
| | Antimony | 6.30000 | µg/L |
| | Arsenic | 50.00000 | µg/L |
| | Barium | 40.90000 | µg/L |
| | Calcium | 118,000.00000 | µg/L |
| | Copper | 8.60000 | µg/L |
| | Iron | 354.00000 | µg/L |
| | Magnesium | 13,100.00000 | µg/L |
| | Manganese | 92.70000 | µg/L |
| | Mercury | 0.26000 | µg/L |
| | Potassium | 6,310.00000 | µg/L |
| | Sodium | 71,100.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.2-1**
**Surface Water TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024690

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| **4F-A001 WL01** | | | |
| | Aluminum | 35.40000 C | µg/L |
| | Antimony | 9.35000 | µg/L |
| | Arsenic | 47.30000 J | µg/L |
| | Barium | 61.05000 | µg/L |
| | Calcium | 90,300.00000 | µg/L |
| | Copper | 13.67500 C | µg/L |
| | Iron | 242.00000 | µg/L |
| | Lead | 3.65000 | µg/L |
| | Magnesium | 9,325.00000 | µg/L |
| | Manganese | 72.00000 | µg/L |
| | Mercury | 0.20000 | µg/L |
| | Potassium | 7,510.00000 | µg/L |
| | Selenium | 5.10000 | µg/L |
| | Sodium | 72,900.00000 | µg/L |
| **4F-A002 WL01** | | | |
| | Aluminum | 230.00000 | µg/L |
| | Barium | 207.00000 | µg/L |
| | Calcium | 101,000.00000 | µg/L |
| | Cobalt | 2.00000 | µg/L |
| | Copper | 24.10000 | µg/L |
| | Iron | 570.00000 | µg/L |
| | Lead | 7.50000 | µg/L |
| | Magnesium | 16,300.00000 | µg/L |
| | Manganese | 318.00000 | µg/L |
| | Potassium | 27,600.00000 | µg/L |
| | Sodium | 122,000.00000 | µg/L |
| | Zinc | 71.00000 | µg/L |
| **4F-A003 WL01** | | | |
| | Antimony | 23.40000 | µg/L |
| | Arsenic | 118.00000 | µg/L |
| | Barium | 429.00000 | µg/L |
| | Calcium | 132,000.00000 | µg/L |
| | Cobalt | 4.70000 | µg/L |
| | Iron | 639.00000 | µg/L |
| | Magnesium | 21,200.00000 | µg/L |
| | Manganese | 1,170.00000 | µg/L |
| | Nickel | 15.20000 | µg/L |
| | Potassium | 43,100.00000 | µg/L |
| | Sodium | 179,000.00000 | µg/L |
| | Zinc | 7.20000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024691

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| **4F-A004 WL01** | | | |
| | Aluminum | 6,105.00000 | µg/L |
| | Arsenic | 1.20000 | µg/L |
| | Barium | 41.60000 | µg/L |
| | Beryllium | 0.30500 | µg/L |
| | Calcium | 38,900.00000 | µg/L |
| | Chromium | 10.00000 | µg/L |
| | Iron | 6,865.00000 | µg/L |
| | Lead | 8.20000 | µg/L |
| | Magnesium | 2,905.00000 | µg/L |
| | Manganese | 127.50000 | µg/L |
| | Mercury | 0.08000 | µg/L |
| | Nickel | 21.20000 | µg/L |
| | Potassium | 5,355.00000 | µg/L |
| | Sodium | 3,620.00000 | µg/L |
| | Vanadium | 17.25000 | µg/L |
| | Zinc | 44.25000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024692

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TAL DISSOLVED INORGANICS** | | |
| **4E-A001 WL01** | | | |
| | Arsenic | 80.70000 | µg/L |
| | Barium | 291.00000 J | µg/L |
| | Calcium | 140,000.00000 | µg/L |
| | Cobalt | 6.50000 | µg/L |
| | Iron | 7,050.00000 | µg/L |
| | Lead | 3.60000 J | µg/L |
| | Magnesium | 28,200.00000 | µg/L |
| | Manganese | 1,190.00000 | µg/L |
| | Nickel | 12.50000 | µg/L |
| | Potassium | 35,100.00000 | µg/L |
| | Sodium | 200,000.00000 | µg/L |
| **4E-A002 WL01** | | | |
| | Arsenic | 51.30000 | µg/L |
| | Barium | 41.60000 J | µg/L |
| | Calcium | 120,000.00000 | µg/L |
| | Magnesium | 13,400.00000 | µg/L |
| | Manganese | 117.00000 | µg/L |
| | Potassium | 6,370.00000 | µg/L |
| | Sodium | 71,200.00000 | µg/L |
| **4E-A003 WL01** | | | |
| | Arsenic | 38.50000 | µg/L |
| | Barium | 40.50000 | µg/L |
| | Calcium | 122,000.00000 | µg/L |
| | Iron | 66.00000 | µg/L |
| | Magnesium | 13,800.00000 | µg/L |
| | Manganese | 84.50000 | µg/L |
| | Potassium | 6,510.00000 | µg/L |
| | Sodium | 76,300.00000 | µg/L |
| **4F-A001 WL01** | | | |
| | Arsenic | 59.50000 | µg/L |
| | Barium | 61.25000 J | µg/L |
| | Calcium | 94,600.00000 | µg/L |
| | Magnesium | 9,920.00000 | µg/L |
| | Manganese | 36.44000 | µg/L |
| | Potassium | 8,230.00000 | µg/L |
| | Sodium | 78,950.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.2-1
Surface Water TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024693

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| 4F-A002 WL01 | | | |
| | Arsenic | 133.00000 | µg/L |
| | Barium | 186.00000 J | µg/L |
| | Calcium | 92,900.00000 | µg/L |
| | Cobalt | 3.20000 | µg/L |
| | Lead | 6.00000 | µg/L |
| | Magnesium | 14,500.00000 | µg/L |
| | Manganese | 97.30000 | µg/L |
| | Potassium | 30,600.00000 | µg/L |
| | Sodium | 138,000.00000 | µg/L |
| 4F-A003 WL01 | | | |
| | Arsenic | 140.00000 | µg/L |
| | Barium | 418.00000 J | µg/L |
| | Calcium | 143,000.00000 | µg/L |
| | Cobalt | 3.80000 | µg/L |
| | Lead | 3.60000 J | µg/L |
| | Magnesium | 24,200.00000 | µg/L |
| | Manganese | 1,270.00000 | µg/L |
| | Nickel | 16.10000 | µg/L |
| | Potassium | 48,900.00000 | µg/L |
| | Sodium | 195,000.00000 | µg/L |
| | Zinc | 4.30000 | µg/L |
| 4F-A004 WL01 | | | |
| | Barium | 15.20000 | µg/L |
| | Calcium | 28,250.00000 | µg/L |
| | Iron | 112.10000 | µg/L |
| | Lead | 1.50000 | µg/L |
| | Magnesium | 1,790.00000 | µg/L |
| | Manganese | 2.60000 | µg/L |
| | Nickel | 11.80000 | µg/L |
| | Potassium | 3,885.00000 | µg/L |
| | Sodium | 3,575.00000 | µg/L |
| | Zinc | 6.20000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.2-2
Surface Water TCL Organic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024694

| *Location & Sample Number* | *Parameter* | *Result & Qualifie* | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **4F-A003 WL01** | | | |
| | Chlorobenzene | 1.00000 J | µg/L |
| **4F-A004 WL01** | | | |
| | Methylene Chloride | 9.00000 B | µg/L |
| | **TCL SEMI-VOLATILES** | | |
| **4F-A001 WL01** | | | |
| | Di-n-butylphthalate | 2.75000 J | µg/L |
| **4F-A002 WL01** | | | |
| | 1,3-Dichlorobenzene | 3.00000 J | µg/L |
| **4F-A003 WL01** | | | |
| | 2-Methylphenol | 2.00000 J | µg/L |
| | **TCL PESTICIDES** | | |
| **4F-A001 WL01** | | | |
| | Endosulfan I | 0.01565 J | µg/L |
| | Heptachlor epoxide | 0.01700 J | µg/L |
| **4F-A002 WL01** | | | |
| | Heptachlor epoxide | 0.01600 J | µg/L |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers.*

Table 8.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024695

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | | |
| **4E-A001 DL01** | | | | |
| | Aluminum | 12,600.00000 | | mg/kg |
| | Barium | 159.00000 | | mg/kg |
| | Beryllium | 1.80000 | | mg/kg |
| | Calcium | 91,400.00000 | | mg/kg |
| | Chromium | 23.50000 | | mg/kg |
| | Cobalt | 7.80000 | | mg/kg |
| | Iron | 35,400.00000 | | mg/kg |
| | Magnesium | 3,710.00000 | | mg/kg |
| | Manganese | 754.00000 | Jv | mg/kg |
| | Nickel | 24.50000 | | mg/kg |
| | Potassium | 3,360.00000 | | mg/kg |
| | Vanadium | 35.00000 | | mg/kg |
| | Zinc | 163.00000 | J^ | mg/kg |
| **4E-A002 DL01** | | | | |
| | Aluminum | 14,500.00000 | | mg/kg |
| | Barium | 99.20000 | | mg/kg |
| | Beryllium | 1.70000 | | mg/kg |
| | Calcium | 102,000.00000 | | mg/kg |
| | Chromium | 28.50000 | | mg/kg |
| | Cobalt | 10.00000 | | mg/kg |
| | Iron | 26,700.00000 | | mg/kg |
| | Magnesium | 3,690.00000 | | mg/kg |
| | Manganese | 502.00000 | Jv | mg/kg |
| | Nickel | 29.90000 | | mg/kg |
| | Potassium | 3,800.00000 | | mg/kg |
| | Vanadium | 42.00000 | | mg/kg |
| | Zinc | 147.00000 | J^ | mg/kg |
| **4E-A003 DL01** | | | | |
| | Aluminum | 15,900.00000 | | mg/kg |
| | Barium | 94.50000 | | mg/kg |
| | Beryllium | 1.60000 | | mg/kg |
| | Calcium | 81,900.00000 | | mg/kg |
| | Chromium | 30.10000 | | mg/kg |
| | Cobalt | 9.80000 | | mg/kg |
| | Iron | 23,000.00000 | | mg/kg |
| | Lead | 104.00000 | Jv | mg/kg |
| | Magnesium | 3,520.00000 | | mg/kg |
| | Manganese | 779.00000 | Jv | mg/kg |
| | Nickel | 28.10000 | | mg/kg |
| | Potassium | 3,860.00000 | | mg/kg |
| | Vanadium | 38.50000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024696

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Zinc | 140.00000 | | mg/kg |
| 4F-A001 DL01 | | | | |
| | Aluminum | 14,350.00000 | | mg/kg |
| | Arsenic | 16.60000 | J^ | mg/kg |
| | Barium | 103.60000 | | mg/kg |
| | Beryllium | 1.90000 | | mg/kg |
| | Cadmium | 4.61000 | J | mg/kg |
| | Calcium | 82,900.00000 | J | mg/kg |
| | Chromium | 31.30000 | | mg/kg |
| | Cobalt | 10.25000 | | mg/kg |
| | Iron | 39,450.00000 | | mg/kg |
| | Lead | 265.00000 | Jv | mg/kg |
| | Magnesium | 3,175.00000 | | mg/kg |
| | Manganese | 852.00000 | Jv | mg/kg |
| | Mercury | 0.20000 | | mg/kg |
| | Nickel | 26.20000 | | mg/kg |
| | Potassium | 3,310.00000 | | mg/kg |
| | Vanadium | 44.15000 | | mg/kg |
| | Zinc | 204.00000 | | mg/kg |
| 4F-A002 DL01 | | | | |
| | Aluminum | 17,000.00000 | | mg/kg |
| | Barium | 162.00000 | | mg/kg |
| | Beryllium | 1.70000 | | mg/kg |
| | Calcium | 57,000.00000 | | mg/kg |
| | Chromium | 28.00000 | | mg/kg |
| | Cobalt | 9.30000 | | mg/kg |
| | Iron | 25,000.00000 | | mg/kg |
| | Magnesium | 3,830.00000 | | mg/kg |
| | Manganese | 781.00000 | Jv | mg/kg |
| | Nickel | 23.00000 | | mg/kg |
| | Potassium | 4,900.00000 | | mg/kg |
| | Vanadium | 41.00000 | | mg/kg |
| | Zinc | 123.00000 | J^ | mg/kg |
| 4F-A003 DL01 | | | | |
| | Aluminum | 17,100.00000 | | mg/kg |
| | Arsenic | 19.20000 | | mg/kg |
| | Barium | 127.00000 | | mg/kg |
| | Beryllium | 1.70000 | | mg/kg |
| | Calcium | 97,100.00000 | | mg/kg |
| | Chromium | 29.50000 | | mg/kg |
| | Cobalt | 11.20000 | | mg/kg |
| | Copper | 71.90000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.2-3
Sediment TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024697

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Iron | 28,800.00000 | | mg/kg |
| | Lead | 149.00000 | Jv | mg/kg |
| | Magnesium | 4,490.00000 | | mg/kg |
| | Manganese | 1,200.00000 | Jv | mg/kg |
| | Nickel | 30.40000 | | mg/kg |
| | Potassium | 5,900.00000 | | mg/kg |
| | Sodium | 2,510.00000 | J | mg/kg |
| | Vanadium | 46.00000 | | mg/kg |
| | Zinc | 220.00000 | | mg/kg |
| 4F-A004 DL01 | | | | |
| | Aluminum | 21,100.00000 | | mg/kg |
| | Arsenic | 6.95000 | Jv | mg/kg |
| | Barium | 95.80000 | | mg/kg |
| | Beryllium | 1.01500 | | mg/kg |
| | Calcium | 79,650.00000 | | mg/kg |
| | Chromium | 32.65000 | | mg/kg |
| | Cobalt | 10.55000 | | mg/kg |
| | Copper | 24.25000 | | mg/kg |
| | Iron | 21,550.00000 | | mg/kg |
| | Lead | 41.65000 | J | mg/kg |
| | Magnesium | 4,395.00000 | | mg/kg |
| | Manganese | 603.00000 | | mg/kg |
| | Nickel | 26.60000 | | mg/kg |
| | Potassium | 3,985.00000 | | mg/kg |
| | Sodium | 171.50000 | | mg/kg |
| | Vanadium | 48.50000 | | mg/kg |
| | Zinc | 111.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.2-4
Sediment TCL Organic Analytical Data
*Operable Unit No. 3, Site 4*
RSR Corporation Superfund Site
Dallas, Texas

024698

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **4E-A002 DL01** | | | |
| | 2-Butanone | 0.00800 J | mg/kg |
| | **TCL SEMI-VOLATILES** | | |
| **4E-A001 DL01** | | | |
| | Benzo(a)pyrene | 0.12000 J | mg/kg |
| | Benzo(b)fluoranthene | 0.15000 J | mg/kg |
| | Benzo(g,h,i)perylene | 0.11000 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.84000 J | mg/kg |
| | Fluoranthene | 0.17000 J | mg/kg |
| | Indeno(1,2,3-cd)pyrene | 0.09100 J | mg/kg |
| | Phenanthrene | 0.07100 J | mg/kg |
| | Pyrene | 0.23000 J | mg/kg |
| **4E-A002 DL01** | | | |
| | Benzo(a)anthracene | 0.17000 J | mg/kg |
| | Benzo(a)pyrene | 0.14000 J | mg/kg |
| | Benzo(b)fluoranthene | 0.18000 J | mg/kg |
| | Benzo(g,h,i)perylene | 0.12000 J | mg/kg |
| | Benzo(k)fluoranthene | 0.14000 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 1.10000 | mg/kg |
| | Chrysene | 0.17000 J | mg/kg |
| | Fluoranthene | 0.20000 J | mg/kg |
| | Indeno(1,2,3-cd)pyrene | 0.09800 J | mg/kg |
| | Phenanthrene | 0.09600 J | mg/kg |
| | Pyrene | 0.30000 J | mg/kg |
| **4E-A003 DL01** | | | |
| | Anthracene | 0.18000 J | mg/kg |
| | Benzo(a)anthracene | 0.24000 J | mg/kg |
| | Benzo(a)pyrene | 0.28000 J | mg/kg |
| | Benzo(b)fluoranthene | 0.36000 J | mg/kg |
| | Benzo(g,h,i)perylene | 0.22000 J | mg/kg |
| | Benzo(k)fluoranthene | 0.24000 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 1.10000 | mg/kg |
| | Butylbenzylphthalate | 0.92000 J | mg/kg |
| | Chrysene | 0.29000 J | mg/kg |
| | Fluoranthene | 0.39000 J | mg/kg |
| | Indeno(1,2,3-cd)pyrene | 0.20000 J | mg/kg |
| | Phenanthrene | 0.18000 J | mg/kg |
| | Pyrene | 0.54000 J | mg/kg |
| **4F-A001 DL01** | | | |
| | Acenaphthene | 0.11350 J | mg/kg |
| | Anthracene | 0.19000 J | mg/kg |
| | Benzo(a)anthracene | 1.50000 J | mg/kg |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers.*

**Table 8.2-4**
**Sediment TCL Organic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024699

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Benzo(a)pyrene | 1.50000 | J | mg/kg |
| | Benzo(b)fluoranthene | 2.15000 | J | mg/kg |
| | Benzo(g,h,i)perylene | 1.25000 | J | mg/kg |
| | Benzo(k)fluoranthene | 1.35000 | J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 1.46500 | J | mg/kg |
| | Carbazole | 0.21000 | J | mg/kg |
| | Chrysene | 1.75000 | J | mg/kg |
| | Dibenzofuran | 0.04550 | J | mg/kg |
| | Fluoranthene | 2.10000 | | mg/kg |
| | Fluorene | 0.08900 | J | mg/kg |
| | Indeno(1,2,3-cd)pyrene | 1.20000 | J | mg/kg |
| | Phenanthrene | 1.50000 | | mg/kg |
| | Pyrene | 3.70000 | J | mg/kg |
| **4F-A002 DL01** | | | | |
| | Benzo(a)pyrene | 0.05700 | J | mg/kg |
| | Benzo(b)fluoranthene | 0.07200 | J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.20000 | J | mg/kg |
| | Fluoranthene | 0.08000 | J | mg/kg |
| | Nitrobenzene | 0.08300 | J | mg/kg |
| | Pyrene | 0.09700 | J | mg/kg |
| **4F-A003 DL01** | | | | |
| | bis(2-Ethylhexyl)phthalate | 0.15000 | J | mg/kg |
| | Butylbenzylphthalate | 0.08300 | J | mg/kg |
| | Di-n-butylphthalate | 0.10000 | J | mg/kg |
| **4F-A004 DL01** | | | | |
| | Anthracene | 0.16900 | J | mg/kg |
| | Benzo(a)anthracene | 0.14450 | J | mg/kg |
| | Benzo(a)pyrene | 0.13000 | J | mg/kg |
| | Benzo(b)fluoranthene | 0.17500 | J | mg/kg |
| | Benzo(g,h,i)perylene | 0.09750 | J | mg/kg |
| | Benzo(k)fluoranthene | 0.13500 | J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.32500 | J | mg/kg |
| | Butylbenzylphthalate | 0.04500 | J | mg/kg |
| | Carbazole | 0.17200 | J | mg/kg |
| | Chrysene | 0.19000 | J | mg/kg |
| | Di-n-butylphthalate | 0.03050 | J | mg/kg |
| | Di-n-octylphthalate | 0.38800 | J | mg/kg |
| | Dibenz(a,h)anthracene | 0.16000 | J | mg/kg |
| | Fluoranthene | 0.34000 | J | mg/kg |
| | Fluorene | 0.15950 | J | mg/kg |
| | Indeno(1,2,3-cd)pyrene | 0.09050 | J | mg/kg |
| | Phenanthrene | 0.21950 | J | mg/kg |
| | Pyrene | 0.41000 | J | mg/kg |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers.*

Table 8.2-4
Sediment TCL Organic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024700

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TCL PESTICIDES** | | |
| **4E-A001 DL01** | | | |
| | alpha-Chlordane | 0.00150 J | mg/kg |
| | gamma-Chlordane | 0.00089 J | mg/kg |
| | 4,4'-DDE | 0.00130 J | mg/kg |
| **4E-A002 DL01** | | | |
| | alpha-Chlordane | 0.00210 J | mg/kg |
| | gamma-Chlordane | 0.00400 J | mg/kg |
| | 4,4'-DDE | 0.00160 J | mg/kg |
| | 4,4'-DDT | 0.00220 J | mg/kg |
| | Dieldrin | 0.00390 J | mg/kg |
| | Endosulfan sulfate | 0.00180 J | mg/kg |
| **4E-A003 DL01** | | | |
| | alpha-Chlordane | 0.00470 | mg/kg |
| | gamma-Chlordane | 0.00360 J | mg/kg |
| | 4,4'-DDE | 0.00170 J | mg/kg |
| | 4,4'-DDT | 0.00150 J | mg/kg |
| | Dieldrin | 0.00440 J | mg/kg |
| **4F-A001 DL01** | | | |
| | alpha-Chlordane | 0.00645 | mg/kg |
| | gamma-Chlordane | 0.00550 J | mg/kg |
| | 4,4'-DDE | 0.00110 J | mg/kg |
| | 4,4'-DDT | 0.00210 J | mg/kg |
| | Dieldrin | 0.00198 J | mg/kg |
| | Endrin ketone | 0.00293 J | mg/kg |
| | Heptachlor epoxide | 0.00118 J | mg/kg |
| | Methoxychlor | 0.00695 J | mg/kg |
| **4F-A002 DL01** | | | |
| | alpha-BHC | 0.00058 J | mg/kg |
| | gamma-Chlordane | 0.00054 J | mg/kg |
| | Heptachlor epoxide | 0.00065 J | mg/kg |
| **4F-A004 DL01** | | | |
| | Aldrin | 0.00051 J | mg/kg |
| | Aroclor-1260 | 0.01000 J | mg/kg |
| | beta-BHC | 0.00195 J | mg/kg |
| | alpha-Chlordane | 0.00115 J | mg/kg |
| | gamma-Chlordane | 0.00071 J | mg/kg |
| | 4,4'-DDE | 0.00077 J | mg/kg |
| | 4,4'-DDT | 0.00102 J | mg/kg |
| | Dieldrin | 0.00135 J | mg/kg |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers.*

Table 8.2-5
Sediment TCLP Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024701

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TCLP INORGANICS** | | |
| **4E-A002 DL01** | | | |
| | Arsenic | 0.00505 B | mg/L |
| | Barium | 0.57300 J | mg/L |
| | Cadmium | 0.00715 B | mg/L |
| | Lead | 0.01950 BS | mg/L |
| **4F-A004 DL01** | | | |
| | Barium | 0.33300 | mg/L |
| | Lead | 0.00125 B | mg/L |

** Only detected concentrations are listed. See Appenix B-2 for definitions of the qualifiers.*

024702

**Table 8.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | |
| **4A-S004 SL01** | | | |
| | Aluminum | 9,790.00000 | mg/kg |
| | Arsenic | 7.10000 | mg/kg |
| | Barium | 105.00000 | mg/kg |
| | Beryllium | 1.00000 | mg/kg |
| | Calcium | 16,600.00000 | mg/kg |
| | Chromium | 17.90000 J^ | mg/kg |
| | Cobalt | 7.90000 | mg/kg |
| | Copper | 47.20000 | mg/kg |
| | Iron | 17,300.00000 | mg/kg |
| | Lead | 48.60000 | mg/kg |
| | Magnesium | 2,240.00000 | mg/kg |
| | Manganese | 380.00000 | mg/kg |
| | Nickel | 19.90000 | mg/kg |
| | Potassium | 2,450.00000 | mg/kg |
| | Sodium | 86.40000 | mg/kg |
| | Thallium | 1.20000 | mg/kg |
| | Vanadium | 32.10000 | mg/kg |
| | Zinc | 69.90000 | mg/kg |
| **4A-S010 SL01** | | | |
| | Aluminum | 11,300.00000 | mg/kg |
| | Arsenic | 4.90000 | mg/kg |
| | Barium | 195.00000 | mg/kg |
| | Beryllium | 0.85000 | mg/kg |
| | Calcium | 18,100.00000 J | mg/kg |
| | Chromium | 69.10000 | mg/kg |
| | Cobalt | 9.90000 | mg/kg |
| | Copper | 32.20000 | mg/kg |
| | Iron | 20,500.00000 | mg/kg |
| | Lead | 586.00000 | mg/kg |
| | Magnesium | 2,380.00000 | mg/kg |
| | Manganese | 370.00000 J^ | mg/kg |
| | Nickel | 18.80000 | mg/kg |
| | Potassium | 3,560.00000 | mg/kg |
| | Selenium | 1.60000 | mg/kg |
| | Vanadium | 31.10000 | mg/kg |
| | Zinc | 253.00000 | mg/kg |
| **4A-S020 SL01** | | | |
| | Aluminum | 11,200.00000 | mg/kg |
| | Arsenic | 6.60000 | mg/kg |
| | Barium | 81.40000 | mg/kg |
| | Beryllium | 0.63000 | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024703

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Calcium | 18,300.00000 | | mg/kg |
| | Chromium | 19.50000 | | mg/kg |
| | Cobalt | 6.80000 | | mg/kg |
| | Copper | 26.30000 | J | mg/kg |
| | Iron | 16,800.00000 | | mg/kg |
| | Lead | 54.40000 | J | mg/kg |
| | Magnesium | 2,240.00000 | | mg/kg |
| | Manganese | 366.00000 | | mg/kg |
| | Mercury | 0.22000 | | mg/kg |
| | Nickel | 17.40000 | | mg/kg |
| | Potassium | 2,470.00000 | | mg/kg |
| | Vanadium | 28.50000 | | mg/kg |
| | Zinc | 66.50000 | J | mg/kg |
| **4A-S030 SL01** | | | | |
| | Aluminum | 20,000.00000 | | mg/kg |
| | Antimony | 3.50000 | Jv | mg/kg |
| | Arsenic | 7.80000 | | mg/kg |
| | Barium | 117.00000 | | mg/kg |
| | Beryllium | 1.50000 | | mg/kg |
| | Calcium | 22,400.00000 | J | mg/kg |
| | Chromium | 25.80000 | | mg/kg |
| | Cobalt | 9.00000 | | mg/kg |
| | Copper | 17.10000 | | mg/kg |
| | Iron | 24,900.00000 | J | mg/kg |
| | Lead | 16.80000 | | mg/kg |
| | Magnesium | 3,690.00000 | | mg/kg |
| | Manganese | 416.00000 | Jv | mg/kg |
| | Nickel | 22.20000 | | mg/kg |
| | Potassium | 3,140.00000 | | mg/kg |
| | Vanadium | 47.40000 | | mg/kg |
| | Zinc | 58.80000 | | mg/kg |
| **4A-S037 SL01** | | | | |
| | Aluminum | 9,850.00000 | | mg/kg |
| | Arsenic | 11.10000 | | mg/kg |
| | Barium | 92.70000 | | mg/kg |
| | Beryllium | 1.00000 | | mg/kg |
| | Cadmium | 0.46000 | | mg/kg |
| | Calcium | 20,800.00000 | | mg/kg |
| | Chromium | 23.70000 | J | mg/kg |
| | Cobalt | 12.50000 | | mg/kg |
| | Copper | 29.30000 | | mg/kg |
| | Iron | 32,400.00000 | | mg/kg |
| | Lead | 74.80000 | | mg/kg |
| | Magnesium | 3,100.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024704

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Manganese | 417.00000 | | mg/kg |
| | Nickel | 28.30000 | | mg/kg |
| | Potassium | 3,550.00000 | | mg/kg |
| | Sodium | 76.50000 | | mg/kg |
| | Thallium | 2.60000 | | mg/kg |
| | Vanadium | 31.50000 | | mg/kg |
| | Zinc | 133.00000 | | mg/kg |
| 4A-S040 SL01 | | | | |
| | Aluminum | 30,150.00000 | | mg/kg |
| | Barium | 144.50000 | | mg/kg |
| | Beryllium | 2.05000 | | mg/kg |
| | Calcium | 20,150.00000 | | mg/kg |
| | Chromium | 35.40000 | | mg/kg |
| | Cobalt | 8.40000 | | mg/kg |
| | Iron | 31,800.00000 | | mg/kg |
| | Lead | 54.30000 | | mg/kg |
| | Magnesium | 4,805.00000 | | mg/kg |
| | Manganese | 474.00000 | | mg/kg |
| | Nickel | 30.45000 | | mg/kg |
| | Potassium | 5,800.00000 | | mg/kg |
| | Vanadium | 54.70000 | | mg/kg |
| | Zinc | 92.45000 | J^ | mg/kg |
| 4A-S041 EL01 | | | | |
| | Aluminum | 14,700.00000 | | mg/kg |
| | Antimony | 6.00000 | Jv | mg/kg |
| | Arsenic | 5.00000 | Jv | mg/kg |
| | Barium | 163.00000 | | mg/kg |
| | Cadmium | 1.80000 | | mg/kg |
| | Calcium | 20,400.00000 | | mg/kg |
| | Chromium | 33.80000 | Jv | mg/kg |
| | Cobalt | 8.60000 | | mg/kg |
| | Copper | 33.10000 | J | mg/kg |
| | Iron | 18,100.00000 | | mg/kg |
| | Lead | 154.00000 | Jv | mg/kg |
| | Magnesium | 3,060.00000 | | mg/kg |
| | Manganese | 554.00000 | J | mg/kg |
| | Nickel | 19.10000 | | mg/kg |
| | Potassium | 4,040.00000 | | mg/kg |
| | Vanadium | 32.30000 | | mg/kg |
| | Zinc | 589.00000 | J | mg/kg |
| 4A-S047 SL01 | | | | |
| | Aluminum | 17,800.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024705

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Barium | 95.00000 | | mg/kg |
| | Beryllium | 1.50000 | | mg/kg |
| | Calcium | 12,900.00000 | | mg/kg |
| | Chromium | 23.20000 | | mg/kg |
| | Cobalt | 6.00000 | | mg/kg |
| | Iron | 23,200.00000 | | mg/kg |
| | Lead | 81.80000 | | mg/kg |
| | Magnesium | 3,060.00000 | | mg/kg |
| | Manganese | 418.00000 | | mg/kg |
| | Nickel | 23.10000 | | mg/kg |
| | Potassium | 3,530.00000 | | mg/kg |
| | Vanadium | 35.90000 | | mg/kg |
| | Zinc | 183.00000 | | mg/kg |
| 4A-S050 SL01 | | | | |
| | Aluminum | 20,600.00000 | | mg/kg |
| | Antimony | 12.10000 | | mg/kg |
| | Arsenic | 12.80000 | J^ | mg/kg |
| | Barium | 89.30000 | | mg/kg |
| | Beryllium | 2.80000 | | mg/kg |
| | Cadmium | 3.20000 | | mg/kg |
| | Calcium | 30,000.00000 | | mg/kg |
| | Chromium | 41.10000 | | mg/kg |
| | Cobalt | 264.00000 | | mg/kg |
| | Copper | 257.00000 | J | mg/kg |
| | Iron | 100,000.00000 | | mg/kg |
| | Lead | 116.00000 | | mg/kg |
| | Magnesium | 3,050.00000 | | mg/kg |
| | Manganese | 970.00000 | | mg/kg |
| | Nickel | 36.00000 | | mg/kg |
| | Potassium | 2,970.00000 | | mg/kg |
| | Vanadium | 33.40000 | | mg/kg |
| | Zinc | 17,500.00000 | | mg/kg |
| 4A-S055 EL01 | | | | |
| | Aluminum | 13,300.00000 | | mg/kg |
| | Antimony | 5.40000 | Jv | mg/kg |
| | Arsenic | 6.70000 | Jv | mg/kg |
| | Barium | 63.70000 | | mg/kg |
| | Calcium | 8,130.00000 | | mg/kg |
| | Chromium | 40.40000 | | mg/kg |
| | Cobalt | 12.20000 | | mg/kg |
| | Copper | 29.40000 | J | mg/kg |
| | Iron | 34,200.00000 | | mg/kg |
| | Lead | 39.90000 | Jv | mg/kg |
| | Magnesium | 3,140.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024706

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Manganese | 243.00000 | J | mg/kg |
| | Nickel | 26.30000 | | mg/kg |
| | Potassium | 4,550.00000 | | mg/kg |
| | Vanadium | 30.80000 | | mg/kg |
| | Zinc | 91.60000 | J | mg/kg |
| **4A-S060 SL01** | | | | |
| | Aluminum | 9,580.00000 | | mg/kg |
| | Arsenic | 5.90000 | | mg/kg |
| | Barium | 69.10000 | | mg/kg |
| | Beryllium | 0.81000 | | mg/kg |
| | Cadmium | 0.66000 | | mg/kg |
| | Calcium | 11,600.00000 | | mg/kg |
| | Chromium | 24.10000 | | mg/kg |
| | Cobalt | 10.80000 | | mg/kg |
| | Copper | 27.60000 | J^ | mg/kg |
| | Iron | 39,800.00000 | J | mg/kg |
| | Lead | 116.00000 | J^ | mg/kg |
| | Magnesium | 2,820.00000 | | mg/kg |
| | Manganese | 289.00000 | | mg/kg |
| | Nickel | 23.10000 | | mg/kg |
| | Potassium | 3,530.00000 | | mg/kg |
| | Thallium | 1.00000 | | mg/kg |
| | Vanadium | 27.20000 | | mg/kg |
| | Zinc | 108.00000 | J^ | mg/kg |
| **4A-S065 EL01** | | | | |
| | Aluminum | 10,600.00000 | | mg/kg |
| | Antimony | 3.70000 | Jv | mg/kg |
| | Arsenic | 6.00000 | Jv | mg/kg |
| | Barium | 86.30000 | | mg/kg |
| | Calcium | 11,600.00000 | | mg/kg |
| | Chromium | 19.80000 | Jv | mg/kg |
| | Cobalt | 6.80000 | | mg/kg |
| | Copper | 18.70000 | J | mg/kg |
| | Iron | 16,300.00000 | | mg/kg |
| | Lead | 78.70000 | Jv | mg/kg |
| | Magnesium | 2,090.00000 | | mg/kg |
| | Manganese | 373.00000 | J | mg/kg |
| | Mercury | 0.24000 | J | mg/kg |
| | Nickel | 17.20000 | | mg/kg |
| | Potassium | 2,450.00000 | | mg/kg |
| | Vanadium | 27.60000 | | mg/kg |
| | Zinc | 95.10000 | J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024707

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| 4A-S070 SL01 | | | | |
| | Aluminum | 14,300.00000 | | mg/kg |
| | Arsenic | 5.80000 | | mg/kg |
| | Barium | 77.10000 | | mg/kg |
| | Beryllium | 0.86000 | | mg/kg |
| | Cadmium | 0.63000 | | mg/kg |
| | Calcium | 58,500.00000 | | mg/kg |
| | Chromium | 18.30000 | | mg/kg |
| | Cobalt | 6.70000 | | mg/kg |
| | Copper | 14.70000 | J- | mg/kg |
| | Iron | 17,400.00000 | J | mg/kg |
| | Lead | 38.90000 | J- | mg/kg |
| | Magnesium | 2,760.00000 | | mg/kg |
| | Manganese | 401.00000 | | mg/kg |
| | Nickel | 16.70000 | | mg/kg |
| | Potassium | 3,030.00000 | | mg/kg |
| | Thallium | 1.10000 | | mg/kg |
| | Vanadium | 31.90000 | | mg/kg |
| | Zinc | 73.60000 | J- | mg/kg |
| 4A-S077 SL01 | | | | |
| | Aluminum | 13,950.00000 | | mg/kg |
| | Arsenic | 8.45000 | | mg/kg |
| | Barium | 106.00000 | | mg/kg |
| | Beryllium | 1.25000 | | mg/kg |
| | Cadmium | 0.33500 | | mg/kg |
| | Calcium | 33,700.00000 | | mg/kg |
| | Chromium | 21.90000 | J- | mg/kg |
| | Cobalt | 9.75000 | | mg/kg |
| | Copper | 19.00000 | | mg/kg |
| | Iron | 22,450.00000 | | mg/kg |
| | Lead | 40.20000 | | mg/kg |
| | Magnesium | 2,940.00000 | | mg/kg |
| | Manganese | 486.50000 | | mg/kg |
| | Nickel | 24.55000 | | mg/kg |
| | Potassium | 3,365.00000 | | mg/kg |
| | Sodium | 88.75000 | | mg/kg |
| | Thallium | 1.25000 | | mg/kg |
| | Vanadium | 39.45000 | | mg/kg |
| | Zinc | 66.00000 | | mg/kg |
| 4A-S080 SL01 | | | | |
| | Aluminum | 19,200.00000 | | mg/kg |
| | Arsenic | 6.10000 | | mg/kg |
| | Barium | 95.20000 | | mg/kg |
| | Beryllium | 1.10000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024708

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Cadmium | 0.92000 | mg/kg |
| | Calcium | 28,500.00000 | mg/kg |
| | Chromium | 26.90000 | mg/kg |
| | Cobalt | 8.50000 | mg/kg |
| | Copper | 20.90000 J^ | mg/kg |
| | Iron | 18,100.00000 J | mg/kg |
| | Lead | 56.70000 J^ | mg/kg |
| | Magnesium | 3,400.00000 | mg/kg |
| | Manganese | 412.00000 | mg/kg |
| | Nickel | 21.90000 | mg/kg |
| | Potassium | 4,250.00000 | mg/kg |
| | Thallium | 0.86000 | mg/kg |
| | Vanadium | 43.20000 | mg/kg |
| | Zinc | 150.00000 J^ | mg/kg |
| **4A-S090 SL01** | | | |
| | Aluminum | 7,250.00000 | mg/kg |
| | Arsenic | 4.30000 | mg/kg |
| | Barium | 85.60000 | mg/kg |
| | Beryllium | 0.81000 | mg/kg |
| | Cadmium | 0.50000 | mg/kg |
| | Calcium | 42,700.00000 | mg/kg |
| | Chromium | 11.10000 | mg/kg |
| | Cobalt | 6.10000 | mg/kg |
| | Copper | 16.10000 J^ | mg/kg |
| | Iron | 16,000.00000 J | mg/kg |
| | Lead | 48.60000 J^ | mg/kg |
| | Magnesium | 1,890.00000 | mg/kg |
| | Manganese | 347.00000 | mg/kg |
| | Nickel | 14.90000 | mg/kg |
| | Potassium | 2,130.00000 | mg/kg |
| | Vanadium | 23.00000 | mg/kg |
| | Zinc | 73.90000 J^ | mg/kg |
| **4B-S002 SL01** | | | |
| | Aluminum | 3,450.00000 | mg/kg |
| | Antimony | 11.30000 | mg/kg |
| | Arsenic | 11.80000 | mg/kg |
| | Barium | 108.00000 | mg/kg |
| | Cadmium | 0.55000 | mg/kg |
| | Calcium | 103,000.00000 J | mg/kg |
| | Chromium | 10.50000 | mg/kg |
| | Cobalt | 4.20000 | mg/kg |
| | Copper | 37.60000 | mg/kg |
| | Iron | 17,400.00000 | mg/kg |
| | Lead | 484.00000 | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024709

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Magnesium | 1,360.00000 | | mg/kg |
| | Manganese | 305.00000 | J^ | mg/kg |
| | Nickel | 11.20000 | | mg/kg |
| | Potassium | 952.00000 | | mg/kg |
| | Silver | 0.30000 | Jv | mg/kg |
| | Vanadium | 15.90000 | | mg/kg |
| | Zinc | 99.80000 | | mg/kg |
| **4B-S003 SL01** | | | | |
| | Aluminum | 10,700.00000 | | mg/kg |
| | Antimony | 45.40000 | | mg/kg |
| | Arsenic | 43.10000 | | mg/kg |
| | Barium | 211.00000 | | mg/kg |
| | Beryllium | 0.66000 | J^ | mg/kg |
| | Cadmium | 2.30000 | | mg/kg |
| | Calcium | 86,200.00000 | J | mg/kg |
| | Chromium | 21.50000 | | mg/kg |
| | Cobalt | 7.30000 | | mg/kg |
| | Copper | 125.00000 | | mg/kg |
| | Iron | 23,600.00000 | | mg/kg |
| | Lead | 1,600.00000 | | mg/kg |
| | Magnesium | 2,460.00000 | | mg/kg |
| | Manganese | 434.00000 | J^ | mg/kg |
| | Nickel | 26.10000 | | mg/kg |
| | Potassium | 2,740.00000 | | mg/kg |
| | Silver | 0.23000 | Jv | mg/kg |
| | Vanadium | 31.90000 | | mg/kg |
| | Zinc | 232.00000 | | mg/kg |
| **4B-S008 SL01** | | | | |
| | Aluminum | 5,590.00000 | | mg/kg |
| | Arsenic | 4.40000 | | mg/kg |
| | Barium | 53.10000 | | mg/kg |
| | Calcium | 24,700.00000 | | mg/kg |
| | Chromium | 14.20000 | | mg/kg |
| | Cobalt | 5.10000 | J^ | mg/kg |
| | Iron | 12,500.00000 | | mg/kg |
| | Lead | 36.50000 | | mg/kg |
| | Magnesium | 1,360.00000 | | mg/kg |
| | Manganese | 338.00000 | | mg/kg |
| | Nickel | 12.50000 | | mg/kg |
| | Potassium | 1,390.00000 | | mg/kg |
| | Vanadium | 18.90000 | | mg/kg |
| | Zinc | 63.50000 | J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024710

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| **4B-S009 SL01** | | | |
| | Aluminum | 8,950.00000 | mg/kg |
| | Arsenic | 7.50000 | mg/kg |
| | Barium | 81.50000 | mg/kg |
| | Cadmium | 1.10000 | mg/kg |
| | Calcium | 10,500.00000 | mg/kg |
| | Chromium | 25.20000 | mg/kg |
| | Cobalt | 7.50000 | mg/kg |
| | Copper | 28.30000 J^ | mg/kg |
| | Iron | 18,600.00000 | mg/kg |
| | Lead | 444.00000 | mg/kg |
| | Magnesium | 1,620.00000 | mg/kg |
| | Manganese | 453.00000 | mg/kg |
| | Mercury | 0.09000 | mg/kg |
| | Nickel | 16.80000 | mg/kg |
| | Potassium | 1,870.00000 | mg/kg |
| | Vanadium | 26.40000 | mg/kg |
| | Zinc | 168.00000 J | mg/kg |
| **4B-S013 SL01** | | | |
| | Aluminum | 6,260.00000 | mg/kg |
| | Antimony | 1.30000 Jv | mg/kg |
| | Arsenic | 7.10000 | mg/kg |
| | Barium | 83.30000 | mg/kg |
| | Beryllium | 0.70000 | mg/kg |
| | Cadmium | 0.69000 | mg/kg |
| | Calcium | 15,700.00000 | mg/kg |
| | Chromium | 13.50000 J^ | mg/kg |
| | Cobalt | 5.90000 | mg/kg |
| | Copper | 21.40000 | mg/kg |
| | Iron | 14,100.00000 | mg/kg |
| | Lead | 136.00000 | mg/kg |
| | Magnesium | 1,430.00000 | mg/kg |
| | Manganese | 310.00000 | mg/kg |
| | Nickel | 14.00000 | mg/kg |
| | Potassium | 1,620.00000 | mg/kg |
| | Sodium | 64.10000 | mg/kg |
| | Thallium | 1.10000 | mg/kg |
| | Vanadium | 22.40000 | mg/kg |
| | Zinc | 122.00000 | mg/kg |
| **4B-S017 EL01** | | | |
| | Aluminum | 5,230.00000 | mg/kg |
| | Antimony | 4.40000 Jv | mg/kg |
| | Arsenic | 4.50000 Jv | mg/kg |
| | Barium | 47.30000 | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024711

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Calcium | 17,700.00000 | | mg/kg |
| | Chromium | 12.00000 | Jv | mg/kg |
| | Cobalt | 4.90000 | J | mg/kg |
| | Copper | 53.50000 | J | mg/kg |
| | Iron | 11,900.00000 | | mg/kg |
| | Lead | 61.30000 | Jv | mg/kg |
| | Magnesium | 1,290.00000 | | mg/kg |
| | Manganese | 259.00000 | J | mg/kg |
| | Nickel | 10.00000 | | mg/kg |
| | Potassium | 1,370.00000 | | mg/kg |
| | Vanadium | 15.70000 | | mg/kg |
| | Zinc | 67.70000 | J | mg/kg |
| **4B-S020 SL01** | | | | |
| | Aluminum | 10,900.00000 | | mg/kg |
| | Arsenic | 6.80000 | | mg/kg |
| | Barium | 104.00000 | | mg/kg |
| | Beryllium | 0.59000 | | mg/kg |
| | Cadmium | 1.50000 | | mg/kg |
| | Calcium | 15,400.00000 | | mg/kg |
| | Chromium | 48.10000 | | mg/kg |
| | Cobalt | 6.70000 | | mg/kg |
| | Copper | 40.30000 | J | mg/kg |
| | Iron | 19,400.00000 | | mg/kg |
| | Lead | 276.00000 | J | mg/kg |
| | Magnesium | 2,340.00000 | | mg/kg |
| | Manganese | 360.00000 | | mg/kg |
| | Mercury | 0.15000 | | mg/kg |
| | Nickel | 18.90000 | | mg/kg |
| | Potassium | 2,260.00000 | | mg/kg |
| | Vanadium | 28.70000 | | mg/kg |
| | Zinc | 193.00000 | J | mg/kg |
| **4B-S025 EL01** | | | | |
| | Aluminum | 14,700.00000 | | mg/kg |
| | Arsenic | 6.10000 | Jv | mg/kg |
| | Barium | 95.60000 | | mg/kg |
| | Calcium | 15,700.00000 | | mg/kg |
| | Chromium | 26.00000 | Jv | mg/kg |
| | Cobalt | 7.80000 | | mg/kg |
| | Copper | 42.50000 | J | mg/kg |
| | Iron | 19,500.00000 | | mg/kg |
| | Lead | 47.40000 | Jv | mg/kg |
| | Magnesium | 2,930.00000 | | mg/kg |
| | Manganese | 366.00000 | J | mg/kg |
| | Nickel | 19.80000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024712

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Potassium | 3,200.00000 | mg/kg |
| | Vanadium | 34.70000 | mg/kg |
| | Zinc | 77.30000 J | mg/kg |
| **4B-S027 SL01** | | | |
| | Aluminum | 14,300.00000 | mg/kg |
| | Arsenic | 7.00000 | mg/kg |
| | Barium | 120.00000 | mg/kg |
| | Beryllium | 1.30000 | mg/kg |
| | Calcium | 28,500.00000 | mg/kg |
| | Chromium | 20.60000 J | mg/kg |
| | Cobalt | 8.90000 | mg/kg |
| | Copper | 20.10000 | mg/kg |
| | Iron | 21,200.00000 | mg/kg |
| | Lead | 37.10000 | mg/kg |
| | Magnesium | 2,990.00000 | mg/kg |
| | Manganese | 390.00000 | mg/kg |
| | Nickel | 23.10000 | mg/kg |
| | Potassium | 3,020.00000 | mg/kg |
| | Sodium | 85.10000 | mg/kg |
| | Thallium | 1.10000 | mg/kg |
| | Vanadium | 39.10000 | mg/kg |
| | Zinc | 69.00000 | mg/kg |
| **4B-S030 SL01** | | | |
| | Aluminum | 16,500.00000 | mg/kg |
| | Barium | 82.10000 | mg/kg |
| | Beryllium | 1.10000 | mg/kg |
| | Calcium | 8,220.00000 | mg/kg |
| | Chromium | 22.30000 | mg/kg |
| | Cobalt | 5.20000 | mg/kg |
| | Iron | 21,900.00000 | mg/kg |
| | Lead | 53.30000 | mg/kg |
| | Magnesium | 2,650.00000 | mg/kg |
| | Manganese | 447.00000 | mg/kg |
| | Nickel | 22.00000 | mg/kg |
| | Potassium | 3,130.00000 | mg/kg |
| | Vanadium | 35.80000 | mg/kg |
| **4B-S039 SL01** | | | |
| | Aluminum | 9,100.00000 | mg/kg |
| | Antimony | 11.50000 | mg/kg |
| | Arsenic | 17.10000 | mg/kg |
| | Barium | 81.40000 | mg/kg |
| | Beryllium | 1.20000 | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024713

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Cadmium | 0.74000 | | mg/kg |
| | Calcium | 67,400.00000 | | mg/kg |
| | Chromium | 18.50000 | | mg/kg |
| | Cobalt | 5.00000 | | mg/kg |
| | Iron | 25,600.00000 | | mg/kg |
| | Lead | 1,190.00000 | | mg/kg |
| | Magnesium | 2,020.00000 | | mg/kg |
| | Manganese | 351.00000 | | mg/kg |
| | Nickel | 18.80000 | | mg/kg |
| | Potassium | 2,060.00000 | | mg/kg |
| | Vanadium | 26.30000 | | mg/kg |
| | Zinc | 131.00000 | | mg/kg |
| 4B-S040 SL01 | | | | |
| | Aluminum | 14,800.00000 | | mg/kg |
| | Barium | 108.00000 | | mg/kg |
| | Beryllium | 1.40000 | | mg/kg |
| | Calcium | 33,200.00000 | | mg/kg |
| | Chromium | 36.50000 | | mg/kg |
| | Cobalt | 6.60000 | | mg/kg |
| | Iron | 27,900.00000 | | mg/kg |
| | Lead | 106.00000 | | mg/kg |
| | Magnesium | 2,580.00000 | | mg/kg |
| | Manganese | 493.00000 | | mg/kg |
| | Nickel | 21.80000 | | mg/kg |
| | Potassium | 3,020.00000 | | mg/kg |
| | Vanadium | 36.70000 | | mg/kg |
| | Zinc | 196.00000 | | mg/kg |
| 4C-S005 SL01 | | | | |
| | Aluminum | 17,100.00000 | | mg/kg |
| | Antimony | 5.30000 | | mg/kg |
| | Arsenic | 15.30000 | | mg/kg |
| | Barium | 402.00000 | | mg/kg |
| | Beryllium | 0.71000 | | mg/kg |
| | Cadmium | 4.60000 | | mg/kg |
| | Calcium | 32,500.00000 | J | mg/kg |
| | Chromium | 67.40000 | | mg/kg |
| | Cobalt | 12.80000 | | mg/kg |
| | Copper | 395.00000 | | mg/kg |
| | Iron | 62,800.00000 | | mg/kg |
| | Lead | 622.00000 | | mg/kg |
| | Magnesium | 2,920.00000 | | mg/kg |
| | Manganese | 779.00000 | J | mg/kg |
| | Mercury | 0.33000 | | mg/kg |
| | Nickel | 59.80000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
*Surface Soil TAL Inorganic Analytical Data*
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024714

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Potassium | 4,100.00000 | | mg/kg |
| | Selenium | 1.70000 | J | mg/kg |
| | Silver | 1.90000 | | mg/kg |
| | Sodium | 717.00000 | J^ | mg/kg |
| | Vanadium | 35.40000 | | mg/kg |
| | Zinc | 1,230.00000 | | mg/kg |
| **4C-S007 SL01** | | | | |
| | Aluminum | 12,600.00000 | | mg/kg |
| | Arsenic | 7.20000 | | mg/kg |
| | Barium | 109.00000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Calcium | 61,900.00000 | | mg/kg |
| | Chromium | 18.50000 | J^ | mg/kg |
| | Cobalt | 10.20000 | | mg/kg |
| | Copper | 17.00000 | | mg/kg |
| | Iron | 21,100.00000 | | mg/kg |
| | Lead | 20.80000 | | mg/kg |
| | Magnesium | 2,800.00000 | | mg/kg |
| | Manganese | 488.00000 | | mg/kg |
| | Nickel | 22.30000 | | mg/kg |
| | Potassium | 2,020.00000 | | mg/kg |
| | Sodium | 111.00000 | | mg/kg |
| | Thallium | 2.10000 | | mg/kg |
| | Vanadium | 38.30000 | | mg/kg |
| | Zinc | 52.50000 | | mg/kg |
| **4C-S010 SL01** | | | | |
| | Aluminum | 9,000.00000 | | mg/kg |
| | Arsenic | 4.90000 | | mg/kg |
| | Barium | 86.60000 | | mg/kg |
| | Calcium | 50,400.00000 | | mg/kg |
| | Chromium | 26.70000 | | mg/kg |
| | Cobalt | 8.10000 | J^ | mg/kg |
| | Copper | 26.30000 | J^ | mg/kg |
| | Iron | 18,400.00000 | | mg/kg |
| | Lead | 56.00000 | | mg/kg |
| | Magnesium | 3,050.00000 | | mg/kg |
| | Manganese | 347.00000 | | mg/kg |
| | Nickel | 20.40000 | | mg/kg |
| | Potassium | 2,680.00000 | | mg/kg |
| | Sodium | 149.00000 | J^ | mg/kg |
| | Vanadium | 24.30000 | | mg/kg |
| | Zinc | 159.00000 | J | mg/kg |

* *Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024715

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| 4C-S016 SL01 | | | | |
| | Aluminum | 9,420.00000 | | mg/kg |
| | Antimony | 15.20000 | Jv | mg/kg |
| | Arsenic | 18.50000 | | mg/kg |
| | Barium | 509.00000 | | mg/kg |
| | Cadmium | 4.90000 | | mg/kg |
| | Calcium | 36,700.00000 | | mg/kg |
| | Chromium | 42.60000 | | mg/kg |
| | Cobalt | 11.70000 | | mg/kg |
| | Copper | 243.00000 | | mg/kg |
| | Iron | 51,500.00000 | | mg/kg |
| | Lead | 1,680.00000 | | mg/kg |
| | Magnesium | 2,510.00000 | | mg/kg |
| | Manganese | 705.00000 | | mg/kg |
| | Mercury | 0.23000 | | mg/kg |
| | Nickel | 54.30000 | | mg/kg |
| | Potassium | 2,410.00000 | | mg/kg |
| | Silver | 4.40000 | | mg/kg |
| | Sodium | 286.00000 | J | mg/kg |
| | Vanadium | 25.00000 | | mg/kg |
| | Zinc | 1,540.00000 | J | mg/kg |
| 4C-S020 SL02 | | | | |
| | Aluminum | 9,430.00000 | | mg/kg |
| | Antimony | 4.20000 | Jv | mg/kg |
| | Arsenic | 9.35000 | | mg/kg |
| | Barium | 129.50000 | | mg/kg |
| | Beryllium | 0.62500 | | mg/kg |
| | Calcium | 34,650.00000 | J | mg/kg |
| | Chromium | 24.15000 | | mg/kg |
| | Cobalt | 7.45000 | | mg/kg |
| | Copper | 51.10000 | | mg/kg |
| | Iron | 36,400.00000 | J | mg/kg |
| | Lead | 249.00000 | | mg/kg |
| | Magnesium | 1,955.00000 | | mg/kg |
| | Manganese | 423.00000 | Jv | mg/kg |
| | Mercury | 0.14000 | | mg/kg |
| | Nickel | 19.45000 | | mg/kg |
| | Potassium | 2,485.00000 | | mg/kg |
| | Silver | 1.04250 | | mg/kg |
| | Vanadium | 25.70000 | | mg/kg |
| | Zinc | 231.50000 | | mg/kg |
| 4C-S021 SL01 | | | | |
| | Aluminum | 8,410.00000 | | mg/kg |
| | Antimony | 7.90000 | Jv | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024716

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Arsenic | 11.70000 | | mg/kg |
| | Barium | 402.00000 | | mg/kg |
| | Beryllium | 0.31000 | | mg/kg |
| | Cadmium | 5.80000 | | mg/kg |
| | Calcium | 26,300.00000 | J | mg/kg |
| | Chromium | 38.10000 | | mg/kg |
| | Cobalt | 7.80000 | | mg/kg |
| | Copper | 189.00000 | | mg/kg |
| | Iron | 36,000.00000 | J | mg/kg |
| | Lead | 1,010.00000 | | mg/kg |
| | Magnesium | 2,180.00000 | | mg/kg |
| | Manganese | 519.00000 | Jv | mg/kg |
| | Mercury | 0.17000 | | mg/kg |
| | Nickel | 37.90000 | | mg/kg |
| | Potassium | 2,070.00000 | | mg/kg |
| | Silver | 2.20000 | | mg/kg |
| | Sodium | 186.00000 | | mg/kg |
| | Vanadium | 21.50000 | | mg/kg |
| | Zinc | 1,170.00000 | | mg/kg |
| **4C-S026 EL01** | | | | |
| | Aluminum | 11,900.00000 | | mg/kg |
| | Antimony | 4.40000 | Jv | mg/kg |
| | Arsenic | 7.90000 | | mg/kg |
| | Barium | 85.90000 | | mg/kg |
| | Calcium | 50,500.00000 | | mg/kg |
| | Chromium | 22.70000 | Jv | mg/kg |
| | Cobalt | 7.80000 | | mg/kg |
| | Copper | 18.70000 | J | mg/kg |
| | Iron | 20,500.00000 | | mg/kg |
| | Lead | 43.90000 | Jv | mg/kg |
| | Magnesium | 2,480.00000 | | mg/kg |
| | Manganese | 504.00000 | J | mg/kg |
| | Nickel | 19.60000 | | mg/kg |
| | Potassium | 2,830.00000 | | mg/kg |
| | Vanadium | 33.40000 | | mg/kg |
| | Zinc | 65.30000 | J | mg/kg |
| **4C-S027 SL01** | | | | |
| | Aluminum | 17,100.00000 | | mg/kg |
| | Antimony | 2.50000 | | mg/kg |
| | Barium | 178.00000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Cadmium | 1.30000 | | mg/kg |
| | Calcium | 91,000.00000 | | mg/kg |
| | Chromium | 26.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024717

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Cobalt | 6.10000 | mg/kg |
| | Copper | 261.00000 J | mg/kg |
| | Iron | 21,600.00000 | mg/kg |
| | Lead | 395.00000 | mg/kg |
| | Magnesium | 3,280.00000 | mg/kg |
| | Manganese | 427.00000 | mg/kg |
| | Nickel | 30.20000 | mg/kg |
| | Potassium | 4,210.00000 | mg/kg |
| | Selenium | 1.60000 | mg/kg |
| | Silver | 1.00000 | mg/kg |
| | Sodium | 551.00000 J^ | mg/kg |
| | Vanadium | 30.90000 | mg/kg |
| | Zinc | 292.00000 | mg/kg |
| **4C-S028 SL01** | | | |
| | Aluminum | 20,000.00000 | mg/kg |
| | Antimony | 3.00000 | mg/kg |
| | Arsenic | 14.60000 J^ | mg/kg |
| | Barium | 205.00000 | mg/kg |
| | Beryllium | 1.50000 | mg/kg |
| | Cadmium | 1.70000 | mg/kg |
| | Calcium | 46,600.00000 | mg/kg |
| | Chromium | 30.90000 | mg/kg |
| | Cobalt | 7.20000 | mg/kg |
| | Copper | 101.00000 J^ | mg/kg |
| | Iron | 30,800.00000 | mg/kg |
| | Lead | 554.00000 | mg/kg |
| | Magnesium | 3,610.00000 | mg/kg |
| | Manganese | 661.00000 | mg/kg |
| | Nickel | 30.00000 | mg/kg |
| | Potassium | 4,790.00000 | mg/kg |
| | Vanadium | 40.30000 | mg/kg |
| | Zinc | 421.00000 | mg/kg |
| **4C-S030 SL01** | | | |
| | Aluminum | 19,600.00000 | mg/kg |
| | Antimony | 2.60000 | mg/kg |
| | Barium | 239.00000 | mg/kg |
| | Beryllium | 1.80000 | mg/kg |
| | Cadmium | 0.90000 | mg/kg |
| | Calcium | 32,800.00000 | mg/kg |
| | Chromium | 35.00000 | mg/kg |
| | Cobalt | 9.70000 | mg/kg |
| | Copper | 150.00000 J | mg/kg |
| | Iron | 46,100.00000 | mg/kg |
| | Lead | 332.00000 | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024718

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Magnesium | 3,810.00000 | | mg/kg |
| | Manganese | 555.00000 | | mg/kg |
| | Nickel | 43.40000 | | mg/kg |
| | Potassium | 4,630.00000 | | mg/kg |
| | Vanadium | 37.10000 | | mg/kg |
| | Zinc | 416.00000 | | mg/kg |
| 4C-S036 SL01 | | | | |
| | Aluminum | 19,000.00000 | | mg/kg |
| | Antimony | 3.60000 | | mg/kg |
| | Arsenic | 13.70000 | J^ | mg/kg |
| | Barium | 298.00000 | | mg/kg |
| | Beryllium | 1.60000 | | mg/kg |
| | Cadmium | 2.80000 | | mg/kg |
| | Calcium | 48,400.00000 | | mg/kg |
| | Chromium | 32.70000 | | mg/kg |
| | Cobalt | 10.10000 | | mg/kg |
| | Copper | 183.00000 | J | mg/kg |
| | Iron | 35,100.00000 | | mg/kg |
| | Lead | 840.00000 | | mg/kg |
| | Magnesium | 3,690.00000 | | mg/kg |
| | Manganese | 757.00000 | | mg/kg |
| | Mercury | 0.86000 | | mg/kg |
| | Nickel | 35.10000 | | mg/kg |
| | Potassium | 4,730.00000 | | mg/kg |
| | Vanadium | 38.90000 | | mg/kg |
| | Zinc | 575.00000 | | mg/kg |
| 4C-S040 SL01 | | | | |
| | Aluminum | 21,900.00000 | | mg/kg |
| | Antimony | 1.60000 | | mg/kg |
| | Barium | 114.00000 | | mg/kg |
| | Beryllium | 1.60000 | | mg/kg |
| | Calcium | 24,600.00000 | | mg/kg |
| | Chromium | 28.30000 | | mg/kg |
| | Cobalt | 8.40000 | | mg/kg |
| | Iron | 28,600.00000 | | mg/kg |
| | Lead | 172.00000 | | mg/kg |
| | Magnesium | 3,430.00000 | | mg/kg |
| | Manganese | 565.00000 | | mg/kg |
| | Nickel | 26.30000 | | mg/kg |
| | Potassium | 4,080.00000 | | mg/kg |
| | Vanadium | 52.10000 | | mg/kg |
| | Zinc | 103.00000 | J^ | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024719

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| **4C-S042 SL01** | | | | |
| | Aluminum | 6,690.00000 | | mg/kg |
| | Antimony | 1.10000 | Jv | mg/kg |
| | Arsenic | 6.50000 | | mg/kg |
| | Barium | 82.60000 | | mg/kg |
| | Beryllium | 0.71000 | | mg/kg |
| | Cadmium | 0.28000 | | mg/kg |
| | Calcium | 25,600.00000 | | mg/kg |
| | Chromium | 11.70000 | J^ | mg/kg |
| | Cobalt | 6.10000 | | mg/kg |
| | Copper | 21.20000 | | mg/kg |
| | Iron | 14,600.00000 | | mg/kg |
| | Lead | 60.70000 | | mg/kg |
| | Magnesium | 1,340.00000 | | mg/kg |
| | Manganese | 291.00000 | | mg/kg |
| | Nickel | 14.70000 | | mg/kg |
| | Potassium | 1,480.00000 | | mg/kg |
| | Sodium | 95.00000 | | mg/kg |
| | Vanadium | 24.10000 | | mg/kg |
| | Zinc | 81.60000 | | mg/kg |
| **4C-S048 EL01** | | | | |
| | Aluminum | 6,360.00000 | | mg/kg |
| | Arsenic | 4.60000 | Jv | mg/kg |
| | Barium | 99.20000 | | mg/kg |
| | Calcium | 30,100.00000 | | mg/kg |
| | Chromium | 20.50000 | Jv | mg/kg |
| | Cobalt | 6.50000 | | mg/kg |
| | Copper | 43.40000 | J | mg/kg |
| | Iron | 20,600.00000 | | mg/kg |
| | Lead | 203.00000 | Jv | mg/kg |
| | Magnesium | 1,490.00000 | | mg/kg |
| | Manganese | 418.00000 | J | mg/kg |
| | Mercury | 0.21000 | J | mg/kg |
| | Nickel | 17.30000 | | mg/kg |
| | Potassium | 1,730.00000 | | mg/kg |
| | Vanadium | 20.90000 | | mg/kg |
| | Zinc | 216.00000 | J | mg/kg |
| **4C-S050 SL01** | | | | |
| | Aluminum | 15,200.00000 | | mg/kg |
| | Barium | 159.00000 | | mg/kg |
| | Beryllium | 1.40000 | | mg/kg |
| | Cadmium | 1.10000 | | mg/kg |
| | Calcium | 35,800.00000 | | mg/kg |
| | Chromium | 19.10000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024720

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Cobalt | 5.30000 | | mg/kg |
| | Iron | 23,700.00000 | | mg/kg |
| | Lead | 149.00000 | | mg/kg |
| | Magnesium | 2,750.00000 | | mg/kg |
| | Manganese | 381.00000 | | mg/kg |
| | Nickel | 18.10000 | | mg/kg |
| | Potassium | 3,860.00000 | | mg/kg |
| | Selenium | 1.80000 | | mg/kg |
| | Vanadium | 28.80000 | | mg/kg |
| | Zinc | 178.00000 | | mg/kg |
| 4C-S052 SL01 | | | | |
| | Aluminum | 20,600.00000 | | mg/kg |
| | Antimony | 86.80000 | | mg/kg |
| | Arsenic | 140.00000 | | mg/kg |
| | Barium | 252.00000 | | mg/kg |
| | Beryllium | 2.00000 | | mg/kg |
| | Cadmium | 8.70000 | | mg/kg |
| | Calcium | 32,300.00000 | | mg/kg |
| | Chromium | 33.10000 | | mg/kg |
| | Cobalt | 10.90000 | | mg/kg |
| | Copper | 306.00000 | J | mg/kg |
| | Iron | 41,800.00000 | | mg/kg |
| | Lead | 5,380.00000 | | mg/kg |
| | Magnesium | 3,980.00000 | | mg/kg |
| | Manganese | 642.00000 | | mg/kg |
| | Nickel | 62.60000 | | mg/kg |
| | Potassium | 4,830.00000 | | mg/kg |
| | Vanadium | 41.20000 | | mg/kg |
| | Zinc | 553.00000 | | mg/kg |
| 4C-S057 SL01 | | | | |
| | Aluminum | 16,300.00000 | | mg/kg |
| | Antimony | 5.80000 | | mg/kg |
| | Arsenic | 20.50000 | | mg/kg |
| | Barium | 311.00000 | | mg/kg |
| | Beryllium | 2.50000 | | mg/kg |
| | Cadmium | 6.60000 | | mg/kg |
| | Calcium | 35,800.00000 | | mg/kg |
| | Chromium | 45.50000 | | mg/kg |
| | Cobalt | 9.10000 | | mg/kg |
| | Copper | 226.00000 | J | mg/kg |
| | Iron | 87,600.00000 | | mg/kg |
| | Lead | 787.00000 | | mg/kg |
| | Magnesium | 2,980.00000 | | mg/kg |
| | Manganese | 737.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024721

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Nickel | 59.10000 | | mg/kg |
| | Potassium | 3,690.00000 | | mg/kg |
| | Silver | 0.94000 | | mg/kg |
| | Vanadium | 31.60000 | | mg/kg |
| | Zinc | 753.00000 | | mg/kg |
| 4C-S059 SL01 | | | | |
| | Aluminum | 24,700.00000 | | mg/kg |
| | Antimony | 37.70000 | | mg/kg |
| | Arsenic | 50.50000 | | mg/kg |
| | Barium | 276.00000 | | mg/kg |
| | Beryllium | 1.90000 | | mg/kg |
| | Cadmium | 8.50000 | | mg/kg |
| | Calcium | 40,300.00000 | | mg/kg |
| | Chromium | 40.00000 | | mg/kg |
| | Cobalt | 8.20000 | | mg/kg |
| | Copper | 191.00000 | J | mg/kg |
| | Iron | 35,500.00000 | | mg/kg |
| | Lead | 2,990.00000 | | mg/kg |
| | Magnesium | 4,270.00000 | | mg/kg |
| | Manganese | 481.00000 | | mg/kg |
| | Nickel | 47.30000 | | mg/kg |
| | Potassium | 5,630.00000 | | mg/kg |
| | Vanadium | 44.70000 | | mg/kg |
| | Zinc | 548.00000 | | mg/kg |
| 4C-S060 SL01 | | | | |
| | Aluminum | 14,700.00000 | | mg/kg |
| | Antimony | 4.40000 | | mg/kg |
| | Arsenic | 13.10000 | J | mg/kg |
| | Barium | 240.00000 | | mg/kg |
| | Beryllium | 1.60000 | | mg/kg |
| | Cadmium | 5.50000 | | mg/kg |
| | Calcium | 27,500.00000 | | mg/kg |
| | Chromium | 24.50000 | | mg/kg |
| | Cobalt | 5.10000 | | mg/kg |
| | Iron | 32,200.00000 | | mg/kg |
| | Lead | 2,650.00000 | | mg/kg |
| | Magnesium | 2,700.00000 | | mg/kg |
| | Manganese | 634.00000 | | mg/kg |
| | Mercury | 0.21000 | | mg/kg |
| | Nickel | 21.80000 | | mg/kg |
| | Potassium | 3,700.00000 | | mg/kg |
| | Vanadium | 29.00000 | | mg/kg |
| | Zinc | 190.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024722

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| 4C-S061 SL01 | | | | |
| | Aluminum | 13,000.00000 | J | mg/kg |
| | Antimony | 4.80000 | | mg/kg |
| | Arsenic | 9.00000 | | mg/kg |
| | Barium | 145.00000 | | mg/kg |
| | Calcium | 17,300.00000 | | mg/kg |
| | Chromium | 26.60000 | | mg/kg |
| | Cobalt | 5.20000 | | mg/kg |
| | Copper | 31.00000 | | mg/kg |
| | Iron | 27,100.00000 | | mg/kg |
| | Lead | 625.00000 | | mg/kg |
| | Magnesium | 2,550.00000 | | mg/kg |
| | Manganese | 288.00000 | | mg/kg |
| | Mercury | 0.68000 | | mg/kg |
| | Nickel | 20.70000 | | mg/kg |
| | Potassium | 3,590.00000 | J | mg/kg |
| | Sodium | 300.00000 | J | mg/kg |
| | Vanadium | 32.50000 | | mg/kg |
| | Zinc | 273.00000 | | mg/kg |
| 4C-S065 SL01 | | | | |
| | Aluminum | 18,800.00000 | J | mg/kg |
| | Antimony | 14.70000 | | mg/kg |
| | Arsenic | 33.40000 | | mg/kg |
| | Barium | 254.00000 | | mg/kg |
| | Cadmium | 2.00000 | | mg/kg |
| | Calcium | 27,900.00000 | | mg/kg |
| | Chromium | 34.90000 | | mg/kg |
| | Cobalt | 8.30000 | | mg/kg |
| | Copper | 72.80000 | | mg/kg |
| | Iron | 44,200.00000 | | mg/kg |
| | Lead | 690.00000 | | mg/kg |
| | Magnesium | 3,990.00000 | | mg/kg |
| | Manganese | 488.00000 | | mg/kg |
| | Mercury | 0.30000 | | mg/kg |
| | Nickel | 36.30000 | | mg/kg |
| | Potassium | 5,150.00000 | J | mg/kg |
| | Sodium | 266.00000 | J | mg/kg |
| | Vanadium | 43.00000 | | mg/kg |
| | Zinc | 377.00000 | | mg/kg |
| 4C-S070 SL01 | | | | |
| | Aluminum | 16,200.00000 | J | mg/kg |
| | Arsenic | 7.40000 | J | mg/kg |
| | Barium | 113.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024723

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Calcium | 185,000.00000 | | mg/kg |
| | Chromium | 26.40000 | | mg/kg |
| | Cobalt | 6.10000 | | mg/kg |
| | Copper | 26.00000 | | mg/kg |
| | Iron | 25,900.00000 | | mg/kg |
| | Lead | 157.00000 | | mg/kg |
| | Magnesium | 3,580.00000 | | mg/kg |
| | Manganese | 737.00000 | | mg/kg |
| | Mercury | 0.15000 | | mg/kg |
| | Nickel | 25.90000 | | mg/kg |
| | Potassium | 4,470.00000 | J | mg/kg |
| | Sodium | 328.00000 | J | mg/kg |
| | Vanadium | 40.90000 | | mg/kg |
| | Zinc | 137.00000 | | mg/kg |
| **4C-S074 SL01** | | | | |
| | Aluminum | 5,885.00000 | | mg/kg |
| | Antimony | 9.75000 | | mg/kg |
| | Arsenic | 143.25000 | J | mg/kg |
| | Barium | 282.50000 | | mg/kg |
| | Cadmium | 1.16500 | | mg/kg |
| | Calcium | 31,900.00000 | | mg/kg |
| | Chromium | 20.10000 | | mg/kg |
| | Cobalt | 7.25000 | Jv | mg/kg |
| | Copper | 161.00000 | | mg/kg |
| | Iron | 19,800.00000 | | mg/kg |
| | Lead | 780.50000 | | mg/kg |
| | Magnesium | 1,690.00000 | | mg/kg |
| | Manganese | 496.00000 | | mg/kg |
| | Mercury | 0.28500 | | mg/kg |
| | Nickel | 39.55000 | | mg/kg |
| | Potassium | 2,430.00000 | | mg/kg |
| | Sodium | 732.50000 | J | mg/kg |
| | Vanadium | 23.10000 | | mg/kg |
| | Zinc | 397.00000 | | mg/kg |
| **4C-S075 SL01** | | | | |
| | Aluminum | 7,180.00000 | | mg/kg |
| | Antimony | 4.90000 | | mg/kg |
| | Arsenic | 15.20000 | J | mg/kg |
| | Barium | 179.00000 | | mg/kg |
| | Calcium | 36,200.00000 | | mg/kg |
| | Chromium | 22.10000 | | mg/kg |
| | Cobalt | 5.10000 | Jv | mg/kg |
| | Copper | 102.00000 | | mg/kg |
| | Iron | 21,200.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024724

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Lead | 518.00000 | | mg/kg |
| | Magnesium | 1,950.00000 | | mg/kg |
| | Manganese | 412.00000 | | mg/kg |
| | Mercury | 0.15000 | | mg/kg |
| | Nickel | 22.50000 | | mg/kg |
| | Potassium | 2,790.00000 | | mg/kg |
| | Sodium | 778.00000 | J | mg/kg |
| | Vanadium | 27.20000 | | mg/kg |
| | Zinc | 292.00000 | | mg/kg |
| **4C-S076 SL01** | | | | |
| | Aluminum | 6,760.00000 | | mg/kg |
| | Antimony | 8.80000 | | mg/kg |
| | Arsenic | 13.30000 | J | mg/kg |
| | Barium | 197.00000 | | mg/kg |
| | Cadmium | 0.95000 | | mg/kg |
| | Calcium | 32,400.00000 | | mg/kg |
| | Chromium | 14.30000 | | mg/kg |
| | Cobalt | 4.60000 | Jv | mg/kg |
| | Copper | 102.00000 | | mg/kg |
| | Iron | 14,400.00000 | | mg/kg |
| | Lead | 684.00000 | | mg/kg |
| | Magnesium | 2,210.00000 | | mg/kg |
| | Manganese | 413.00000 | | mg/kg |
| | Nickel | 19.30000 | | mg/kg |
| | Potassium | 3,320.00000 | | mg/kg |
| | Sodium | 881.00000 | J | mg/kg |
| | Vanadium | 24.50000 | | mg/kg |
| | Zinc | 228.00000 | | mg/kg |
| **4C-S077 SL01** | | | | |
| | Aluminum | 8,800.00000 | | mg/kg |
| | Antimony | 5.20000 | | mg/kg |
| | Arsenic | 17.30000 | J | mg/kg |
| | Barium | 206.00000 | | mg/kg |
| | Cadmium | 1.20000 | | mg/kg |
| | Calcium | 42,000.00000 | | mg/kg |
| | Chromium | 21.00000 | | mg/kg |
| | Cobalt | 6.10000 | Jv | mg/kg |
| | Copper | 112.00000 | | mg/kg |
| | Iron | 19,200.00000 | | mg/kg |
| | Lead | 780.00000 | | mg/kg |
| | Magnesium | 2,530.00000 | | mg/kg |
| | Manganese | 464.00000 | | mg/kg |
| | Mercury | 0.46000 | | mg/kg |
| | Nickel | 25.40000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024725

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Potassium | 3,360.00000 | | mg/kg |
| | Sodium | 839.00000 | J | mg/kg |
| | Vanadium | 31.80000 | | mg/kg |
| | Zinc | 332.00000 | | mg/kg |
| 4C-S078 SL01 | | | | |
| | Aluminum | 8,080.00000 | | mg/kg |
| | Antimony | 4.30000 | Jv | mg/kg |
| | Arsenic | 11.60000 | | mg/kg |
| | Barium | 131.00000 | | mg/kg |
| | Beryllium | 0.69000 | | mg/kg |
| | Cadmium | 2.60000 | | mg/kg |
| | Calcium | 28,100.00000 | | mg/kg |
| | Chromium | 23.10000 | | mg/kg |
| | Cobalt | 7.20000 | | mg/kg |
| | Copper | 100.00000 | J^ | mg/kg |
| | Iron | 18,700.00000 | J | mg/kg |
| | Lead | 428.00000 | J^ | mg/kg |
| | Magnesium | 1,770.00000 | | mg/kg |
| | Manganese | 365.00000 | | mg/kg |
| | Nickel | 22.30000 | | mg/kg |
| | Potassium | 2,500.00000 | | mg/kg |
| | Selenium | 0.90000 | | mg/kg |
| | Silver | 0.52000 | | mg/kg |
| | Vanadium | 22.40000 | | mg/kg |
| | Zinc | 659.00000 | J^ | mg/kg |
| 4C-S079 SL01 | | | | |
| | Aluminum | 6,100.00000 | | mg/kg |
| | Antimony | 2.00000 | | mg/kg |
| | Arsenic | 12.50000 | J | mg/kg |
| | Barium | 189.00000 | | mg/kg |
| | Cadmium | 1.30000 | | mg/kg |
| | Calcium | 38,900.00000 | | mg/kg |
| | Chromium | 21.90000 | | mg/kg |
| | Cobalt | 5.20000 | Jv | mg/kg |
| | Copper | 141.00000 | | mg/kg |
| | Iron | 18,600.00000 | | mg/kg |
| | Lead | 492.00000 | | mg/kg |
| | Magnesium | 2,080.00000 | | mg/kg |
| | Manganese | 445.00000 | | mg/kg |
| | Nickel | 26.30000 | | mg/kg |
| | Potassium | 3,310.00000 | | mg/kg |
| | Silver | 1.60000 | | mg/kg |
| | Sodium | 829.00000 | J | mg/kg |
| | Vanadium | 21.90000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024726

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Zinc | 609.00000 | | mg/kg |
| 4C-S080 SL01 | | | | |
| | Aluminum | 6,440.00000 | | mg/kg |
| | Arsenic | 5.60000 | J | mg/kg |
| | Barium | 96.70000 | | mg/kg |
| | Calcium | 15,900.00000 | | mg/kg |
| | Chromium | 14.60000 | | mg/kg |
| | Cobalt | 4.60000 | Jv | mg/kg |
| | Copper | 53.60000 | | mg/kg |
| | Iron | 18,100.00000 | | mg/kg |
| | Lead | 118.00000 | | mg/kg |
| | Magnesium | 1,350.00000 | | mg/kg |
| | Manganese | 363.00000 | | mg/kg |
| | Nickel | 16.70000 | | mg/kg |
| | Potassium | 1,840.00000 | | mg/kg |
| | Sodium | 537.00000 | J | mg/kg |
| | Vanadium | 25.20000 | | mg/kg |
| | Zinc | 123.00000 | | mg/kg |
| 4C-S081 SL01 | | | | |
| | Aluminum | 6,310.00000 | | mg/kg |
| | Antimony | 2.30000 | | mg/kg |
| | Arsenic | 13.30000 | J | mg/kg |
| | Barium | 334.00000 | | mg/kg |
| | Cadmium | 1.30000 | | mg/kg |
| | Calcium | 52,800.00000 | | mg/kg |
| | Chromium | 36.10000 | | mg/kg |
| | Cobalt | 7.30000 | Jv | mg/kg |
| | Copper | 245.00000 | | mg/kg |
| | Iron | 34,600.00000 | | mg/kg |
| | Lead | 676.00000 | | mg/kg |
| | Magnesium | 1,890.00000 | | mg/kg |
| | Manganese | 909.00000 | | mg/kg |
| | Mercury | 0.36000 | | mg/kg |
| | Nickel | 32.60000 | | mg/kg |
| | Potassium | 2,050.00000 | | mg/kg |
| | Silver | 1.30000 | | mg/kg |
| | Sodium | 851.00000 | J | mg/kg |
| | Vanadium | 25.20000 | | mg/kg |
| | Zinc | 883.00000 | | mg/kg |
| 4C-S086 SL01 | | | | |
| | Aluminum | 6,800.00000 | | mg/kg |
| | Antimony | 1.10000 | Jv | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024727

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Arsenic | 8.00000 | | mg/kg |
| | Barium | 94.90000 | | mg/kg |
| | Beryllium | 0.69000 | | mg/kg |
| | Cadmium | 1.70000 | | mg/kg |
| | Calcium | 28,800.00000 | | mg/kg |
| | Chromium | 12.00000 | | mg/kg |
| | Cobalt | 5.00000 | | mg/kg |
| | Copper | 29.50000 | J^ | mg/kg |
| | Iron | 29,400.00000 | J | mg/kg |
| | Lead | 970.00000 | J^ | mg/kg |
| | Magnesium | 1,690.00000 | | mg/kg |
| | Manganese | 319.00000 | | mg/kg |
| | Nickel | 13.90000 | | mg/kg |
| | Potassium | 1,940.00000 | | mg/kg |
| | Selenium | 0.78000 | | mg/kg |
| | Vanadium | 20.20000 | | mg/kg |
| | Zinc | 133.00000 | J^ | mg/kg |
| 4C-S087 SL01 | | | | |
| | Aluminum | 5,270.00000 | | mg/kg |
| | Antimony | 17.10000 | Jv | mg/kg |
| | Arsenic | 91.50000 | | mg/kg |
| | Barium | 286.00000 | | mg/kg |
| | Beryllium | 0.58000 | | mg/kg |
| | Cadmium | 5.60000 | | mg/kg |
| | Calcium | 145,000.00000 | | mg/kg |
| | Chromium | 8.90000 | | mg/kg |
| | Cobalt | 8.10000 | | mg/kg |
| | Copper | 381.00000 | J^ | mg/kg |
| | Iron | 16,800.00000 | J | mg/kg |
| | Lead | 2,860.00000 | J^ | mg/kg |
| | Magnesium | 1,730.00000 | | mg/kg |
| | Manganese | 520.00000 | | mg/kg |
| | Nickel | 32.50000 | | mg/kg |
| | Potassium | 1,360.00000 | | mg/kg |
| | Vanadium | 16.50000 | | mg/kg |
| | Zinc | 335.00000 | J^ | mg/kg |
| 4C-S090 SL01 | | | | |
| | Aluminum | 8,960.00000 | | mg/kg |
| | Antimony | 1.40000 | Jv | mg/kg |
| | Arsenic | 9.80000 | | mg/kg |
| | Barium | 119.00000 | | mg/kg |
| | Beryllium | 0.71000 | | mg/kg |
| | Cadmium | 1.40000 | | mg/kg |
| | Calcium | 14,300.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024728

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Chromium | 19.20000 | | mg/kg |
| | Cobalt | 6.70000 | | mg/kg |
| | Copper | 120.00000 | J^ | mg/kg |
| | Iron | 26,500.00000 | J | mg/kg |
| | Lead | 257.00000 | J^ | mg/kg |
| | Magnesium | 1,760.00000 | | mg/kg |
| | Manganese | 347.00000 | | mg/kg |
| | Mercury | 0.26000 | | mg/kg |
| | Nickel | 19.20000 | | mg/kg |
| | Potassium | 2,270.00000 | | mg/kg |
| | Selenium | 0.58000 | | mg/kg |
| | Silver | 0.38000 | | mg/kg |
| | Vanadium | 23.90000 | | mg/kg |
| | Zinc | 286.00000 | J^ | mg/kg |
| 4C-S093 SL01 | | | | |
| | Aluminum | 8,150.00000 | | mg/kg |
| | Antimony | 1.70000 | Jv | mg/kg |
| | Arsenic | 9.00000 | | mg/kg |
| | Barium | 176.00000 | | mg/kg |
| | Beryllium | 0.69000 | | mg/kg |
| | Cadmium | 2.50000 | | mg/kg |
| | Calcium | 72,100.00000 | | mg/kg |
| | Chromium | 21.10000 | | mg/kg |
| | Cobalt | 10.80000 | | mg/kg |
| | Copper | 77.00000 | J^ | mg/kg |
| | Iron | 46,700.00000 | J | mg/kg |
| | Lead | 287.00000 | J^ | mg/kg |
| | Magnesium | 1,790.00000 | | mg/kg |
| | Manganese | 451.00000 | | mg/kg |
| | Nickel | 24.80000 | | mg/kg |
| | Potassium | 1,150.00000 | | mg/kg |
| | Silver | 0.93000 | | mg/kg |
| | Thallium | 0.73000 | | mg/kg |
| | Vanadium | 25.10000 | | mg/kg |
| | Zinc | 421.00000 | J^ | mg/kg |
| 4C-S099 SL01 | | | | |
| | Aluminum | 10,700.00000 | | mg/kg |
| | Antimony | 2.70000 | Jv | mg/kg |
| | Arsenic | 12.60000 | | mg/kg |
| | Barium | 75.60000 | | mg/kg |
| | Beryllium | 0.83000 | | mg/kg |
| | Cadmium | 1.10000 | | mg/kg |
| | Calcium | 14,800.00000 | | mg/kg |
| | Chromium | 14.60000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
*Operable Unit No. 3, Site 4*
RSR Corporation Superfund Site
Dallas, Texas

024729

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Cobalt | 6.10000 | | mg/kg |
| | Copper | 28.20000 | J^ | mg/kg |
| | Iron | 16,700.00000 | J | mg/kg |
| | Lead | 390.00000 | J^ | mg/kg |
| | Magnesium | 2,180.00000 | | mg/kg |
| | Manganese | 354.00000 | | mg/kg |
| | Nickel | 15.40000 | | mg/kg |
| | Potassium | 2,990.00000 | | mg/kg |
| | Thallium | 1.40000 | | mg/kg |
| | Vanadium | 26.90000 | | mg/kg |
| | Zinc | 93.30000 | J^ | mg/kg |
| 4C-S104 SL01 | | | | |
| | Aluminum | 7,630.00000 | | mg/kg |
| | Antimony | 3.20000 | Jv | mg/kg |
| | Arsenic | 11.20000 | | mg/kg |
| | Barium | 157.00000 | | mg/kg |
| | Beryllium | 0.87000 | | mg/kg |
| | Cadmium | 1.40000 | | mg/kg |
| | Calcium | 59,300.00000 | | mg/kg |
| | Chromium | 18.70000 | J^ | mg/kg |
| | Cobalt | 8.40000 | | mg/kg |
| | Copper | 69.00000 | | mg/kg |
| | Iron | 19,300.00000 | | mg/kg |
| | Lead | 286.00000 | | mg/kg |
| | Magnesium | 1,860.00000 | | mg/kg |
| | Manganese | 457.00000 | | mg/kg |
| | Nickel | 25.80000 | | mg/kg |
| | Potassium | 1,780.00000 | | mg/kg |
| | Sodium | 151.00000 | | mg/kg |
| | Thallium | 1.80000 | | mg/kg |
| | Vanadium | 28.60000 | | mg/kg |
| | Zinc | 368.00000 | | mg/kg |
| 4C-S105 SL01 | | | | |
| | Aluminum | 9,700.00000 | | mg/kg |
| | Antimony | 2.80000 | Jv | mg/kg |
| | Arsenic | 7.50000 | | mg/kg |
| | Barium | 93.60000 | | mg/kg |
| | Beryllium | 0.65000 | | mg/kg |
| | Cadmium | 1.90000 | | mg/kg |
| | Calcium | 40,000.00000 | | mg/kg |
| | Chromium | 18.10000 | | mg/kg |
| | Cobalt | 5.20000 | | mg/kg |
| | Copper | 39.10000 | J^ | mg/kg |
| | Iron | 12,300.00000 | J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024730

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Lead | 369.00000 J^ | mg/kg |
| | Magnesium | 1,940.00000 | mg/kg |
| | Manganese | 329.00000 | mg/kg |
| | Mercury | 0.13000 | mg/kg |
| | Nickel | 15.00000 | mg/kg |
| | Potassium | 2,210.00000 | mg/kg |
| | Silver | 0.22000 | mg/kg |
| | Thallium | 0.67000 | mg/kg |
| | Vanadium | 23.00000 | mg/kg |
| | Zinc | 173.00000 J^ | mg/kg |
| **4C-S110 SL01** | | | |
| | Aluminum | 9,705.00000 | mg/kg |
| | Antimony | 3.45000 Jv | mg/kg |
| | Arsenic | 18.40000 | mg/kg |
| | Barium | 127.00000 | mg/kg |
| | Beryllium | 0.66500 | mg/kg |
| | Cadmium | 1.80000 | mg/kg |
| | Calcium | 25,650.00000 | mg/kg |
| | Chromium | 23.85000 | mg/kg |
| | Cobalt | 5.95000 | mg/kg |
| | Copper | 66.90000 J^ | mg/kg |
| | Iron | 31,050.00000 J | mg/kg |
| | Lead | 242.00000 J^ | mg/kg |
| | Magnesium | 2,160.00000 | mg/kg |
| | Manganese | 357.50000 | mg/kg |
| | Mercury | 0.32000 | mg/kg |
| | Nickel | 15.65000 | mg/kg |
| | Potassium | 2,135.00000 | mg/kg |
| | Selenium | 1.25000 | mg/kg |
| | Thallium | 0.83750 | mg/kg |
| | Vanadium | 21.65000 | mg/kg |
| | Zinc | 225.50000 J^ | mg/kg |
| **4C-S112 SL01** | | | |
| | Aluminum | 7,400.00000 | mg/kg |
| | Antimony | 239.00000 Jv | mg/kg |
| | Arsenic | 186.00000 | mg/kg |
| | Barium | 2,330.00000 | mg/kg |
| | Beryllium | 0.62000 | mg/kg |
| | Cadmium | 4.50000 | mg/kg |
| | Calcium | 41,700.00000 | mg/kg |
| | Chromium | 16.40000 | mg/kg |
| | Cobalt | 7.60000 | mg/kg |
| | Copper | 324.00000 J^ | mg/kg |
| | Iron | 35,900.00000 J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024731

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Lead | 6,390.00000 | J^ | mg/kg |
| | Magnesium | 1,650.00000 | | mg/kg |
| | Manganese | 331.00000 | | mg/kg |
| | Mercury | 0.11000 | | mg/kg |
| | Nickel | 28.30000 | | mg/kg |
| | Potassium | 1,580.00000 | | mg/kg |
| | Selenium | 0.66000 | | mg/kg |
| | Silver | 0.27000 | | mg/kg |
| | Thallium | 1.30000 | | mg/kg |
| | Vanadium | 19.50000 | | mg/kg |
| | Zinc | 561.00000 | J^ | mg/kg |
| **4C-S120 SL01** | | | | |
| | Aluminum | 13,800.00000 | | mg/kg |
| | Antimony | 0.52000 | | mg/kg |
| | Arsenic | 4.70000 | | mg/kg |
| | Barium | 61.60000 | | mg/kg |
| | Beryllium | 0.69000 | | mg/kg |
| | Cadmium | 0.47000 | | mg/kg |
| | Calcium | 12,500.00000 | | mg/kg |
| | Chromium | 15.90000 | | mg/kg |
| | Cobalt | 4.60000 | | mg/kg |
| | Copper | 16.30000 | | mg/kg |
| | Iron | 13,400.00000 | | mg/kg |
| | Lead | 9.20000 | | mg/kg |
| | Magnesium | 1,940.00000 | | mg/kg |
| | Manganese | 284.00000 | J^ | mg/kg |
| | Nickel | 11.80000 | | mg/kg |
| | Potassium | 3,580.00000 | | mg/kg |
| | Selenium | 0.74000 | | mg/kg |
| | Vanadium | 28.20000 | | mg/kg |
| | Zinc | 43.30000 | | mg/kg |
| **4D-S017 SL01** | | | | |
| | Aluminum | 8,470.00000 | | mg/kg |
| | Antimony | 0.74000 | Jv | mg/kg |
| | Arsenic | 11.30000 | | mg/kg |
| | Barium | 61.10000 | | mg/kg |
| | Beryllium | 0.65000 | | mg/kg |
| | Cadmium | 0.33000 | | mg/kg |
| | Calcium | 15,000.00000 | | mg/kg |
| | Chromium | 12.90000 | | mg/kg |
| | Cobalt | 5.20000 | | mg/kg |
| | Copper | 15.60000 | J^ | mg/kg |
| | Iron | 11,600.00000 | J | mg/kg |
| | Lead | 87.70000 | J^ | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024732

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Magnesium | 1,440.00000 | | mg/kg |
| | Manganese | 324.00000 | | mg/kg |
| | Nickel | 12.20000 | | mg/kg |
| | Potassium | 2,240.00000 | | mg/kg |
| | Selenium | 0.92000 | | mg/kg |
| | Thallium | 1.10000 | | mg/kg |
| | Vanadium | 21.50000 | | mg/kg |
| | Zinc | 70.80000 | J^ | mg/kg |
| 4D-S027 SL01 | | | | |
| | Aluminum | 11,100.00000 | | mg/kg |
| | Antimony | 11.80000 | Jv | mg/kg |
| | Arsenic | 17.50000 | | mg/kg |
| | Barium | 94.70000 | | mg/kg |
| | Beryllium | 0.74000 | | mg/kg |
| | Cadmium | 2.20000 | | mg/kg |
| | Calcium | 64,000.00000 | | mg/kg |
| | Chromium | 20.80000 | | mg/kg |
| | Cobalt | 7.30000 | | mg/kg |
| | Copper | 41.60000 | J^ | mg/kg |
| | Iron | 11,100.00000 | J | mg/kg |
| | Lead | 1,170.00000 | J^ | mg/kg |
| | Magnesium | 2,100.00000 | | mg/kg |
| | Manganese | 466.00000 | | mg/kg |
| | Nickel | 19.50000 | | mg/kg |
| | Potassium | 2,200.00000 | | mg/kg |
| | Thallium | 0.91000 | | mg/kg |
| | Vanadium | 31.20000 | | mg/kg |
| | Zinc | 142.00000 | J^ | mg/kg |
| 4D-S030 SL01 | | | | |
| | Aluminum | 12,400.00000 | | mg/kg |
| | Arsenic | 4.10000 | | mg/kg |
| | Barium | 54.80000 | | mg/kg |
| | Beryllium | 0.69000 | | mg/kg |
| | Calcium | 4,080.00000 | | mg/kg |
| | Chromium | 14.50000 | | mg/kg |
| | Cobalt | 4.60000 | | mg/kg |
| | Copper | 6.50000 | J^ | mg/kg |
| | Iron | 14,500.00000 | J | mg/kg |
| | Lead | 9.10000 | J^ | mg/kg |
| | Magnesium | 1,390.00000 | | mg/kg |
| | Manganese | 109.00000 | | mg/kg |
| | Nickel | 9.20000 | | mg/kg |
| | Potassium | 1,230.00000 | | mg/kg |
| | Sodium | 51.40000 | J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024733

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Thallium | 0.88000 | | mg/kg |
| | Vanadium | 25.60000 | | mg/kg |
| | Zinc | 27.70000 | J | mg/kg |
| 4D-S045 SL01 | | | | |
| | Aluminum | 17,000.00000 | | mg/kg |
| | Antimony | 2.60000 | | mg/kg |
| | Arsenic | 12.90000 | | mg/kg |
| | Barium | 166.00000 | | mg/kg |
| | Beryllium | 1.40000 | | mg/kg |
| | Cadmium | 3.10000 | | mg/kg |
| | Calcium | 49,300.00000 | | mg/kg |
| | Chromium | 38.60000 | | mg/kg |
| | Cobalt | 8.50000 | | mg/kg |
| | Copper | 87.30000 | | mg/kg |
| | Iron | 23,700.00000 | | mg/kg |
| | Lead | 842.00000 | Jv | mg/kg |
| | Magnesium | 3,090.00000 | | mg/kg |
| | Manganese | 565.00000 | Jv | mg/kg |
| | Mercury | 0.17000 | | mg/kg |
| | Nickel | 26.80000 | | mg/kg |
| | Potassium | 4,380.00000 | | mg/kg |
| | Sodium | 710.00000 | J | mg/kg |
| | Vanadium | 39.50000 | | mg/kg |
| | Zinc | 318.00000 | | mg/kg |
| 4D-S051 SL01 | | | | |
| | Aluminum | 6,030.00000 | | mg/kg |
| | Arsenic | 7.40000 | | mg/kg |
| | Barium | 65.30000 | | mg/kg |
| | Beryllium | 0.58000 | | mg/kg |
| | Calcium | 70,800.00000 | | mg/kg |
| | Chromium | 11.20000 | | mg/kg |
| | Cobalt | 5.50000 | | mg/kg |
| | Copper | 39.60000 | | mg/kg |
| | Iron | 8,470.00000 | | mg/kg |
| | Lead | 28.90000 | Jv | mg/kg |
| | Magnesium | 1,740.00000 | | mg/kg |
| | Manganese | 336.00000 | Jv | mg/kg |
| | Nickel | 11.30000 | | mg/kg |
| | Potassium | 2,090.00000 | | mg/kg |
| | Sodium | 848.00000 | J | mg/kg |
| | Vanadium | 17.40000 | | mg/kg |
| | Zinc | 65.30000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024734

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| 4D-S056 SL01 | | | | |
| | Aluminum | 11,900.00000 | | mg/kg |
| | Arsenic | 15.40000 | | mg/kg |
| | Barium | 98.30000 | | mg/kg |
| | Beryllium | 0.82000 | | mg/kg |
| | Calcium | 160,000.00000 | | mg/kg |
| | Chromium | 14.00000 | | mg/kg |
| | Cobalt | 5.60000 | | mg/kg |
| | Copper | 43.70000 | | mg/kg |
| | Iron | 10,900.00000 | | mg/kg |
| | Lead | 46.90000 | Jv | mg/kg |
| | Magnesium | 2,880.00000 | | mg/kg |
| | Manganese | 674.00000 | Jv | mg/kg |
| | Mercury | 0.16000 | | mg/kg |
| | Nickel | 14.20000 | | mg/kg |
| | Potassium | 3,990.00000 | | mg/kg |
| | Sodium | 1,140.00000 | J | mg/kg |
| | Vanadium | 27.10000 | | mg/kg |
| | Zinc | 75.90000 | | mg/kg |
| 4D-S059 SL01 | | | | |
| | Aluminum | 12,300.00000 | | mg/kg |
| | Antimony | 22.90000 | | mg/kg |
| | Arsenic | 27.00000 | | mg/kg |
| | Barium | 81.00000 | | mg/kg |
| | Beryllium | 1.20000 | | mg/kg |
| | Cadmium | 2.60000 | | mg/kg |
| | Calcium | 24,200.00000 | | mg/kg |
| | Chromium | 20.80000 | | mg/kg |
| | Cobalt | 5.20000 | | mg/kg |
| | Copper | 93.50000 | | mg/kg |
| | Iron | 17,900.00000 | | mg/kg |
| | Lead | 1,200.00000 | Jv | mg/kg |
| | Magnesium | 3,010.00000 | | mg/kg |
| | Manganese | 303.00000 | Jv | mg/kg |
| | Nickel | 16.30000 | | mg/kg |
| | Potassium | 3,460.00000 | | mg/kg |
| | Sodium | 686.00000 | J | mg/kg |
| | Vanadium | 32.60000 | | mg/kg |
| | Zinc | 179.00000 | | mg/kg |
| 4D-S066 SL01 | | | | |
| | Aluminum | 5,500.00000 | | mg/kg |
| | Antimony | 1.50000 | Jv | mg/kg |
| | Arsenic | 21.80000 | | mg/kg |
| | Barium | 99.30000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.3-1**
**Surface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024735

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Beryllium | 0.73000 | | mg/kg |
| | Cadmium | 1.50000 | | mg/kg |
| | Calcium | 26,200.00000 | | mg/kg |
| | Chromium | 12.30000 | J^ | mg/kg |
| | Cobalt | 6.90000 | | mg/kg |
| | Copper | 61.20000 | | mg/kg |
| | Iron | 15,900.00000 | | mg/kg |
| | Lead | 190.00000 | | mg/kg |
| | Magnesium | 1,190.00000 | | mg/kg |
| | Manganese | 522.00000 | | mg/kg |
| | Nickel | 17.80000 | | mg/kg |
| | Potassium | 1,460.00000 | | mg/kg |
| | Sodium | 71.60000 | | mg/kg |
| | Thallium | 1.20000 | | mg/kg |
| | Vanadium | 25.30000 | | mg/kg |
| | Zinc | 206.00000 | | mg/kg |
| **4D-S073 SL01** | | | | |
| | Aluminum | 7,000.00000 | | mg/kg |
| | Arsenic | 10.85000 | J^ | mg/kg |
| | Barium | 72.55000 | | mg/kg |
| | Beryllium | 0.66500 | | mg/kg |
| | Calcium | 74,550.00000 | | mg/kg |
| | Chromium | 17.50000 | | mg/kg |
| | Cobalt | 4.25000 | | mg/kg |
| | Iron | 15,650.00000 | | mg/kg |
| | Lead | 418.00000 | Jv | mg/kg |
| | Magnesium | 1,815.00000 | | mg/kg |
| | Manganese | 335.50000 | Jv | mg/kg |
| | Mercury | 0.19000 | | mg/kg |
| | Nickel | 13.80000 | | mg/kg |
| | Potassium | 1,960.00000 | | mg/kg |
| | Vanadium | 22.25000 | | mg/kg |
| | Zinc | 209.50000 | | mg/kg |
| **4D-S075 SL01** | | | | |
| | Aluminum | 6,690.00000 | | mg/kg |
| | Antimony | 1.30000 | Jv | mg/kg |
| | Arsenic | 17.50000 | | mg/kg |
| | Barium | 68.00000 | | mg/kg |
| | Beryllium | 0.78000 | | mg/kg |
| | Calcium | 24,100.00000 | | mg/kg |
| | Chromium | 11.60000 | J^ | mg/kg |
| | Cobalt | 6.10000 | | mg/kg |
| | Copper | 10.60000 | | mg/kg |
| | Iron | 13,500.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024736

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Lead | 109.00000 | | mg/kg |
| | Magnesium | 1,340.00000 | | mg/kg |
| | Manganese | 264.00000 | | mg/kg |
| | Nickel | 12.80000 | | mg/kg |
| | Potassium | 1,620.00000 | | mg/kg |
| | Sodium | 141.00000 | | mg/kg |
| | Vanadium | 26.10000 | | mg/kg |
| | Zinc | 48.70000 | | mg/kg |
| 4H-S500 EL01 | | | | |
| | Aluminum | 9,720.00000 | | mg/kg |
| | Arsenic | 4.70000 | Jv | mg/kg |
| | Barium | 77.10000 | | mg/kg |
| | Calcium | 41,000.00000 | | mg/kg |
| | Chromium | 20.70000 | Jv | mg/kg |
| | Cobalt | 5.80000 | | mg/kg |
| | Copper | 11.00000 | J^ | mg/kg |
| | Iron | 14,700.00000 | | mg/kg |
| | Lead | 29.30000 | Jv | mg/kg |
| | Magnesium | 2,080.00000 | | mg/kg |
| | Manganese | 346.00000 | J | mg/kg |
| | Nickel | 14.40000 | | mg/kg |
| | Potassium | 2,230.00000 | | mg/kg |
| | Vanadium | 25.90000 | | mg/kg |
| | Zinc | 51.20000 | J | mg/kg |
| 4H-S501 EL01 | | | | |
| | Aluminum | 11,200.00000 | | mg/kg |
| | Arsenic | 4.80000 | Jv | mg/kg |
| | Barium | 90.80000 | | mg/kg |
| | Calcium | 31,100.00000 | | mg/kg |
| | Chromium | 20.40000 | Jv | mg/kg |
| | Cobalt | 6.70000 | | mg/kg |
| | Copper | 15.30000 | J | mg/kg |
| | Iron | 16,100.00000 | | mg/kg |
| | Lead | 31.50000 | Jv | mg/kg |
| | Magnesium | 2,500.00000 | | mg/kg |
| | Manganese | 354.00000 | J | mg/kg |
| | Nickel | 16.10000 | | mg/kg |
| | Potassium | 2,930.00000 | | mg/kg |
| | Vanadium | 28.80000 | | mg/kg |
| | Zinc | 57.80000 | J | mg/kg |
| 4H-S502 EL01 | | | | |
| | Aluminum | 9,640.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-1
Surface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024737

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Antimony | 6.20000 | Jv | mg/kg |
| | Arsenic | 4.80000 | Jv | mg/kg |
| | Barium | 81.20000 | | mg/kg |
| | Calcium | 43,300.00000 | | mg/kg |
| | Chromium | 19.30000 | Jv | mg/kg |
| | Cobalt | 6.00000 | | mg/kg |
| | Copper | 15.00000 | J^ | mg/kg |
| | Iron | 15,000.00000 | | mg/kg |
| | Lead | 30.90000 | Jv | mg/kg |
| | Magnesium | 2,340.00000 | | mg/kg |
| | Manganese | 358.00000 | J | mg/kg |
| | Nickel | 16.10000 | | mg/kg |
| | Potassium | 2,500.00000 | | mg/kg |
| | Vanadium | 26.90000 | | mg/kg |
| | Zinc | 58.00000 | J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-2
Surface Soil TCL Organic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024738

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **4C-S077 EL01** | | | |
| | Trichloroethene | 0.00650 J | mg/kg |
| | **TCL SEMI-VOLATILES** | | |
| **4C-S077 EL01** | | | |
| | Benzo(b)fluoranthene | 0.15000 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.35000 J | mg/kg |
| | Fluoranthene | 0.11500 J | mg/kg |
| | Pyrene | 0.19250 J | mg/kg |
| | **TCL PESTICIDES** | | |
| **4C-S077 EL01** | | | |
| | Aroclor-1260 | 0.04300 J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers. The sample collected from 4H-S500 did not show detections of TCL organics.*

Table 8.3-3
Surface Soil TCLP Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024739

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | **TCLP VOLATILES** | | |
| **4D-S066 SL01** | | | |
| | 2-Butanone | 0.05000 | mg/L |
| | **TCLP INORGANICS** | | |
| **4A-S037 SL01** | | | |
| | Barium | 0.12500 B | mg/L |
| | Lead | 0.00220 B | mg/L |
| **4A-S047 SL01** | | | |
| | Barium | 0.32900 J | mg/L |
| | Lead | 0.00200 J | mg/L |
| **4B-S013 SL01** | | | |
| | Barium | 0.70600 | mg/L |
| | Cadmium | 0.00150 B | mg/L |
| | Lead | 0.02190 B | mg/L |
| | Selenium | 0.00520 B | mg/L |
| **4B-S025 SL01** | | | |
| | Barium | 0.59900 J | mg/L |
| | Lead | 0.00330 J | mg/L |
| **4C-S021 SL01** | | | |
| | Arsenic | 0.01650 BS | mg/L |
| | Barium | 1.66000 J | mg/L |
| | Cadmium | 0.05930 | mg/L |
| | Lead | 0.76300 | mg/L |
| **4C-S077 SL01** | | | |
| | Arsenic | 0.01990 B | mg/L |
| | Barium | 1.12000 J | mg/L |
| | Cadmium | 0.01310 | mg/L |
| | Lead | 0.32200 | mg/L |
| **4C-S079 SL01** | | | |
| | Arsenic | 0.01960 B | mg/L |
| | Barium | 0.93700 | mg/L |
| | Cadmium | 0.01000 | mg/L |
| | Lead | 0.06690 | mg/L |
| | Mercury | 0.00031 | mg/L |
| | Selenium | 0.00950 B | mg/L |
| **4C-S104 SL01** | | | |
| | Barium | 0.34200 | mg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-3
Surface Soil TCLP Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024740

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| 4C-S105 SL01 | | | |
| | Arsenic | 0.00580 B | mg/L |
| | Barium | 0.65800 J | mg/L |
| | Cadmium | 0.00660 | mg/L |
| | Lead | 0.07580 | mg/L |
| 4D-S066 SL01 | | | |
| | Arsenic | 0.01020 B | mg/L |
| | Barium | 0.21600 | mg/L |
| 4D-S073 SL01 | | | |
| | Arsenic | 0.02320 BS | mg/L |
| | Barium | 0.89200 J | mg/L |
| | Cadmium | 0.00470 B | mg/L |
| | Lead | 0.12400 | mg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

024741

**Table 8.3-4**
**Soil Vapor Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|---|
| 4C-S110 UV01 | 10.0-10.0 | | | |
| | | Methane | 2.30000 | ppm |
| 4C-S110 UV02 | 20.0-20.0 | | | |
| | | Methane | 1.90000 | ppm |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024742

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | **TAL TOTAL INORGANICS** | | | |
| **4A-S012 UL01** | **8.0-10.0** | | | | |
| | | Aluminum | 10,600.00000 | | mg/kg |
| | | Arsenic | 5.40000 | Jv | mg/kg |
| | | Barium | 111.00000 | | mg/kg |
| | | Beryllium | 0.88000 | | mg/kg |
| | | Cadmium | 1.10000 | | mg/kg |
| | | Calcium | 41,700.00000 | J | mg/kg |
| | | Chromium | 15.50000 | | mg/kg |
| | | Cobalt | 9.30000 | | mg/kg |
| | | Copper | 14.90000 | | mg/kg |
| | | Iron | 23,700.00000 | | mg/kg |
| | | Lead | 9.50000 | J^ | mg/kg |
| | | Magnesium | 1,660.00000 | | mg/kg |
| | | Manganese | 531.00000 | J^ | mg/kg |
| | | Mercury | 0.06000 | | mg/kg |
| | | Nickel | 18.80000 | | mg/kg |
| | | Potassium | 1,460.00000 | | mg/kg |
| | | Sodium | 201.00000 | | mg/kg |
| | | Vanadium | 28.00000 | | mg/kg |
| | | Zinc | 44.20000 | | mg/kg |
| **4A-S030 UL01** | **9.0-12.0** | | | | |
| | | Aluminum | 5,420.00000 | | mg/kg |
| | | Arsenic | 6.85000 | | mg/kg |
| | | Barium | 49.85000 | | mg/kg |
| | | Beryllium | 0.74500 | | mg/kg |
| | | Calcium | 43,500.00000 | | mg/kg |
| | | Chromium | 10.65000 | | mg/kg |
| | | Cobalt | 7.80000 | | mg/kg |
| | | Copper | 11.50000 | | mg/kg |
| | | Iron | 15,050.00000 | | mg/kg |
| | | Lead | 7.60000 | | mg/kg |
| | | Magnesium | 1,420.00000 | | mg/kg |
| | | Manganese | 213.00000 | Jv | mg/kg |
| | | Nickel | 16.30000 | | mg/kg |
| | | Potassium | 1,920.00000 | | mg/kg |
| | | Selenium | 0.57000 | | mg/kg |
| | | Sodium | 484.50000 | | mg/kg |
| | | Vanadium | 22.50000 | | mg/kg |
| | | Zinc | 34.35000 | | mg/kg |
| **4A-S047 UL01** | **6.0- 9.0** | | | | |
| | | Aluminum | 37.70000 | | mg/kg |
| | | Barium | 0.99000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.3-5**
**Subsurface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024743

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|---|
| | | Calcium | 52.30000 | | mg/kg |
| | | Cobalt | 0.64000 | | mg/kg |
| | | Copper | 0.41000 | | mg/kg |
| | | Iron | 245.00000 | | mg/kg |
| | | Magnesium | 9.30000 | | mg/kg |
| | | Manganese | 2.70000 | Jv | mg/kg |
| | | Vanadium | 0.69000 | | mg/kg |
| | | Zinc | 1.30000 | | mg/kg |
| **4A-S080 UL01** | **0.0- 2.0** | | | | |
| | | Aluminum | 19,000.00000 | | mg/kg |
| | | Antimony | 0.58000 | | mg/kg |
| | | Arsenic | 7.10000 | | mg/kg |
| | | Barium | 129.00000 | | mg/kg |
| | | Beryllium | 1.10000 | | mg/kg |
| | | Cadmium | 1.40000 | | mg/kg |
| | | Calcium | 32,300.00000 | | mg/kg |
| | | Chromium | 25.20000 | | mg/kg |
| | | Cobalt | 8.30000 | | mg/kg |
| | | Copper | 20.40000 | | mg/kg |
| | | Iron | 21,500.00000 | | mg/kg |
| | | Lead | 54.80000 | | mg/kg |
| | | Magnesium | 3,300.00000 | | mg/kg |
| | | Manganese | 368.00000 | J^ | mg/kg |
| | | Nickel | 22.10000 | | mg/kg |
| | | Potassium | 3,610.00000 | | mg/kg |
| | | Selenium | 1.40000 | J | mg/kg |
| | | Vanadium | 42.90000 | | mg/kg |
| | | Zinc | 61.60000 | | mg/kg |
| **4A-S080 UL02** | **16.0-18.0** | | | | |
| | | Aluminum | 9,540.00000 | | mg/kg |
| | | Arsenic | 3.80000 | J | mg/kg |
| | | Barium | 41.10000 | | mg/kg |
| | | Beryllium | 0.61000 | | mg/kg |
| | | Cadmium | 0.39000 | | mg/kg |
| | | Calcium | 11,100.00000 | | mg/kg |
| | | Chromium | 14.80000 | | mg/kg |
| | | Cobalt | 5.00000 | | mg/kg |
| | | Copper | 8.70000 | | mg/kg |
| | | Iron | 15,200.00000 | | mg/kg |
| | | Lead | 7.30000 | | mg/kg |
| | | Magnesium | 1,570.00000 | | mg/kg |
| | | Manganese | 221.00000 | J^ | mg/kg |
| | | Nickel | 13.60000 | | mg/kg |
| | | Potassium | 1,910.00000 | | mg/kg |
| | | Vanadium | 24.30000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024744

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Zinc | 32.60000 | | mg/kg |
| 4A-S095 UL01 | 13.0-15.0 | | | | |
| | | Aluminum | 7,920.00000 | | mg/kg |
| | | Arsenic | 5.70000 | | mg/kg |
| | | Barium | 60.90000 | | mg/kg |
| | | Beryllium | 0.96000 | | mg/kg |
| | | Calcium | 20,600.00000 | | mg/kg |
| | | Chromium | 13.80000 | | mg/kg |
| | | Cobalt | 7.70000 | | mg/kg |
| | | Copper | 13.60000 | | mg/kg |
| | | Iron | 16,600.00000 | | mg/kg |
| | | Lead | 9.70000 | | mg/kg |
| | | Magnesium | 1,840.00000 | | mg/kg |
| | | Manganese | 509.00000 | Jv | mg/kg |
| | | Nickel | 19.00000 | | mg/kg |
| | | Potassium | 1,840.00000 | | mg/kg |
| | | Vanadium | 27.70000 | | mg/kg |
| | | Zinc | 36.80000 | | mg/kg |
| 4B-S001 UL03 | 12.0-14.0 | | | | |
| | | Aluminum | 3,920.00000 | | mg/kg |
| | | Arsenic | 3.50000 | | mg/kg |
| | | Barium | 29.50000 | | mg/kg |
| | | Beryllium | 0.38000 | | mg/kg |
| | | Calcium | 4,040.00000 | | mg/kg |
| | | Chromium | 6.70000 | | mg/kg |
| | | Cobalt | 3.10000 | | mg/kg |
| | | Copper | 5.10000 | | mg/kg |
| | | Iron | 7,790.00000 | | mg/kg |
| | | Lead | 5.00000 | | mg/kg |
| | | Magnesium | 594.00000 | | mg/kg |
| | | Manganese | 114.00000 | J^ | mg/kg |
| | | Nickel | 6.40000 | | mg/kg |
| | | Potassium | 683.00000 | | mg/kg |
| | | Selenium | 0.71000 | | mg/kg |
| | | Vanadium | 10.70000 | | mg/kg |
| | | Zinc | 14.10000 | | mg/kg |
| 4B-S001 UL04 | 3.0- 5.0 | | | | |
| | | Aluminum | 11,800.00000 | | mg/kg |
| | | Arsenic | 9.50000 | | mg/kg |
| | | Barium | 86.70000 | | mg/kg |
| | | Beryllium | 1.20000 | | mg/kg |
| | | Calcium | 92,100.00000 | | mg/kg |
| | | Chromium | 18.30000 | J^ | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024745

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Cobalt | 10.20000 | | mg/kg |
| | | Copper | 19.20000 | | mg/kg |
| | | Iron | 25,800.00000 | | mg/kg |
| | | Lead | 13.20000 | | mg/kg |
| | | Magnesium | 2,630.00000 | | mg/kg |
| | | Manganese | 1,200.00000 | | mg/kg |
| | | Nickel | 24.50000 | | mg/kg |
| | | Potassium | 1,990.00000 | | mg/kg |
| | | Sodium | 299.00000 | | mg/kg |
| | | Thallium | 2.60000 | | mg/kg |
| | | Vanadium | 38.10000 | | mg/kg |
| | | Zinc | 50.30000 | | mg/kg |
| 4B-S003 UL03 | 3.0- 5.0 | | | | |
| | | Aluminum | 12,700.00000 | | mg/kg |
| | | Arsenic | 8.10000 | | mg/kg |
| | | Barium | 115.00000 | | mg/kg |
| | | Beryllium | 1.20000 | | mg/kg |
| | | Cadmium | 0.34000 | | mg/kg |
| | | Calcium | 60,800.00000 | | mg/kg |
| | | Chromium | 19.90000 | J^ | mg/kg |
| | | Cobalt | 10.50000 | | mg/kg |
| | | Copper | 21.10000 | | mg/kg |
| | | Iron | 27,800.00000 | | mg/kg |
| | | Lead | 23.90000 | | mg/kg |
| | | Magnesium | 2,710.00000 | | mg/kg |
| | | Manganese | 815.00000 | | mg/kg |
| | | Nickel | 27.80000 | | mg/kg |
| | | Potassium | 1,940.00000 | | mg/kg |
| | | Sodium | 416.00000 | | mg/kg |
| | | Thallium | 3.00000 | | mg/kg |
| | | Vanadium | 43.70000 | | mg/kg |
| | | Zinc | 63.90000 | | mg/kg |
| 4B-S003 UL04 | 11.0-12.0 | | | | |
| | | Aluminum | 4,840.00000 | | mg/kg |
| | | Arsenic | 6.60000 | | mg/kg |
| | | Barium | 70.60000 | | mg/kg |
| | | Beryllium | 0.77000 | | mg/kg |
| | | Calcium | 73,300.00000 | | mg/kg |
| | | Chromium | 7.40000 | | mg/kg |
| | | Cobalt | 6.00000 | | mg/kg |
| | | Copper | 6.30000 | | mg/kg |
| | | Iron | 12,100.00000 | | mg/kg |
| | | Lead | 9.20000 | | mg/kg |
| | | Magnesium | 806.00000 | | mg/kg |
| | | Manganese | 244.00000 | Jv | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024746

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Nickel | 8.90000 | | mg/kg |
| | | Potassium | 1,090.00000 | J^ | mg/kg |
| | | Vanadium | 17.90000 | | mg/kg |
| | | Zinc | 16.20000 | | mg/kg |
| 4B-S023 UL01 | 9.0-12.0 | | | | |
| | | Aluminum | 4,570.00000 | | mg/kg |
| | | Arsenic | 6.50000 | | mg/kg |
| | | Barium | 29.60000 | | mg/kg |
| | | Beryllium | 0.34000 | | mg/kg |
| | | Calcium | 9,240.00000 | J | mg/kg |
| | | Chromium | 8.00000 | | mg/kg |
| | | Cobalt | 3.80000 | | mg/kg |
| | | Copper | 10.30000 | | mg/kg |
| | | Iron | 10,900.00000 | | mg/kg |
| | | Lead | 6.80000 | J^ | mg/kg |
| | | Magnesium | 849.00000 | | mg/kg |
| | | Manganese | 229.00000 | J^ | mg/kg |
| | | Nickel | 7.70000 | | mg/kg |
| | | Potassium | 811.00000 | | mg/kg |
| | | Sodium | 129.00000 | | mg/kg |
| | | Vanadium | 13.90000 | | mg/kg |
| | | Zinc | 22.40000 | | mg/kg |
| 4B-S036 UL01 | 9.0-10.0 | | | | |
| | | Aluminum | 4,040.00000 | | mg/kg |
| | | Arsenic | 4.90000 | | mg/kg |
| | | Barium | 55.40000 | | mg/kg |
| | | Beryllium | 0.63000 | | mg/kg |
| | | Calcium | 14,000.00000 | | mg/kg |
| | | Chromium | 7.10000 | | mg/kg |
| | | Cobalt | 8.60000 | | mg/kg |
| | | Copper | 5.80000 | | mg/kg |
| | | Iron | 10,300.00000 | | mg/kg |
| | | Lead | 5.90000 | | mg/kg |
| | | Magnesium | 617.00000 | | mg/kg |
| | | Manganese | 229.00000 | Jv | mg/kg |
| | | Nickel | 9.90000 | | mg/kg |
| | | Potassium | 1,120.00000 | J^ | mg/kg |
| | | Vanadium | 14.50000 | | mg/kg |
| | | Zinc | 18.00000 | | mg/kg |
| 4C-S009 UL01 | 22.0-23.0 | | | | |
| | | Aluminum | 8,890.00000 | | mg/kg |
| | | Arsenic | 6.70000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024747

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Barium | 107.00000 | | mg/kg |
| | | Beryllium | 1.30000 | | mg/kg |
| | | Calcium | 10,800.00000 | | mg/kg |
| | | Chromium | 14.20000 | | mg/kg |
| | | Cobalt | 9.00000 | | mg/kg |
| | | Copper | 20.30000 | | mg/kg |
| | | Iron | 20,900.00000 | | mg/kg |
| | | Lead | 12.10000 | | mg/kg |
| | | Magnesium | 2,160.00000 | | mg/kg |
| | | Manganese | 256.00000 | Jv | mg/kg |
| | | Nickel | 23.80000 | | mg/kg |
| | | Potassium | 2,660.00000 | | mg/kg |
| | | Vanadium | 36.20000 | | mg/kg |
| | | Zinc | 44.50000 | | mg/kg |
| 4C-S016 UL01 | 0.0- 3.0 | | | | |
| | | Aluminum | 9,550.00000 | J | mg/kg |
| | | Antimony | 11.90000 | Jv | mg/kg |
| | | Arsenic | 15.60000 | J | mg/kg |
| | | Barium | 641.00000 | Jv | mg/kg |
| | | Beryllium | 0.47000 | | mg/kg |
| | | Cadmium | 15.10000 | | mg/kg |
| | | Calcium | 49,500.00000 | | mg/kg |
| | | Chromium | 1,420.00000 | | mg/kg |
| | | Cobalt | 25.70000 | | mg/kg |
| | | Copper | 434.00000 | Jv | mg/kg |
| | | Iron | 50,800.00000 | | mg/kg |
| | | Lead | 1,180.00000 | J | mg/kg |
| | | Magnesium | 3,500.00000 | | mg/kg |
| | | Manganese | 692.00000 | Jv | mg/kg |
| | | Mercury | 0.33000 | | mg/kg |
| | | Nickel | 95.50000 | | mg/kg |
| | | Potassium | 2,280.00000 | | mg/kg |
| | | Selenium | 1.00000 | | mg/kg |
| | | Silver | 6.20000 | | mg/kg |
| | | Sodium | 408.00000 | | mg/kg |
| | | Vanadium | 23.10000 | J | mg/kg |
| | | Zinc | 1,820.00000 | Jv | mg/kg |
| 4C-S016 UL02 | 23.0-26.0 | | | | |
| | | Aluminum | 14,600.00000 | J | mg/kg |
| | | Antimony | 0.49000 | Jv | mg/kg |
| | | Arsenic | 5.90000 | J | mg/kg |
| | | Barium | 106.00000 | Jv | mg/kg |
| | | Beryllium | 1.10000 | | mg/kg |
| | | Cadmium | 0.47000 | | mg/kg |
| | | Calcium | 7,050.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024748

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Chromium | 19.50000 | | mg/kg |
| | | Cobalt | 8.10000 | | mg/kg |
| | | Copper | 19.60000 | Jv | mg/kg |
| | | Iron | 19,700.00000 | | mg/kg |
| | | Lead | 17.20000 | J | mg/kg |
| | | Magnesium | 2,650.00000 | | mg/kg |
| | | Manganese | 237.00000 | Jv | mg/kg |
| | | Nickel | 22.00000 | | mg/kg |
| | | Potassium | 2,840.00000 | | mg/kg |
| | | Sodium | 321.00000 | vJ | mg/kg |
| | | Vanadium | 33.60000 | J | mg/kg |
| | | Zinc | 60.00000 | Jv | mg/kg |
| 4C-S021 UL01 | 0.0- 1.0 | | | | |
| | | Aluminum | 9,910.00000 | J | mg/kg |
| | | Antimony | 23.10000 | Jv | mg/kg |
| | | Arsenic | 39.80000 | J | mg/kg |
| | | Barium | 672.00000 | Jv | mg/kg |
| | | Beryllium | 0.54000 | | mg/kg |
| | | Cadmium | 8.50000 | | mg/kg |
| | | Calcium | 37,000.00000 | | mg/kg |
| | | Chromium | 46.30000 | | mg/kg |
| | | Cobalt | 12.50000 | | mg/kg |
| | | Copper | 364.00000 | Jv | mg/kg |
| | | Iron | 79,300.00000 | | mg/kg |
| | | Lead | 1,200.00000 | J | mg/kg |
| | | Magnesium | 2,100.00000 | | mg/kg |
| | | Manganese | 769.00000 | Jv | mg/kg |
| | | Mercury | 0.25000 | | mg/kg |
| | | Nickel | 56.90000 | | mg/kg |
| | | Potassium | 2,090.00000 | | mg/kg |
| | | Selenium | 1.10000 | J | mg/kg |
| | | Silver | 2.80000 | | mg/kg |
| | | Sodium | 300.00000 | vJ | mg/kg |
| | | Thallium | 0.74000 | | mg/kg |
| | | Vanadium | 20.80000 | J | mg/kg |
| | | Zinc | 2,090.00000 | Jv | mg/kg |
| 4C-S021 UL02 | 12.0-14.0 | | | | |
| | | Aluminum | 17,700.00000 | | mg/kg |
| | | Barium | 117.00000 | | mg/kg |
| | | Beryllium | 1.10000 | | mg/kg |
| | | Calcium | 54,600.00000 | J | mg/kg |
| | | Chromium | 23.50000 | | mg/kg |
| | | Cobalt | 13.40000 | | mg/kg |
| | | Copper | 20.90000 | | mg/kg |
| | | Iron | 19,800.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.3-5**
**Subsurface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024749

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|---|
| | | Lead | 28.70000 | J- | mg/kg |
| | | Magnesium | 3,420.00000 | | mg/kg |
| | | Manganese | 580.00000 | J- | mg/kg |
| | | Mercury | 0.14000 | | mg/kg |
| | | Nickel | 26.70000 | | mg/kg |
| | | Potassium | 2,970.00000 | | mg/kg |
| | | Selenium | 0.25000 | Jv | mg/kg |
| | | Sodium | 304.00000 | | mg/kg |
| | | Vanadium | 42.40000 | | mg/kg |
| | | Zinc | 60.30000 | | mg/kg |
| 4C-S057 UL01 | 0.0- 3.0 | | | | |
| | | Aluminum | 8,310.00000 | | mg/kg |
| | | Antimony | 11.00000 | Jv | mg/kg |
| | | Arsenic | 27.10000 | | mg/kg |
| | | Barium | 1,060.00000 | | mg/kg |
| | | Beryllium | 0.74000 | | mg/kg |
| | | Cadmium | 11.70000 | | mg/kg |
| | | Calcium | 63,400.00000 | | mg/kg |
| | | Chromium | 138.00000 | | mg/kg |
| | | Cobalt | 17.00000 | | mg/kg |
| | | Copper | 2,090.00000 | | mg/kg |
| | | Iron | 51,400.00000 | | mg/kg |
| | | Lead | 2,590.00000 | | mg/kg |
| | | Magnesium | 4,560.00000 | | mg/kg |
| | | Manganese | 938.00000 | Jv | mg/kg |
| | | Mercury | 0.21000 | | mg/kg |
| | | Nickel | 95.80000 | | mg/kg |
| | | Potassium | 2,280.00000 | | mg/kg |
| | | Selenium | 0.93000 | | mg/kg |
| | | Silver | 5.60000 | | mg/kg |
| | | Thallium | 1.40000 | | mg/kg |
| | | Vanadium | 27.30000 | | mg/kg |
| | | Zinc | 2,250.00000 | | mg/kg |
| 4C-S057 UL02 | 21.0-23.0 | | | | |
| | | Aluminum | 7,320.00000 | | mg/kg |
| | | Antimony | 11.90000 | Jv | mg/kg |
| | | Arsenic | 27.80000 | | mg/kg |
| | | Barium | 351.00000 | | mg/kg |
| | | Beryllium | 0.53000 | | mg/kg |
| | | Cadmium | 4.40000 | | mg/kg |
| | | Calcium | 54,900.00000 | | mg/kg |
| | | Chromium | 31.70000 | | mg/kg |
| | | Cobalt | 12.30000 | | mg/kg |
| | | Copper | 373.00000 | | mg/kg |
| | | Iron | 129,000.00000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024750

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Lead | 2,060.00000 | | mg/kg |
| | | Magnesium | 1,950.00000 | | mg/kg |
| | | Manganese | 1,070.00000 | Jv | mg/kg |
| | | Nickel | 79.80000 | | mg/kg |
| | | Potassium | 2,990.00000 | | mg/kg |
| | | Thallium | 1.60000 | | mg/kg |
| | | Vanadium | 22.10000 | | mg/kg |
| | | Zinc | 935.00000 | | mg/kg |
| 4C-S057 UL04 | 15.0-17.0 | | | | |
| | | Aluminum | 9,940.00000 | | mg/kg |
| | | Antimony | 7.50000 | Jv | mg/kg |
| | | Arsenic | 20.00000 | | mg/kg |
| | | Barium | 571.00000 | | mg/kg |
| | | Beryllium | 0.52000 | | mg/kg |
| | | Cadmium | 4.80000 | | mg/kg |
| | | Calcium | 46,800.00000 | | mg/kg |
| | | Chromium | 40.70000 | J | mg/kg |
| | | Cobalt | 12.90000 | | mg/kg |
| | | Copper | 395.00000 | | mg/kg |
| | | Iron | 94,100.00000 | | mg/kg |
| | | Lead | 886.00000 | | mg/kg |
| | | Magnesium | 4,200.00000 | | mg/kg |
| | | Manganese | 712.00000 | | mg/kg |
| | | Nickel | 54.20000 | | mg/kg |
| | | Potassium | 2,260.00000 | | mg/kg |
| | | Silver | 1.50000 | | mg/kg |
| | | Sodium | 512.00000 | | mg/kg |
| | | Thallium | 5.40000 | | mg/kg |
| | | Vanadium | 27.60000 | | mg/kg |
| | | Zinc | 4,250.00000 | | mg/kg |
| 4C-S093 UL01 | 0.0- 1.0 | | | | |
| | | Aluminum | 13,300.00000 | J | mg/kg |
| | | Antimony | 37.50000 | Jv | mg/kg |
| | | Arsenic | 114.00000 | J | mg/kg |
| | | Barium | 279.00000 | Jv | mg/kg |
| | | Beryllium | 0.95000 | | mg/kg |
| | | Cadmium | 3.40000 | | mg/kg |
| | | Calcium | 40,300.00000 | | mg/kg |
| | | Chromium | 20.30000 | | mg/kg |
| | | Cobalt | 8.10000 | | mg/kg |
| | | Copper | 119.00000 | Jv | mg/kg |
| | | Iron | 21,500.00000 | | mg/kg |
| | | Lead | 11,500.00000 | J | mg/kg |
| | | Magnesium | 2,160.00000 | | mg/kg |
| | | Manganese | 408.00000 | Jv | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024751

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Mercury | 0.17000 | | mg/kg |
| | | Nickel | 26.40000 | | mg/kg |
| | | Potassium | 2,520.00000 | | mg/kg |
| | | Selenium | 0.95000 | | mg/kg |
| | | Silver | 0.29000 | | mg/kg |
| | | Sodium | 103.00000 | vJ | mg/kg |
| | | Vanadium | 34.80000 | J | mg/kg |
| | | Zinc | 336.00000 | Jv | mg/kg |
| 4C-S105 UL01 | 0.0- 3.0 | | | | |
| | | Aluminum | 6,400.00000 | | mg/kg |
| | | Antimony | 45.80000 | Jv | mg/kg |
| | | Arsenic | 36.10000 | | mg/kg |
| | | Barium | 466.00000 | | mg/kg |
| | | Beryllium | 0.73000 | | mg/kg |
| | | Cadmium | 6.10000 | | mg/kg |
| | | Calcium | 63,700.00000 | | mg/kg |
| | | Chromium | 53.80000 | | mg/kg |
| | | Cobalt | 14.80000 | | mg/kg |
| | | Copper | 472.00000 | | mg/kg |
| | | Iron | 47,000.00000 | | mg/kg |
| | | Lead | 3,870.00000 | | mg/kg |
| | | Magnesium | 1,900.00000 | | mg/kg |
| | | Manganese | 713.00000 | Jv | mg/kg |
| | | Mercury | 0.24000 | | mg/kg |
| | | Nickel | 65.80000 | | mg/kg |
| | | Potassium | 2,060.00000 | | mg/kg |
| | | Silver | 5.10000 | | mg/kg |
| | | Vanadium | 27.90000 | | mg/kg |
| | | Zinc | 1,160.00000 | | mg/kg |
| 4C-S105 UL02 | 21.0-24.0 | | | | |
| | | Aluminum | 540.00000 | | mg/kg |
| | | Arsenic | 6.20000 | | mg/kg |
| | | Barium | 40.20000 | | mg/kg |
| | | Beryllium | 0.43000 | | mg/kg |
| | | Calcium | 74,700.00000 | | mg/kg |
| | | Chromium | 3.60000 | | mg/kg |
| | | Cobalt | 5.70000 | | mg/kg |
| | | Copper | 2.80000 | | mg/kg |
| | | Iron | 16,900.00000 | | mg/kg |
| | | Lead | 4.60000 | J | mg/kg |
| | | Magnesium | 528.00000 | | mg/kg |
| | | Manganese | 343.00000 | Jv | mg/kg |
| | | Nickel | 7.80000 | | mg/kg |
| | | Vanadium | 11.20000 | | mg/kg |
| | | Zinc | 18.70000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.3-5**
**Subsurface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024752

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|---|
| **4C-S105 UL03** | **3.0- 5.0** | | | | |
| | | Aluminum | 7,460.00000 | | mg/kg |
| | | Antimony | 24.60000 | Jv | mg/kg |
| | | Arsenic | 58.50000 | | mg/kg |
| | | Barium | 190.00000 | | mg/kg |
| | | Beryllium | 0.72000 | | mg/kg |
| | | Cadmium | 2.60000 | | mg/kg |
| | | Calcium | 56,900.00000 | | mg/kg |
| | | Chromium | 28.20000 | J^ | mg/kg |
| | | Cobalt | 10.00000 | | mg/kg |
| | | Copper | 147.00000 | | mg/kg |
| | | Iron | 52,700.00000 | | mg/kg |
| | | Lead | 807.00000 | | mg/kg |
| | | Magnesium | 1,980.00000 | | mg/kg |
| | | Manganese | 568.00000 | | mg/kg |
| | | Mercury | 0.52000 | | mg/kg |
| | | Nickel | 36.90000 | | mg/kg |
| | | Potassium | 1,780.00000 | | mg/kg |
| | | Silver | 0.80000 | | mg/kg |
| | | Sodium | 456.00000 | | mg/kg |
| | | Thallium | 3.80000 | | mg/kg |
| | | Vanadium | 26.50000 | | mg/kg |
| | | Zinc | 467.00000 | | mg/kg |
| **4C-S110 UL01** | **0.0- 3.0** | | | | |
| | | Aluminum | 8,790.00000 | J | mg/kg |
| | | Antimony | 1.80000 | Jv | mg/kg |
| | | Arsenic | 12.30000 | J | mg/kg |
| | | Barium | 70.70000 | Jv | mg/kg |
| | | Beryllium | 0.75000 | | mg/kg |
| | | Cadmium | 1.30000 | | mg/kg |
| | | Calcium | 17,700.00000 | | mg/kg |
| | | Chromium | 22.90000 | | mg/kg |
| | | Cobalt | 10.00000 | | mg/kg |
| | | Copper | 42.10000 | Jv | mg/kg |
| | | Iron | 38,100.00000 | | mg/kg |
| | | Lead | 54.00000 | J | mg/kg |
| | | Magnesium | 1,370.00000 | | mg/kg |
| | | Manganese | 323.00000 | Jv | mg/kg |
| | | Mercury | 0.31000 | | mg/kg |
| | | Nickel | 28.20000 | | mg/kg |
| | | Potassium | 1,440.00000 | | mg/kg |
| | | Selenium | 0.68000 | | mg/kg |
| | | Sodium | 25.00000 | vJ | mg/kg |
| | | Vanadium | 21.80000 | J | mg/kg |
| | | Zinc | 89.00000 | Jv | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024753

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| 4C-S110 UL02 | 15.0-16.0 | | | | |
| | | Aluminum | 4,400.00000 | J | mg/kg |
| | | Arsenic | 1.50000 | Jv | mg/kg |
| | | Barium | 29.20000 | J | mg/kg |
| | | Beryllium | 0.29000 | | mg/kg |
| | | Calcium | 4,550.00000 | J | mg/kg |
| | | Chromium | 6.70000 | | mg/kg |
| | | Cobalt | 3.50000 | | mg/kg |
| | | Copper | 6.00000 | | mg/kg |
| | | Iron | 7,980.00000 | J | mg/kg |
| | | Lead | 4.70000 | | mg/kg |
| | | Magnesium | 723.00000 | J | mg/kg |
| | | Manganese | 130.00000 | J | mg/kg |
| | | Nickel | 7.60000 | | mg/kg |
| | | Potassium | 861.00000 | | mg/kg |
| | | Sodium | 29.80000 | | mg/kg |
| | | Vanadium | 12.80000 | J | mg/kg |
| | | Zinc | 15.10000 | J | mg/kg |
| 4C-S113 UL02 | 8.0- 9.0 | | | | |
| | | Aluminum | 726.00000 | J | mg/kg |
| | | Arsenic | 2.40000 | Jv | mg/kg |
| | | Barium | 7.50000 | J | mg/kg |
| | | Beryllium | 0.17000 | | mg/kg |
| | | Calcium | 51,500.00000 | J | mg/kg |
| | | Chromium | 4.00000 | | mg/kg |
| | | Cobalt | 3.30000 | | mg/kg |
| | | Copper | 3.90000 | | mg/kg |
| | | Iron | 10,700.00000 | J | mg/kg |
| | | Lead | 3.10000 | | mg/kg |
| | | Magnesium | 441.00000 | J | mg/kg |
| | | Manganese | 183.00000 | J | mg/kg |
| | | Mercury | 0.06000 | | mg/kg |
| | | Nickel | 5.50000 | | mg/kg |
| | | Potassium | 209.00000 | | mg/kg |
| | | Sodium | 107.00000 | | mg/kg |
| | | Vanadium | 9.60000 | J | mg/kg |
| | | Zinc | 21.20000 | J | mg/kg |
| 4C-S117 UL01 | 15.0-16.0 | | | | |
| | | Aluminum | 10,800.00000 | | mg/kg |
| | | Antimony | 0.78000 | | mg/kg |
| | | Arsenic | 3.60000 | | mg/kg |
| | | Barium | 52.40000 | | mg/kg |
| | | Beryllium | 0.59000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.3-5**
**Subsurface Soil TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024754

| *Location & Sample Number* | *Depth ('bgs)* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|---|
| | | Cadmium | 0.39000 | | mg/kg |
| | | Calcium | 17,900.00000 | | mg/kg |
| | | Chromium | 13.50000 | | mg/kg |
| | | Cobalt | 4.80000 | | mg/kg |
| | | Copper | 10.10000 | | mg/kg |
| | | Iron | 11,200.00000 | | mg/kg |
| | | Lead | 11.90000 | | mg/kg |
| | | Magnesium | 1,630.00000 | | mg/kg |
| | | Manganese | 275.00000 | J^ | mg/kg |
| | | Nickel | 11.00000 | | mg/kg |
| | | Potassium | 2,360.00000 | | mg/kg |
| | | Vanadium | 23.90000 | | mg/kg |
| | | Zinc | 34.80000 | | mg/kg |
| **4D-S009 UL01** | **13.0-14.0** | | | | |
| | | Aluminum | 4,730.00000 | | mg/kg |
| | | Arsenic | 1.90000 | | mg/kg |
| | | Barium | 20.80000 | | mg/kg |
| | | Beryllium | 0.56000 | | mg/kg |
| | | Calcium | 36,200.00000 | | mg/kg |
| | | Chromium | 11.10000 | J^ | mg/kg |
| | | Cobalt | 4.10000 | | mg/kg |
| | | Copper | 13.00000 | | mg/kg |
| | | Iron | 6,450.00000 | | mg/kg |
| | | Lead | 6.80000 | | mg/kg |
| | | Magnesium | 1,220.00000 | | mg/kg |
| | | Manganese | 117.00000 | | mg/kg |
| | | Nickel | 12.60000 | J^ | mg/kg |
| | | Potassium | 1,140.00000 | | mg/kg |
| | | Sodium | 239.00000 | | mg/kg |
| | | Vanadium | 15.40000 | | mg/kg |
| | | Zinc | 35.30000 | | mg/kg |
| **4D-S080 UL01** | **0.0- 3.0** | | | | |
| | | Aluminum | 3,440.00000 | | mg/kg |
| | | Arsenic | 4.50000 | | mg/kg |
| | | Barium | 45.20000 | | mg/kg |
| | | Beryllium | 0.52000 | | mg/kg |
| | | Calcium | 17,300.00000 | | mg/kg |
| | | Chromium | 6.80000 | | mg/kg |
| | | Cobalt | 5.10000 | | mg/kg |
| | | Copper | 9.60000 | | mg/kg |
| | | Iron | 12,000.00000 | | mg/kg |
| | | Lead | 12.60000 | | mg/kg |
| | | Magnesium | 748.00000 | | mg/kg |
| | | Manganese | 409.00000 | Jv | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-5
Subsurface Soil TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024755

| Location & Sample Number | Depth ('bgs) | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|---|
| | | Nickel | 9.30000 | | mg/kg |
| | | Potassium | 1,180.00000 | J^ | mg/kg |
| | | Vanadium | 15.20000 | | mg/kg |
| | | Zinc | 23.10000 | | mg/kg |
| 4D-S081 UL01 | 9.0-12.0 | | | | |
| | | Aluminum | 9,510.00000 | | mg/kg |
| | | Arsenic | 15.30000 | | mg/kg |
| | | Barium | 239.00000 | | mg/kg |
| | | Beryllium | 1.50000 | | mg/kg |
| | | Cadmium | 0.27000 | | mg/kg |
| | | Calcium | 70,000.00000 | | mg/kg |
| | | Chromium | 14.20000 | | mg/kg |
| | | Cobalt | 8.70000 | | mg/kg |
| | | Copper | 17.50000 | | mg/kg |
| | | Iron | 21,600.00000 | | mg/kg |
| | | Lead | 13.10000 | | mg/kg |
| | | Magnesium | 2,450.00000 | | mg/kg |
| | | Manganese | 457.00000 | Jv | mg/kg |
| | | Nickel | 24.70000 | | mg/kg |
| | | Potassium | 2,810.00000 | | mg/kg |
| | | Selenium | 0.92000 | | mg/kg |
| | | Thallium | 1.10000 | | mg/kg |
| | | Vanadium | 44.40000 | | mg/kg |
| | | Zinc | 45.20000 | | mg/kg |
| 4D-S082 UL01 | 9.0-12.0 | | | | |
| | | Aluminum | 10,200.00000 | | mg/kg |
| | | Arsenic | 5.70000 | | mg/kg |
| | | Barium | 38.40000 | | mg/kg |
| | | Beryllium | 1.00000 | | mg/kg |
| | | Calcium | 30,700.00000 | | mg/kg |
| | | Chromium | 17.70000 | | mg/kg |
| | | Cobalt | 5.00000 | | mg/kg |
| | | Copper | 18.20000 | | mg/kg |
| | | Iron | 19,200.00000 | | mg/kg |
| | | Lead | 10.20000 | | mg/kg |
| | | Magnesium | 2,400.00000 | | mg/kg |
| | | Manganese | 77.90000 | | mg/kg |
| | | Nickel | 22.20000 | | mg/kg |
| | | Potassium | 2,520.00000 | | mg/kg |
| | | Sodium | 721.00000 | | mg/kg |
| | | Vanadium | 32.40000 | | mg/kg |
| | | Zinc | 51.20000 | | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.3-6
Subsurface Soil TCL Organic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024756

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **4A-S030 UL01** | | | |
| | Chlorobenzene | 0.00250 J | mg/kg |
| **4A-S047 UL01** | | | |
| | Benzene | 0.01300 J | mg/kg |
| | 2-Butanone | 0.01900 J | mg/kg |
| | Chlorobenzene | 0.00700 J | mg/kg |
| **4A-S095 UL01** | | | |
| | Acetone | 0.05000 J | mg/kg |
| **4B-S023 UL01** | | | |
| | 2-Butanone | 0.00500 J | mg/kg |
| **4C-S016 UL02** | | | |
| | Acetone | 0.06700 J | mg/kg |
| | 2-Butanone | 0.01000 J | mg/kg |
| **4C-S021 UL02** | | | |
| | Acetone | 0.07600 BJ | mg/kg |
| | Chlorobenzene | 0.00600 J | mg/kg |
| | 1,1,2,2-Tetrachloroethane | 0.00100 J | mg/kg |
| **4C-S110 UL02** | | | |
| | Acetone | 0.01300 | mg/kg |
| **4D-S009 UL01** | | | |
| | Acetone | 0.06200 BJ | mg/kg |
| | 2-Butanone | 0.01500 J | mg/kg |
| | Carbon Disulfide | 0.00200 J | mg/kg |
| **4D-S081 UL01** | | | |
| | Acetone | 0.03400 J | mg/kg |
| **4D-S082 UL01** | | | |
| | Acetone | 0.05900 J | mg/kg |
| | Toluene | 0.00200 J | mg/kg |
| | **TCL SEMI-VOLATILES** | | |
| **4A-S012 UL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.06900 J | mg/kg |
| **4A-S030 UL01** | | | |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers. The sample collected from 8-9'bgs at 4C-S113 did not show detections of TCL organics.*

**Table 8.3-6**
**Subsurface Soil TCL Organic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024757

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | 2-Methylnaphthalene | 0.19000 J | mg/kg |
| | Phenanthrene | 0.15500 J | mg/kg |
| **4A-S047 UL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.19000 J | mg/kg |
| **4A-S080 UL02** | | | |
| | Di-n-butylphthalate | 0.05200 J | mg/kg |
| **4B-S023 UL01** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.22000 J | mg/kg |
| **4C-S016 UL02** | | | |
| | bis(2-Ethylhexyl)phthalate | 0.04000 J | mg/kg |
| | Butylbenzylphthalate | 0.04200 J | mg/kg |
| | Di-n-butylphthalate | 0.33000 J | mg/kg |
| **4C-S021 UL02** | | | |
| | Benzo(a)pyrene | 0.03400 J | mg/kg |
| | Benzo(b)fluoranthene | 0.03000 J | mg/kg |
| | Benzo(g,h,i)perylene | 0.03900 J | mg/kg |
| | Benzo(k)fluoranthene | 0.02700 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.08300 J | mg/kg |
| | 1,4-Dichlorobenzene | 0.04600 J | mg/kg |
| **4C-S117 UL01** | | | |
| | Benzo(a)anthracene | 0.07300 J | mg/kg |
| | Benzo(a)pyrene | 0.04700 J | mg/kg |
| | Benzo(b)fluoranthene | 0.10000 J | mg/kg |
| | Benzo(k)fluoranthene | 0.11000 J | mg/kg |
| | bis(2-Ethylhexyl)phthalate | 0.07000 J | mg/kg |
| | Chrysene | 0.08000 J | mg/kg |
| | Fluoranthene | 0.18000 J | mg/kg |
| | Nitrobenzene | 0.10000 J | mg/kg |
| | Phenanthrene | 0.18000 J | mg/kg |
| | Pyrene | 0.16000 J | mg/kg |
| | **TCL PESTICIDES** | | |
| **4A-S012 UL01** | | | |
| | 4,4'-DDD | 0.00053 J | mg/kg |
| **4A-S030 UL01** | | | |
| | Aldrin | 0.00057 J | mg/kg |
| | alpha-BHC | 0.00056 J | mg/kg |
| | gamma-Chlordane | 0.00055 J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers. The sample collected from 8-9'bgs at 4C-S113 did not show detections of TCL organics.*

Table 8.3-6
Subsurface Soil TCL Organic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024758

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | 4,4'-DDD | 0.00107 J | mg/kg |
| | Dieldrin | 0.00107 J | mg/kg |
| | Endrin aldehyde | 0.00106 J | mg/kg |
| | Heptachlor | 0.00057 J | mg/kg |
| **4A-S047 UL01** | | | |
| | Aldrin | 0.00150 J | mg/kg |
| | gamma-Chlordane | 0.00032 J | mg/kg |
| **4A-S080 UL02** | | | |
| | 4,4'-DDD | 0.00087 J | mg/kg |
| | 4,4'-DDE | 0.00055 J | mg/kg |
| | 4,4'-DDT | 0.00074 J | mg/kg |
| **4A-S095 UL01** | | | |
| | 4,4'-DDE | 0.00005 J | mg/kg |
| | 4,4'-DDT | 0.00009 J | mg/kg |
| | Heptachlor | 0.00010 J | mg/kg |
| **4B-S023 UL01** | | | |
| | Aldrin | 0.00047 J | mg/kg |
| | Aroclor-1242 | 0.02300 J | mg/kg |
| | 4,4'-DDD | 0.00210 J | mg/kg |
| | 4,4'-DDT | 0.00240 J | mg/kg |
| | Heptachlor epoxide | 0.00042 J | mg/kg |
| **4C-S117 UL01** | | | |
| | Aldrin | 0.00020 J | mg/kg |
| | Endrin aldehyde | 0.00094 J | mg/kg |
| **4D-S080 UL01** | | | |
| | Aroclor-1260 | 0.00420 J | mg/kg |
| **4D-S081 UL01** | | | |
| | gamma-Chlordane | 0.00006 J | mg/kg |
| | Dieldrin | 0.00010 J | mg/kg |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers. The sample collected from 8-9'bgs at 4C-S113 did not show detections of TCL organics.*

Table 8.3-7
Subsurface Soil TCLP Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024759

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TCLP INORGANICS** | | |
| **4B-S001 UL01** | | | |
| | Barium | 0.46700 | mg/L |
| | Cadmium | 0.00060 B | mg/L |
| | Lead | 0.00200 B | mg/L |
| **4B-S003 UL01** | | | |
| | Arsenic | 0.00900 B | mg/L |
| | Barium | 1.86500 | mg/L |
| | Cadmium | 0.04310 | mg/L |
| | Chromium | 0.00200 B | mg/L |
| | Lead | 5.86500 | mg/L |
| | Selenium | 0.00540 BJ | mg/L |
| **4C-S057 UL03** | | | |
| | Barium | 0.40100 | mg/L |
| | Lead | 0.00670 B | mg/L |
| **4C-S113 UL01** | | | |
| | Barium | 1.22000 | mg/L |
| | Cadmium | 0.00058 B | mg/L |
| | Lead | 0.02830 B | mg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.4-1
Groundwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024760

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TAL TOTAL INORGANICS** | | |
| **4A-S012 GW01** | | | |
| | Aluminum | 102,000.00000 J | µg/L |
| | Arsenic | 97.50000 | µg/L |
| | Barium | 1,770.00000 | µg/L |
| | Beryllium | 9.90000 | µg/L |
| | Calcium | 503,000.00000 | µg/L |
| | Chromium | 206.00000 | µg/L |
| | Cobalt | 123.00000 | µg/L |
| | Copper | 181.00000 J | µg/L |
| | Iron | 276,000.00000 | µg/L |
| | Lead | 114.00000 | µg/L |
| | Magnesium | 50,500.00000 | µg/L |
| | Manganese | 4,650.00000 | µg/L |
| | Mercury | 0.22000 | µg/L |
| | Nickel | 323.00000 | µg/L |
| | Potassium | 61,500.00000 | µg/L |
| | Sodium | 70,300.00000 | µg/L |
| | Vanadium | 294.00000 | µg/L |
| | Zinc | 617.00000 | µg/L |
| **4A-S030 GW01** | | | |
| | Aluminum | 45,100.00000 J | µg/L |
| | Arsenic | 58.10000 | µg/L |
| | Barium | 1,020.00000 | µg/L |
| | Beryllium | 3.80000 | µg/L |
| | Calcium | 238,000.00000 | µg/L |
| | Chromium | 117.00000 | µg/L |
| | Cobalt | 54.60000 | µg/L |
| | Copper | 83.20000 J | µg/L |
| | Iron | 142,000.00000 | µg/L |
| | Lead | 44.60000 | µg/L |
| | Magnesium | 30,700.00000 | µg/L |
| | Manganese | 2,550.00000 | µg/L |
| | Nickel | 132.00000 | µg/L |
| | Potassium | 44,000.00000 | µg/L |
| | Sodium | 94,400.00000 | µg/L |
| | Vanadium | 146.00000 | µg/L |
| | Zinc | 331.00000 | µg/L |
| **4A-S047 GW01** | | | |
| | Aluminum | 204,000.00000 J | µg/L |
| | Arsenic | 67.90000 | µg/L |
| | Barium | 1,300.00000 | µg/L |
| | Beryllium | 12.60000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.4-1**
**Groundwater TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024761

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Calcium | 291,000.00000 | | µg/L |
| | Chromium | 327.00000 | | µg/L |
| | Cobalt | 111.00000 | | µg/L |
| | Copper | 238.00000 | J | µg/L |
| | Iron | 262,000.00000 | | µg/L |
| | Lead | 231.00000 | | µg/L |
| | Magnesium | 55,300.00000 | | µg/L |
| | Manganese | 3,980.00000 | | µg/L |
| | Mercury | 0.78000 | | µg/L |
| | Nickel | 285.00000 | | µg/L |
| | Potassium | 57,000.00000 | | µg/L |
| | Sodium | 87,100.00000 | | µg/L |
| | Vanadium | 409.00000 | | µg/L |
| | Zinc | 937.00000 | | µg/L |
| **4A-S080 GW01** | | | | |
| | Aluminum | 72,700.00000 | J | µg/L |
| | Antimony | 2.20000 | Jv | µg/L |
| | Arsenic | 64.80000 | | µg/L |
| | Barium | 762.00000 | | µg/L |
| | Beryllium | 4.40000 | | µg/L |
| | Calcium | 193,000.00000 | | µg/L |
| | Chromium | 151.00000 | | µg/L |
| | Cobalt | 59.30000 | | µg/L |
| | Copper | 70.70000 | J | µg/L |
| | Iron | 147,000.00000 | | µg/L |
| | Lead | 53.90000 | | µg/L |
| | Magnesium | 37,100.00000 | | µg/L |
| | Manganese | 2,810.00000 | | µg/L |
| | Nickel | 150.00000 | | µg/L |
| | Potassium | 48,700.00000 | | µg/L |
| | Sodium | 176,000.00000 | | µg/L |
| | Vanadium | 174.00000 | | µg/L |
| | Zinc | 277.00000 | | µg/L |
| **4B-S001 GW01** | | | | |
| | Aluminum | 61,800.00000 | J | µg/L |
| | Arsenic | 33.50000 | | µg/L |
| | Barium | 3,870.00000 | | µg/L |
| | Beryllium | 4.30000 | | µg/L |
| | Calcium | 223,000.00000 | | µg/L |
| | Chromium | 146.00000 | | µg/L |
| | Cobalt | 52.40000 | | µg/L |
| | Copper | 80.20000 | J | µg/L |
| | Iron | 114,000.00000 | | µg/L |
| | Lead | 65.60000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.4-1
Groundwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024762

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | | |
|---|---|---|---|---|
| | Magnesium | 30,800.00000 | | µg/L |
| | Manganese | 2,410.00000 | | µg/L |
| | Nickel | 142.00000 | | µg/L |
| | Potassium | 53,700.00000 | | µg/L |
| | Sodium | 174,000.00000 | | µg/L |
| | Vanadium | 169.00000 | | µg/L |
| | Zinc | 265.00000 | | µg/L |
| **4B-S023 GW01** | | | | |
| | Aluminum | 82,300.00000 | J | µg/L |
| | Arsenic | 40.80000 | | µg/L |
| | Barium | 732.00000 | | µg/L |
| | Beryllium | 6.20000 | | µg/L |
| | Calcium | 305,000.00000 | | µg/L |
| | Chromium | 198.00000 | | µg/L |
| | Cobalt | 85.10000 | | µg/L |
| | Copper | 133.00000 | J | µg/L |
| | Iron | 200,000.00000 | | µg/L |
| | Lead | 106.00000 | | µg/L |
| | Magnesium | 48,400.00000 | | µg/L |
| | Manganese | 3,020.00000 | | µg/L |
| | Mercury | 4.80000 | | µg/L |
| | Nickel | 232.00000 | | µg/L |
| | Potassium | 44,200.00000 | | µg/L |
| | Sodium | 94,300.00000 | | µg/L |
| | Vanadium | 201.00000 | | µg/L |
| | Zinc | 434.00000 | | µg/L |
| **4C-S021 GW01** | | | | |
| | Aluminum | 2,260.00000 | J | µg/L |
| | Arsenic | 12.30000 | | µg/L |
| | Barium | 440.00000 | | µg/L |
| | Calcium | 347,000.00000 | | µg/L |
| | Chromium | 5.60000 | L | µg/L |
| | Copper | 12.20000 | LJv | µg/L |
| | Iron | 37,700.00000 | J | µg/L |
| | Lead | 37.30000 | | µg/L |
| | Magnesium | 28,700.00000 | | µg/L |
| | Manganese | 535.00000 | | µg/L |
| | Potassium | 37,900.00000 | | µg/L |
| | Selenium | 3.20000 | L | µg/L |
| | Sodium | 42,500.00000 | | µg/L |
| | Vanadium | 9.10000 | L | µg/L |
| | Zinc | 74.40000 | J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.4-1
Groundwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024763

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| 4C-S057 GW01 | | | | |
| | Aluminum | 102,000.00000 | J | µg/L |
| | Antimony | 25.70000 | Jv | µg/L |
| | Arsenic | 56.20000 | | µg/L |
| | Barium | 2,030.00000 | | µg/L |
| | Beryllium | 5.20000 | | µg/L |
| | Cadmium | 3.40000 | | µg/L |
| | Calcium | 355,000.00000 | | µg/L |
| | Chromium | 213.00000 | | µg/L |
| | Cobalt | 64.40000 | | µg/L |
| | Copper | 667.00000 | J | µg/L |
| | Iron | 167,000.00000 | | µg/L |
| | Lead | 2,010.00000 | | µg/L |
| | Magnesium | 62,900.00000 | | µg/L |
| | Manganese | 2,640.00000 | | µg/L |
| | Mercury | 0.33000 | | µg/L |
| | Nickel | 213.00000 | | µg/L |
| | Potassium | 113,000.00000 | | µg/L |
| | Silver | 1.40000 | | µg/L |
| | Sodium | 135,000.00000 | | µg/L |
| | Vanadium | 222.00000 | | µg/L |
| | Zinc | 5,360.00000 | | µg/L |
| 4C-S110 GW01 | | | | |
| | Aluminum | 135,000.00000 | J | µg/L |
| | Arsenic | 142.00000 | | µg/L |
| | Barium | 6,060.00000 | | µg/L |
| | Beryllium | 7.70000 | | µg/L |
| | Calcium | 461,000.00000 | | µg/L |
| | Chromium | 287.00000 | | µg/L |
| | Cobalt | 153.00000 | | µg/L |
| | Copper | 177.00000 | J | µg/L |
| | Iron | 276,000.00000 | | µg/L |
| | Lead | 155.00000 | | µg/L |
| | Magnesium | 59,400.00000 | | µg/L |
| | Manganese | 9,510.00000 | | µg/L |
| | Mercury | 0.24000 | | µg/L |
| | Nickel | 367.00000 | | µg/L |
| | Potassium | 70,000.00000 | | µg/L |
| | Sodium | 93,200.00000 | | µg/L |
| | Thallium | 6.40000 | | µg/L |
| | Vanadium | 349.00000 | | µg/L |
| | Zinc | 542.00000 | | µg/L |
| 4C-S113 GW01 | | | | |
| | Aluminum | 24,400.00000 | J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

**Table 8.4-1**
**Groundwater TAL Inorganic Analytical Data**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**

024764

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Arsenic | 13.10000 | µg/L |
| | Barium | 478.00000 | µg/L |
| | Beryllium | 1.80000 | µg/L |
| | Calcium | 201,000.00000 | µg/L |
| | Chromium | 61.10000 | µg/L |
| | Cobalt | 20.90000 | µg/L |
| | Copper | 31.30000 J | µg/L |
| | Iron | 54,800.00000 | µg/L |
| | Lead | 30.70000 | µg/L |
| | Magnesium | 37,800.00000 | µg/L |
| | Manganese | 948.00000 | µg/L |
| | Nickel | 49.10000 | µg/L |
| | Potassium | 76,700.00000 | µg/L |
| | Sodium | 72,600.00000 | µg/L |
| | Vanadium | 56.90000 | µg/L |
| | Zinc | 114.00000 | µg/L |
| **4C-S117 GW01** | | | |
| | Aluminum | 5,820.00000 J | µg/L |
| | Arsenic | 20.90000 | µg/L |
| | Barium | 691.00000 | µg/L |
| | Calcium | 194,000.00000 | µg/L |
| | Chromium | 10.30000 | µg/L |
| | Cobalt | 5.90000 | µg/L |
| | Copper | 7.10000 J | µg/L |
| | Iron | 20,900.00000 | µg/L |
| | Lead | 7.60000 | µg/L |
| | Magnesium | 48,600.00000 | µg/L |
| | Manganese | 318.00000 | µg/L |
| | Nickel | 14.10000 | µg/L |
| | Potassium | 111,000.00000 | µg/L |
| | Sodium | 190,000.00000 | µg/L |
| | Vanadium | 13.70000 | µg/L |
| | Zinc | 30.10000 | µg/L |
| **4D-S009 GW01** | | | |
| | Aluminum | 14,800.00000 | µg/L |
| | Barium | 545.00000 | µg/L |
| | Beryllium | 1.40000 | µg/L |
| | Calcium | 119,000.00000 | µg/L |
| | Chromium | 40.70000 | µg/L |
| | Cobalt | 19.40000 | µg/L |
| | Copper | 36.50000 | µg/L |
| | Iron | 41,400.00000 | µg/L |
| | Lead | 106.00000 | µg/L |
| | Magnesium | 23,000.00000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.4-1
Groundwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024765

| *Location & Sample Number* | *Parameter* | *Result & Qualifier** | |
|---|---|---|---|
| | Manganese | 492.00000 | µg/L |
| | Nickel | 48.20000 | µg/L |
| | Potassium | 61,300.00000 | µg/L |
| | Sodium | 151,000.00000 J | µg/L |
| | Vanadium | 40.80000 | µg/L |
| | Zinc | 229.00000 | µg/L |
| 4D-S083 GW01 | | | |
| | Aluminum | 10,800.00000 | µg/L |
| | Arsenic | 6.50000 | µg/L |
| | Barium | 122.00000 | µg/L |
| | Calcium | 182,000.00000 | µg/L |
| | Chromium | 27.00000 | µg/L |
| | Cobalt | 13.50000 | µg/L |
| | Copper | 14.35000 Jv | µg/L |
| | Iron | 22,650.00000 | µg/L |
| | Lead | 7.75000 | µg/L |
| | Magnesium | 20,000.00000 | µg/L |
| | Manganese | 664.00000 | µg/L |
| | Nickel | 27.90000 | µg/L |
| | Potassium | 15,300.00000 | µg/L |
| | Sodium | 197,000.00000 J | µg/L |
| | Thallium | 5.45000 | µg/L |
| | Vanadium | 31.00000 | µg/L |
| | Zinc | 60.40000 | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.4-1
Groundwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024766

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | **TAL DISSOLVED INORGANICS** | | | |
| **4A-S012 GW01** | | | | |
| | Arsenic | 18.30000 | | µg/L |
| | Barium | 634.00000 | | µg/L |
| | Calcium | 128,000.00000 | | µg/L |
| | Cobalt | 2.80000 | | µg/L |
| | Copper | 2.30000 | | µg/L |
| | Iron | 636.00000 | | µg/L |
| | Magnesium | 17,500.00000 | | µg/L |
| | Manganese | 303.00000 | | µg/L |
| | Nickel | 8.50000 | | µg/L |
| | Potassium | 35,800.00000 | J | µg/L |
| | Sodium | 62,500.00000 | | µg/L |
| **4A-S030 GW01** | | | | |
| | Arsenic | 13.10000 | | µg/L |
| | Barium | 555.00000 | | µg/L |
| | Calcium | 91,600.00000 | | µg/L |
| | Cobalt | 3.70000 | | µg/L |
| | Copper | 1.00000 | | µg/L |
| | Iron | 125.00000 | | µg/L |
| | Magnesium | 18,600.00000 | | µg/L |
| | Manganese | 137.00000 | | µg/L |
| | Nickel | 9.40000 | | µg/L |
| | Potassium | 33,700.00000 | J | µg/L |
| | Sodium | 91,800.00000 | | µg/L |
| **4A-S047 GW01** | | | | |
| | Barium | 281.00000 | | µg/L |
| | Calcium | 177,000.00000 | | µg/L |
| | Cobalt | 4.80000 | | µg/L |
| | Copper | 2.20000 | | µg/L |
| | Iron | 556.00000 | | µg/L |
| | Magnesium | 15,800.00000 | | µg/L |
| | Manganese | 1,510.00000 | | µg/L |
| | Nickel | 13.50000 | | µg/L |
| | Potassium | 20,300.00000 | J | µg/L |
| | Sodium | 77,400.00000 | | µg/L |
| **4A-S080 GW01** | | | | |
| | Arsenic | 12.30000 | | µg/L |
| | Barium | 431.00000 | | µg/L |
| | Calcium | 114,000.00000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.4-1
Groundwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024767

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Cobalt | 3.00000 | | µg/L |
| | Copper | 2.30000 | | µg/L |
| | Iron | 82.40000 | | µg/L |
| | Magnesium | 20,000.00000 | | µg/L |
| | Manganese | 120.00000 | | µg/L |
| | Nickel | 6.70000 | | µg/L |
| | Potassium | 32,500.00000 | J | µg/L |
| | Sodium | 175,000.00000 | | µg/L |
| 4B-S001 GW01 | | | | |
| | Arsenic | 4.70000 | | µg/L |
| | Barium | 2,070.00000 | | µg/L |
| | Calcium | 76,000.00000 | | µg/L |
| | Cobalt | 9.50000 | | µg/L |
| | Copper | 7.20000 | | µg/L |
| | Iron | 164.00000 | | µg/L |
| | Magnesium | 17,800.00000 | | µg/L |
| | Manganese | 429.00000 | | µg/L |
| | Nickel | 41.30000 | | µg/L |
| | Potassium | 40,700.00000 | J | µg/L |
| | Sodium | 179,000.00000 | | µg/L |
| 4B-S023 GW01 | | | | |
| | Arsenic | 3.90000 | | µg/L |
| | Barium | 293.00000 | | µg/L |
| | Calcium | 119,000.00000 | | µg/L |
| | Cobalt | 6.90000 | | µg/L |
| | Iron | 15,100.00000 | | µg/L |
| | Magnesium | 21,700.00000 | | µg/L |
| | Manganese | 384.00000 | | µg/L |
| | Nickel | 21.70000 | | µg/L |
| | Potassium | 24,900.00000 | J | µg/L |
| | Sodium | 82,600.00000 | | µg/L |
| | Vanadium | 1.10000 | | µg/L |
| 4C-S021 GW01 | | | | |
| | Arsenic | 7.20000 | L | µg/L |
| | Barium | 325.00000 | | µg/L |
| | Calcium | 284,000.00000 | | µg/L |
| | Copper | 1.00000 | LJv | µg/L |
| | Iron | 14,700.00000 | J | µg/L |
| | Magnesium | 27,200.00000 | | µg/L |
| | Manganese | 410.00000 | | µg/L |
| | Potassium | 36,200.00000 | | µg/L |
| | Sodium | 41,600.00000 | | µg/L |

* *Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.4-1
Groundwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024768

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| | Zinc | 9.10000 | LJ | µg/L |
| 4C-S057 GW01 | | | | |
| | Antimony | 4.50000 | | µg/L |
| | Arsenic | 3.60000 | | µg/L |
| | Barium | 845.00000 | | µg/L |
| | Calcium | 241,000.00000 | | µg/L |
| | Cobalt | 2.20000 | | µg/L |
| | Copper | 2.30000 | | µg/L |
| | Iron | 1,080.00000 | | µg/L |
| | Magnesium | 41,700.00000 | | µg/L |
| | Manganese | 619.00000 | | µg/L |
| | Nickel | 9.50000 | | µg/L |
| | Potassium | 92,900.00000 | J | µg/L |
| | Sodium | 131,000.00000 | | µg/L |
| | Vanadium | 1.30000 | | µg/L |
| 4C-S110 GW01 | | | | |
| | Arsenic | 21.50000 | | µg/L |
| | Barium | 313.00000 | | µg/L |
| | Calcium | 175,000.00000 | | µg/L |
| | Cobalt | 4.60000 | | µg/L |
| | Iron | 6,290.00000 | | µg/L |
| | Magnesium | 24,800.00000 | | µg/L |
| | Manganese | 376.00000 | | µg/L |
| | Nickel | 10.60000 | | µg/L |
| | Potassium | 38,200.00000 | J | µg/L |
| | Sodium | 82,300.00000 | | µg/L |
| | Zinc | 6.10000 | J | µg/L |
| 4C-S113 GW01 | | | | |
| | Arsenic | 4.20000 | | µg/L |
| | Barium | 356.00000 | | µg/L |
| | Calcium | 191,000.00000 | | µg/L |
| | Cobalt | 5.60000 | | µg/L |
| | Copper | 1.70000 | | µg/L |
| | Iron | 3,250.00000 | | µg/L |
| | Magnesium | 31,700.00000 | | µg/L |
| | Manganese | 724.00000 | | µg/L |
| | Nickel | 5.60000 | | µg/L |
| | Potassium | 73,500.00000 | J | µg/L |
| | Sodium | 74,500.00000 | | µg/L |
| | Zinc | 5.70000 | J | µg/L |

* *Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.4-1
Groundwater TAL Inorganic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024769

| Location & Sample Number | Parameter | Result & Qualifier* | | |
|---|---|---|---|---|
| 4C-S117 GW01 | | | | |
| | Arsenic | 10.00000 | | µg/L |
| | Barium | 549.00000 | | µg/L |
| | Calcium | 182,000.00000 | | µg/L |
| | Cobalt | 2.60000 | | µg/L |
| | Copper | 1.50000 | | µg/L |
| | Iron | 799.00000 | | µg/L |
| | Magnesium | 46,000.00000 | | µg/L |
| | Manganese | 215.00000 | | µg/L |
| | Nickel | 3.70000 | | µg/L |
| | Potassium | 108,000.00000 | J | µg/L |
| | Sodium | 185,000.00000 | | µg/L |
| 4D-S009 GW01 | | | | |
| | Aluminum | 8.50000 | Jv | µg/L |
| | Barium | 367.00000 | | µg/L |
| | Calcium | 73,800.00000 | | µg/L |
| | Chromium | 1.10000 | | µg/L |
| | Cobalt | 3.40000 | | µg/L |
| | Iron | 954.00000 | | µg/L |
| | Magnesium | 19,600.00000 | | µg/L |
| | Manganese | 235.00000 | | µg/L |
| | Nickel | 3.70000 | | µg/L |
| | Potassium | 63,800.00000 | | µg/L |
| | Sodium | 162,000.00000 | J | µg/L |
| | Zinc | 4.70000 | | µg/L |
| 4D-S083 GW01 | | | | |
| | Barium | 56.75000 | | µg/L |
| | Calcium | 168,500.00000 | | µg/L |
| | Cobalt | 4.05000 | | µg/L |
| | Copper | 1.80000 | | µg/L |
| | Magnesium | 18,450.00000 | | µg/L |
| | Manganese | 506.00000 | | µg/L |
| | Nickel | 4.60000 | | µg/L |
| | Potassium | 13,750.00000 | | µg/L |
| | Sodium | 248,000.00000 | J | µg/L |
| | Zinc | 2.85000 | | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.4-2
Groundwater TCL Organic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024770

| Location & Sample Number | Parameter | Result & Qualifier* | |
|---|---|---|---|
| | **TCL VOLATILES** | | |
| **4A-S012 GW01** | | | |
| | 2-Butanone | 27.00000 | µg/L |
| | Chlorobenzene | 3.00000 J | µg/L |
| **4A-S030 GW01** | | | |
| | Chlorobenzene | 34.00000 Jv | µg/L |
| **4A-S047 GW01** | | | |
| | Benzene | 11.00000 | µg/L |
| | Chlorobenzene | 10.00000 | µg/L |
| **4A-S080 GW01** | | | |
| | Chlorobenzene | 10.00000 | µg/L |
| **4B-S001 GW01** | | | |
| | Chlorobenzene | 90.00000 Jv | µg/L |
| **4B-S023 GW01** | | | |
| | Benzene | 25.00000 | µg/L |
| | Chlorobenzene | 300.00000 | µg/L |
| **4C-S021 GW01** | | | |
| | Acetone | 9.00000 J | µg/L |
| **4C-S110 GW01** | | | |
| | Chlorobenzene | 3.00000 J | µg/L |
| **4C-S113 GW01** | | | |
| | Chlorobenzene | 19.00000 | µg/L |
| **4C-S117 GW01** | | | |
| | Chlorobenzene | 2.00000 J | µg/L |
| **4D-S009 GW01** | | | |
| | Acetone | 9.00000 J | µg/L |
| | Chlorobenzene | 10.00000 J | µg/L |
| | **TCL SEMI-VOLATILES** | | |
| **4A-S012 GW01** | | | |
| | 1,4-Dichlorobenzene | 3.00000 J | µg/L |
| | N-Nitrosodiphenylamine (1) | 0.50000 J | µg/L |
| **4A-S030 GW01** | | | |
| | bis(2-Ethylhexyl)phthalate | 2.00000 J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.4-2
Groundwater TCL Organic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024771

| Location & Sample Number | Parameter | Result & Qualifier | |
|---|---|---|---|
| | Di-n-butylphthalate | 1.00000 J | µg/L |
| | 1,2-Dichlorobenzene | 0.50000 J | µg/L |
| | 1,4-Dichlorobenzene | 10.00000 | µg/L |
| | Diethylphthalate | 0.80000 J | µg/L |
| | 2-Methylnaphthalene | 2.00000 J | µg/L |
| | N-Nitrosodiphenylamine (1) | 1.00000 J | µg/L |
| 4A-S047 GW01 | | | |
| | bis(2-Ethylhexyl)phthalate | 1.00000 J | µg/L |
| | Di-n-butylphthalate | 2.00000 J | µg/L |
| | 1,4-Dichlorobenzene | 3.00000 J | µg/L |
| | Diethylphthalate | 0.80000 J | µg/L |
| | N-Nitrosodiphenylamine (1) | 0.90000 J | µg/L |
| 4A-S080 GW01 | | | |
| | Di-n-butylphthalate | 7.00000 J | µg/L |
| | 1,4-Dichlorobenzene | 4.00000 J | µg/L |
| 4B-S001 GW01 | | | |
| | Acenaphthene | 0.90000 J | µg/L |
| | bis(2-Ethylhexyl)phthalate | 4.00000 J | µg/L |
| | Di-n-butylphthalate | 0.70000 J | µg/L |
| 4B-S023 GW01 | | | |
| | bis(2-Ethylhexyl)phthalate | 2.00000 J | µg/L |
| | 2-Chlorophenol | 7.00000 J | µg/L |
| | Di-n-butylphthalate | 0.80000 J | µg/L |
| | 1,4-Dichlorobenzene | 15.00000 | µg/L |
| | Diethylphthalate | 0.90000 J | µg/L |
| | 2-Methylnaphthalene | 14.00000 | µg/L |
| | 4-Methylphenol | 3.00000 J | µg/L |
| | Naphthalene | 18.00000 | µg/L |
| | N-Nitrosodiphenylamine (1) | 0.90000 J | µg/L |
| 4C-S057 GW01 | | | |
| | bis(2-Ethylhexyl)phthalate | 3.00000 J | µg/L |
| 4C-S110 GW01 | | | |
| | 1,4-Dichlorobenzene | 0.90000 J | µg/L |
| | Diethylphthalate | 1.00000 J | µg/L |
| 4C-S113 GW01 | | | |
| | bis(2-Ethylhexyl)phthalate | 0.60000 J | µg/L |
| | 1,4-Dichlorobenzene | 5.00000 J | µg/L |
| | 4-Methylphenol | 2.00000 J | µg/L |
| 4C-S117 GW01 | | | |
| | Acenaphthene | 0.70000 J | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

Table 8.4-2
Groundwater TCL Organic Analytical Data
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas

024772

| *Location & Sample Number* | *Parameter* | *Result & Qualifier* | |
|---|---|---|---|
| | Di-n-butylphthalate | 3.00000 J | µg/L |
| | 1,4-Dichlorobenzene | 1.00000 J | µg/L |
| | Diethylphthalate | 0.70000 J | µg/L |
| | Fluorene | 0.60000 J | µg/L |
| | Phenanthrene | 0.90000 J | µg/L |
| 4D-S009 GW01 | | | |
| | 1,4-Dichlorobenzene | 2.00000 J | µg/L |
| | **TCL PESTICIDES** | | |
| 4A-S047 GW01 | | | |
| | 4,4'-DDD | 0.01500 Jv | µg/L |
| 4A-S080 GW01 | | | |
| | gamma-Chlordane | 0.00720 Jv | µg/L |
| | 4,4'-DDD | 0.00930 Jv | µg/L |
| 4B-S001 GW01 | | | |
| | Aldrin | 0.00700 Jv | µg/L |
| 4B-S023 GW01 | | | |
| | 4,4'-DDD | 0.02000 Jv | µg/L |
| 4C-S057 GW01 | | | |
| | Aldrin | 0.01700 J | µg/L |
| | alpha-Chlordane | 0.00630 Jv | µg/L |
| | gamma-Chlordane | 0.01600 Jv | µg/L |
| | Dieldrin | 0.03600 Jv | µg/L |
| | Heptachlor epoxide | 0.01600 Jv | µg/L |
| 4C-S113 GW01 | | | |
| | gamma-Chlordane | 0.00850 Jv | µg/L |
| 4C-S117 GW01 | | | |
| | delta-BHC | 0.00550 J | µg/L |
| | Heptachlor epoxide | 0.01100 Jv | µg/L |

** Only detected concentrations are listed. See Appendix B-2 for definitions of the qualifiers.*

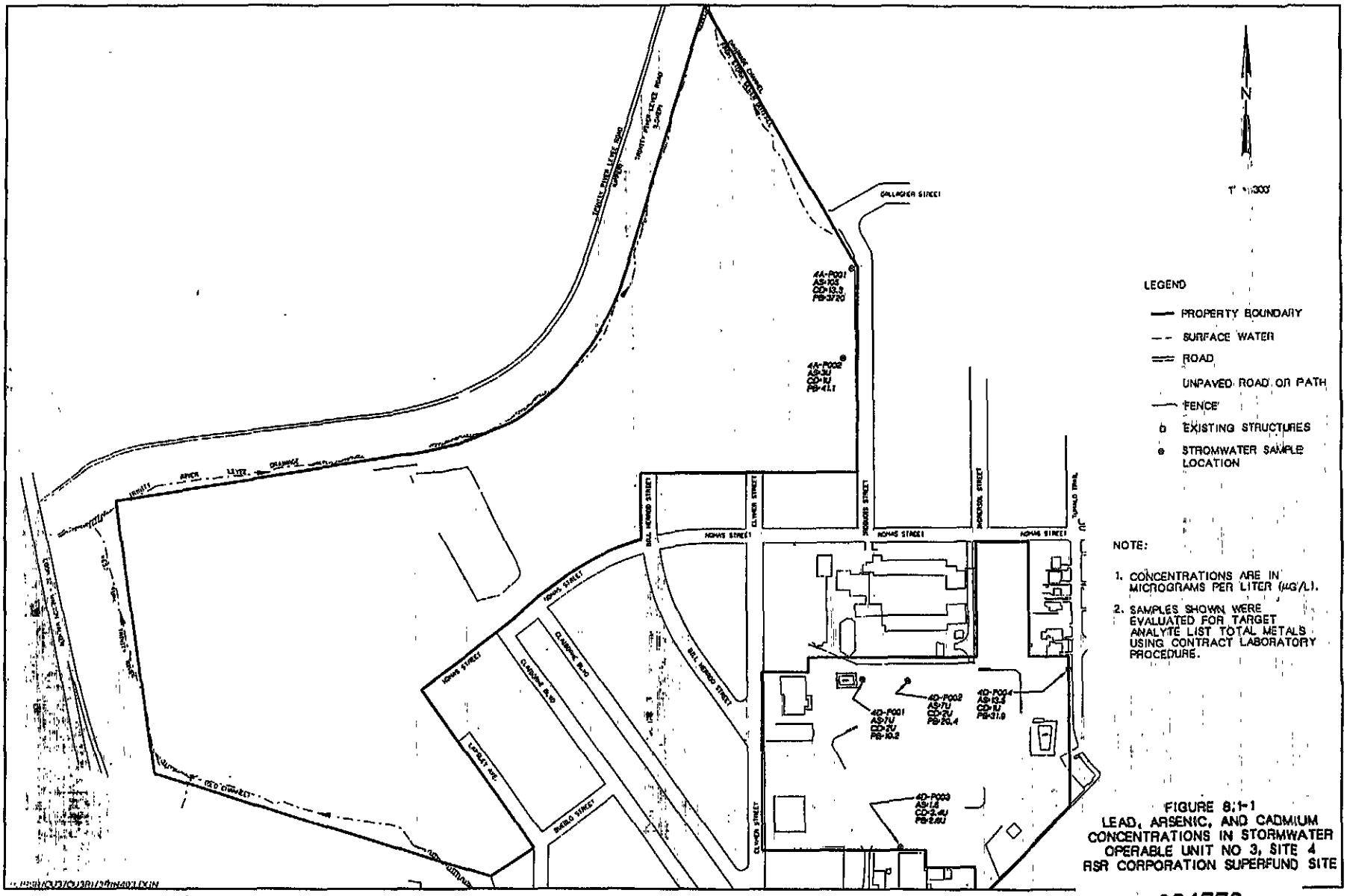



FIGURE 8.1-1
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN STORMWATER OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE

024773

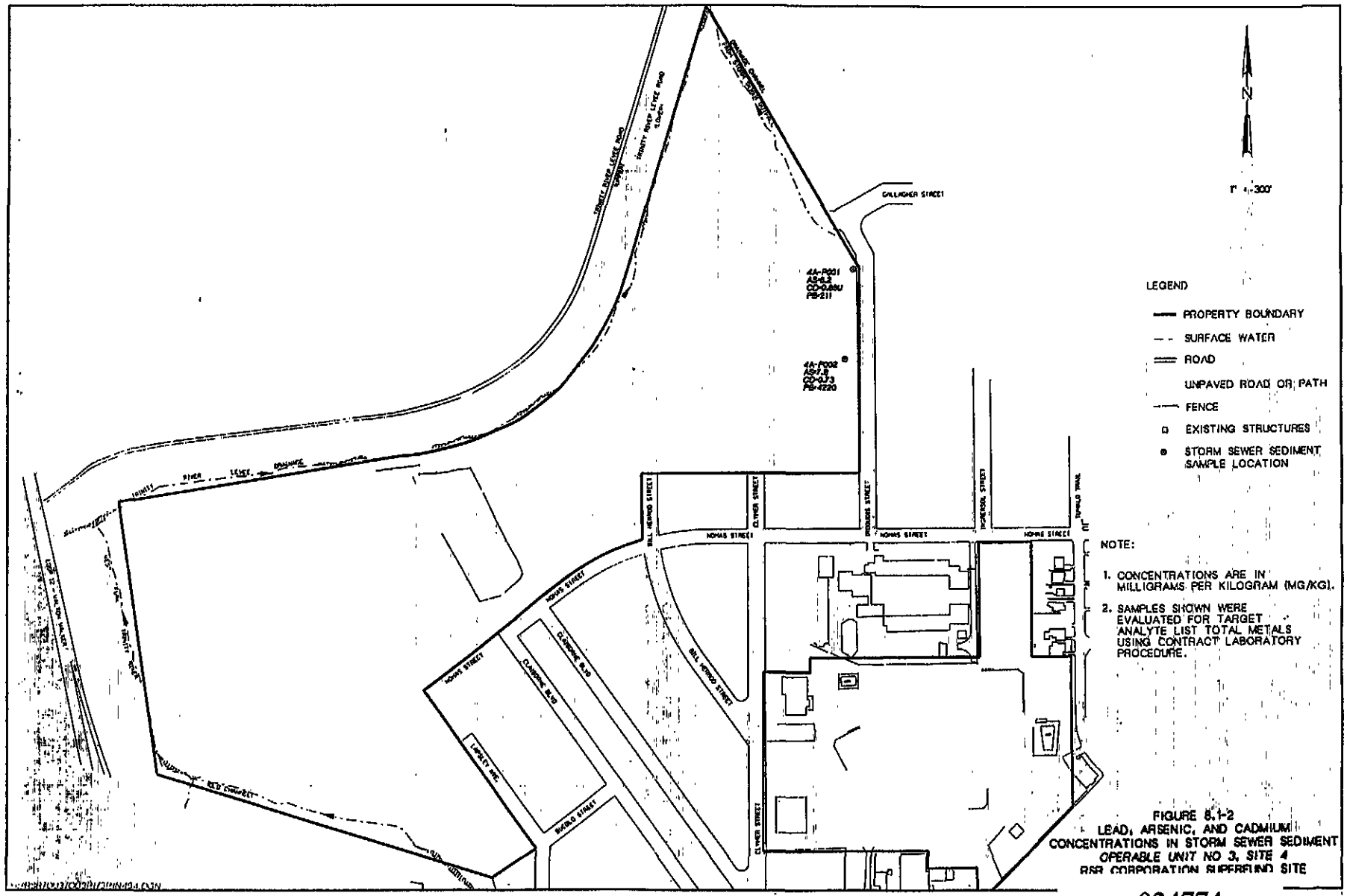



FIGURE 8.1-2
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN STORM SEWER SEDIMENT
*OPERABLE UNIT NO 3, SITE 4*
RSR CORPORATION SUPERFUND SITE

024774

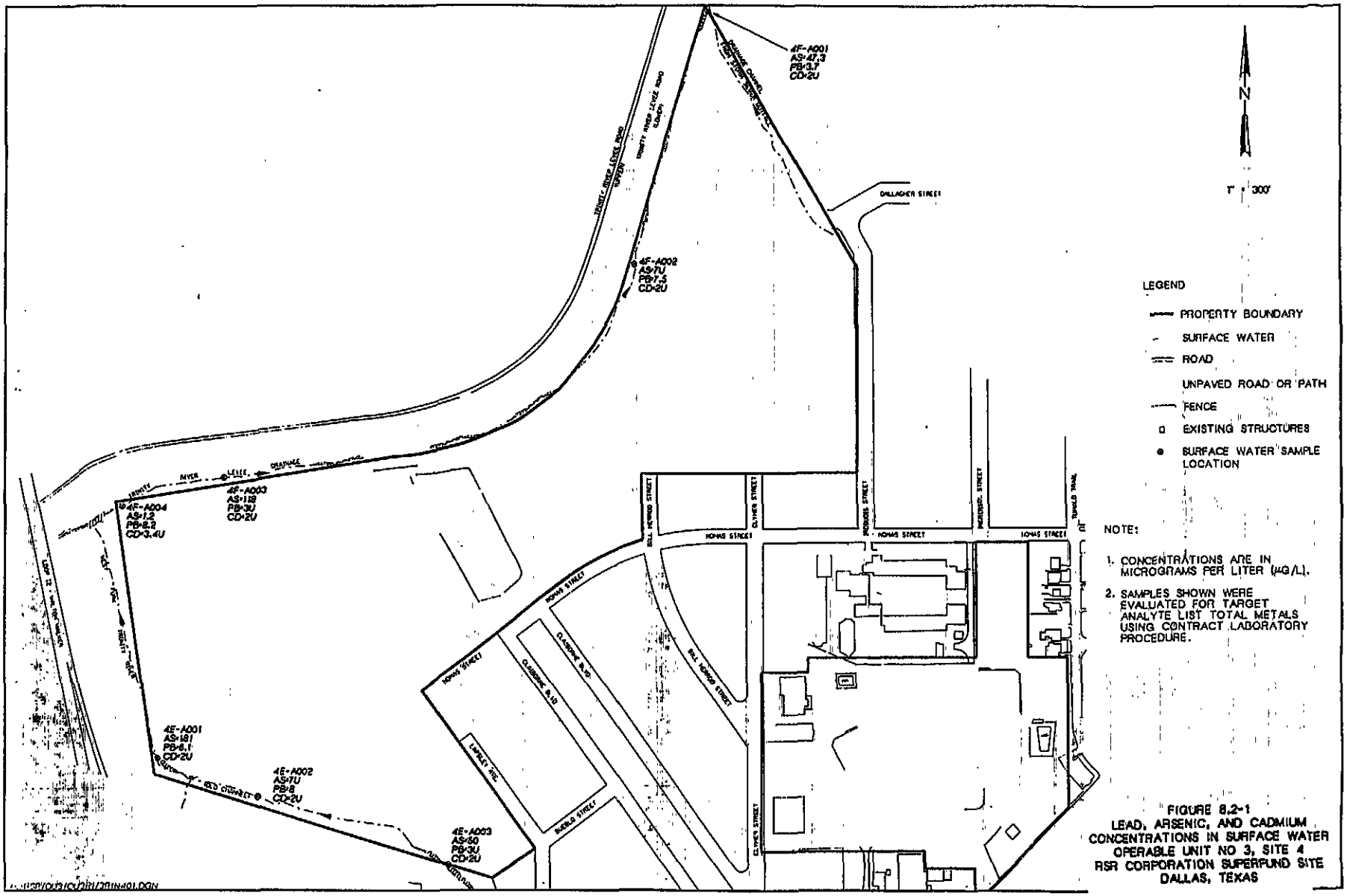
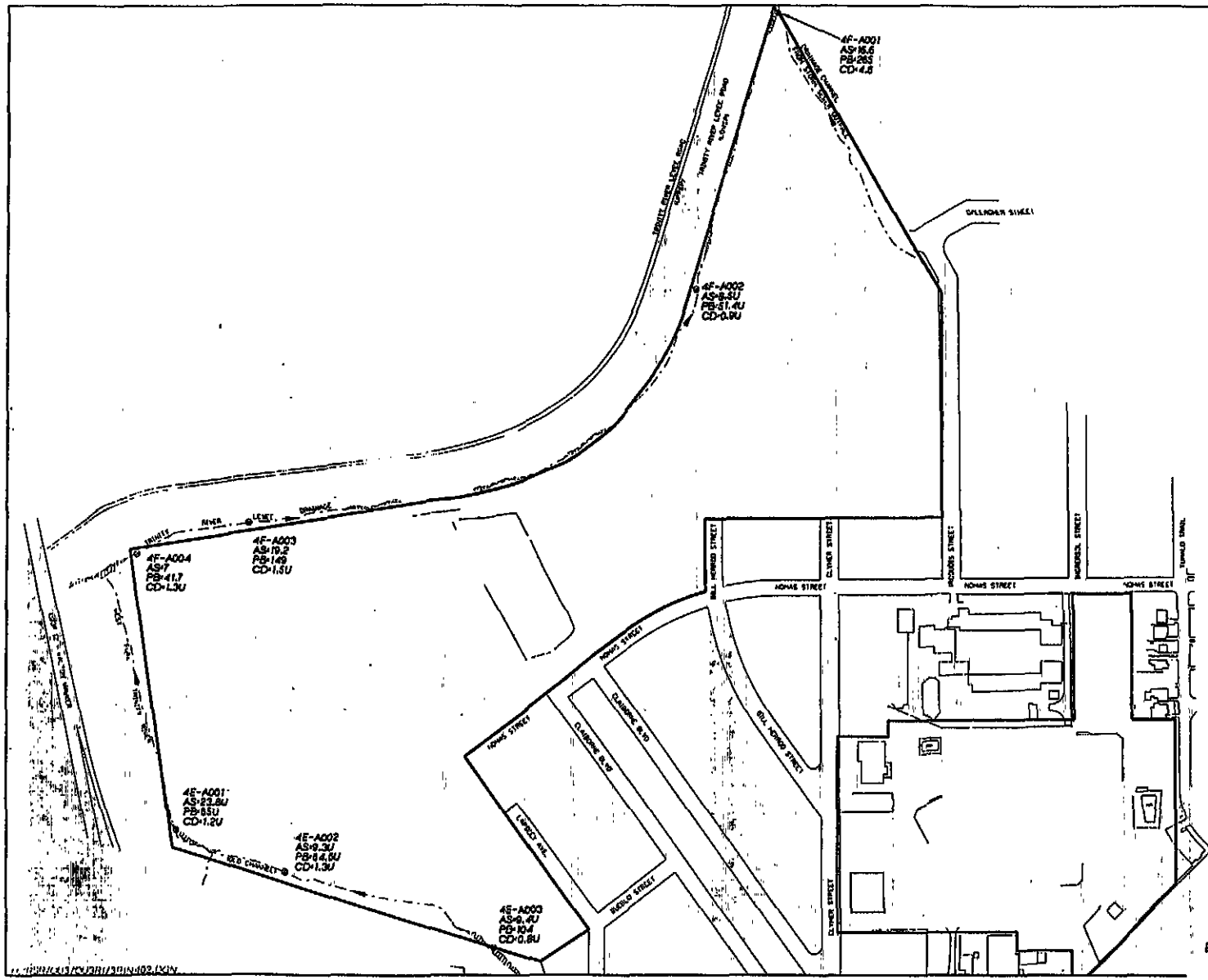



FIGURE 8.2-1
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SURFACE WATER
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS




LEGEND

- PROPERTY BOUNDARY
- SURFACE WATER
- ROAD
- UNPAVED ROAD OR PATH
- FENCE
- EXISTING STRUCTURES
- SEDIMENT WATER SAMPLE LOCATION

NOTE:

1. CONCENTRATIONS ARE IN MILLIGRAMS PER KILOGRAM (MG/KG).
2. SAMPLES SHOWN WERE EVALUATED FOR TARGET ANALYTE LIST TOTAL METALS USING CONTRACT LABORATORY PROCEDURE.

FIGURE 8.2-2
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SEDIMENT
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE

024776

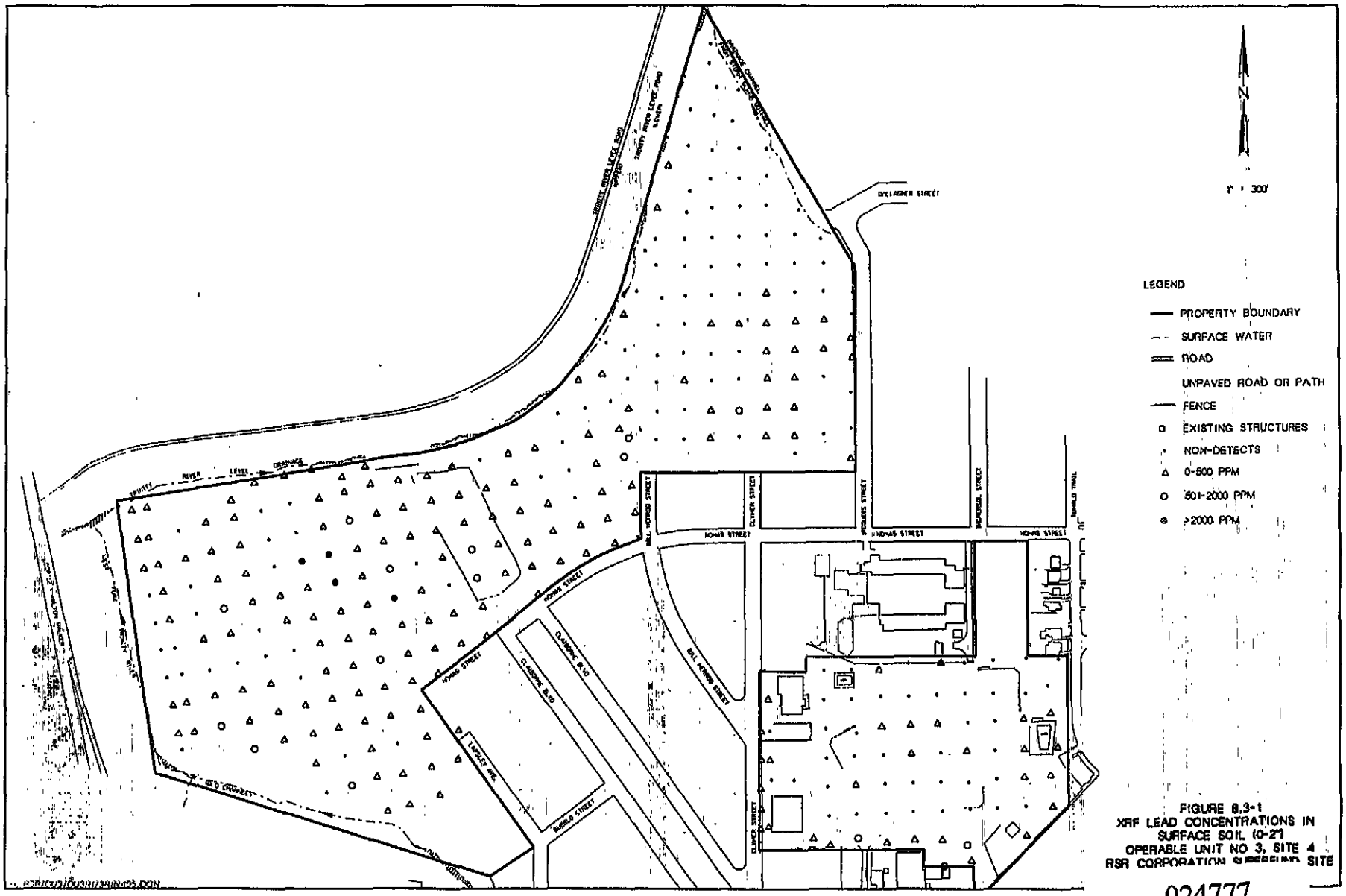



FIGURE 8.3-1
XRF LEAD CONCENTRATIONS IN SURFACE SOIL (0-2')
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE

024777

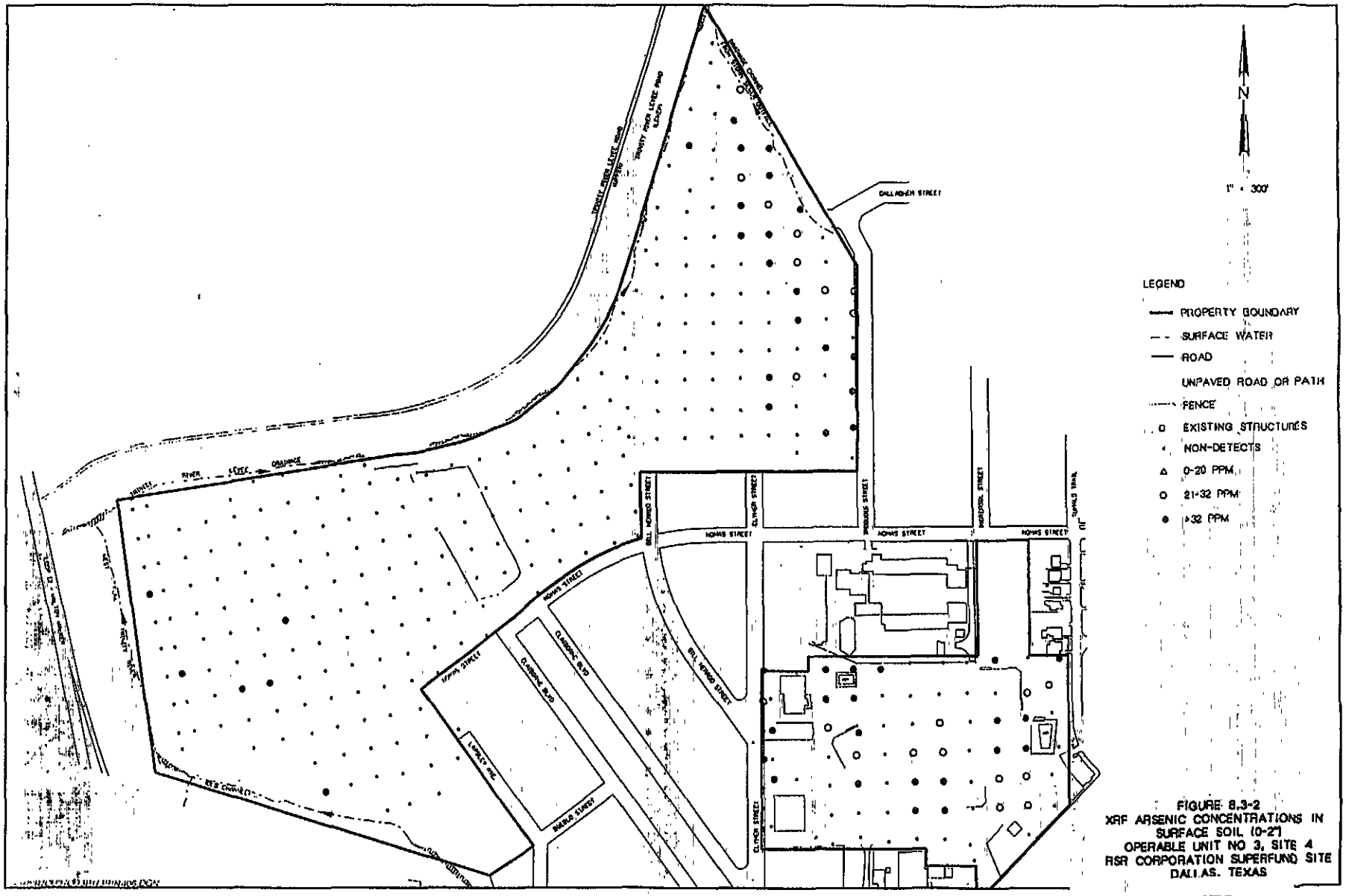



FIGURE 8.3-2
XRF ARSENIC CONCENTRATIONS IN
SURFACE SOIL (0-2')
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024778

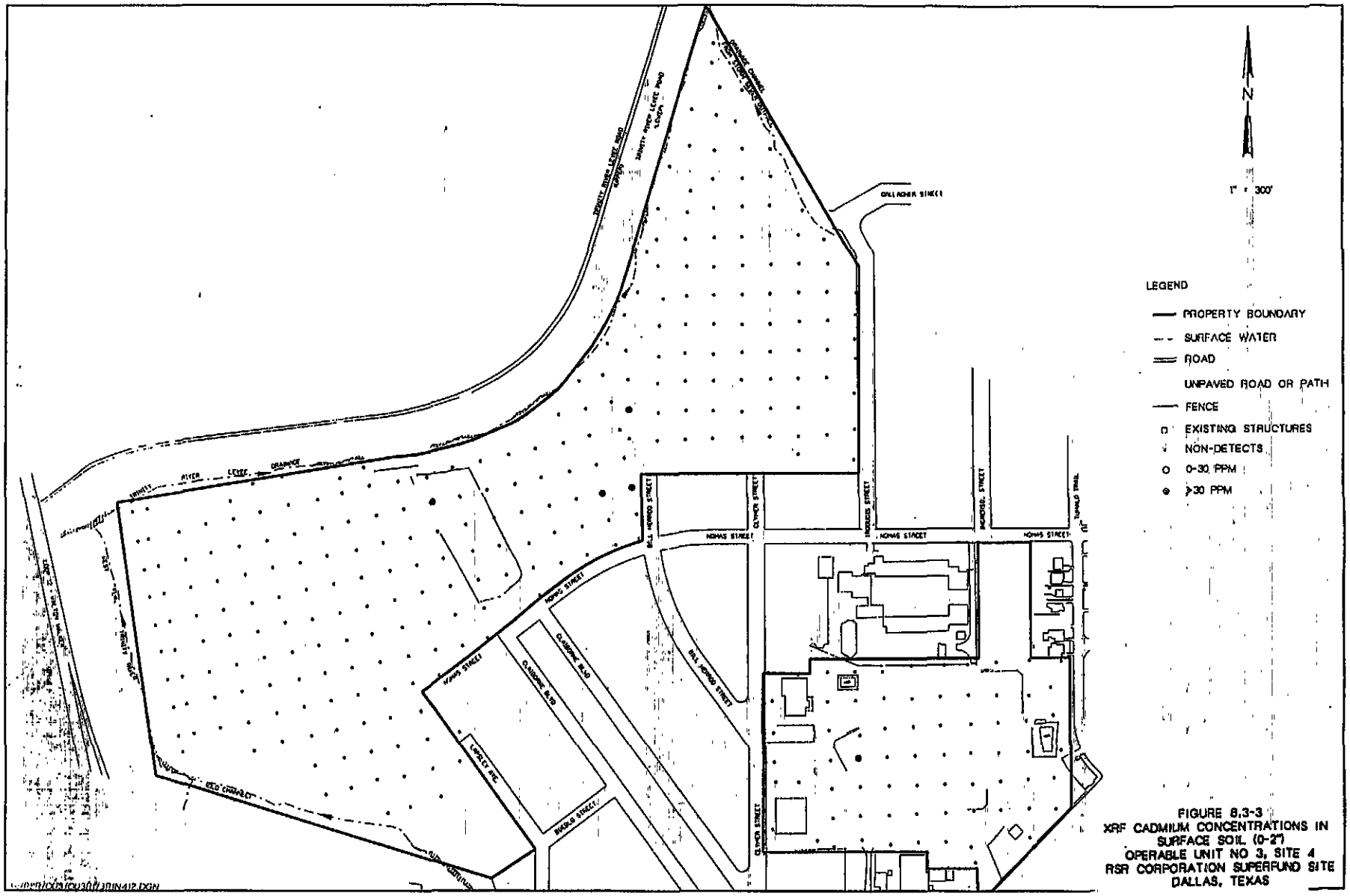



FIGURE 8.3-3
XRF CADMIUM CONCENTRATIONS IN SURFACE SOIL (0-2")
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024779

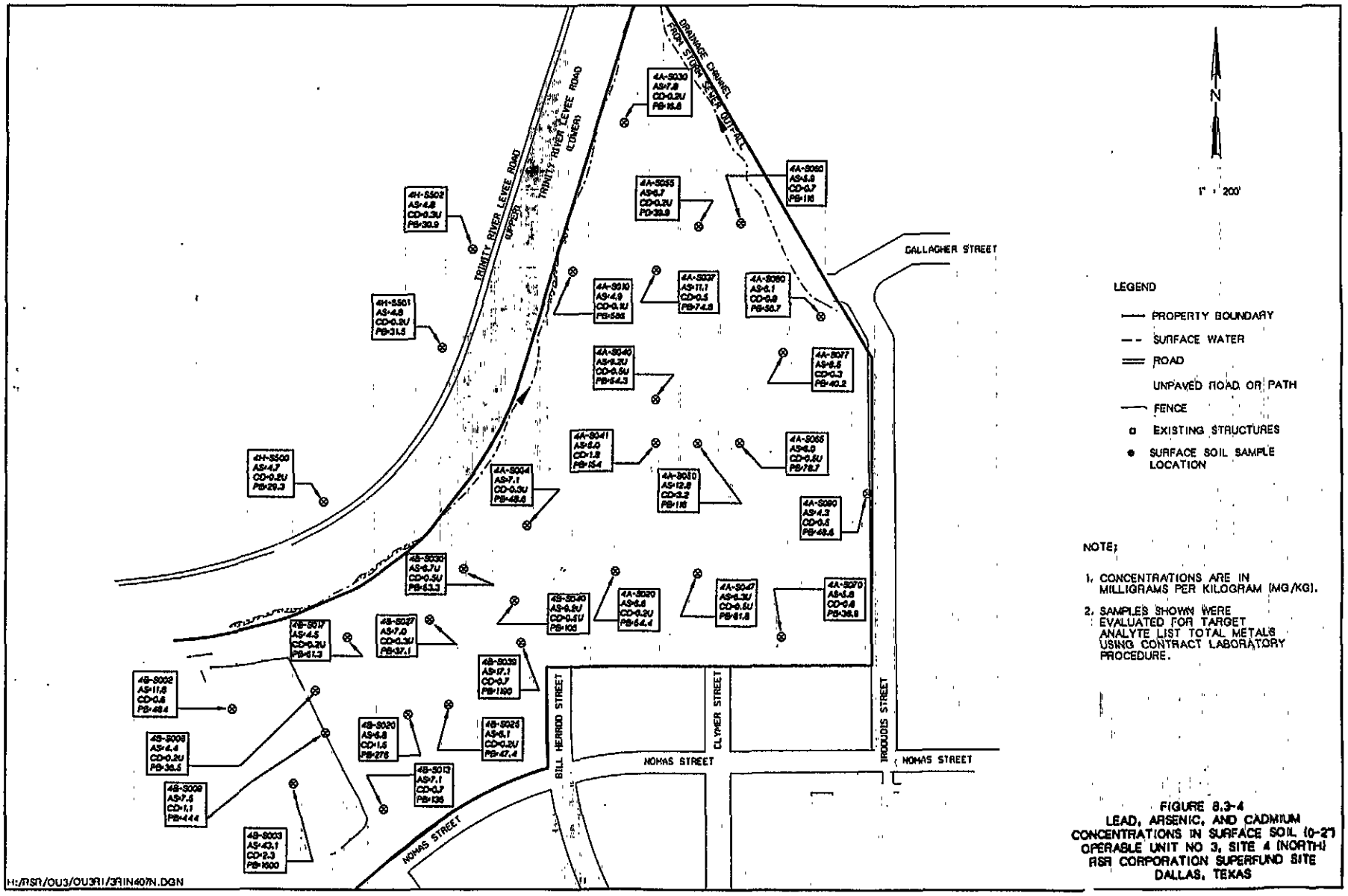



FIGURE 8.3-4
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SURFACE SOIL (0-2") OPERABLE UNIT NO 3, SITE 4 (NORTH)
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

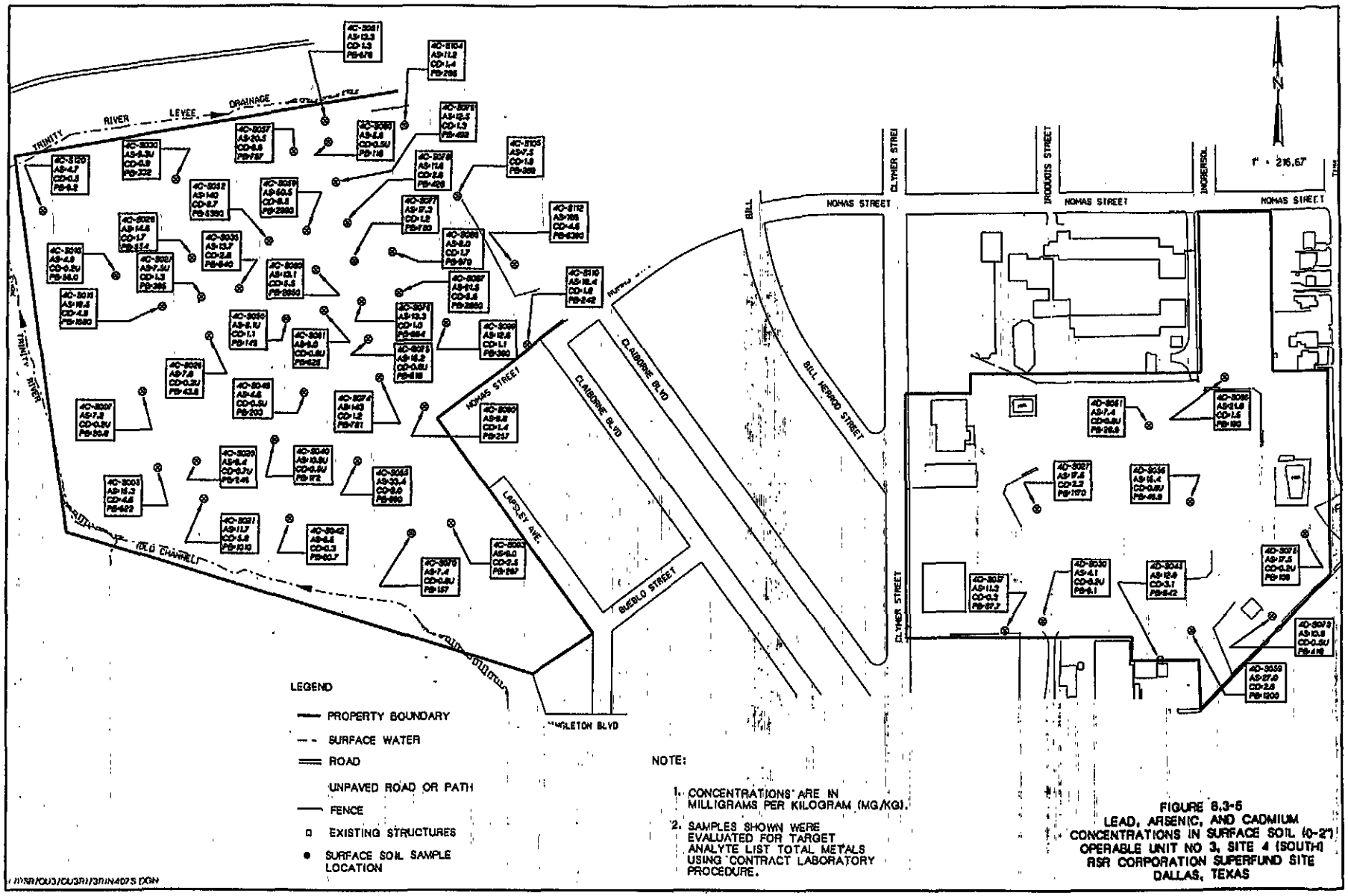
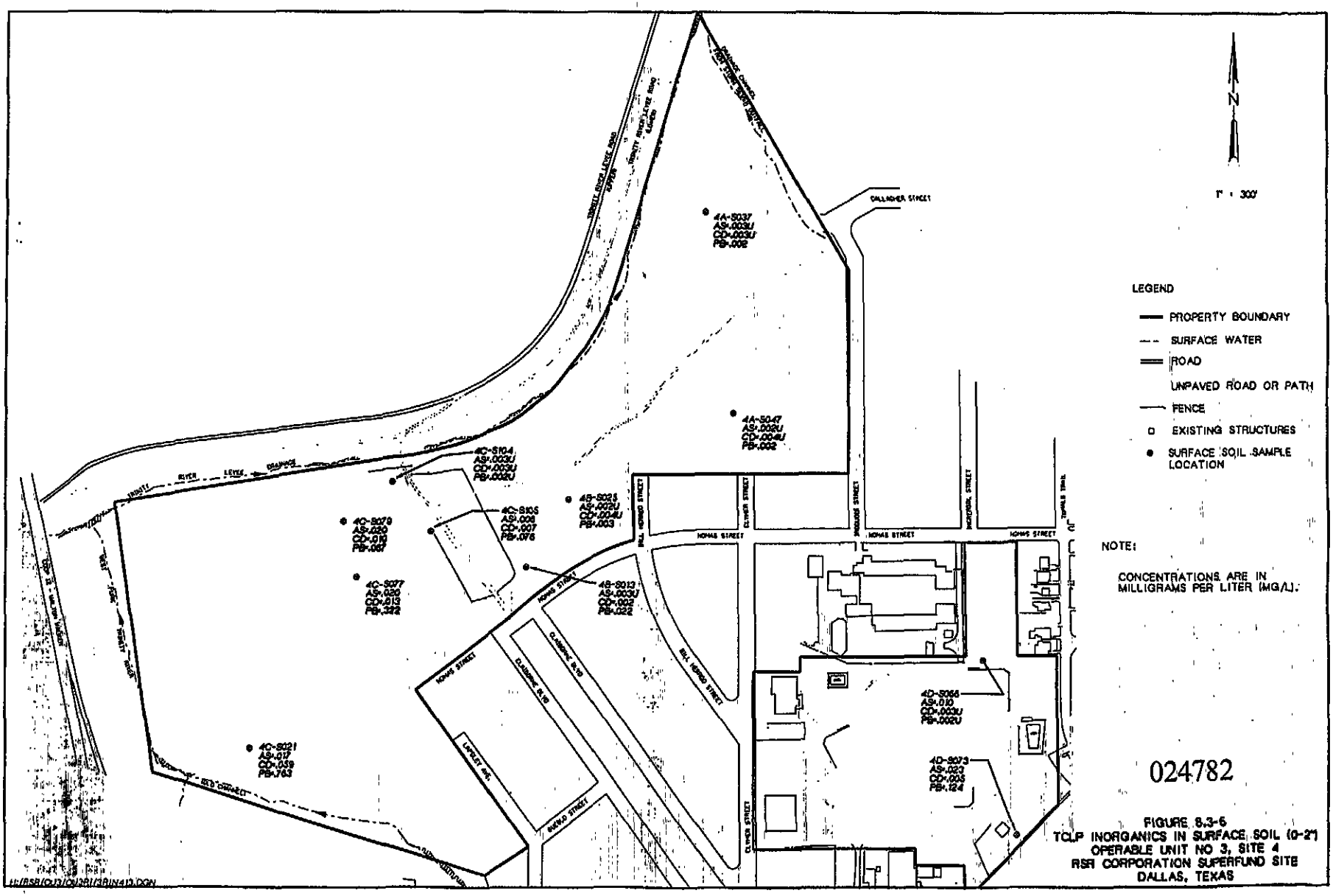



FIGURE 6.3-6
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SURFACE SOIL (0-2')
OPERABLE UNIT NO 3, SITE 4 (SOUTH)
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS




024782

FIGURE 8.3-6
TCLP INORGANICS IN SURFACE SOIL (0-2')
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

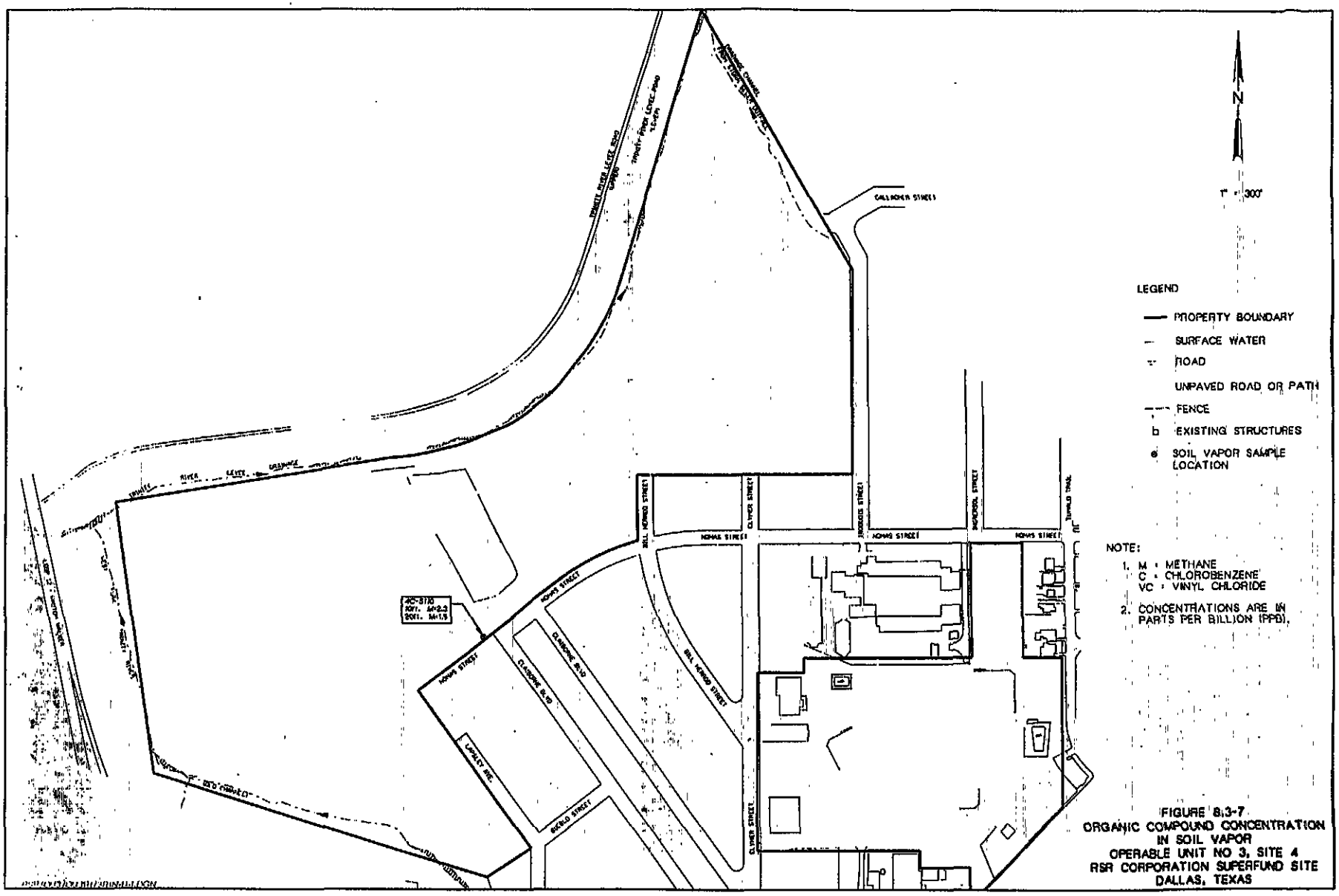



FIGURE 8.3-7
ORGANIC COMPOUND CONCENTRATION
IN SOIL VAPOR
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024783

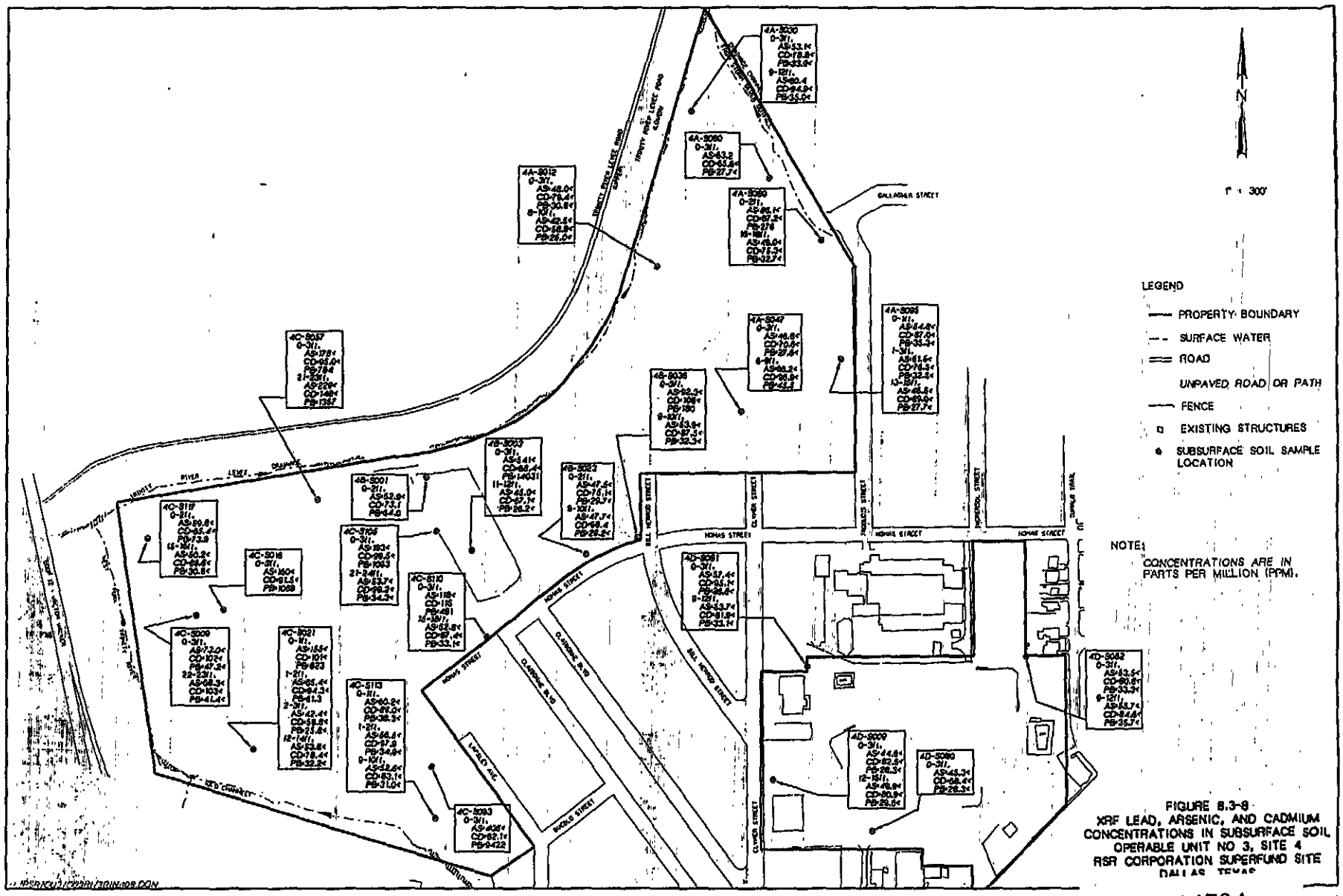



FIGURE 8.3-8
XRF LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SUBSURFACE SOIL
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024784

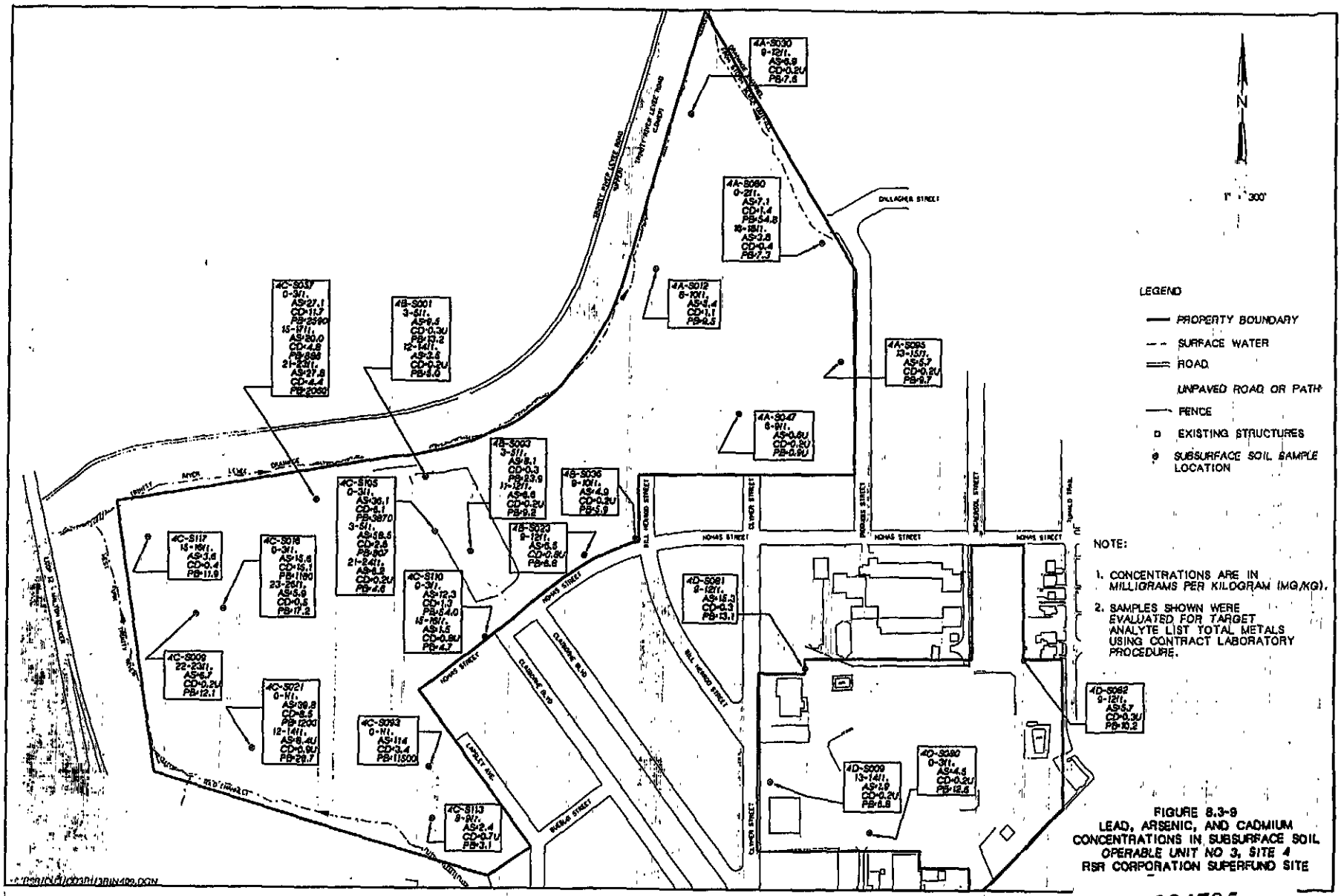



FIGURE 8.3-9
LEAD, ARSENIC, AND CADMIUM CONCENTRATIONS IN SUBSURFACE SOIL
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE

024785

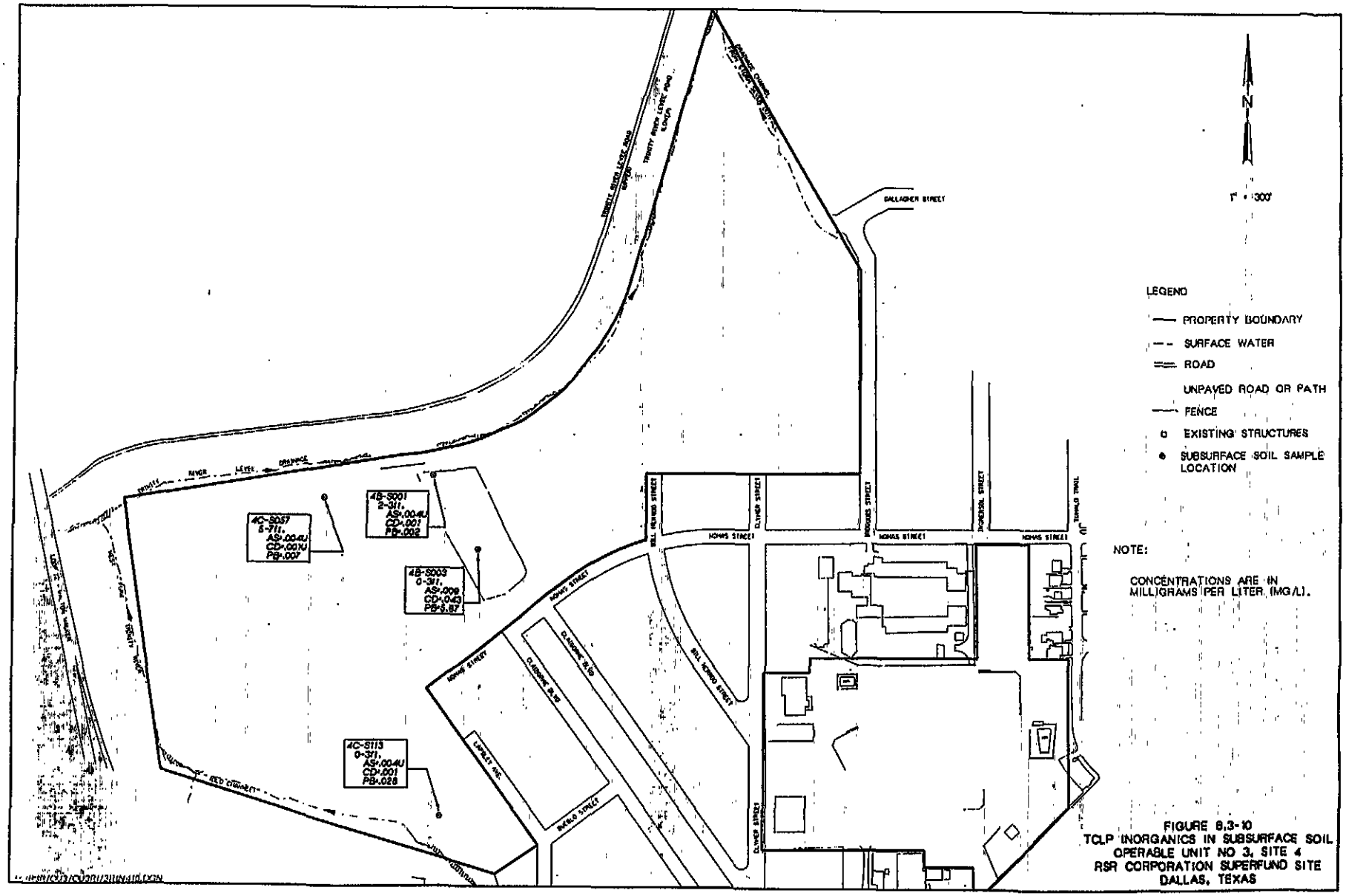



FIGURE 8.3-10
TCLP INORGANICS IN SUBSURFACE SOIL
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

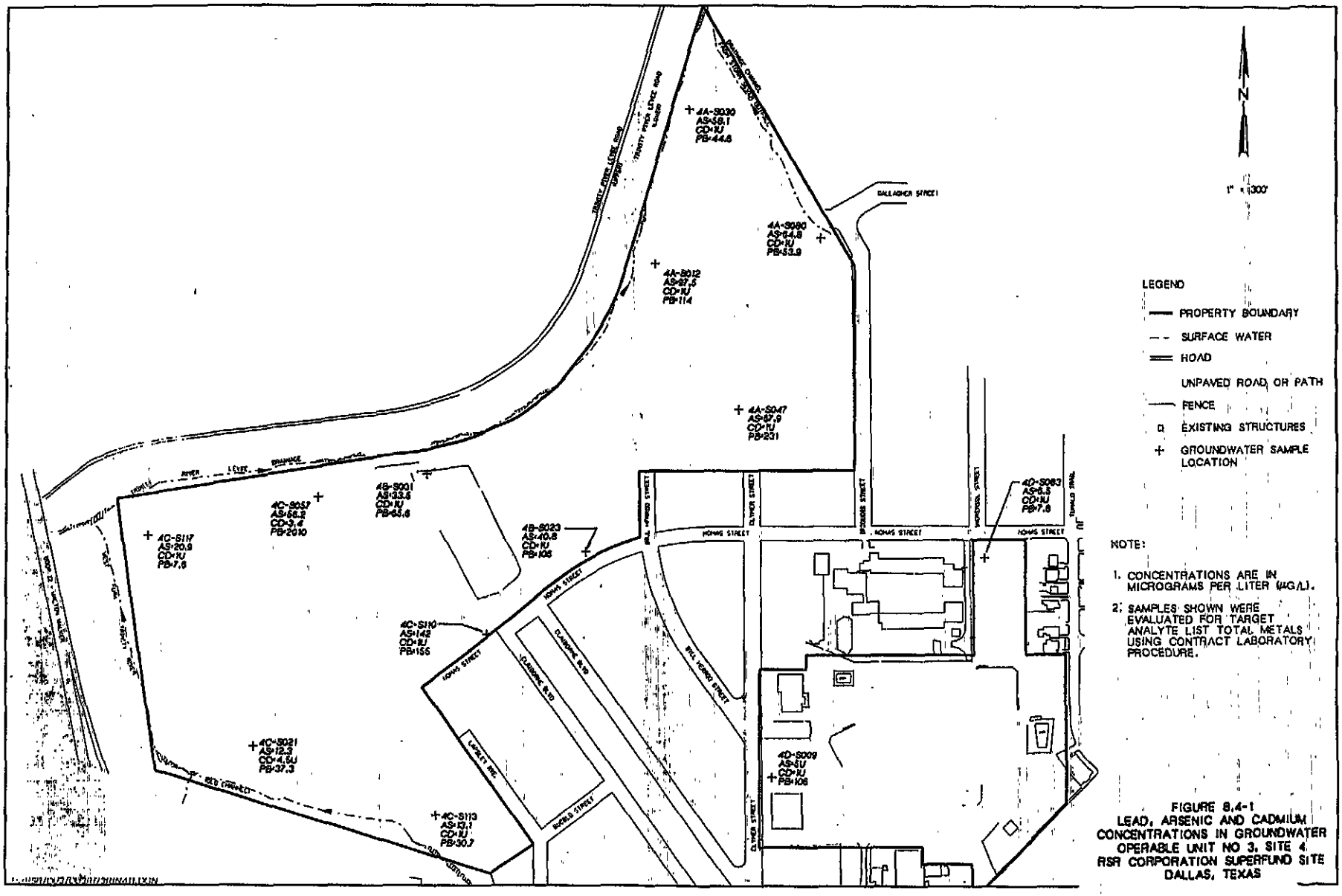



FIGURE 8.4-1
LEAD, ARSENIC AND CADMIUM CONCENTRATIONS IN GROUNDWATER
OPERABLE UNIT NO 3, SITE 4
RSR CORPORATION SUPERFUND SITE
DALLAS, TEXAS

024788

# Chapter 9
# Fate and Transport

# Chapter 9
# Fate and Transport

024789

In order to understand the environmental fate and transport of the inorganic constituents of interest at OU No. 3, this chapter addresses the potential for migration of these compounds. The mobility and persistence of contaminants within environmental media at OU No. 3 are dependent upon site characteristics, the nature and extent of contamination at the site, as well as the individual physical and chemical characteristics of the contaminants and their interaction with associated media.

Once a contaminant is released, its rate of migration and fate are dependent upon the type and rate of transformation processes that take place in the surrounding environment. The form of the contaminant in a particular environment is determined by the physical and chemical properties of both the element and the surrounding media. For the inorganic contaminants of interest at OU No. 3, these include: adsorption onto subsurface particles (clays, inorganic compounds, organic matter), complexation by organic matter, or oxidation/reduction reactions to form insoluble compounds, or they may remain in a soluble form, thereby increasing their mobility.

The sources of inorganic-contaminated media on OU No. 3 include slag and battery casing chips dumped on the ground surface at all three sites and into the landfills at Sites 3 and 4, and surface and subsurface soil which has been contaminated by the slag and battery chip waste material. In addition, weathering of surficial wastes may have occurred, leading to the subsequent dispersion and dry deposition of contaminated dust particles onto the ground surface, thereby increasing levels of lead, arsenic, cadmium, and other inorganics in the soil. Contaminant concentrations exhibited by some OU No. 3 media also may be partially attributed to translocation of contaminant(s) from one medium to another. Examples of this would be stormwater runoff over areas of waste material or contaminated surface soil, or the generation of leachate from buried waste, and subsequent movement of the runoff or leachate to adjacent surface water bodies.

This chapter defines possible transport pathways for contaminated media originating from OU No. 3 to potential receptors. It also describes processes that play a role in determining the fate and transport of the contaminants of interest that were detected in soil and other environmental media. Information presented in this chapter was used to conduct the HHRA and ERA. The first section details potential migration routes at OU No. 3, including complete pathways and transport processes. A discussion of the physical and chemical aspects of the media and contaminants that govern contaminant behavior and mobility follows in **Section 9.2.**

024790

## 9.1 Potential Routes of Migration

An exposure pathway is the means by which a contaminant moves from a source to a receptor. A complete exposure pathway has five elements: a contaminant source, a mechanism for contaminant release, an environmental transport medium, an exposure point or receptor location, and a feasible route of exposure. An exposure pathway is complete (i.e., there is exposure) if there is a way for the receptor to take in contaminants (either through ingestion, inhalation, or dermal absorption of contaminated media or waste). The following summarizes general exposure pathway information for OU No. 3.

- The most significant contaminant source for OU No. 3 is the surficial waste, consisting of slag and battery casing chips. These wastes were released to the surrounding environment through direct disposal and leaching to soils by surface and stormwater runoff and potential airborne deposition.

- Possible contaminant release mechanisms at OU No. 3, listed in relative order of importance, include: (1) soil and residual material erosion by stormwater runoff that may transport contaminants off of the property, (2)

infiltration or leaching through soil, which may transport contaminants to groundwater, (3) wind, which may release or re-suspend particulates to air, and (4) intentional or inadvertent activities by humans and/or animals, which may transport and disperse contaminated solids from one location to another.

024791

- Once contaminants are released to the environment, they may be transported through media via transport mechanisms, which include (in relation to the release mechanisms described previously): (1) surface water, sediment, and biota, (2) soil, groundwater, and biota, (3) air, and (4) humans, animals, and mechanical means.

- Potential exposure points include: onsite areas where trespassers or workers may come into contact with contaminated materials, and offsite areas potentially affected by stormwater runoff or airborne residuals. Onsite receptors also must contend with the physical hazards associated with the OU No. 3 sites, including steep topography and exposed municipal waste exposed at the ground surface.

- The primary and feasible routes of exposure for onsite trespassers or onsite workers to site contaminants include direct or incidental ingestion of contaminated media (i.e., surface soil), inhalation of dust originating from contaminated media, and dermal contact with contaminated media.

The following subsections describe potential migration pathways at OU No. 3, and the feasibility and importance of each pathway as it relates to the site characteristics, environmental media, and contaminants of interest. The potential migration pathways, listed in relative order of importance, are the solids pathway (i.e., mechanical dispersion), the surface water pathway, and the air pathway.

### 9.1.1 Solids Pathway

Intentional and inadvertent activities by humans and animals, which can result in direct contact with contaminated media, are one of the migration pathways at OU No. 3. Examples of activities that can result in transport include contaminated soil and/or dust adhering to vehicles, equipment, clothing, or animals which, in turn, may travel offsite. Once tracked into residential and commercial areas, contaminants may be in a location or form that is readily available for uptake by receptors through inhalation or ingestion. Alternatively, contaminants may be translocated further, via this same pathway or other pathways (i.e., air, water) to other media (i.e., vegetation, surface water).

024792

### 9.1.2 Surface Water Pathway

Erosion and transport of contaminated materials by stormwater runoff is a potential migration pathway at OU No. 3. During precipitation events, residual materials or contaminated particles in soil may be eroded and transported to sediments, surface water and/or groundwater by stormwater runoff. Site 1 runoff discharges to a creek that flows north through the site and ultimately off the property. Site 3 runoff flows west and offsite to Mountain Creek. Site 4 runoff flows into any of the surface drainages surrounding the property, including the Old Channel of the Trinity River.

Surface water, stormwater, and sediment analyses indicate that these OU No. 3 media at certain locations have been affected based on detected levels of lead, arsenic, and cadmium. Although downstream, offsite surface water was not sampled as part of the OU No. 3 investigation, it is likely that the site contaminants have been transported offsite via surface water drainage channels. From a human exposure perspective, direct incidental ingestion of surface water and sediment from the creeks depends on the likelihood that receptors would use the drainages for recreational purposes (e.g., trespassing) or if workers in the area perform work-related activities that would place them in direct contact with surface water and/or sediment. For either population of

receptors, exposure through dermal contact is also plausible under assumed exposure conditions. The intermittent nature of the streams and drainages at OU No. 3 limits aquatic receptors to opportunistic species. However, the presence of opportunistic aquatic and terrestrial species reliant on the drainages indicate the potential for exposure to contaminants migrating through the surface water and sediment components of OU N 3. However, should the sediments migrate to, and be deposited in, offsite areas that are accessible to human or animal populations, additional opportunities for direct and indirect exposures could occur.

024793

### 9.1.3 Groundwater Pathway

Transport of contaminants by groundwater is considered to be a potential contaminant migration pathway. Precipitation which does not take the form of runoff or evaporation could transport inorganic ions or other soluble inorganic constituents into the subsurface via infiltration. Constituents could then be immobilized by adsorption onto soil particles in the vadose zone or remain dissolved in groundwater. Exposure to site contaminants could subsequently result from ingestion of groundwater if accessible (since groundwater is not readily accessible for consumption in the RSR Site, an incomplete pathway is created for groundwater). Concerns that could be related to groundwater transport of contaminants include: (1) leaching of contaminants from soils to groundwater and (2) transport of contaminants within, or out of, the study area by groundwater migration.

Groundwater was encountered at relatively shallow depths at each of the OU No. 3 sites; measured groundwater elevations were 547 feet bgs at Site 1, and ranged from 383 to 441 feet bgs at Site 3 and 403 to 414 feet bgs at Site 4. Water elevation data generally suggest shallow gradients, toward the creek at Site 1 and toward the Trinity River at Site 4. The groundwater elevations at Site 3 suggest perched groundwater in shallow landfill debris zones across the site, and a relatively shallow, nearly continuous sand and gravel aquifer directly above the Eagle Ford Shale, with a gradient toward one or more onsite drainage channels.

The initial conceptual model developed for OU No. 3 assumed that neither shallow nor deep groundwater had been affected by dumping activities at the three sites, primarily due to the relative immobility of the inorganic contaminants of concern. The shallow groundwater at OU No. 3 is not presently used for potable water supply, nor is it expected to be used for this purpose in the future, due to its low yield and slightly saline quality. Therefore, exposure to contaminants in the shallow groundwater (and any associated risk) is not considered a complete pathway. The potential for contamination of the deeper Woodbine and Trinity Aquifers (which are located at depths of approximately 250 and 1,300 feet bgs, respectively) from surface/shallow subsurface site contamination is not expected due to the characteristics of the local geology (particularly the thickness of the Eagle Ford Shale over the Woodbine) and the chemical and physical properties of the inorganic contaminants of concern (which render them relatively immobile).

024794

As stated previously, shallow groundwater at the OU No. 3 sites is not considered a likely drinking water source due to its overall low yield and slightly saline quality. Based on available information, the initial conceptual model for OU No. 3 assumed that the groundwater had not been affected by dumping activities at the three sites. Because the RI objectives resulted in sample collection at locations within the boundaries of the three OU No. 3 sites only, there is currently insufficient analytical information available to completely define the nature and extent of groundwater contamination in areas outside the OU No. 3 sites.

Assuming that groundwater migration in this area is less than 10 feet/year (TWC, 1988), and assuming that the contaminant source material has been present on the OU No. 3 sites since the 1970s and 1980s, groundwater affected by site contamination may have migrated between 100 and 200 feet. However, because dissolved concentrations of inorganic constituents were found to be within acceptable levels in onsite groundwater, migration of lead and the other contaminants of concern from site contamination via the groundwater pathway is expected to be minimal.

### 9.1.4 Air Pathway

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Direct airborne movement of contaminated particulates via wind or mechanical erosion is a potential but minor migration pathway at OU No. 3 compared to the solids, surface water, or groundwater pathways. Contaminants from dust or soil may be transported directly to the receptor resulting in inhalation of air containing contaminated particulates. They also may be transported from dust to soil and/or surface water, and from soil to dust and/or surface water. However, the amount and types of vegetative land cover will affect the amount of particulate susceptible to entrainment.

Particulate material that becomes airborne by either wind or mechanical means may remain airborne for long periods and may be transported long distances, depending on particle density, aerodynamic diameter, and atmospheric conditions (i.e., wind velocity and the viscosity of the air). The primary meteorological factors that affect re-suspension include wind velocity and ground surface moisture.

A concern related to the air transport pathway both on and off of the property would be the potential for: (1) exposure to the site contaminants resulting from inhalation of contaminated particulates; and (2) contaminants being transported via air to other environmental media. Landfilling operations have been inactive since the 1970s through 1980s; however, slag and battery chip waste materials present in surface soils and sediments on OU No. 3 could be sources to the air transport pathway. Site 1 is heavily vegetated throughout the year; therefore dust generation and migration probably are not significant. However, Sites 3 and 4 recently were cleared of vegetation and therefore, contaminated dust generation and migration are possible during the period when vegetation is re-establishing itself. Once revegetated, this pathway becomes less important so long as the vegetation persists.

## 9.2 Contaminant Behavior

024796

The distribution and mobility of contaminants in environmental media are dependent on a number of factors. Among the most important are the physical and chemical characteristics of the contaminant(s) and the associated environmental media, and the interactions between them. These interactions determine probable fate and transport processes operating at the site. Each transport process potentially is affected by release mechanisms or other contaminant processes that increase or decrease the rate or amount of contaminant available for transport. The effects of these processes, as well as the physical and chemical properties of the media and the inorganic contaminants of interest for OU No. 3, are discussed in the following sections.

Within soils, trace inorganics are normally distributed between the liquid and solid phases. The availability of most inorganic compounds to be transported by surface water, leached through soils by groundwater, or taken up by vegetation, is determined by the equilibrium distribution between the liquid and solid phases. Inorganics, in the form of free ions or soluble compounds, may exist in the liquid phase as either free liquid in pore spaces at or below the water table, or as a thin film of moisture in contact with the solid phase in the vadose zone. The most mobile form of the inorganic compound is in the moisture film surrounding soil particles. In this phase, inorganics may be transported easily by surface water and groundwater, and subsequently become available for uptake by vegetation.

Inorganic ions and compounds commonly become incorporated onto and within the particulates generated from the parent rock, sediments, soil, and fill. They are precipitated as both relatively insoluble to soluble inorganic compounds, and adsorbed onto surface oxyhydroxides (mostly iron, manganese, and aluminum) and multiple (natural and anthropogenic) organic phases. Important factors governing the solubility and re-mobilization of these phases are pH, oxidation-reduction potential (variably named Eh or redox), and both the availability and concentration of ion-specific complex-forming

ions. Some of the most important complex-forming ions dissolved in both surface water and groundwater include most major anions (chloride, sulfate, bicarbonate/carbonate, phosphate, ammonium, etc.) and natural organic acids (fulvic and humic acids).

024797

### 9.2.1 Physical/Chemical Properties of Environmental Media

The following paragraphs describe the physical and chemical properties of selected environmental media important to the control and release of inorganic and organic constituents. Dissolved inorganic constituents and their interactions between water and various solids affect the mobility, concentration, and distribution of these constituents. For example, dissolved arsenic is controlled by the formation and dissolution of iron oxyhydroxides.

Iron, manganese, and aluminum oxyhydroxides are well known to be the major inorganic controls on the mobility of metals (such as copper, lead, and zinc) and many metal-like anions (such as chromate, arsenate, and vanadate). The yellow to brown iron oxyhydroxides are ubiquitous in the natural and anthropogenic environments and effectively adsorb copper, lead, chromate, and arsenic. The dark brown to black manganese oxyhydroxides are almost as ubiquitous as iron oxyhydroxides and are a major control on the mobility of barium, zinc, nickel, and cobalt. Aluminum oxyhydroxide is the basic clay-forming substance which is active in both major ion exchange reactions and as an additional substrate onto which the other two oxyhydroxides and organics are deposited. The soil and aquifer particles are the major substrate onto which these oxyhydroxides deposit.

Oxyhydroxides, and particularly adsorbed metals and anions, are all highly sensitive to pH and oxidation-reduction potentials. Iron and aluminum oxyhydroxides are most soluble, and therefore mobile, in water with increasingly low pH ($<6$) and high pH ($>9$), but least soluble at near neutral pH (7). Manganese oxyhydroxides are most soluble at low pH and become increasingly insoluble at high pH. Therefore, metal and

anion precipitation and adsorption is most effective between a water pH of 6 and 9 (the pH observed in OU No. 3 groundwater). Low pH also solubilizes carbonates, whose precipitates are another major mobility control on cadmium, lead, manganese, and (to a lesser extent) iron.

024798

### 9.2.2 Contaminant Physical/Chemical Processes

The following paragraphs describe the physical and chemical processes that could occur between the inorganic contaminants of concern at OU No. 3 and their associated environmental media. These processes could affect the mobility and distribution of these contaminants, and may be used to determine probable fate and transport processes.

Adsorption is a surficial process by which a substance is accumulated at an interface between two phases. The reaction occurs when negatively-charged surfaces attract positively-charged ions from solution. Therefore, adsorption of inorganic cations and compounds generally increases with increasing content of substances (in either solid or aqueous phase) with negatively-charged surfaces (i.e., organic carbon, certain clay minerals, iron oxyhydroxides). The primary physical and chemical basis for adsorption reactions are electrostatic bonds. The inorganic compounds present in OU No. 3 media have a relatively strong affinity for bonding to surface soil particles, which explains the apparent lack of significant contaminant migration to lower soil layers, and reinforces the concern for offsite transport via surface water runoff, erosion, and dispersion of wind-entrained dust.

Chemical reactions involving the exchange of electrons are known as oxidation-reduction (redox) reactions. Both lead and arsenic have multiple oxidation states. The likelihood of these inorganic species to gain or lose electrons, and thereby change their form and possibly their mobility, is dependent upon the state of the surrounding environment (i.e., whether oxidizing or reducing conditions exist) which, in turn, is a function of Eh and pH.

Complexation is the formation of aqueous compounds from inorganic ions and complexing agents, and often affects many of the original element's chemical properties. Generally, complexed species increase the solubility of the solid phases and decrease adsorption potential to mineral surfaces. Thus, aqueous complexation may increase the overall mobility of contaminants (**Rai, et al., 1984**).

024799

It may be assumed from results of environmental media sampling at OU No. 3 that transport of inorganic contaminants has occurred as expected (via the surface soil leaching and runoff mechanisms described above) and will continue to occur under current conditions, if contaminant sources remain on the surface.

### 9.2.3 Physical/Chemical Properties of Potential Site Contaminants

The availability of the inorganic compounds to migrate in solution within or away from contaminated media in OU No. 3 is dependent on the inorganic compound forms, soil moisture content, and the specific soil-chemical environment. The following sections describe fate and transport properties of the contaminants of interest at OU No. 3 (lead, arsenic, and cadmium). Although the list of contaminants of concern generated through the risk assessment includes more constituents than lead, arsenic, and cadmium (see the baseline HHRA), these three metals were selected as typical indicators for the discussion related to fate and transport. The final section of this chapter describes the fate and transport properties of the organic contaminants found at OU No. 3.

#### *9.2.3.1 Lead*

Lead is considered the primary compound of concern due to the history of the OU No. 3 site and potential health concerns of lead in young children, even at relatively low doses. The following discussion of the environmental fate and transport properties of lead is summarized from **ATSDR (1993)** except as otherwise noted. Lead is ubiquitous in the environment, in part due to its natural occurrence as lead sulfide (galena) and its wide-

spread use historically in gasoline, dyes, paints, batteries, and other common products. Both natural and man-made (anthropogenic) sources of lead occur in soils and sediments These sources are of highly variable composition. Inorganic lead compounds are dominated by carbonates, phosphates, and sulfates. Lead sulfide usually is found in either ore deposit areas or ore processing centers.

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Nearly all forms of lead are relatively insoluble in water, and are strongly adsorbed or precipitated onto both inorganic and organic soil materials. As a result, the accumulation of lead in upper soil layers is primarily a function of the rate of deposition. Lead is transported in its soluble form to surface water or groundwater only in the presence of organic chelators or under certain conditions of low pH. Once precipitated, insoluble lead is relatively immobile unless the aquatic environment becomes acidic. Under acidic conditions, immobile lead becomes soluble and mobility increases. Soil pH measured in samples collected from the subsurface of OU No. 3 ranged from 6.9 to 8.3, which would indicate relatively neutral conditions. As a result, lead mobility would be expected to be low.

Natural concentrations of lead in soil nationwide range from approximately 2 mg/kg to 200 mg/kg, with a mean of about 16 mg/kg (**Dragun, et al., 1991**). Lead concentrations demonstrated by surface soil samples collected from OU No. 3 range from 9.1J^ mg/kg to 105,000 mg/kg.

Typical concentrations of lead in raw water supplies relying on groundwater sources nationwide range from not detected to 38 $\mu$g/L (**Durfor and Becker, 1964**). Other sources report the typical lead concentration in groundwater to range from 10 $\mu$g/L to 5,600 $\mu$g/L (**Office of Technology Assessment, 1984**). Concentrations of total lead in groundwater measured at OU No. 3 ranged from not detected above the PQL to 5.9 $\mu$g/L at Site 1, to 25,600 $\mu$g/L at Site 3, and to 2,010 $\mu$g/L at Site 4. Typical dissolved lead in surface water has been reported to range from 2 $\mu$g/L to 140 $\mu$g/L (**Kopp, 1969**). Total lead in surface water and stormwater samples collected at OU No. 3 showed lead concentrations ranging from not detected above the PQL to 410 $\mu$g/L at Site 1, 1,700

μg/L at Site 3, and 3,720 μg/L at Site 4. Dissolved lead in surface water and stormwat samples collected at OU No. 3 showed lead concentrations ranging from not detected above the PQL at Site 1 to 21.9 μg/L at Site 3 and 6 μg/L at Site 4.

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### *9.2.3.2 Arsenic*

Arsenic also is considered a contaminant of concern at OU No. 3. Of the site contaminants, arsenic exhibits the most complex soil chemistry, which is described in the following paragraphs by **ATSDR (1991a)** and **Goyer (1991)**, except where noted. The principle chemical states of environmental importance are trivalent and pentavalent (+3 and +5, respectively) inorganic arsenic, and various forms of organic arsenic. The stability and mobility of these two forms of arsenic is dependent on the pH and Eh conditions into and through which they are transported. Oxygenated media and higher pH favor the pentavalent form, which is chemically more soluble in water than the trivalent state. However, the trivalent form is favored by low oxygen containing (reducing) conditions and generally has a higher mobility than the pentavalent form in either surface or groundwater because it is much less effectively adsorbed by iron oxyhydroxides **(Gulens et al., 1979)**. Both forms are mobile under acidic conditions. Arsenic trioxide ($AS_2O_3$) and other oxides are smelting products of sulfide ores containing arsenic. This particular oxide has a tendency to persist in surface or near-surface conditions for a very long time, slowly releasing dissolved arsenic into the immediate surroundings.

Arsenic tends to form insoluble compounds in soil and sediment, adsorbing most strongly to clay surfaces. Its mobility in soil and sediment is a function of several variables, including soil pH, phosphate levels, and iron and aluminum content. In the atmosphere, arsenic adheres to particulate matter. Near urban and rural areas, arsenic is found primarily in the air in its pentavalent and trivalent forms.

Natural concentrations of arsenic in soil nationwide range from approximately 1 mg/kg to 40 mg/kg (**Dragun, 1991**). Arsenic concentrations in surface soil samples collected from OU No. 3 range from not detected above the PQL to 7,980 mg/kg. Typical arsenic concentrations in groundwater nationwide have been reported to range from 10 $\mu$g/L to 2,100,000 $\mu$g/L (**Office of Technology Assessment, 1984**). Concentrations of total arsenic detected in groundwater at OU No. 3 site range from not detected above the PQL to 3.7 $\mu$g/L at Site 1, 365Jv $\mu$g/L at Site 3, and 142 $\mu$g/L at Site 4. Total arsenic was detected in surface water and stormwater samples at concentrations ranging from not detected above the PQL to 187 $\mu$g/L at Site 1, 47.1J $\mu$g/L at Site 3, and 181 $\mu$g/L at Site 4. Typical dissolved arsenic in surface water nationwide has been reported to range from 5 $\mu$g/L to 336 $\mu$g/L (**Kopp, 1969**). Surface water and stormwater samples collected from OU No. 3 had detected levels of dissolved arsenic at concentrations of up to 72.6 $\mu$g/L at Site 1, 185J $\mu$g/L at Site 3, and 140 $\mu$g/L at Site 4.

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### *9.2.3.3 Cadmium*

The physical and chemical properties and environmental fate and transport characteristics of cadmium have been summarized from **Friberg et al. (1986)** and **ATSDR (1991b)**. Cadmium is a naturally-occurring metallic element; its most common oxidation state is the bivalent form (+2). Cadmium is obtained as a by-product from the treatment of metallic ores (copper, iron, lead, zinc). The mobility of cadmium is generally controlled by precipitation as a carbonate, co-precipitation with calcium carbonate, and adsorption by iron oxyhydroxides (increasing with pH>7). Cadmium, lead, and arsenic typically are found to have limited mobility in the surficial soil environment because they share these same general reactions.

Although cadmium is quite mobile in surface water and groundwater (it commonly exists in the free cationic state and as soluble complexes), a significant factor in its fate and transport in surface water and groundwater is its ability to complex with organic matter in solution. The organic complexes subsequently may be adsorbed to sediment or organic

constituents. Cadmium tends to be one of the more mobile inorganic compounds in the food chain since it is readily taken up by both aquatic and terrestrial flora and fauna. The available evidence, however, indicates cadmium does not bio-magnify through the food chain.

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Natural concentrations of cadmium in soils nationwide range from approximately 0.01 to 7 mg/kg (**Dragun, 1991**). The cadmium concentration in surface soils on OU No. 3 range from not detected above the PQL to 637 mg/kg. Typical cadmium concentrations in groundwater nationwide have been reported to range from 10 μg/L to 180,000 μg/L (**Office of Technology Assessment, 1984**). Total cadmium was detected in groundwater samples collected from OU No. 3 at concentrations ranging from below the PQL at Site 1 to 81.1Jv μg/L at Site 3 and 3.4 μg/L at Site 4. Total cadmium was detected in stormwater and surface water samples collected from OU No. 3 at concentrations ranging from not detected above the PQL to 4.4 μg/L at Site 1, 0.98 μg/L at Site 3, and 13.3 μg/L at Site 4. **Kopp (1969)** reported that the typical range of dissolved cadmium in surface water nationwide ranges from 1 μg/L to 120 μg/L; dissolved cadmium was not detected above the PQL at any of the OU No. 3 sites.

### *9.2.3.4 Organics*

Several TCL organic analytes were detected in the sampled media at OU No. 3. In surface soils, subsurface soils, and sediment at all three sites, volatile organic analytes and pesticide compounds were detected at concentrations ranging from not detected above the PQL to less than 1 mg/kg, and several semi-volatile organics were detected at concentrations up to 13J mg/kg (chrysene) at Site 1, 40 mg/kg (bis(2-ethylhexyl)phthalate) at Site 3, and 3.7J mg/kg (pyrene) at Site 4. In groundwater, concentrations of TCL volatile organic analytes ranged from not detected above the PQL to 3J μg/L (tetrachloroethene) at Site 1, 110J μg/L (chlorobenzene) at Site 3, and 300 μg/L (chlorobenzene) at Site 4. The maximum concentrations of TCL semi-volatile organics were 5J μg/L (diethylphthalate) at Site 1, 79 μg/L (4-methylphenol) at Site 3,

and 18 μg/L (naphthalene) at Site 4. Detected concentrations of pesticide compounds in groundwater at Sites 1 and 4 were below 1 μg/L, but up to 7.4 μg/L (4,4'-DDD) at Site 3. In surface water and stormwater, concentrations of TCL volatile organic analytes ranged from not detected above the PQL to 22 μg/L (acetone) at Site 1, 4J μg/L (2-hexanone) at Site 3, and 13B μg/L (methylene chloride) at Site 4. The maximum concentrations of TCL semi-volatile organics were 43J μg/L (bis(2-ethylhexyl)phthalate) at Site 1, 11 μg/L (diethylphthalate) at Site 3, and 3J μg/L (1,3-dichlorobenzene) at Site 4.

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024805

# Chapter 10
# Baseline Human Health Risk Assessment

# Chapter 10
# Baseline Human Health Risk Assessment

024806

This chapter presents the results of the baseline HHRA for the RSR Corporation Superfund Site OU No. 3. OU No. 3 consists of three geographically separate Sites (1, 3, and 4) within the RSR Corporation Superfund Site. The objective of the baseline HHRA is to evaluate quantitatively and/or qualitatively the potential health risks associated with OU No. 3. The baseline HHRA evaluates potential threats to the public in the absence of any remedial actions (i.e., the no action alternative).

This HHRA addresses potential adverse health effects due to exposure to contaminated soil, sediment, and surface water within the three Sites in OU No. 3. The contamination within these areas resulted from the disposal and dumping of slag and battery chips associated with battery breaking and smelting activities.

## 10.1 Sampling Data

In 1995, EPA conducted field investigation activities at OU No. 3. The field investigations resulted in data collection to support the development of an RI and FS. Activities associated with the field investigation work included the following:

- Soil investigation
- Groundwater investigation
- Surface water and sediment investigation
- Landfill gas investigation
- Storm sewer, drainage and pipeline investigation
- Geophysical investigation

## 10.2 Chemical Selection

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Concentrations of metals detected in soil and sediment samples at each Site were compared to regional background soil concentrations. Metals were eliminated as soil COPC for the Site if the maximum soil or sediment concentration of the metal at the Site was less than the estimated upper-bound regional background concentration (i.e., mean plus two standard deviations) and the onsite mean value was not significantly different from the background mean concentration. In addition, iron, magnesium, calcium, potassium, and sodium (essential human nutrients) were eliminated as COPCs for all media. For media other than soil and sediment, all chemicals detected in at least one sample, except essential human nutrients, were included as COPC.

## 10.3 Exposure Assessment

This section describes the exposure scenarios and pathways quantitatively evaluated in the HHRA. Groundwater and landfill gas were not quantitatively evaluated because they are considered incomplete pathways. Potential exposure to contaminants in groundwater is considered remote based on groundwater use patterns in the area. The major aquifers in the area, the Paluxy and Twin Mountains aquifers, begin at depths of 1,300 to 1,500 feet bgs. Due to the depth of these aquifers and the confining nature of the stratigraphy between these aquifers and any groundwater encountered at shallower depths, the likelihood of groundwater in these aquifers becoming affected by surface or shallow groundwater contamination is considered minimal. It is unlikely an individual resident would be legally capable of installing a private well within the boundaries of the RSR Site due to City ordinances, which require platted property to have provisions for water and sewer service.

Potential exposure to landfill gas is also considered remote. Soil gas data for the landfills indicate measurable concentrations of gas detected on Site 3. Under the current site

setting, exposure is not anticipated as Site 3 is undeveloped with the exception of the Pick-n-Pull, and landfill gas was not detected in this area. Under future site conditions, state regulations require any structures built on landfills to include gas venting/control features.

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### 10.3.1 Site 1

Exposure scenarios quantitatively evaluated in the HHRA included:

- Current and future child and resident adults: incidental ingestion of soil, inhalation of fugitive dust, and dermal contact with soil.

- Current and future child and adult trespasser: incidental ingestion of soil, inhalation of fugitive dust, dermal contact with soil; dermal contact with surface water; and ingestion and dermal contact with sediment.

- Current and future worker: incidental ingestion of soil, inhalation of fugitive dust, and dermal contact with soil.

### 10.3.2 Site 3

Exposure scenarios quantitatively evaluated in the HHRA included:

- Current and future child and adult trespasser: incidental ingestion of soil, inhalation of fugitive dust, dermal contact with soil; dermal contact with surface water; and ingestion and dermal contact with sediment.

- Current and future worker: incidental ingestion of soil, inhalation of fugitive dust, and dermal contact with soil.

### 10.3.3 Site 4

Site 4 was subdivided into two areas: the landfills on the north side of the Site and the Jaycee Zaragoza Park. Exposure scenarios quantitatively evaluated in the HHRA for the landfills included:

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- Current and future child and adult trespasser: incidental ingestion of soil, inhalation of fugitive dust, dermal contact with soil; dermal contact with surface water; and ingestion and dermal contact with sediment.

- Future worker: incidental ingestion of soil, inhalation of fugitive dust, and dermal contact with soil.

Exposure scenarios quantitatively evaluated in the HHRA for Jaycee Zaragoza Park included:

- Current and future child and adult residents: incidental ingestion of Surface Soil, inhalation of fugitive dust, and dermal contact with soil.

- Current and future child and adult trespasser: dermal contact with surface water in drainages and open storm sewers. (Sediment data are not available for the Jaycee Zaragoza Park area so exposure to sediment was not quantitatively evaluated.)

## 10.4 Risk Characterization

A summary of estimated excess lifetime cancer risks and noncancer hazard indices for the three OU No. 3 Sites is presented in **Table 10-1** by Site. The summary table includes

the exposure pathway associated with the highest estimated risk levels for each Site. Summary highlights include:

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- For the current and future child resident on Site 1, an additive estimate excess lifetime cancer risk in the $10^{-3}$ range and hazard index greater than one.

- For the current child resident near Jaycee Zaragoza Park, a hazard index greater than one.

For those chemicals quantitatively evaluated using cancer slope factors or reference doses, the presence of arsenic in soil contributes the majority of risk for all three Sites, for either cancer or noncancer effects.

The IEUBK model was used to predict the blood-lead effects resulting from lead exposure to children ages 6 months through 6 years. The IEUBK model was developed by EPA and integrates exposure to lead from air, drinking water, soil, dust, dirt, and paint for various age groups of children. The model sums lead uptake over time and estimates the distribution of blood-lead levels in an exposed population. The model was applied to those areas of OU No. 3 expected to be inhabited by children under current or future conditions. These results indicated the following:

- For Site 1 under current or future residential conditions for children, the predicted geometric mean blood-lead concentration predicted was about 41 $\mu$g/dL. An estimated 99 percent of the exposed population would be expected to exhibit a blood-lead concentration greater than 10 $\mu$g/dL based on soil-lead concentrations measured in Site 1.

- For Site 4 (Jaycee Zaragoza Park), under current and future residential use conditions for children, the predicted geometric mean blood-lead concentration was about 4 $\mu$g/dL; less than 5 percent of the exposed

population would be expected to exhibit a blood-lead concentration greater than 10 $\mu$g/dL based on the soil-lead concentrations measured in this portion of Site 4.

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Using the methodology from **Bowers et al. (1994)** to estimate the potential for lead-related risks to adult workers combined with default exposure parameters developed by EPA Region 8 and used by EPA Region 6, a soil-lead concentration of about 2,000 mg/kg was estimated as a point of comparison to Site-specific soil data. This value represents the soil-lead concentration for a worker population where no more than 5 percent would be expected to exhibit a blood-lead concentration greater than 10 $\mu$g/dL. The 10 $\mu$g/dL blood-lead level was selected to be protective of pregnant women.

Based on comparison to 2,000 mg/kg, soil data collected for Sites 1, 3, and 4 show that 13 locations on Site 1, 10 locations on Site 3, and 9 locations on Site 4 exceed this threshold. However, when data for each individual Site were aggregated to calculate the geometric mean lead concentration in soil, each Site exhibits a mean lead concentration less than 2,000 mg/kg.

## 10.5 Uncertainty

Many simplifying assumptions were made to estimate the risks in the HHRA. Uncertainties in this HHRA, and HHRAs in general, are due to uncertainties in the methodologies used in HHRAs, specific uncertainties in characterizing the RSR Site, and uncertainties describing exposure.

The HHRA is subject to uncertainty from a variety of sources including the following:

- Sampling and analysis, and data evaluation
- Fate and transport estimation

- Exposure estimation
- Toxicological data
- Blood-lead models

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While not all-encompassing, the following identifies a number of site-specific factors that may lead to an over- or underestimate of risks for the Site:

- Analyses of the metals were not species specific, and therefore, metals were assumed to be completely bioavailable, which may overestimate risks.

- Contaminant concentrations in soil, sediment, and surface water were assumed to remain constant, which may result in an overestimation of future risks.

- IEUBK model default values were used for some intake and adsorption parameters because site-specific values are not available. Risks may be overestimated or underestimated if characteristics of the exposed population at the site differ from these default assumptions.

- Uncertainty is associated with the IEUBK model results based on mean soil-lead concentrations for the exposure area. The daily activity pattern of some children could result in exposures over a limited area of the OU. The mean soil-lead concentration for all soil samples may not be representative of their actual exposure.

**Table 10-2** summarizes other uncertainty factors and the effects of the uncertainties on the risk estimates presented in the HHRA.

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**Table 10-1**
**Summary of Risks**
**RSR Corporation Superfund Site**
**Operable Unit No. 3**



| Pathway | Typical[a] Lifetime Excess Cancer Risk | RME[b] Lifetime Excess Cancer Risk | Typical Hazard Index | RME Hazard Index |
|---|---|---|---|---|
| **Site 1: Current Residential Child** | | | | |
| Inhalation | 2E-05 | 6E-05 | 1.1E+00 | 1.1E+00 |
| Ingestion | 3E-03 | 8E-03 | 3.9E+02 | 3.9E+02 |
| Dermal | 1E-99 | 0.00000001 | 1.4E-01 | 6.8E-01 |
| **Total** | **3E-03** | **9E-03** | **4E+02** | **4E+02** |
| **Site 3: Future Worker** | | | | |
| Inhalation | 1E-06 | 3E-06 | 1.7E-01 | 1.7E-01 |
| Ingestion | 2E-06 | 6E-06 | 8.4E-02 | 8.9E-02 |
| Dermal | 3E-07 | 4E-06 | 1.2E-02 | 5.8E-02 |
| **Total** | **3E-06** | **1E-05** | **3E-01** | **3E-01** |
| **Site 4: Future Commercial/Industrial Worker** | | | | |
| Inhalation | 1E-07 | 3E-06 | 1.8E-01 | 1.8E-01 |
| Ingestion | 2E-06 | 7E-06 | 7.4E-02 | 7.4E-02 |
| Dermal | 5E-08 | 7E-07 | 2.4E-03 | 1.2E-02 |
| **Total** | **4E-06** | **1E-05** | **3E-01** | **3E-01** |
| **Site 4: Jaycee Park Current Residential Child** | | | | |
| Inhalation | 3E-07 | 9E-07 | 3.4E-01 | 3.4E-01 |
| Ingestion | 2E-05 | 4E-05 | 2.1E+00 | 2.1E+00 |
| Dermal | NA | NA | 1.4E-03 | 7.1E-03 |
| **Total** | **2E-05** | **4E-05** | **2E+00** | **2E+00** |

Note: Risks summarized in this table are based on the most conservative exposure pathway for each site. See Tables 6-1 through 6-4 of the HHRA for complete summary information.

[a]Typical: Based on average exposure parameters.

[b]RME: Based on reasonable maximum exposure parameters.

024814

**Table 10-2**
**Uncertainties Associated With Human Health Risk Estimations**
**RSR Corporation Superfund Site**
**Operable Unit No. 3**



| Uncertainty Factor | Effects of Uncertainty | Comment |
|---|---|---|
| **I. Exposure Assessment** | | |
| Exposure assumptions | May under- or overestimate risk | Assumptions regarding media intake, population characteristics, and exposure patterns may not characterize exposures. |
| Use of applied dose to estimate risks | May over- or underestimate risks | Assumes that the absorption of the chemical is the same as it was in the study that derived the toxicity value. Assumes that absorption is equivalent across species (animal to humans). Absorption may vary with age and species. |
| Population characteristics | May over- or underestimate risks | Assumes weight, lifespan, ingestion rate, etc., are potentially representative for a potentially exposed population. |
| Intake | May underestimate risks | Assumes all intake of COPC is from the exposure medium being evaluated (no relative source contribution). |
| **II. Toxicity Assessment** | | |
| Slope factor | May overestimate risks | Slope factors are upper 95th percent confidence limits derived from a linearized model. Considered unlikely to underestimate risk. |
| Toxicity values derived from animal studies | May over- or underestimate risks | Extrapolation from animal to humans may induce error because of differences in pharmacokinetics, target organs, and population variability. |
| Toxicity values derived primarily from high doses; most exposures are at low doses | May over- or underestimate risks | Assumes linear at low doses. Tends to have conservative exposure assumptions. |

## Table 10-2
## Uncertainties Associated With Human Health Risk Estimations
## RSR Corporation Superfund Site
## Operable Unit No. 3



024815

| Uncertainty Factor | Effects of Uncertainty | Comment |
|---|---|---|
| **II. Toxicity Assessment (Continued)** | | |
| Toxicity values | May over- or underestimate risks | Not all values represent the same degree of certainty. All are subject to change as new evidence becomes available. |
| Toxicity values derived from homogeneous animal populations | May over- or underestimate risks | Human populations may have a wide range of sensitivities to a chemical. |
| Not all chemicals at the site have toxicity values | May underestimate risks | These chemicals are not addressed quantitatively. |
| **III. Risk Estimation** | | |
| Estimation of risks across exposure routes | May under- or overestimate risk | Some exposure routes have greater uncertainty associated with their risk estimates than others. |
| Cancer risk estimates--no threshold assumed | May overestimate risks | Possibility that some thresholds do exist. |
| Cancer risk estimate--low dose linearity | May overestimate risks | Response at low doses is not known. |
| Adult lead exposure quantified using Bowers, et al. (1994) | May under- or overestimate risk | Model used has not been formally adopted for use by EPA to assess adult lead exposure. Until the model is validated, the results should be viewed as uncertain. |

024816

# Chapter 11
# Ecological Risk Assessment

024817

# Chapter 11
# Ecological Risk Assessment

A screening level ecological risk assessment (ERA) as defined by EPA was conducted for the Operable Unit No. 3 (OU No. 3) environment to quantitatively determine the actual or potential effects to aquatic and terrestrial life onsite. The ERA was conducted as part of the remedial investigation process in order to evaluate if the chemicals of potential concern (COPCs) detected in surface water, sediment, and soil from the OU No. 3 sites pose a risk to the environment in the absence of remedial action. A summary of the ERA is provided in the following paragraphs. For a full description of the ERA, refer to the ERA report, provided under separate cover (EPA, 1995h).

OU No. 3 includes three sites that contain both aquatic and terrestrial habitat areas. In general, terrestrial habitats for all sites are disturbed in many areas by historical and/or ongoing human activity. The majority of the aquatic areas are intermittent and can be dry several months of every year. Many of the drainages are fed by stormwater runoff. To determine exposure and risk conditions to aquatic receptors, an evaluation of surface water and sediment COPC occurrence was conducted. Groundwater and storm sewer media were not evaluated because it was determined that aquatic receptors would be minimally exposed to these media. On-site surface water and sediment better represent the exposure media of concern for this evaluation.

A preliminary site investigation was conducted to determine occurring ecological receptor populations. It was noted that the predominant populations were comprised of opportunistic small mammals (i.e., house mice, deer mice and hispid cotton rats) and opportunistic aquatic species (fathead minnows, mosquito fish, crayfish). A quantitative assessment was conducted for the assessment of exposure and risk to these resident organisms. This approach entailed the evaluation of site exposure conditions by comparison of exposure point concentrations to literature-derived toxicity benchmark

values (for the terrestrial assessment) or ambient water quality criteria and sediment toxicity benchmarks (for the aquatic assessment). The derived upper 95 percent (UCL-L) confidence limit for the log-normal data distribution was used for the media exposure point concentration unless the value was greater than the observed maximum concentration. If the UCL-L was greater than the maximum concentration, then the maximum was used as the exposure point concentration. The use of a maximum or upper tendency limit was conducted in compliance with guidance (EPA, 1992) for screening level assessments.

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Inorganic COPCs initially were selected by comparison to regional background for sediment and soils. Because there were no appropriate background concentrations for surface water, this step was not used for surface water COPC determination. All detected organic COPCs (in all media) were retained for analysis within the ERA.

An evaluation of surface water and sediment exposure and risk to aquatic life was conducted. In addition, an evaluation of surface water and surface soil exposure and risk to terrestrial life was conducted. Exposure of aquatic and terrestrial receptors to groundwater and storm sewer media was not evaluated due to the high uncertainty of these exposure pathways. Site conditions indicate that surface water, sediment, and soil represent the media of concern and therefore, served as the focus of the assessments. For the determination of aquatic risk, the surface water and sediment exposure point concentration was compared directly to ambient water quality criteria and sediment toxicity benchmark values, respectively. Site-specific conditions of hardness were used to calculate water quality criteria for hardness-dependent metals. Site conditions of total organic carbon were used to calculate criteria for acenaphthene, fluoranthene and phenanthrene in sediment using EPA guidance techniques based upon the equilibrium coefficient approach. Both the acute and chronic ambient water quality criteria were used for comparison to COPC surface water concentrations to develop a range of hazard quotients within the risk characterizations. Similarly, a range of sediment hazard quotients also were used to bracket the range of risk attributable to aquatic life exposure.

An evaluation of surface water and surface soil exposure and risk to terrestrial life was conducted by comparison of the surface water exposure point concentrations to literature-derived wildlife benchmark values, and by comparison of a calculated exposure dose for ingested soil and contaminated food to diet benchmark values. An assessment for deer mice and a great blue heron was conducted. Observed surface water COPC and calculated diet concentrations were compared to literature-derived, no observed adverse effect levels (NOAELs) and lowest observed adverse effect levels (LOAEL) to determine risk.

024819

Risk was quantified using the hazard quotient method. If the resulting quotient was greater than 1, the analyte was considered to contribute to potential ecological risk. Results for the evaluation of COPC risk to aquatic and terrestrial life were as follows:

Site 1

- The presence of manganese in surface water is of concern due to the potential threat to aquatic life.
- The presence of lead in sediment is of concern due to potential threat to aquatic life.
- The presence of antimony, arsenic, and lead in soil is of concern due to the potential threat to deer mice.
- The presence of antimony, arsenic, lead, copper, and zinc in soil is of concern due to the potential threat to terrestrial plants.

Site 3

- The presence of lead and manganese in surface water is of concern due to the potential threat to aquatic life.

- The presence of lead in sediment is of concern due to its potential threat to aquatic life.

- The presence of arsenic and lead in soils are of concern due to their potential threat to deer mice, while the presence of lead is also of concern due to its potential threat to terrestrial plants.

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Site 4

- The presence of barium and manganese in surface water is of concern due to the potential threat to aquatic life.

- Lead and manganese in sediment are of concern due to the potential threat to aquatic life.

However, it should be noted that the assessment of risk to terrestrial organisms was highly conservative. Terrestrial animals in general receive the majority of their dietary water from food sources, not from water bodies. In addition, the majority of the drainages within OU No. 3 are intermittent, and would therefore create an exposure pathway only during precipitation events. In general, the possible risks to aquatic and terrestrial receptors are minimal. This ERA provides the methods and results of a screening level assessment. The literature-derived benchmarks provided are only preliminary values for the determination of possible risk. Development of ecological cleanup criteria was not conducted within this assessment. This assessment provides COPC exposure levels in order to determine possible cleanup criteria through the risk management process.

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# Chapter 12
# Summary of Findings

## Chapter 12

# Summary of Findings

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The data obtained during the RI field work conducted for OU No. 3 were used to describe the nature and extent of contamination by inorganics and organics associated with various environmental media within the boundaries of the three OU No. 3 sites. This chapter summarizes the results of this investigation (described in more detail in **Chapters 6, 7, and 8**) and associated fate and transport information related to the constituents of interest (described in more detail in **Chapter 9**), as well as risk information developed during the risk assessments for OU No. 3 (**Chapters 10 and 11**).

Based on results from previous sampling activities, combined with knowledge regarding the historical smelter facility operations, lead, arsenic, and cadmium were considered the major analytes of interest. Other constituents, such as volatile and semi-volatile organic compounds and pesticides, were included in the investigation to provide a basis for determination of overall contamination associated with historical activities at each site, particularly in terms of landfilling and/or surface disposal activities identified at each site. Data quality assurance procedures were followed to facilitate collection of precise, complete, comparable, and representative data (see **Section 5** for details).

The RI field work was conducted to evaluate the condition of the various environmental media at each site (in terms of the analytes described above), including stormwater runoff/sediment, surface water/sediment, surface and subsurface soil, and shallow groundwater. In designing this investigation, it was assumed that the investigation focus would be on determining the onsite nature and extent of contamination and assessing the potential for risk associated with exposure to onsite contamination; no offsite sampling was conducted.

**Tables 12-1, 12-2, and 12-3** provide summaries of the affected media associated with Sites 1, 3, and 4, respectively, of OU No. 3, including the mean and range of

concentrations of constituents analyzed as well as the frequency of detection of those constituents. The mean shown on these tables was calculated using one-half the quantitation limit for constituents not detected above the quantitation limits. The tables present the major conclusions of the RI relative to nature and extent of contamination, fate and transport, and risk assessment considerations at each site. The following sections summarize the general findings of the RI for each media sampled at each site. Qualifiers for data reported in this section are defined in **Appendix B-2**.

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## 12.1 General Findings

General findings of the RI include the following;

- On all three sites, slag and battery casing chips were observed to have been disposed of or dispersed over much of the ground surface. At a few subsurface boring locations on landfills at Sites 3 and 4, battery casing chips also were observed in the shallow subsurface (to a maximum depth of 12 feet bgs).

- In areas associated with battery chips and slag disposal, surface soil, shallow subsurface soil, and to a lesser extent sediment, exhibited elevated (higher than background) concentrations of lead and arsenic.

- Based on the nature and extent of contamination, risks associated with exposure to site-related contaminants were estimated. Risks estimated for Site 1 were higher (by as much as an order of magnitude or more) than those calculated for Sites 3 and 4. In all cases, the presence of arsenic contributed to the majority of the estimated risks, both cancer and non-cancer, and the soil ingestion pathway dominated the risk contribution compared to particulate inhalation or dermal contact exposures.

- Risks associated with childhood exposure to lead were greatest for current and future residents of Site 1. All three Sites exhibited soil-lead concentrations in discrete sample locations in excess of the adult-worker exposure threshold (2,000 mg/kg). However, on a Site-wide basis, each of the three sites exhibited a geometric mean soil-lead concentration less than 2,000 mg/kg.

- The ecological risk assessment noted the potential for risk to selected terrestrial and aquatic receptors due to the presence of elevated concentrations of inorganics; however, limited exposure potential due to dietary requirements and habitat constraints may indicate the risks are overestimated.

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## 12.2 Site 1

The RI investigations at Site 1 included collection of samples of stormwater runoff, surface water, sediment (in both surface water and a storm sewer structure), surface and subsurface soil, and groundwater. All samples were analyzed for TAL inorganics, and a select number were also analyzed for TCL organics and/or TCLP inorganics and organics. Soil samples, from both surface and subsurface locations, were field-screened using XRF analysis, with a subset submitted to a laboratory for the aforementioned analyses.

Site 1 is characterized by steep terrain and dense vegetation. The terrain is dictated by creek cuts through the Austin Chalk formation, with more resistant Austin Chalk remaining in several areas. The ground surface in this area is flat near Westmoreland Road, and drops off steeply toward the creek, which flows north through the approximate center of the site. Surface disposal of slag, battery casing chips, and other household municipal and construction debris apparently occurred, as evidenced by observation of

these materials over much of the ground surface within the partially fenced area on Site 1, from Westmoreland Road to the creek. North of this fenced area, in the northern portion of Site 1, is a large pile of construction debris mixed with slag.

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**Stormwater and Sediment.** Stormwater samples collected from two (2) storm sewer locations on Site 1 exhibited elevated levels of some inorganic constituents. The highest concentration of lead (410 $\mu$g/L), as well as the highest frequency of occurrence of both total and dissolved inorganics, was demonstrated by the stormwater sample collected from an inlet where stormwater runoff from Westmoreland Road enters Site 1. Lead and arsenic concentrations exhibited by the second sample, collected from an open concrete drainage channel within the fenced area on Site 1 (in which large pieces of slag were observed), were reported to be 32.7 $\mu$g/L and 61.1 $\mu$g/L, respectively. Only isolated organic compounds were detected, at low concentrations.

The analytical results for the sediment sample collected from the concrete drainage channel described above were consistent with those of the stormwater sample collected from the same location, although the sediment sample demonstrated a higher lead concentration (523 mg/kg). Arsenic was detected in this sample at 17.6 $\mu$g/L. Only a few organic compounds were detected, at low concentrations.

In addition to those for surface water and sediment, risks were calculated for exposure to stormwater and sediment in open structures (i.e., the open concrete drainage channel described above).

**Surface Water and Sediment.** Surface water was sampled at eleven (11) locations along the Site 1 creek, from just downstream of the storm sewer outfall at Fort Worth Avenue to the northern portion of the Site. These include two (2) surface seep locations along the eastern creek bank within the fenced area and a location on the drainage that flows east from the cement plant property adjacent to Site 1. Generally, the highest concentrations of total and dissolved inorganics (including total lead and total and dissolved arsenic) were exhibited by the samples collected from the seeps and from the

creek where slag was visible on the ground surface along the eastern bank. Concentrations of total lead and arsenic ranged from 18.5 $\mu$g/L to 318 $\mu$g/L and 27 $\mu$g/L to 187 $\mu$g/L, respectively. Lead concentrations generally decreased with distance downstream, and were at non-detectable levels downstream of the confluence of the cement plant drainage and the Site 1 creek. In addition to being detected in surface seep samples, however, total arsenic was detected at concentrations up to 37 $\mu$g/L in surface water samples collected from the cement plant drainage and from the Site 1 creek downstream of this drainage. Antimony was detected in these same samples at concentrations up to 13 $\mu$g/L. Only a few organic compounds were detected in the Site 1 surface water samples, at low concentrations.

As expected, sediment samples collected from the eleven (11) surface water sampling locations described above generally demonstrated higher concentrations of inorganics than the associated surface water samples. Lead was detected in nine (9) samples at concentrations ranging from 16 mg/kg to 3,940 mg/kg, and arsenic was detected in ten (10) samples at concentrations ranging from 7.1 mg/kg to 224 mg/kg. The highest concentrations of lead and arsenic were exhibited by samples collected from locations at and near the seeps on the eastern bank of the creek. Several organic constituents, including chrysene (13 mg/kg) and Aroclor-1260 (0.029 mg/kg), were detected at relatively low concentrations, primarily at the seep locations.

Risks estimated for current and future trespassers (children and adults) indicate the excess lifetime cancer risks associated with exposure to surface water and/or sediment (and stormwater/sediment in open structures) fall into the $10^{-5}$ to $10^{-6}$ range based on incidental ingestion and dermal contact exposures. The hazard indices for these pathways are all less than one.

**Surface Soil, Soil Vapor, and Subsurface Soil.** Surface soil samples were collected from sample grids established within the partially fenced area on Site 1 and from several locations around the construction debris/slag pile in the northern portion of the site. Lead and arsenic were detected in all twenty-nine (29) surface soil samples collected for



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laboratory TAL inorganics analysis, at concentrations ranging from 1 mg/kg to 105,000 mg/kg and from 10 mg/kg to 7,980 mg/kg, respectively. Cadmium was detected in seventeen (17) samples at concentrations between 0.5 mg/kg and 637 mg/kg. The highest concentrations of most TAL inorganics were detected in samples collected from locations where slag is present over much of the nearby ground surface. With a few exceptions, the concentrations of these constituents in samples collected from outside slag areas were lower by an order of magnitude of more. One (1) soil sample submitted for TCLP analysis demonstrated concentrations of lead (364 mg/L) and cadmium (2.36 mg/L) above corresponding toxicity characteristic levels for hazardous waste of 5 mg/L and 1 mg/L, respectively (**40 CFR §261.24**).

Of the four (4) soil vapor samples collected using direct push methods (to evaluate explosion hazards associated with drilling activities on Site 1), methane was detected in two (2) samples at concentrations of 16.9 ppm (6 feet bgs) and 29.8 ppm (2 feet bgs). These results did not affect subsequent subsurface drilling activities on Site 1.

Five (5) subsurface soil samples were collected from soil borings located in the southern portion of Site 1; this was the only area conducive to soil boring using auger drilling methods due to the shallow depth to bedrock over much of the rest of the site. Lead, arsenic, and cadmium concentrations exhibited by the three (3) samples collected from soil cores (0 to 2 feet bgs) were as high as 6,540 mg/kg, 309 mg/kg, and 17.7 mg/kg, respectively, and as high as 26.1 mg/kg, 13.7 mg/kg, and 0.31 mg/kg in the two (2) samples collected from soil cores collected from greater depths (11 and 22 feet bgs), which indicates that shallow contamination has not migrated a significant distance within the soil column.

Results of the baseline risk assessment for surface and subsurface soils generally indicate the following:

- The additive estimated excess lifetime cancer risks for both current and future child and adult residents related to soil ingestion, inhalation of



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fugitive dust, and dermal contact fall within the $10^{-3}$ to $10^{-4}$ range. The hazard indices for the current and future child resident and the future adult all exceeded one. The hazard index for the current adult was less than one.

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- The additive estimated excess lifetime cancer risks for both current and future trespassers (children and adults) from soil ingestion, inhalation of fugitive dust, and dermal contact fall within the $10^{-4}$ range. The hazard indices for the current and future child and adult trespassers all exceed one.

- For current and future workers at Site 1, the additive estimated excess lifetime cancer risks related to soil ingestion, inhalation of fugitive dust, and dermal contact with soil fall within the $10^{-4}$ range. The hazard indices for both the current and future worker exposure pathways all exceed one.

The soil ingestion pathway risks tend to be two to three orders of magnitude higher than the inhalation risks and five to six orders of magnitude higher than the dermal contact risks. The estimated excess lifetime cancer risks are dominated by the arsenic contribution. The soil ingestion hazard index shows that arsenic and antimony are the primary contributors to the potential for adverse non-cancer health effects.

In addition, results of the IEUBK model indicate that under current or future use conditions, exposure to lead in soil yields a predicted blood-lead distribution where more than 5 percent of the exposed population of children ages zero to 7 years could exhibit a blood-lead concentration greater than 10 $\mu$g/dL.

For worker exposure to lead in soil, eleven (11) surface soil sample locations and two (2) subsurface soil sample locations exhibit lead concentrations exceeding 2,000 mg/kg. The geometric mean soil-lead concentration for Site 1, however, does not exceed 2,000 mg/kg.

**Groundwater.** Groundwater was encountered in weathered Austin Chalk at only two (2) subsurface boring locations within the partially fenced area on Site 1. Lead and arsenic were detected in groundwater samples from monitoring wells at both locations, at concentrations less than 6 $\mu$g/L and 4 $\mu$g/L, respectively.

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## 12.3 Site 3

The RI investigations at Site 3 included collection of samples of surface water, sediment, surface and subsurface soil, and groundwater. All samples were analyzed for TAL inorganics, and a select number were also analyzed for TCL organics and/or TCLP inorganics and organics. Soil samples, from both surface and subsurface locations, were field-screened using XRF analysis, with a subset submitted to a laboratory for the aforementioned analyses.

Site 3 is the location of three (3) former City of Dallas municipal landfills (identified, from north to south, as the Dahlstrom, TXI, and West Davis Landfills). The site is characterized by flat to gently rolling terrain and fairly dense, opportunistic-type vegetation. The ground surface over the former landfills is slightly raised, and each landfill cell is bounded, in general, to the west, north, and south by surface water drainage channels. Battery casings and battery casing chips are present on the ground surface around the perimeter of the southernmost landfill cell (the southern cell of the West Davis Landfill), and battery casing chips are present over much of the ground surface in the eastern portion of the TXI Landfill, the southern portions of the northern and southern cells of the West Davis Landfill, and a small area east of the West Davis Landfill. Apparently uncontrolled surface dumping of construction and municipal debris over accessible portions of these landfill areas continues today. Access to some areas of Site 3 is restricted.

**Stormwater and Sediment.** Two (2) potential sampling locations (a storm sewer inlet at the intersection of Loop 12 and Davis Street, and a manhole for a sanitary sewer line that bisects the northern cell of the West Davis Landfill) were identified on Site 3, but could not be sampled due to lack of sample media and difficulty in accessing the structure, respectively.

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**Surface Water and Sediment.** Twenty (20) surface water samples were collected from several drainages which bound the landfill cells on Site 3: Mountain Creek, which flows north along the west side of Site 3 from Davis Street; a drainage originating at the storm sewer outfall at the southeastern corner of Site 3, which flows northwest and splits into two branches that each flow west to Mountain Creek (separating the three (3) southernmost landfill cells); a drainage originating at a seep located on the west side of the TXI landfill which flows west into Mountain Creek; and a drainage originating offsite, northeast of Site 3, which flows west along the north side of the site into Mountain Creek. Surface water samples also were collected from three (3) ponds on the TXI Landfill, and five (5) surface seeps.

Total lead was detected in seventeen (17) Site 3 surface water samples at concentrations up to 1,700 $\mu$g/L. Total arsenic was detected in three (3) samples at concentrations up to 47.1 $\mu$g/L. Dissolved lead and arsenic also were detected in five (5) and thirteen (13) samples at concentrations up to 21.9 $\mu$g/L and 185 $\mu$g/L, respectively (the few observed instances where a dissolved inorganic constituent concentration exceeds the associated total inorganic constituent concentration can be attributed to the sample collection method (different sample aliquots for different analyses), and expected variation in laboratory analytical results. Several organic constituents were detected in these samples at relatively low concentrations. The highest concentrations of nearly all detected inorganic constituents were exhibited by the surface water samples collected from the drainage that flows between the TXI Landfill and the northern cell of the West Davis Landfill. Elevated lead concentrations also were exhibited by other surface water samples, at the seep originating from the west side of the TXI Landfill, locations downstream of this seep, and at the eastern pond on the TXI Landfill.

Lead and arsenic were detected in nearly all twenty-one (21) sediment samples collected from the Site 3 surface water sampling locations at concentrations up to 2,100 mg/kg and 55.8 mg/kg, respectively. The Site 3 sediment samples that generally exhibited the highest concentrations of lead and arsenic were collected from the drainage that flows between the TXI Landfill and the northern cell of the West Davis Landfill. Two (2) samples collected from surface seep locations in the southern portion of the site exhibited relatively low concentrations of several organic constituents.

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Although there is no apparent geographic pattern to the distribution of lead and arsenic concentrations in surface water and sediment on Site 3, the reported levels of inorganics may be attributed to surface water runoff from localized areas of contamination on landfill surfaces or offsite property (i.e., Johnson Road adjacent to the TXI Landfill).

For current and future child and adult trespassers exposed to sediments in the drainages that traverse Site 3, the additive estimated excess lifetime cancer risks associated with ingestion and dermal contact fall within the $10^{-6}$ range. Comparable risks related to dermal contact with surface water are estimated to be in the $10^{-7}$ to $10^{-8}$ range. None of the hazard indices estimated to assess the non-cancer effects associated with exposure to surface water or sediments exceeded one.

**Surface Soil, Soil Vapor, and Subsurface Soil.** Surface soil samples were collected from sample grids established over the ground surface of each landfill area (with the exception of the Dahlstrom Landfill, which has been graded and surfaced, and is now the site of an auto salvage yard and a trucking company). Lead and arsenic concentrations of all sixty-four (64) samples (which ranged from 16.5 mg/kg to 71,500 mg/kg and from 5.75 mg/kg to 127 mg/kg, respectively) were highest in the samples collected from the area east of the northern cell of the West Davis Landfill and from the perimeter of the southern cell of the West Davis Landfill. The high concentrations appear to be coincident with the presence of battery casings and battery casing chips over much of the ground surface. Concentrations of lead and arsenic exhibited by surface soil samples collected from other Site 3 areas, including the background area east of the West Davis

Landfill, generally were lower by an order of magnitude or more. Of the three (3) samples analyzed for TCL organics, one (1) exhibited a pesticide compound (Aroclor-1254) at a concentration of 0.28 mg/kg. Of the seven (7) inorganic constituents detected in one or more of the nine (9) samples analyzed for TCLP, lead was detected in the two (2) samples collected from the West Davis Landfill at concentrations of 9.2 mg/L and 100 mg/L, both of which exceed the 5 mg/L regulatory limit that defines a hazardous waste by the characteristic of toxicity.

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Of the ten (10) soil vapor samples collected via direct push methods (to evaluate explosion hazards associated with drilling activities on Site 3), chlorobenzene, methane, and vinyl chloride were detected in three (3), nine (9), and four (4) samples, respectively, most of which were collected from depths were landfill material was encountered. The maximum exhibited concentrations of these compounds were 6,700 ppm chlorobenzene, 232,000 ppm methane, and 5,000 ppm vinyl chloride. These results of these analyses prohibited subsequent subsurface activities from being conducted at proposed drilling locations directly east and south of the Dahlstrom Landfill.

From the thirty-seven (37) soil borings advanced on Site 3, twenty-four (24) subsurface soil samples were collected from various depths for laboratory analyses. In general, the detected concentrations of inorganics in subsurface soil samples collected from soil cores from depths less than 3 feet bgs were slightly higher than those exhibited by samples collected from soil cores from depths greater than 3 feet bgs. However, subsurface soil samples collected from any depth in proximity to an interval where battery casing chips or other potentially contaminated landfill debris were encountered exhibited elevated concentrations of lead and arsenic. The range of lead concentrations exhibited by Site 3 subsurface soil samples was 7 mg/kg to 302 mg/kg (in cores from 0 to 3 feet bgs) and up to 82.6 mg/kg (3 to 67 feet bgs). Arsenic was detected at concentrations up to 21.5 mg/kg in samples collected from cores from 0 to 3 feet bgs, and up to 9.7 mg/kg in samples collected from depths greater than 3 feet bgs. Cadmium was detected in nine (9) samples at concentrations up to only 1.3 mg/kg. Overall, elevated concentrations of inorganics on Site 3 do not appear to be associated with a particular area, but rather with

locations and depths where landfill debris (battery casing chips in particular) were observed to exist in the subsurface.

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Several organic compounds were detected at low concentrations in thirteen (13) of the twenty-one (21) subsurface soil samples analyzed for TCL organics, with the most detections being exhibited by a sample collected from 7 to 9 feet bgs at a boring location where landfill debris was encountered to a depth of approximately 40 feet bgs. The nine (9) samples analyzed for TCLP exhibited seven (7) inorganic constituents; the concentrations of TCLP lead in four (4) of these samples, collected from depths between 0 and 12 feet bgs, ranged from 20.5 mg/L to 44.1 mg/L, all of which exceed the 5.0 mg/L level above which waste materials are classified as hazardous by the characteristic of toxicity.

Results of the baseline risk assessment generally indicate the following:

- For current and future child and adult trespassers, the additive estimated excess lifetime cancer risks related to soil ingestion, inhalation of fugitive dust, and dermal contact fall within the $10^{-6}$ range. All of the hazard indices associated with the current and future child and adult trespasser exposure to soil are less than one.

- For current workers, the additive estimated excess lifetime cancer risk related to soil ingestion, inhalation of fugitive dust, and dermal contact range from $10^{-6}$ to $10^{-7}$ for the RME and typical exposure setting. For future workers at Site 3, the comparable risks are about $10^{-5}$ to $10^{-6}$. The hazard indices for both current and future worker exposure are all less than one.

Like Site 1, the highest estimated risks associated with exposures assumed to occur on Site 3 are due to the presence of arsenic.

**Groundwater.** Analytical data obtained from nine (9) groundwater samples collected using direct push methods during the soil investigation were used as a screening tool for the subsequent groundwater investigation. Lead, arsenic, and cadmium were detected in these samples at concentrations up to 25,600 $\mu$g/L, 365 $\mu$g/L, and 81.1 $\mu$g/L, respectively. Significant concentrations of antimony, beryllium, chromium, and nickel were demonstrated by one or more of these samples as well. Several organic analytes (including several benzene compounds) were detected at concentrations up to 110 $\mu$g/L. As expected, the higher frequency of organic compound detections and the higher concentrations of organic compounds generally were exhibited by samples collected from shallow water-bearing zones in landfill debris, and high lead concentrations were exhibited by samples collected from shallow landfill debris zones containing battery casing chips.

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Eighteen (18) groundwater monitoring wells were installed on Site 3. Eight (8) of these wells were screened in shallow, discontinuous, water-bearing zones in landfill material, at total depths between 9 and 40.5 feet bgs. The remaining ten (10) monitoring wells were screened in a water-bearing alluvial sand and gravel unit which is believed to be nearly continuous across most of the site, at total depths ranging from 15 to 72 feet bgs. Groundwater samples were collected in all except three (3) of these wells, which did not recharge sufficiently after development and purging.

Total lead and arsenic were detected in all seven (7) groundwater samples collected from wells screened in the water-bearing landfill debris zones at concentrations ranging from 8.2 $\mu$g/L to 20,700 $\mu$g/L and from 7.5 $\mu$g/L to 107 $\mu$g/L, respectively; total cadmium was detected in four (4) samples at concentrations up to 29.5 $\mu$g/L. Dissolved lead was detected in one (1) sample at 2.9 $\mu$g/L, and dissolved arsenic in five (5) samples at concentrations up to 11.4 $\mu$g/L. Seventeen (17) TCL organic analytes were detected in one or more of the seven (7) groundwater samples collected from the wells screened in the water-bearing landfill debris zones at concentrations up to 79 $\mu$g/L (4-methylphenol). The high concentrations of organic analytes and inorganic constituents in several Site 3 groundwater samples (including lead, arsenic, and cadmium, and antimony and chromium

in a few samples) may be attributed to general disposal of waste materials, including battery casings and battery casing chips (which were observed in several Site 3 soil core samples at depths up to 8 feet bgs), in the Site 3 landfills.

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Total lead was detected in all six (6) of the eight (8) groundwater samples collected from wells screened in the water-bearing alluvial zone at concentrations ranging from 6.1 $\mu$g/L to 31.6 $\mu$g/L. Total arsenic was detected in seven (7) of these samples at concentrations ranging from 3.1 $\mu$g/L to 18.3 $\mu$g/L, and total cadmium was detected in four (4) samples at concentrations between 3.1 $\mu$g/L and 45.1 $\mu$g/L. Dissolved arsenic was detected in three (3) samples at concentrations up to 6.0 $\mu$g/L, and dissolved cadmium in two (2) samples at concentrations up to 26 $\mu$g/L. The frequency of detection and detected concentrations of several total and dissolved inorganic constituents, including lead, arsenic, and cadmium, in groundwater samples collected from these wells generally were significantly lower than groundwater sampled from wells in the water-bearing landfill debris zones. Only four (4) organic analytes were detected in one or more of four (4) groundwater samples collected from wells screened in the water-bearing alluvial zone, at concentrations up to 49 $\mu$g/L (1,2-dichloroethene). The moderately elevated concentrations of two (2) volatile organic compounds (exhibited by the sample from 3B-S003) and lead (exhibited by samples from 3B-S003, 3C-S117, and 3K-S016) may be attributed to migration of these constituents from nearby landfill debris zones (which contain battery casing chips) to the relatively shallow alluvial zones in which the wells are installed.

Overall, the sample results indicate no apparent geographic pattern to the distribution of organic and inorganic constituent concentrations in Site 3 shallow groundwater. The relatively high concentrations exhibited by groundwater from isolated wells across the site may be indicative of the composition of the subsurface material in which the well is screened, or an interval close to the screened interval (i.e., one that contains battery casing chips). The groundwater in alluvial sand and gravel above the Eagle Ford Shale appears to have been affected only minimally by contamination from shallower water-bearing landfill debris zones.

Risks related to groundwater exposure were not evaluated because ingestion, inhalation or dermal contact with groundwater are considered to be incomplete pathways.

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## 12.4 Site 4

The RI activities at Site 4 included sampling stormwater, surface water, sediment (from both storm sewers and surface water bodies), surface and subsurface soil, and groundwater. All water and sediment samples were analyzed for TAL inorganics, and a selected subset of these samples also were analyzed for TCL organics and/or TCLP organics and inorganics (sediment only). All surface and subsurface soil samples were analyzed in the field for inorganics using XRF methods, and a selected subset of these samples was submitted for TAL inorganics analysis; a few soil samples also were submitted for TCL organics and TCLP analyses. Groundwater samples were submitted for TAL inorganics analysis, as well as TCL organics on a few select samples.

Site 4 is the location of four (4) former City of Dallas municipal landfills. The property comprising the three (3) contiguous landfills (West Dallas, Nomas, and Vilbig), located along the south side of the Trinity River, is characterized by flat to gently rolling terrain and opportunistic vegetation. The ground surface over the former landfills is slightly raised, and the property is bounded by surface water drainage channels to the southwest, west, north, and northeast. Battery casing chips and slag were observed over much of the ground surface in the central and western portions of the site (West Dallas Landfill, and the western portion of the Nomas Landfill). Apparently uncontrolled surface dumping of construction, household, and municipal debris over three of the landfill areas continues today, because access to this site is not entirely restricted. The property comprising the former Jaycee Park Landfill, located approximately 1/2 mile south of the other landfills, is now Jaycee Zaragoza Park. This area is flat, sodded, and bounded by a school to the north, residential property to the east and west, and commercial businesses to the south.

In addition to those for surface water and sediment, risks were calculated for exposure to stormwater and sediment in open structures (i.e., an open concrete drainage on Jaycee Zaragoza Park).

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**Stormwater and Sediment.** Water samples collected from six (6) storm sewer structures on Site 4 exhibit relatively elevated levels of several inorganic constituents, including lead, which was detected in these samples at concentrations up to 3,720 $\mu$g/L. Stormwater sampled from the inlet structure located near the corner of Iroquois and Gallagher Streets on the eastern perimeter of the Vilbig Landfill on Site 4 exhibited the highest frequency of occurrence of total and dissolved inorganics, including total lead, arsenic, and cadmium (3,720 $\mu$g/L, 105 $\mu$g/L, and 13.3 $\mu$g/L, respectively), and dissolved lead and arsenic (4.8 $\mu$g/L and 45.2 $\mu$g/L, respectively). This inlet receives runoff from the adjacent roads and the Vilbig Landfill ground surface (where apparently uncontrolled surface dumping of household municipal and construction waste has occurred). A few organic constituents were detected in these samples at relatively low concentrations (up to 13 $\mu$g/L methylene chloride).

The analytical results for the two (2) sediment samples collected from the two structures off Iroquois Street indicated relatively high levels of lead (211 mg/kg and 4,220 mg/kg), in addition to detections of arsenic (up to 7.8 mg/kg), cadmium (0.73 mg/kg), and detections of several constituents at relatively low concentrations.

**Surface Water and Sediment.** Seven (7) surface water samples were collected from two (2) drainages which bound Site 4: the Old Channel of the West Fork of the Trinity River flows north (along the west side of Site 4) from Singleton Boulevard, and joins a drainage channel which flows east along the south side of the Trinity River Levee (along the north side of Site 4). Total lead was detected in five (5) samples at concentrations ranging from 3.7 $\mu$g/L to 8.2 $\mu$g/L. Dissolved lead, and total and dissolved arsenic, were detected in nearly all Site 4 surface water samples at concentrations up to 6 $\mu$g/L, 181 $\mu$g/L, and 140 $\mu$g/L, respectively. Several organic constituents were detected in these samples at concentrations up to 9 $\mu$g/L (methylene chloride).

Lead was detected in four (4) of the seven (7) sediment samples collected from Site 4 at concentrations ranging from 41.7 mg/kg to 265 mg/kg, arsenic was detected in three (3) samples at concentrations ranging from 7 mg/kg to 19.2 mg/kg, and cadmium was detected in one (1) sample at 4.6 mg/kg. Several organic compounds were detected at concentrations up to 3.7 (pyrene). In general, the sediment samples collected from the levee drainage channel generally exhibited higher concentrations of inorganic constituents (including lead, arsenic, and cadmium) than the samples collected than from the Old Channel of the Trinity River. This may be attributed to runoff from an area of the landfill where battery casing chips are present, or from other offsite sources.

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Although there is no apparent geographic pattern to the distribution of lead and arsenic concentrations in surface water and sediment on Site 4, the reported levels of lead and other inorganics detected in certain samples (particularly the sample from 4F-A003, located near the northwest corner of Site 4) may be attributed to surface water runoff from landfill surfaces, groundwater recharge from subsurface landfill debris zones, or from adjacent offsite property (i.e., Loop 12).

Results of the baseline risk assessment for exposure to surface water and sediment in the portion of Site 4 exclusive of Jaycee Zaragoza Park, indicate that for the current and future child and adult trespassers, the additive estimated excess lifetime cancer risks related to sediment ingestion and dermal contact, and dermal contact with surface water, all fall within the $10^{-6}$ to $10^{-7}$ range. None of the hazard indices associated with these pathways exceeded one.

For the current and future child trespasser exposed to surface water in open storm sewers within the Jaycee Zaragoza Park exposure area, the estimated excess lifetime cancer risk associated with dermal contact falls in the $10^{-8}$ to $10^{-9}$ range. None of the hazard indices exceed one.

**Surface Soil, Soil Vapor, and Subsurface Soil.** Surface soil samples were collected from sample grids established over the ground surface of each Site 4 landfill area. The

eighty (80) Site 4 surface soil samples exhibited elevated levels of several inorganics, which appear to be highest in the vicinity of the West Dallas Landfill. Lead and arsenic were detected in all to nearly all surface soil samples at concentrations ranging from 9.1 mg/kg to 6,390 mg/kg, and up to 186 mg/kg, respectively. Cadmium was detected in forty-nine (49) of these samples at concentrations up to 8.7 mg/kg. The higher concentrations of these constituents appear to coincide with the presence of battery casing chips on the ground surface in this area. Inorganic constituent concentrations exhibited by samples collected from other areas of Site 4, including the background area north of the three (3) contiguous landfills, generally were lower by an order of magnitude or more. Six (6) organic compounds were detected in the sample collected for TCL organics analysis at concentrations up to 0.35 mg/kg (bis(2-ethylhexyl)phthalate).

024839

Methane concentrations in the two (2) soil vapor samples collected using direct push methods (to evaluate explosion hazards during drilling activities on Site 4) were 2.3 ppm (10 feet bgs) and 1.9 ppm (20 feet bgs). Due to these results and to a lack of significant readings obtained by continuous air monitoring during subsurface activities, it was determined that additional soil vapor sampling at Site 4 was unnecessary.

From the thirty-three (33) soil borings advanced on Site 4, subsurface soil samples were collected from various depths. In general, the detected concentrations of inorganics were reported higher in the shallower soil samples. Lead, arsenic, and cadmium were detected at concentrations up to 11,500 mg/kg, 114 mg/kg, and 15.1 mg/kg, respectively, in samples collected from cores from 0 to 3 feet bgs, and up to 2,060 mg/kg, 58.5 mg/kg, and 4.8 mg/kg in samples collected from depths below 3 feet bgs. The concentrations of inorganic constituents reported for shallow subsurface samples (from cores from 0 to 3 feet bgs) generally were higher within the areas of the West Dallas Landfill and the western portion of the Nomas Landfill, both of which are characterized by the presence of battery chips over much of the ground surface. Higher concentrations were exhibited by deeper subsurface soil samples only in instances where landfill debris (usually containing battery casing chips) was encountered in the subsurface. Concentrations of lead and arsenic in subsurface soil collected in other Site 4 areas, including the Jaycee

Park Landfill (which is considered a background area) generally were lower than those described above by an order of magnitude or more. Several organic compounds were detected at concentrations up to 0.33 mg/kg (di-n-butylphthalate) in one or more the fifteen (15) surface soil samples analyzed for TCL organics. The four (4) samples analyzed for TCLP exhibited six (6) inorganic constituents, including lead, which was detected in one (1) of these samples (from a boring location where battery casing chips were encountered to a depth of 3 feet bgs) at 5.87 mg/L. The level above which waste materials are classified as hazardous by the characteristic of toxicity is 5.0 mg/L.

024840

The estimated excess lifetime cancer risks and hazard indices related to areas on Site 4 exclusive of the Jaycee Zaragoza Park, which was evaluated as a separate and unique exposure area, generally indicate the following:

- For the current and future child and adult trespasser within the defined exposure area, the additive estimated excess lifetime cancer risks associated with soil ingestion, inhalation of fugitive dust, and dermal contact fall within the $10^{-6}$ range. None of the hazard indices for this scenario exceeded one.

- For future workers in the defined exposure area, the additive estimated excess lifetime cancer risk due to soil ingestion, inhalation of fugitive dust, and dermal contact fall within the $10^{-5}$ to $10^{-6}$ range (RME and typical, respectively). The corresponding hazard indices are less than one.

As for Sites 1 and 3, arsenic is the primary contributor to risk within the contiguous landfill area of Site 4. However, organic compounds including PCBs, benzo(b)fluoranthene, benzo(a)pyrene and dibenz(a,h)anthracene contribute to the dermal risk estimates for soil exposure.

The estimated excess lifetime cancer risks and hazard indices associated with exposure to COPCs identified at the Jaycee Zaragoza Park generally indicate the following:

- For the current adult and child residents, the additive estimated excess lifetime cancer risks associated with soil ingestion and inhalation of fugitive dust fall within the $10^{-5}$ to $10^{-6}$ range (RME and typical). The hazard indices for current resident children exposed to soil exceed one; the hazard indices for the current adult residents are less than one. Arsenic and antimony in surface soil are the primary contributors leading to the hazard index greater than one for the current resident child.

024841

Results of the IEUBK model indicate, that for the current and future residents of the Jaycee Zaragoza Park area the results of the IEUBK model indicate a geometric mean blood-Pb concentration of 4.0 $\mu$g/dL with less than five percent of the population expected to exhibit a blood-Pb concentration greater than 10 $\mu$g/dL.

Relative to adult worker exposure to soil-lead, in Site 4, five (5) surface soil and four (4) subsurface soil sample locations exhibit lead concentrations greater than 2,000 mg/kg. The geometric mean soil-lead concentration for soil at Site 4 is less than 2,000 mg/kg.

**Groundwater.** Thirteen (13) monitoring wells were installed on Site 4 and screened in water-bearing, coarse-grained alluvial material/landfill debris overlying the Eagle Ford Shale, to depths between 12 and 26 feet bgs. Groundwater samples collected from these wells exhibited total lead concentrations ranging from 7.6 $\mu$g/L to 2,010 $\mu$g/L. Total arsenic was detected in twelve (12) samples at concentrations up to 142 $\mu$g/L, and total cadmium was detected in one (1) sample at a concentration of 3.4 $\mu$g/L. Although dissolved lead and cadmium were not detected in any of these samples, dissolved arsenic was detected in ten (10) samples at concentrations up to 21.5 $\mu$g/L. Several TCL organic compounds were detected in nearly all of the Site 4 groundwater samples, particularly benzene and chlorobenzene, which were detected at concentrations up to 25 $\mu$g/L and 300 $\mu$g/L, respectively.

In general, the Site 4 groundwater data indicate no apparent geographic pattern to the distribution of organic and inorganic constituent concentrations in Site 4 shallow

groundwater. The relatively high concentrations exhibited by groundwater from isolated wells across the site may be indicative of the composition of the subsurface material in which the well is screened, or an interval close to the screened interval (i.e., one that contains battery casing chips).

024842

Risks related to groundwater exposure were not evaluated, because ingestion, inhalation, or dermal contact with groundwater are considered to be incomplete pathways.

**Table 12-1**
**Summary of Affected Media**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Stormwater - Total inorganics and organics summary | Aluminum | 8.631 | ND-17.100 | 1/2 | Site 1 is characterized by steep terrain, and a creek which flows north through the site, bisecting it into east and west sides. This creek is recharged by surface water and stormwater runoff, and groundwater. Stormwater runoff samples were collected from two (2) of the storm sewer structures on Site 1 to evaluate the nature and extent of affected stormwater, both entering and within the site. The highest lead concentration, in addition to the highest frequency of occurrence of many total and dissolved inorganic constituents, was exhibited by the sample collected from a storm sewer inlet structure on Westmoreland Road, where stormwater enters the site. A few organic analytes were detected in both samples at low concentrations. Analytical results indicate that these constituents may be originating from runoff from roads adjacent to the Site, as well as in runoff from an onsite drainage channel, which contains slag.<br><br>Stormwater runoff is a potential transport medium for Site 1 surface soil and sediments, as well as offsite runoff, although the concentrations of dissolved inorganics observed in the onsite sample were relatively low. Inorganics are likely entrained within stormwater runoff as suspended solids, transferred some distance downgradient, and redeposited as sediment in areas where stormwater has a tendency to collect.<br><br>Risks associated with exposure to stormwater runoff in open structures are described for surface water and sediment below. |
| | Antimony | 0.031 | 0.017-0.044 | 2/2 | |
| | Arsenic | 0.035 | 0.010-0.061 | 2/2 | |
| | Barium | 0.180 | 0.078-0.282 | 2/2 | |
| | Beryllium | 0.001 | ND-0.002 | 1/2 | |
| | Cadmium | 0.003 | ND-0.004 | 1/2 | |
| | Calcium | 130.000 | 109.000-151.000 | 2/2 | |
| | Chromium | 0.021 | ND-0.039 | 1/2 | |
| | Cobalt | 0.004 | ND-0.008 | 1/2 | |
| | Copper | 0.096 | ND-0.181 | 1/2 | |
| | Iron | 9.328 | 0.356-18.300 | 2/2 | |
| | Lead | 0.221 | 0.033-0.410 | 2/2 | |
| | Magnesium | 3.880 | 2.520-5.240 | 2/2 | |
| | Manganese | 0.310 | 0.091-0.528 | 2/2 | |
| | Mercury | 0.0002 | ND-0.0003 | 1/2 | |
| | Nickel | 0.020 | ND-0.036 | 1/2 | |
| | Potassium | 7.795 | 3.090-12.500 | 2/2 | |
| | Selenium | 0.003 | ND-0.004 | 1/2 | |
| | Silver | ND | ND | 0/2 | |
| | Sodium | 15.550 | 15.200-15.900 | 2/2 | |
| | Thallium | 0.005 | ND-0.009 | 1/2 | |
| | Vanadium | 0.027 | 0.002-0.051 | 2/2 | |
| | Zinc | 0.421 | 0.057-0.785 | 2/2 | |
| | TCL Volatiles | 0.005 | ND-0.022 | 2/66 | |
| | TCL Semi-Volatiles | 0.031 | ND-0.043 | 7/128 | |
| | TCL Pesticides/PCBs | 0.0004 | ND-0.0001 | 10/56 | |

Table 12-1
Summary of Affected Media
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Storm Sewer Sediment - Total inorganics and organics summary | Aluminum | 3,360.0 | 3,360.0 | 1/1 | The sediment sample collected from one (1) of the Site 1 stormwater sample locations (an open concrete drainage channel located on the east side of the creek) exhibited a lead concentration of 523 mg/kg (higher than the lead concentration of the corresponding stormwater sample). The inorganic analytical results indicate that site-related contaminants may have been transported via surface water runoff over slag on the ground surface to this stormwater structure, which is transporting these constituents to surface water in the creek.<br><br>Sediments likely represent a continuous source for migration of constituents via re-entrainment in stormwater runoff, although due to the physical characteristics of the site, significant offsite migration is unlikely. Re-suspension of exposed, surficial sediment as fugitive dust also could occur due to high winds or inadvertent human activities, but the dense onsite vegetation limits access and exposure of sediments, and the fugitive dust pathway is, therefore, considered of minor importance under current conditions.<br><br>Risks associated with exposure to stormwater sediment in open structures are described for surface water and sediment below. |
| | Antimony | 5.9 | 5.9 | 1/1 | |
| | Arsenic | 17.6 | 17.6 | 1/1 | |
| | Barium | 55.0 | 55.0 | 1/1 | |
| | Beryllium | 0.4 | 0.4 | 1/1 | |
| | Cadmium | 0.7 | 0.7 | 1/1 | |
| | Calcium | 326,000.0 | 326,000.0 | 1/1 | |
| | Chromium | 75.2 | 75.2 | 1/1 | |
| | Cobalt | 4.2 | 4.2 | 1/1 | |
| | Copper | 61.8 | 61.8 | 1/1 | |
| | Iron | 11,700.0 | 11,700.0 | 1/1 | |
| | Lead | 523.0 | 523.0 | 1/1 | |
| | Magnesium | 2,990.0 | 2,990.0 | 1/1 | |
| | Manganese | 814.0 | 814.0 | 1/1 | |
| | Mercury | ND | ND | 0/1 | |
| | Nickel | 15.2 | 15.2 | 1/1 | |
| | Potassium | 771.0 | 771.0 | 1/1 | |
| | Selenium | ND | ND | 0/1 | |
| | Silver | ND | ND | 0/1 | |
| | Sodium | 950.0 | 950.0 | 1/1 | |
| | Thallium | ND | ND | 0/1 | |
| | Vanadium | 14.7 | 14.7 | 1/1 | |
| | Zinc | 141.0 | 141.0 | 1/1 | |
| | TCL Volatiles | 0.006 | ND-0.009 | 4/33 | |
| | TCL Semi-Volatiles | 0.243 | ND-2.000 | 13/64 | |
| | TCL Pesticides/PCBs | 0.010 | ND-0.002 | 7/28 | |

024844

**Table 12-1**
**Summary of Affected Media**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Surface Water - Total inorganics and organics summary | Aluminum | 1.046 | ND-4.810 | 7/11 | Eleven (11) surface water samples were collected from locations along the creek that flows north through Site 1, from surface seeps along the creek bank, and from another onsite drainage which flows east to the main creek from the property adjacent to Site 1. The samples were analyzed to evaluate the nature and extent of affected surface water on Site 1. Generally, the highest concentrations of total and dissolved inorganics. Total lead, total arsenic, and dissolved arsenic were detected in these samples at concentrations up to 318 µg/L, 187 µg/L, and 72.6 µg/L, respectively. Generally, the highest concentrations of most detected inorganic constituents were exhibited by samples collected from the seeps and from the creek near areas of surface slag disposal. With distance downstream of these locations, total lead concentrations decreased to non-detectable levels. Arsenic concentrations also decreased with distance downstream, and then increased (to concentrations up to 37 µg/L) beyond the confluence of the main creek with drainage flowing onsite from the western adjacent property. Only a few organic analytes were detected in these samples, at low concentrations.<br><br>Surface water appears to be a potential transport medium from affected Site 1 surface soil and sediments and affected stormwater runoff. Inorganics are likely entrained within surface water runoff as suspended solids, transported some distance downstream, and redeposited as sediment at locations where surface water has a tendency to collect.<br><br>Risks estimated for current and future trespassers (children and adults) indicate the excess lifetime cancer risks associated with exposure to surface water and/or sediment (and stormwater/sediment in open structures) fall into the $10^{-5}$ to $10^{-4}$ range based on incidental ingestion and dermal contact exposures. The hazard indices for these pathways are all less than one. |
| | Antimony | 0.011 | ND-0.060 | 5/11 | |
| | Arsenic | 0.032 | ND-0.187 | 5/11 | |
| | Barium | 0.077 | 0.031-0.224 | 11/11 | |
| | Beryllium | 0.001 | ND-0.002 | 1/11 | |
| | Cadmium | ND | ND | 0/11 | |
| | Calcium | 128.691 | 39.400-247.000 | 11/11 | |
| | Chromium | 0.003 | ND-0.010 | 2/11 | |
| | Cobalt | 0.002 | ND-0.007 | 1/11 | |
| | Copper | 0.025 | ND-0.047 | 7/11 | |
| | Iron | 5.519 | 0.114-29.200 | 11/11 | |
| | Lead | 0.080 | ND-0.318 | 7/11 | |
| | Magnesium | 12.771 | 1.230-44.100 | 11/11 | |
| | Manganese | 0.525 | 0.140-2.130 | 11/11 | |
| | Mercury | 0.0001 | ND-0.0002 | 2/11 | |
| | Nickel | 0.007 | ND-0.019 | 2/11 | |
| | Potassium | 234.733 | 2.070-944.000 | 11/11 | |
| | Selenium | ND | ND | 0/11 | |
| | Silver | ND | ND | 0/11 | |
| | Sodium | 82.893 | 3.900-310.000 | 11/11 | |
| | Thallium | ND | ND | 0/11 | |
| | Vanadium | 0.003 | ND-0.015 | 6/11 | |
| | Zinc | 0.068 | ND-0.264 | 8/11 | |
| | TCL Volatiles | 0.005 | ND-0.011 | 4/363 | |
| | TCL Semi-Volatiles | 0.006 | ND-0.006 | 24/704 | |
| | TCL Pesticides/PCBs | 0.0003 | ND-0.00002 | 8/308 | |

024845

**Table 12-1**
**Summary of Affected Media**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Sediment - Total inorganics and organics summary | Aluminum | 10,403.7 | 1,030.0-17,000.0 | 11/11 | Generally, the concentrations of inorganic constituents in sediment samples collected from the site 1 surface water sampling locations were higher than those of the corresponding surface water samples. Lead concentrations were as high as 3,940 mg/kg in sediment sampled from the seeps, and up to 485 mg/kg in sediment sampled from locations directly downstream of the seeps. Lead also was detected at concentrations up to 92.9 mg/kg in sediment samples collected from downstream locations (where lead was not detected in the corresponding surface water samples). Arsenic was detected at a maximum concentration of 224 mg/kg in the sediment sample from one of the seeps, and was detected fairly consistently in all the creek sediment samples (both upstream and downstream of the seep) at concentrations ranging from 7.1 to 22.6 mg/kg. Several organic analytes were detected, primarily in sediment samples from the seeps, at relatively low concentrations.<br><br>Sediments likely represent a continuous source for migration of constituents via re-entrainment in stormwater runoff, although due to the physical characteristics of the site, significant offsite migration is unlikely. Re-suspension of exposed, surficial sediment as fugitive dust also could occur due to high winds or inadvertent human activities, but the dense onsite vegetation limits access and exposure of sediments, and the fugitive dust pathway is, therefore, considered of minor importance under current conditions.<br><br>Risks estimated for current and future trespassers (children and adults) indicate the excess lifetime cancer risks associated with exposure to surface water and/or sediment (and stormwater/sediment in open structures) fall into the $10^{-5}$ to $10^{-6}$ range based on incidental ingestion and dermal contact exposures. The hazard indices for these pathways are all less than one. |
| | Antimony | 8.1 | ND-75.7 | 2/11 | |
| | Arsenic | 36.5 | ND-224.0 | 10/11 | |
| | Barium | 122.1 | 37.4-272.0 | 11/11 | |
| | Beryllium | 1.4 | 0.4-2.5 | 11/11 | |
| | Cadmium | 4.4 | ND-43.1 | 1/11 | |
| | Calcium | 109,281.8 | 30,400.0-325,000.0 | 11/11 | |
| | Chromium | 27.1 | ND-94.1 | 10/11 | |
| | Cobalt | 8.5 | ND-12.6 | 10/11 | |
| | Copper | 48.9 | ND-219.0 | 6/11 | |
| | Iron | 34,222.7 | 11,300.0-134,000.0 | 11/11 | |
| | Lead | 604.3 | ND-3,940.0 | 9/11 | |
| | Magnesium | 2,026.7 | ND-3,090.0 | 10/11 | |
| | Manganese | 1,673.4 | 198.0-7,630.0 | 11/11 | |
| | Mercury | 0.2 | ND-0.3 | 4/11 | |
| | Nickel | 26.9 | ND-49.4 | 10/11 | |
| | Potassium | 4,572.8 | ND-11,800.0 | 10/11 | |
| | Selenium | ND | ND | 0/11 | |
| | Silver | ND | ND | 0/11 | |
| | Sodium | 1,373.8 | ND-2,360.0 | 9/11 | |
| | Thallium | ND | ND | 0/11 | |
| | Vanadium | 38.8 | ND-56.3 | 10/11 | |
| | Zinc | 286.4 | ND-2,090.0 | 9/11 | |
| | TCL Volatiles | 0.02 | ND-0.05 | 7/363 | |
| | TCL Semi-Volatiles | 1.7 | ND-13.0 | 79/704 | |
| | TCL Pesticides/PCBs | 0.05 | ND-0.03 | 43/308 | |

**Table 12-1**
**Summary of Affected Media**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Landfill Gas - Field analysis of methane, TPH, and organics | Methane | 12.1 | ND-29.8 | 2/4 | Soil vapor was analyzed during direct push boring activities on Site 1 to evaluate the potential for explosion hazards during drilling. Methane was detected in two of the four soil vapor samples collected from Site 1 direct push borings, at concentrations no more than 29.8 ppm. These results did not affect subsequent subsurface drilling activities on Site 1. |
| | TPH | ND | ND | 0/4 | |
| | Benzene | ND | ND | 0/4 | |
| | Chlorobenzene | ND | ND | 0/4 | |
| | 1,2-Dichloroethene (total) | ND | ND | 0/4 | |
| | 1,1-Dichloroethene | ND | ND | 0/4 | |
| | Ethylbenzene | ND | ND | 0/4 | |
| | Tetrachloroethene | ND | ND | 0/4 | |
| | Toluene | ND | ND | 0/4 | |
| | 1,1,1-Trichloroethane | ND | ND | 0/4 | |
| | Trichloroethane | ND | ND | 0/4 | |
| | Vinyl Chloride | ND | ND | 0/4 | |
| | Xylene (total) | ND | ND | 0/4 | |

024847

**Table 12-1**
**Summary of Affected Media**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean [ppm] | Range [ppm] | *Frequency of Detection* | Basis |
|---|---|---|---|---|---|
| Surface Soil (0-2 inches bgs) - Total inorganics and organics summary | Aluminum | 12,682.2 | 5,240.0-32,300.0 | 29/29 | Surface soil samples were collected from two (2) areas on Site 1 where surface disposal of slag and battery casing chips had occurred. Generally, the highest concentrations of inorganic constituents (for example, 105,000 mg/kg lead, 7,980 mg/kg arsenic, and 637 mg/kg cadmium) were exhibited by samples collected from locations close to slag disposal areas. Two (2) samples submitted for TCLP analysis exhibited concentrations of lead (364 mg/L) and cadmium (2.36 mg/L) above the levels defining hazardous waste by the characteristic of toxicity (5 mg/L and 1.0 mg/L, respectively).<br><br>*Surface soil likely represents a continuous source for migration of constituents via re-entrainment in stormwater runoff and surface* water, although due to the physical characteristics of the site, significant offsite migration is unlikely. Re-suspension of exposed, surficial soil as fugitive dust also could occur due to high winds or inadvertent human activities, but the dense onsite vegetation limits access and drying exposure of sediments, and the fugitive dust pathway is, therefore, considered of minor importance under current conditions.<br><br>As calculated, the additive estimated excess lifetime cancer risks for both current and future child and adult residents, child and adult trespassers, and current and future workers at Site 1 related to soil ingestion, inhalation of fugitive dust, and dermal contact fall within the $10^{-3}$ to $10^{-4}$ range. The hazard indices for the current and future child resident and the future adult all exceeded one. The hazard index for the current adult resident was less than one; the hazard indices for the current and future child and adult trespassers all exceeded one. The hazard indices for both the current and future worker exposure pathways all exceeded one.<br><br>The soil ingestion pathway risks tend to be two to three orders of magnitude higher than the inhalation risks and five to six orders of magnitude higher than the dermal contact risks. The estimated excess lifetime cancer risks are dominated by the arsenic contribution. The soil ingestion hazard index shows that arsenic and antimony are the primary contributors to the potential for adverse non-cancer health effects. |
| | Antimony | 672.3 | ND-5,050.0 | 24/24 | |
| | Arsenic | 654.6 | 10.1-7,980.0 | 29/29 | |
| | Barium | 449.8 | 73.5-2,330.0 | 29/29 | |
| | Beryllium | 0.9 | ND-4.3 | 25/29 | |
| | Cadmium | 29.2 | ND-637.0 | 17/29 | |
| | Calcium | 125,598.3 | 58,500.0-228,000.0 | 29/29 | |
| | Chromium | 36.4 | ND-204.0 | 28/29 | |
| | Cobalt | 20.9 | 5.5-86.1 | 29/29 | |
| | Copper | 712.3 | ND-6,610.0 | 28/29 | |
| | Iron | 37,665.5 | 11,300.0-172,000.0 | 29/29 | |
| | Lead | 9,992.9 | 17.9-105,000.0 | 29/29 | |
| | Magnesium | 2,966.0 | 1,790.0-7,700.0 | 29/29 | |
| | Manganese | 1,494.7 | 658.0-3,490.0 | 29/29 | |
| | Mercury | 0.2 | ND-2.0 | 13/28 | |
| | Nickel | 163.6 | 17.1-1,180.0 | 29/29 | |
| | Potassium | 2,878.7 | 981.0-7,040.0 | 29/29 | |
| | Selenium | 1.4 | ND-9.2 | 11/29 | |
| | Silver | 0.6 | ND-3.2 | 9/29 | |
| | Sodium | 828.1 | ND-5,240.0 | 23/29 | |
| | Thallium | 0.7 | ND-4.4 | 5/29 | |
| | Vanadium | 44.2 | 19.9-64.7 | 29/29 | |
| | Zinc | 816.9 | 57.9-4,535.0 | 29/29 | |
| | TCL Volatiles | ND | ND | 0/99 | |
| | TCL Semi-Volatiles | 0.3 | ND-0.2 | 9/192 | |
| | TCL Pesticides/PCB | 0.01 | ND-0.002 | 1/84 | |

**Table 12-1**
**Summary of Affected Media**
**Operable Unit No. 3, Site 1**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Subsurface Soil (0-22 feet bgs) - Total inorganics and organics summary | Aluminum | 7,010.0 | 3,740.0-10,800.0 | 5/5 | Collection of subsurface soil samples from Site 1 was limited due to the depth to bedrock in this area (approximately 1 to 6 feet bgs to weathered bedrock, 10 to 20 feet to consolidated bedrock). Subsequently, only five (5) subsurface soil samples were collected. Lead, arsenic, and cadmium were detected in samples (collected from depths less than 2 feet bgs) at concentrations up to 6,540 mg/kg, 309 mg/kg, and 17.7 mg/kg, respectively. These same concentrations in samples collected from greater depths were observed to decrease significantly (to 26.1 mg/kg lead, 13.7 mg/kg arsenic, and 0.31 mg/kg cadmium).<br><br>Subsurface soil is not considered to represent a significant source for offsite migration of site contaminants. Exposure of soil is limited to surface soil (see discussion above). |
| | Antimony | 47.4 | ND-130.0 | 2/5 | |
| | Arsenic | 92.1 | 12.1-309.0 | 5/5 | |
| | Barium | 214.1 | 36.9-431.0 | 5/5 | |
| | Beryllium | 0.6 | 0.4-0.8 | 5/5 | |
| | Cadmium | 4.5 | ND-17.7 | 4/5 | |
| | Calcium | 217,800.0 | 121,000.0-342,000.0 | 5/5 | |
| | Chromium | 18.3 | 6.6-40.5 | 5/5 | |
| | Cobalt | 13.0 | 4.6-21.1 | 5/5 | |
| | Copper | 139.0 | 12.1-484.0 | 5/5 | |
| | Iron | 15,840.0 | 10,300.0-23,000.0 | 5/5 | |
| | Lead | 2,049.6 | 9.3-6,540.0 | 5/5 | |
| | Magnesium | 1,900.0 | 1,500.0-2,350.0 | 5/5 | |
| | Manganese | 1,902.6 | 573.0-3,050.0 | 5/5 | |
| | Mercury | ND | ND | 0/5 | |
| | Nickel | 52.0 | 28.0-95.1 | 5/5 | |
| | Potassium | 1,695.6 | 898.0-2,500.0 | 5/5 | |
| | Selenium | 0.5 | ND-1.0 | 1/5 | |
| | Silver | ND | ND | 0/5 | |
| | Sodium | 432.3 | ND-809.0 | 4/5 | |
| | Thallium | 1.1 | ND-2.4 | 3/5 | |
| | Vanadium | 33.3 | 22.8-50.2 | 5/5 | |
| | Zinc | 304.1 | 46.3-630.0 | 5/5 | |
| | TCL Volatiles | 0.01 | ND-0.002 | 1/66 | |
| | TCL Semi-Volatiles | 0.2 | ND-0.3 | 3/128 | |
| | TCL Pesticides/PCBs | ND | ND | 0/56 | |

024849

Table 12-1
Summary of Affected Media
Operable Unit No. 3, Site 1
RSR Corporation Superfund Site
Dallas, Texas



| Media | COCs | Mean (ppm) | Range (ppm) | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Groundwater - Total inorganics and organics summary | Aluminum | 1.615 | 1.480-1.750 | 2/2 | Groundwater was encountered at only two (2) subsurface boring locations, in weathered Austin Chalk; subsequently, only two (2) monitoring wells were installed and sampled. Lead and arsenic were detected in both samples at concentrations of less than 6 µg/L and 4 µg/L, respectively, and cadmium was not detected in either sample.<br><br>The shallow groundwater in this area is assumed to flow toward, and discharge to, the Site 1 creek; therefore, any contaminants in groundwater also could be transported to surface water in the creek. Based on the low concentrations of constituents, however, analytical results, however, migration of site contaminants via this pathway is expected to be minimal.<br><br>Groundwater was not considered as part of the risk assessment because ingestion, inhalation, and dermal contact with groundwater are considered to be incomplete pathways. |
| | Antimony | ND | ND | 0/2 | |
| | Arsenic | 0.004 | 0.004-0.004 | 2/2 | |
| | Barium | 0.079 | 0.079-0.080 | 2/2 | |
| | Beryllium | ND | ND | 0/2 | |
| | Cadmium | ND | ND | 0/2 | |
| | Calcium | 210.000 | 184.000-236.000 | 2/2 | |
| | Chromium | ND | ND | 0/2 | |
| | Cobalt | 0.002 | 0.001-0.002 | 2/2 | |
| | Copper | ND | ND | 0/2 | |
| | Iron | 2.215 | 1.890-2.540 | 2/2 | |
| | Lead | 0.006 | 0.006-0.006 | 2/2 | |
| | Magnesium | 4.980 | 3.420-6.540 | 2/2 | |
| | Manganese | 0.210 | 0.128-0.291 | 2/2 | |
| | Mercury | ND | ND | 0/2 | |
| | Nickel | 0.010 | 0.010-0.011 | 2/2 | |
| | Potassium | 4.230 | 3.520-4.940 | 2/2 | |
| | Selenium | ND | ND | 0/2 | |
| | Silver | ND | ND | 0/2 | |
| | Sodium | 23.100 | 22.800-23.400 | 2/2 | |
| | Thallium | ND | ND | 0/2 | |
| | Vanadium | 0.012 | 0.009-0.014 | 2/2 | |
| | Zinc | 0.087 | 0.039-0.134 | 2/2 | |
| | Benzene | ND | ND | 0/2 | |
| | Toluene | ND | ND | 0/2 | |
| | Ethylbenzene | ND | ND | 0/2 | |
| | Xylene (total) | ND | ND | 0/2 | |
| | TCL Volatiles | 0.005 | ND-0.003 | 3/66 | |
| | TCL Semi-Volatiles | 0.006 | ND-0.005 | 3/128 | |
| | TCL Pesticides | 0.0003 | ND-0.00002 | 1/56 | |

**Table 12-2**
**Summary of Affected Media**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Surface Water - Total Inorganics and organics summary | Aluminum | 1.431 | ND-9.910 | 17/20 | Site 3, comprised of three (3) former municipal landfills, is characterized by flat to gently rolling terrain and dense vegetation; the ground surface of the landfill cells is slightly raised, and each cell is bounded, in general, to the north and south by surface water drainage channels, and to the west by Mountain Creek. Battery chips were observable on the ground surface of the TXI and West Davis Landfill cells. Twenty (20) surface water samples were collected, one or more from each of the aforementioned drainage channels, including a drainage originating at a seep which discharges from the west side of the TXI Landfill. Total lead was detected in seventeen (17) of these samples, and total arsenic was detected in three (3) samples, at concentrations up to 1,700 µg/L and 47 µg/L, respectively. Dissolved lead and arsenic also were detected in five (5) and thirteen (13) samples each at concentrations up to approximately 22 µg/L and 185 µg/L, respectively. Generally, the highest concentrations of most inorganic constituents detected in Site 3 surface water were exhibited by samples collected from the drainage between the TXI Landfill and the West Davis Landfill. Other elevated lead concentrations were exhibited by samples collected from the seep and from one of the ponds on the TXI Landfill. Several organic constituents also were detected in one or more of these samples at relatively low concentrations.<br><br>Elevated levels of inorganics in surface water samples are likely attributed to runoff from localized areas of contamination on landfill surfaces or offsite property. Surface water appears to be a transport medium for inorganic constituents from surface runoff. Inorganics are likely entrained within surface water runoff as suspended solids, transported some distance downstream, and re-deposited as sediment at locations surface water has a tendency to collect.<br><br>For current and future child and adult trespassers exposed to sediments in the drainages that traverse Site 3, the additive estimated excess lifetime cancer risks associated with ingestion and dermal contact fall within the $10^{-6}$ range. Comparable risks related to dermal contact with surface water are estimated to be in the $10^{-7}$ to $10^{-8}$ range. None of the hazard indices estimated to assess the non-cancer effects associated with exposure to surface water or sediments exceeded one. |
| | Antimony | 0.004 | ND-0.026 | 4/20 | |
| | Arsenic | 0.008 | ND-0.047 | 3/20 | |
| | Barium | 0.137 | 0.027-0.565 | 20/20 | |
| | Beryllium | 0.001 | ND-0.002 | 2/20 | |
| | Cadmium | 0.001 | ND-0.001 | 2/20 | |
| | Calcium | 139.785 | 67.000-262.000 | 20/20 | |
| | Cobalt | 0.003 | ND-0.018 | 4/20 | |
| | Chromium | 0.002 | ND-0.008 | 5/20 | |
| | Copper | 0.032 | ND-0.057 | 16/20 | |
| | Iron | 10.505 | 0.114-64.000 | 20/20 | |
| | Lead | 0.128 | ND-1.700 | 17/20 | |
| | Magnesium | 22.074 | 5.040-47.500 | 20/20 | |
| | Manganese | 0.267 | 0.019-1.170 | 20/20 | |
| | Mercury | 0.0001 | ND-0.0003 | 4/20 | |
| | Nickel | 0.010 | ND-0.041 | 12/20 | |
| | Potassium | 33.791 | 3.930-164.000 | 20/20 | |
| | Selenium | ND | ND | 0/20 | |
| | Silver | ND | ND | 0/20 | |
| | Sodium | 85.585 | 14.600-342.000 | 20/20 | |
| | Thallium | ND | ND | 0/20 | |
| | Vanadium | 0.004 | ND-0.037 | 6/20 | |
| | Zinc | 0.040 | ND-0.183 | 17/20 | |
| | TCL Volatiles | 0.005 | ND-0.004 | 4/660 | |
| | TCL Semi-Volatiles | 0.006 | ND-0.011 | 10/1280 | |
| | TCL Pesticides/PCBs | 0.0003 | ND-0.001 | 11/560 | |

024851

**Table 12-2**
**Summary of Affected Media**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean (ppm) | Range (ppm) | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Sediment - Total inorganics and organics summary | Aluminum | 15,779.0 | 8,210.0-25,500.0 | 21/21 | Lead and arsenic were detected in nearly all twenty-one (21) sediment samples collected from the Site 3 surface water sampling locations at concentrations up to 2,100J mg/kg and 55.8J^ mg/kg, respectively. The Site 3 sediment samples that generally exhibited the highest concentrations of lead and arsenic were collected from the drainage that flows between the TXI Landfill and the West Davis Landfill (northern cell). Surface water samples collected from locations along this drainage channel exhibited the highest concentrations of inorganics in surface water on Site 3. Several organic analytes were detected in two (2) samples collected from seeps located on the West Davis Landfill (southern cell) in the southern portion of the site, at relatively low concentrations.<br><br>Sediments likely represent a continuous source for migration of constituents via re-entrainment in stormwater runoff, although due to the physical characteristics of the site, significant offsite migration is unlikely. Re-suspension of exposed, surficial sediment as fugitive dust also could occur due to high winds or inadvertent human activities, but the dense vegetation on Site 3 limits physical access, in addition to exposure of sediment, and the fugitive dust pathway is, therefore, considered of minor importance under current conditions.<br><br>For current and future child and adult trespassers exposed to sediments in the drainages that traverse Site 3, the additive estimated excess lifetime cancer risks associated with ingestion and dermal contact fall within the $10^{-4}$ range. Comparable risks related to dermal contact with surface water are estimated to be in the $10^{-7}$ to $10^{-4}$ range. None of the hazard indices estimated to assess the non-cancer effects associated with exposure to surface water or sediments exceeded one. |
| | Antimony | 4.4 | ND-26.2 | 10/21 | |
| | Arsenic | 14.1 | 4.0-55.8 | 21/21 | |
| | Barium | 122.7 | 52.4-426.0 | 21/21 | |
| | Beryllium | 1.4 | 0.7-2.5 | 21/21 | |
| | Cadmium | 1.8 | ND-9.1 | 14/21 | |
| | Calcium | 72,302.4 | 14,500.0-220,000.0 | 21/21 | |
| | Chromium | 31.1 | 12.9-66.6 | 21/21 | |
| | Cobalt | 14.3 | 6.8-64.2 | 21/21 | |
| | Copper | 34.5 | ND-213.0 | 14/21 | |
| | Iron | 43,671.4 | 18,100.0-210,000.0 | 21/21 | |
| | Lead | 224.1 | ND-2,100.0 | 20/21 | |
| | *Magnesium* | *3,520.5* | *2,340.0-4,490.0* | *21/21* | |
| | Manganese | 694.8 | 217.0-2,380.0 | 21/21 | |
| | Mercury | 0.3 | ND-1.2 | 3/8 | |
| | Nickel | 29.8 | 18.9-62.0 | 21/21 | |
| | Potassium | 4,188.8 | 2,660.0-6,220.0 | 21/21 | |
| | Selenium | 0.7 | ND-1.2 | 2/21 | |
| | Silver | 0.3 | ND-0.42 | 1/21 | |
| | Sodium | 617.4 | ND-1,600.0 | 17/21 | |
| | Thallium | ND | ND | 0/21 | |
| | Vanadium | 42.3 | 26.6-58.8 | 21/21 | |
| | Zinc | 129.5 | 47.8-394.0 | 21/21 | |
| | TCL Volatiles | ND | ND | 0/693 | |
| | TCL Semi-Volatiles | 0.317 | ND-0.230 | 39/1344 | |
| | TCL Pesticides/PCBs | 0.022 | ND-0.380 | 52/588 | |

024852

Table 12-2
Summary of Affected Media
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Landfill Gas - Field analysis of methane, TPH, and organics | Methane | 52,829.7 | ND-23,000.0 | 9/10 | Soil vapor was analyzed during direct push boring activities on Site 3 to evaluate the potential for explosion hazards during drilling. Of the ten (10) soil vapor samples collected from seven (7) borings during direct push drilling on Site 3, chlorobenzene, methane, and vinyl chloride were detected in three (3), nine (9), and four (4) samples, respectively, most of which were collected from depths were landfill material was encountered. The maximum exhibited concentrations of these compounds were 6,700 ppm chlorobenzene, 232,000 ppm methane, and 5,000 ppm vinyl chloride. The presence of these organics at the measured concentrations prohibited subsequent subsurface activities from being conducted at proposed drilling locations directly east and south of the Dahlstrom Landfill. |
| | TPH | ND | ND | 0/10 | |
| | Benzene | ND | ND | 0/10 | |
| | Chlorobenzene | 1.5 | ND-6.7 | 3/10 | |
| | 1,2-Dichloroethene (total) | ND | ND | 0/10 | |
| | 1,1-Dichloroethene | ND | ND | 0/10 | |
| | Ethylbenzene | ND | ND | 0/10 | |
| | Tetrachloroethene | ND | ND | 0/10 | |
| | Toluene | ND | ND | 0/10 | |
| | 1,1,1-Trichloroethane | ND | ND | 0/10 | |
| | Trichloroethane | ND | ND | 0/10 | |
| | Vinyl Chloride | 1.9 | ND-5.0 | 4/10 | |
| | Xylene (total) | ND | ND | 0/10 | |

024853

**Table 12-2**
**Summary of Affected Media**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Surface Soil (0-2 inches bgs) - Total inorganics and organics summary | Aluminum | 18,336.5 | 2,735.0-29,800.0 | 64/64 | Sixty-four (64) surface soil samples were collected from three (3) of the four (4) landfill cells comprising Site 3. Lead and arsenic were detected in all these samples; however, the highest detected concentrations were exhibited by samples collected from the eastern portion of the West Davis Landfill (northern cell), and from the perimeter of the West Davis Landfill (southern cell). Detected concentrations of most inorganic constituents (including lead and arsenic) in samples collected from other Site 3 areas were lower by an order of magnitude or more. These high concentrations appear to be associated with battery casings and battery casing chips which were observed over much of the ground surface in the aforementioned areas. Only one (1) organic pesticide compound was detected in one (1) of the three (3) samples analyzed for organic analytes. TCLP lead was detected in two (2) samples collected from the West Davis Landfill at concentrations of 9.2 mg/L and 100 mg/L, both of which exceed the 5 mg/L regulatory limit that defines a hazardous waste by the characteristic of toxicity.<br><br>Surface soil likely represents a continuous source for migration of constituents via re-entrainment in stormwater runoff and surface water. Re-suspension of exposed surficial soil as fugitive dust also could occur due to high winds or inadvertent human activities.<br><br>For current and future child and adult trespassers, the additive estimated excess lifetime cancer risks related to soil ingestion, inhalation of fugitive dust, and dermal contact fall within the $10^{-4}$ range. All of the hazard indices associated with the current and future child and adult trespasser exposure to soil are less than one. For current workers, the additive estimated excess lifetime cancer risk related to soil ingestion, inhalation of fugitive dust, and dermal contact range from $10^{-6}$ to $10^{-7}$ for the RME and typical exposure setting. For future workers at Site 3, the comparable risks are about $10^{-5}$ to $10^{-4}$. The hazard indices for both current and future worker exposure are all less than one. As for Site 1, the highest estimated risks associated with exposures assumed to occur on Site 3 are due to the presence of arsenic. |
| | Antimony | 15.3 | ND-228.0 | 43/54 | |
| | Arsenic | 15.5 | 5.8-127.0 | 64/64 | |
| | Barium | 119.4 | 43.2-934.0 | 64/64 | |
| | Beryllium | 1.0 | ND-1.6 | 55/64 | |
| | Cadmium | 1.0 | ND-8.4 | 32/64 | |
| | Calcium | 55,015.8 | 8,670.0-222,000.0 | 64/64 | |
| | Chromium | 36.7 | 8.6-288.0 | 64/64 | |
| | Cobalt | 11.3 | 4.4-19.8 | 64/64 | |
| | Copper | 41.1 | 12.6-286.0 | 64/64 | |
| | Iron | 27,516.3 | 9,245.0-56,300.0 | 64/64 | |
| | Lead | 2,744.1 | 16.5-71,500.0 | 64/64 | |
| | Magnesium | 3,689.8 | 1,720.0-5,360.0 | 64/64 | |
| | Manganese | 471.7 | 274.0-1,060.0 | 64/64 | |
| | Mercury | 0.1 | ND-0.6 | 10/63 | |
| | Nickel | 32.0 | 14.5-162.0 | 64/64 | |
| | Potassium | 4,433.4 | 1,430.0-6,740.0 | 64/64 | |
| | Selenium | 1.0 | ND-2.9 | 32/64 | |
| | Silver | 0.3 | ND-1.5 | 4/64 | |
| | Sodium | 158.0 | ND-489.0 | 21/64 | |
| | Thallium | 0.5 | ND-0.68 | 2/64 | |
| | Vanadium | 50.2 | 16.9-72.8 | 64/64 | |
| | Zinc | 139.0 | 64.4-796.0 | 64/64 | |
| | TCL Volatiles | ND | ND | 0/99 | |
| | TCL Semi-Volatiles | ND | ND | 0/192 | |
| | TCL Pesticides/PCB | 0.017 | ND-0.280 | 1/84 | |

024854

Table 12-2
Summary of Affected Media
Operable Unit No. 3, Site 3
RSR Corporation Superfund Site
Dallas, Texas



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Subsurface Soil (0-67 feet bgs) - Total inorganics and organics summary | Aluminum | 14,685.8 | 1,190.0-27,900.0 | 24/24 | Twenty-four (24) subsurface soil samples were collected from the thirty-seven (37) soil borings advanced on Site 3. Generally, the detected concentrations of inorganics in shallow (less than 3 feet bgs) subsurface soil samples were slightly higher than those exhibited by samples collected from depths greater than 3 feet bgs. Lead concentrations exhibited by samples collected from depths less than 3 feet bgs ranged from 7 mg/kg to 302 mg/kg, and lead concentrations in subsurface soil collected from depths greater than 3 feet bgs were up to 82.6 mg/kg. Arsenic was detected at concentrations up to 21.5 mg/kg (less than 3 feet bgs), and up to 9.7J/v mg/kg (greater than 3 feet bgs). Cadmium was detected in nine (9) samples at concentrations up to only 1.31 mg/kg. However, certain subsurface soil samples collected from depth intervals in proximity to subsurface landfill debris containing battery casing chips exhibited elevated concentrations of lead and arsenic. Several organic analytes were detected at low concentrations in thirteen (13) subsurface soil samples. The highest number of organic analyte detections was exhibited by a sample collected from 7 to 9 feet bgs at a boring where landfill debris was encountered to nearly 40 feet bgs. Seven (7) TCLP constituents were detected in one or more of nine (9) samples analyzed for TCLP; TCLP lead was detected in four (4) of these samples (collected from depths less than 12 feet bgs) at concentrations ranging from 20.5 mg/L to 44.1 mg/L, all of which exceed the 5.0 mg/L level above which solid material is classified as hazardous by the characteristic of toxicity.<br><br>Subsurface soil is not considered to represent a significant source for offsite migration of site contaminants. Exposure of soil is limited to surface soil (see discussion above). |
| | Antimony | 2.6 | ND-11.0 | 5/15 | |
| | Arsenic | 7.9 | 2.3-21.5 | 24/24 | |
| | Barium | 81.7 | 21.5-131.0 | 24/24 | |
| | Beryllium | 1.0 | ND-1.5 | 21/24 | |
| | Cadmium | 0.3 | ND-1.3 | 9/24 | |
| | Calcium | 65,944.6 | 8,720.0-320,000.0 | 24/24 | |
| | Chromium | 30.5 | 8.6-85.0 | 24/24 | |
| | Cobalt | 122.9 | 2.7-32.6 | 24/24 | |
| | Copper | 22.1 | 2.0-37.3 | 24/24 | |
| | Iron | 29,102.5 | 7,060.0-50,000.0 | 24/24 | |
| | Lead | 67.0 | 5.9-320.0 | 24/24 | |
| | Magnesium | 3,754.0 | 1,630.0-10,100.0 | 24/24 | |
| | Manganese | 410.4 | 180.0-724.0 | 24/24 | |
| | Mercury | 0.1 | ND-0.1 | 2/24 | |
| | Nickel | 537.6 | 7.6-12,200.0 | 24/24 | |
| | Potassium | 3,010.2 | 460.0-5,770.0 | 24/24 | |
| | Selenium | 1.2 | ND-2.9 | 13/24 | |
| | Silver | 0.3 | ND-0.4 | 1/24 | |
| | Sodium | 1,147.3 | ND-3,610.0 | 21/24 | |
| | Thallium | 0.8 | ND-2.9 | 7/24 | |
| | Vanadium | 40.7 | 13.4-64.7 | 24/24 | |
| | Zinc | 73.2 | 14.1-116.0 | 24/24 | |
| | TCL Volatiles | 0.007 | ND-0.120 | 14/693 | |
| | TCL Semi-Volatiles | 0.373 | ND-40.000 | 36/1344 | |
| | TCL Pesticides/PCBs | 0.011 | ND-0.032 | 24-588 | |

024855

**Table 12-2**
**Summary of Affected Media**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean (ppm) | Range (ppm) | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Groundwater (landfill debris zone) - Total inorganics and organics summary | Aluminum | 66.027 | ND-113.000 | 6/7 | Analytical data obtained for nine (9) groundwater samples collected using direct push methods during the soil investigation were used as a screening tool for subsequent groundwater investigation activities. Lead, arsenic, and cadmium were detected in these samples at concentrations up to 25,600 µg/L, 365Jv µg/L, and 81.1Jv µg/L, respectively. Significant concentrations of antimony, beryllium, chromium, and nickel were demonstrated by one or more of these samples as well. Several organic analytes (including several benzene compounds) were detected at concentrations up to 110 µg/L. As expected, the higher frequency of organic compound detections and the higher concentrations of organic compounds generally were exhibited by samples collected from landfill debris zones, and the higher lead concentrations were associated with samples collected from landfill debris zones containing battery casing chips.<br><br>During the direct push and soil boring activities on Site 3, shallow groundwater was encountered within two (2) distinct subsurface zones on Site 3: , discontinuous water-bearing landfill debris zones, and a water-bearing, nearly-continuous alluvial sand and gravel zone directly above the Eagle Ford Shale. Eight (8) of the eighteen (18) groundwater monitoring wells installed on Site 3 were screened in one (1) or more of the landfill water-bearing zones (generally two (2) wells per landfill cell). These wells range in depth from 9 to 40.5 feet bgs. Groundwater samples were collected from seven (7) of these wells (the other well did not recharge sufficiently after it was developed). Total lead and arsenic concentrations exhibited by these samples ranged from 8.21v µg/L to 20,700 µg/L and from 7.5L µg/L to 107 µg/L, respectively; total cadmium was detected in four (4) samples at concentrations up to 29.5J µg/L. Dissolved lead was detected in one (1) sample at 2.9L µg/L, and dissolved arsenic in five (5) samples at concentrations up to 11.4 µg/L. Seventeen (17) organic analytes were detected in one or more of these samples concentrations up to 79 µg/L (4-methylphenol).<br><br>Overall, analytical results for these seven (7) samples indicate no apparent geographic pattern to the distribution of organic and inorganic constituent concentrations in groundwater from Site 3 landfill debris zones. The relatively high concentrations or organic and inorganic constituents (including lead, arsenic, antimony, and chromium) exhibited by some groundwater samples from these particular wells may be is indicative of the composition of the subsurface material in which the well is screened, or an interval close to the screened interval (i.e., one that contains landfill debris and/or battery casing chips, the latter which were observed to depths up to 8 feet bgs in soil core samples).<br><br>The shallow groundwater in this area is assumed to flow toward, and discharge to, the Site 3 drainages and Mountain creek; therefore, any contaminants in groundwater also could be transported to surface water in the creek. Based on the analytical results, however, migration of site contaminants via this pathway is expected to be minimal.<br><br>Groundwater was not considered as part of the risk assessment because ingestion, inhalation, and dermal contact with groundwater are considered to be incomplete pathways. |
| | Antimony | 0.031 | ND-0.177 | 3/7 | |
| | Arsenic | 0.036 | 0.008-0.107 | 7/7 | |
| | Barium | 0.568 | 0.170-0.993 | 7/7 | |
| | Beryllium | 0.004 | ND-0.009 | 5/7 | |
| | Cadmium | 0.009 | ND-0.030 | 4/7 | |
| | Calcium | 296.000 | 139.000-661.000 | 7/7 | |
| | Chromium | 0.140 | ND-0.237 | 6/7 | |
| | Cobalt | 0.033 | ND-0.046 | 6/7 | |
| | Copper | 0.102 | 0.007-0.187 | 7/7 | |
| | Iron | 104.771 | 20.700-148.000 | 7/7 | |
| | Lead | 3.820 | 0.008-20.700 | 7/7 | |
| | Magnesium | 56.143 | 15.600-106.000 | 7/7 | |
| | Manganese | 2.712 | 0.984-10.400 | 7/7 | |
| | Mercury | 0.001 | ND-0.004 | 3/7 | |
| | Nickel | 0.268 | ND-1.300 | 6/7 | |
| | Potassium | 72.371 | 21.400-160.000 | 7/7 | |
| | Selenium | 0.007 | ND-0.012 | 4/7 | |
| | Silver | 0.002 | ND-0.010 | 2/7 | |
| | Sodium | 300.986 | 26.800-574.000 | 7/7 | |
| | Thallium | 0.005 | ND-0.013 | 3/7 | |
| | Vanadium | 0.158 | ND-0.268 | 6/7 | |
| | Zinc | 1.011 | 0.41-2.230 | 7/7 | |
| | Benzene | ND | ND | 0/7 | |
| | Toluene | ND | ND | 0/7 | |
| | Ethylbenzene | ND | ND | 0/7 | |
| | Xylene (total) | ND | ND | 0/7 | |
| | TCL Volatiles | 0.005 | ND-0.041 | 6/231 | |
| | TCL Semi-Volatiles | 0.006 | ND-0.079 | 7/448 | |
| | TCL Pesticides | 0.0004 | ND-0.007 | 16/196 | |

024856

**Table 12-2**
**Summary of Affected Media**
**Operable Unit No. 3, Site 3**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Groundwater (alluvial zone) - Total inorganics and organics summary | Aluminum | 17.593 | 0.931-43.800 | 8/8 | During the direct push and soil boring activities on Site 3, shallow groundwater was encountered within two (2) distinct subsurface zones on Site 3: discontinuous water-bearing landfill debris zones, and a water-bearing, nearly-continuous alluvial sand and gravel zone directly above the Eagle Ford Shale. Ten (10) of the eighteen (18) groundwater monitoring wells installed on Site 3 were screened in the water-bearing alluvial zones (generally two (2) to three (3) wells per landfill cell). These wells range in depth from 15 to 72 feet bgs. Groundwater samples were collected from eight (8) of these wells (the other two (2) wells did not recharge sufficiently after they were developed). Concentrations of total lead detected in six (6) of these eight (8) samples ranged from 6.1 µg/L to 31.6 µg/L. Total arsenic was detected in seven (7) samples and total cadmium was detected in four (4) samples at concentrations ranging from 3.1L µg/L to 18.3 µg/L, and from 3.1L µg/L to 45.1L µg/L, respectively. Dissolved arsenic was detected in three (3) samples at concentrations up to 6.0L µg/L, and dissolved cadmium in two (2) samples at concentrations up to 26L] µg/L. Only four (4) organic analytes were detected in one or more of four (4) groundwater samples collected from wells screened in the alluvial zone, at concentrations up to 49 µg/L (1,2-dichloroethene).<br><br>The frequency of detection and detected concentrations of several total and dissolved inorganic constituents, including lead, arsenic, and cadmium, in groundwater samples collected from wells screened in the alluvial zones generally were significantly lower than groundwater sampled from wells screened in the landfill debris zones.<br><br>Analytical results for these samples indicate no apparent pattern to the distribution of organic and inorganic constituent concentrations exhibited by groundwater from the alluvial sand and gravel above the Eagle Ford Shale at Site 3. Isolated instances of moderately high concentrations of lead and two (2) volatile organics possibly may be attributed to the migration of these constituents from one or more subsurface intervals (containing landfill debris or battery casing chips) that are in relatively close proximity to the screened interval(s). Overall, groundwater in this alluvial zone appears to have been affected only minimally (if at all) by contaminant migration from landfill debris zones or the ground surface. The shallow groundwater in this area is assumed to flow toward, and discharge to, the Site 3 drainages and Mountain Creek; therefore, any contaminants in groundwater also could be transported to surface water in the creek. Based on the analytical results, however, migration of site contaminants via this pathway is expected to be minimal.<br><br>Groundwater was not considered as part of the risk assessment because ingestion, inhalation, and dermal contact with groundwater are considered to be incomplete pathways. |
| | Antimony | 0.002 | 0.002-0.002 | 1/8 | |
| | Arsenic | 0.007 | 0.003-0.018 | 7/8 | |
| | Barium | 0.084 | 0.024-0.223 | 8/8 | |
| | Beryllium | 0.001 | 0.002-0.002 | 1/8 | |
| | Cadmium | 0.013 | 0.003-0.045 | 4/8 | |
| | Calcium | 428.813 | 320.500-712.000 | 8/8 | |
| | Chromium | 0.028 | 0.013-0.064 | 5/8 | |
| | Cobalt | 0.018 | 0.005-0.033 | 4/8 | |
| | Copper | 0.019 | 0.014-0.039 | 6/8 | |
| | Iron | 18.390 | 1.250-49.900 | 7/8 | |
| | Lead | 0.013 | 0.006-0.032 | 6/8 | |
| | Magnesium | 124.188 | 48.400-293.000 | 7/8 | |
| | Manganese | 2.044 | 0.168-7.260 | 7/8 | |
| | Mercury | ND | ND | 0/8 | |
| | Nickel | 0.033 | 0.006-0.086 | 7/8 | |
| | Potassium | 30.106 | 14.000-40.200 | 8/8 | |
| | Selenium | 0.003 | 0.004-0.006 | 2/8 | |
| | Silver | ND | ND | 0/8 | |
| | Sodium | 1,244.250 | 439.000-2,780.000 | 8/8 | |
| | Thallium | 0.002 | 0.003-0.004 | 2/8 | |
| | Vanadium | 0.043 | 0.002-0.103 | 8/8 | |
| | Zinc | 0.099 | 0.031-0.161 | 8/8 | |
| | Benzene | ND | ND | 0/8 | |
| | Toluene | ND | ND | 0/8 | |
| | Ethylbenzene | ND | ND | 0/8 | |
| | Xylene (total) | ND | ND | 0/8 | |
| | TCL Volatiles | 0.005 | ND-0.049 | 5/264 | |
| | TCL Semi-Volatiles | 0.006 | ND-0.014 | 3/512 | |
| | TCL Pesticides | ND | ND | 0/224 | |

024857

**Table 12-3**
**Summary of Affected Media**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Stormwater - Total inorganics and organics summary | Aluminum | 18.916 | 0.419-105.000 | 6/6 | Site 4 is comprised of four (4) former City of Dallas municipal landfills. Three (3) of these landfills, comprising the main portion of Site 4, are characterized by a slightly elevated ground surface, fairly dense opportunistic vegetation, and surface drainage channels to the southwest, west, north, and northeast. These drainages are recharged by surface and stormwater runoff, and groundwater. The fourth landfill, a separate property within 1/2 mile of the main part of Site 4, is presently a neighborhood park, flat in topography, with several above-ground and underground stormwater structures. Stormwater runoff samples were collected from six (6) of the Site 4 stormwater structures to evaluate the nature and extent of affected stormwater, both entering and within the site. Inorganic analytical results indicate that the highest concentration of total lead, and the highest frequency of occurrence of several total and dissolved inorganic constituents was exhibited by the sample collected from the storm sewer inlet located near the corner of Iroquois and Gallagher Streets. A few organic analytes were detected in these samples at relatively low concentrations. The stormwater sample results indicate contaminants are present in runoff from offsite roads, and possibly from the surface of the nearby Vilbig Landfill on Site 4 (where uncontrolled surface disposal of municipal and construction waste has occurred).<br><br>Stormwater runoff is a potential transport medium for Site 4 surface soil and sediments, as well as for offsite runoff, although the concentrations of dissolved inorganics observed in the onsite samples were relatively low. Inorganics are likely entrained within stormwater runoff as suspended solids, transported some distance downgradient, and re-deposited as sediment in areas where stormwater has a tendency to collect.<br><br>Risk associated with exposure to stormwater runoff in open structures are described for surface water and sediment below. |
| | Antimony | 0.011 | ND-0.034 | 3/6 | |
| | Arsenic | 0.021 | ND-0.105 | 3/6 | |
| | Barium | 0.321 | 0.025-1.560 | 6/6 | |
| | Beryllium | 0.002 | ND-0.010 | 1/6 | |
| | Cadmium | 0.003 | ND-0.013 | 1/6 | |
| | Calcium | 179.975 | 21.100-674.000 | 6/6 | |
| | Chromium | 0.031 | ND-0.167 | 3/6 | |
| | Cobalt | 0.012 | ND-0.060 | 3/6 | |
| | Copper | 0.097 | ND-0.516 | 4/6 | |
| | Iron | 21.853 | 0.508-120.000 | 6/6 | |
| | Lead | 0.637 | ND-3.720 | 5/6 | |
| | Magnesium | 10.360 | 0.912-30.800 | 6/6 | |
| | Manganese | 1.078 | 0.007-4.820 | 6/6 | |
| | Mercury | ND | ND | 0/6 | |
| | Nickel | 0.048 | ND-0.243 | 3/6 | |
| | Potassium | 11.533 | 4.040-34.700 | 6/6 | |
| | Selenium | 0.002 | ND-0.002 | 1/6 | |
| | Silver | ND | ND | 0/6 | |
| | Sodium | 37.736 | 0.913-146.000 | 6/6 | |
| | Thallium | ND | ND | 0/6 | |
| | Vanadium | 0.052 | ND-0.283 | 5/6 | |
| | Zinc | 0.424 | 0.016-2.270 | 6/6 | |
| | TCL Volatiles | 0.005 | ND-0.013 | 10/198 | |
| | TCL Semi-Volatiles | 0.006 | ND-0.003 | 8/384 | |
| | TCL Pesticides/PCBs | 0.0003 | ND-0.00001 | 5/168 | |

024858

Table 12-3
Summary of Affected Media
Operable Unit No. 3, Site 4
RSR Corporation Superfund Site
Dallas, Texas



| Media | COCs | Mean (ppm) | Range (ppm) | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Storm Sewer Sediment - Total inorganics and organics summary | Aluminum | 5,935.0 | 770.0-11,100.0 | 2/2 | Sediment samples were collected from two (2) of the six (6) Site 4 stormwater structures sampled for stormwater runoff; both of the sampled structures are located on the west side of Iroquois Street. The samples exhibited relatively high lead levels (up to 4,220 mg/kg), and relatively low concentrations of arsenic, cadmium, and other inorganic constituents and organic analytes.<br><br>Sediments likely represent a continuous source for migration of constituents via re-entrainment in stormwater runoff. Re-suspension of exposed surficial sediment as fugitive dust also could occur due to high winds or inadvertent human activities.<br><br>Risks associated with exposure to stormwater sediment in open structures are described for surface water and sediment below. |
| | Antimony | 12.3 | 3.6-21.0 | 2/2 | |
| | Arsenic | 7.0 | 6.2-7.8 | 2/2 | |
| | Barium | 74.0 | 28.9-119.0 | 2/2 | |
| | Beryllium | 0.6 | 0.3-0.9 | 2/2 | |
| | Cadmium | 0.5 | ND-0.7 | 1/2 | |
| | Calcium | 70,550.0 | 57,600.0-83,500.0 | 2/2 | |
| | Chromium | 14.6 | 7.0-22.2 | 2/2 | |
| | Cobalt | 5.3 | 4.4-6.2 | 2/2 | |
| | Copper | 61.3 | 43.6-78.9 | 2/2 | |
| | Iron | 14,550.0 | 13,400.0-15,700.0 | 2/2 | |
| | Lead | 2,215.5 | 211.0-4,220.0 | 2/2 | |
| | Magnesium | 1,652.5 | 765.0-2,540.0 | 2/2 | |
| | Manganese | 509.0 | 448.0-570.0 | 2/2 | |
| | Mercury | ND | ND | 0/2 | |
| | Nickel | 13.9 | 8.9-18.9 | 2/2 | |
| | Potassium | 1,311.5 | 173.0-2,450.0 | 2/2 | |
| | Selenium | ND | ND | 0/2 | |
| | Silver | ND | ND | 0/2 | |
| | Sodium | 599.5 | 179.0-1,020.0 | 2/2 | |
| | Thallium | ND | ND | 0/2 | |
| | Vanadium | 20.4 | 10.7-30.1 | 2/2 | |
| | Zinc | 108.0 | 48.0-168.0 | 2/2 | |
| | TCL Volatiles | ND | ND | 0/66 | |
| | TCL Semi-Volatiles | 0.313 | ND-2.200 | 24/128 | |
| | TCL Pesticides/PCBs | 0.013 | ND-0.002 | 12/56 | |

024859

**Table 12-3**
**Summary of Affected Media**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Surface Water -. Total inorganics and organics summary | Aluminum | 0.975 | ND-6.105 | 6/7 | Surface water samples were collected from seven (7) locations along the drainages that bound Site 4, and analyzed to evaluate the nature and extent of affected surface water on Site 4. Although total and dissolved lead were detected in nearly all of these samples at concentrations below 10 µg/L, total and dissolved arsenic were detected in several samples at concentrations up to 181 µg/L and 140 µg/L, respectively. There was no apparent geographic pattern to the distribution of inorganic constituents in these samples. Several organic analytes also were detected at low concentrations.<br><br>Surface water appears to be a potential transport medium from affected Site 4 surface soil and sediments and affected stormwater runoff. Inorganics are likely entrained within surface water runoff as suspended solids, transported some distance downstream, and re-deposited as sediment at locations where surface water has a tendency to collect.<br><br>Risks estimated for current and future trespassers (children and adults) indicate the lifetime cancer risks associated with exposure to surface water and/or sediment on the main portion of Site 4 fall into the $10^{-6}$ to $10^{-7}$ range based on incidental ingestion and dermal contact exposures. For the current and future child trespasser exposed to surface water in open storm sewers within the Jaycee Zaragoza Park exposure area, the estimated excess lifetime cancer risk associated with dermal contact is in the $10^{-4}$ to $10^{-5}$ range. The hazard indices for these pathways are all less than one. |
| | Antimony | 0.013 | ND-0.030 | 4/7 | |
| | Arsenic | 0.058 | ND-0.181 | 5/7 | |
| | Barium | 0.154 | 0.041-0.429 | 7/7 | |
| | Beryllium | 0.0005 | ND-0.0003 | 1/7 | |
| | Cadmium | ND | ND | 0/7 | |
| | Calcium | 101.314 | 38.900-132.000 | 7/7 | |
| | Chromium | 0.004 | ND-0.010 | 1/7 | |
| | Cobalt | 0.002 | ND-0.005 | 3/7 | |
| | Copper | 0.014 | ND-0.024 | 5/7 | |
| | Iron | 2.584 | 0.242-8.390 | 7/7 | |
| | Lead | 0.005 | ND-0.008 | 5/7 | |
| | Magnesium | 13.490 | 2.905-21.200 | 7/7 | |
| | Manganese | 0.419 | 0.072-1.170 | 7/7 | |
| | Mercury | 0.0002 | ND-0.0003 | 5/7 | |
| | Nickel | 0.009 | ND-0.021 | 2/7 | |
| | Potassium | 17.921 | 5.355-43.100 | 7/7 | |
| | Selenium | 0.003 | ND-0.005 | 1/7 | |
| | Silver | ND | ND | 0/7 | |
| | Sodium | 97.360 | 3.620-179.000 | 7/7 | |
| | Thallium | ND | ND | 0/7 | |
| | Vanadium | 0.003 | ND-0.017 | 1/7 | |
| | Zinc | 0.020 | ND-0.071 | 4/7 | |
| | TCL Volatiles | 0.005 | ND-0.009 | 2/231 | |
| | TCL Semi-Volatiles | 0.006 | ND-0.003 | 3/448 | |
| | TCL Pesticides/PCBs | 0.0003 | ND-0.00002 | 3/196 | |

024860

**Table 12-3**
**Summary of Affected Media**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean (ppm) | Range (ppm) | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Sediment - Total Inorganics and organics summary | Aluminum | 16,078.6 | 12,600.0-21,100.0 | 7/7 | Analytical results for the sediment samples collected from the surface water sampling locations show that lead and arsenic were detected in four (4) and three (3) samples, respectively, at concentrations up to 265 mg/kg and 19.2 mg/kg, respectively, and cadmium was detected in only one (1) sample at 4.6 mg/kg. Generally, the samples collected from the drainage channel along the south side of the Trinity River Levee exhibited higher concentrations of inorganic constituents, including lead and arsenic, than those samples collected from the Old Channel of the Trinity River.<br><br>Sediments likely represent a continuous source for migration of constituents in stormwater runoff, although due to the physical characteristics of the site, significant offsite migration is unlikely. Re-suspension of exposed surficial sediment as fugitive dust also could occur due to high winds or inadvertent human activities, but the site vegetation limits exposure of sediments, and the fugitive dust pathway is, therefore, considered of minor importance under current conditions.<br><br>Risks estimated for current and future trespassers (children and adults) indicate the lifetime cancer risks associated with exposure to surface water and/or sediment on Site 4 exclusive of Jaycee Zaragoza Park fall into the $10^{-4}$ to $10^{-7}$ range based on incidental ingestion and dermal contact exposures. The hazard indices for these pathways are all less than one. |
| | Antimony | ND | ND | 0/6 | |
| | Arsenic | 9.8 | ND-19.2 | 3/7 | |
| | Barium | 120.2 | 94.5-162.0 | 7/7 | |
| | Beryllium | 1.6 | 1.0-1.9 | 7/7 | |
| | Cadmium | 1.2 | ND-4.6 | 1/7 | |
| | Calcium | 84,564.3 | 57,000.0-102,000.0 | 7/7 | |
| | Chromium | 29.1 | 23.5-32.7 | 7/7 | |
| | Cobalt | 9.8 | 7.8-11.2 | 7/7 | |
| | Copper | 37.3 | ND-71.9 | 2/7 | |
| | Iron | 28,557.1 | 21,550.0-39,450.0 | 7/7 | |
| | Lead | 92.9 | ND-265.0 | 4/7 | |
| | Magnesium | 3,830.0 | 3,175.0-4,490.0 | 7/7 | |
| | Manganese | 781.6 | 502.0-1,200.0 | 7/7 | |
| | Mercury | 0.1 | ND-0.2 | 1/7 | |
| | Nickel | 27.0 | 23.0-30.4 | 7/7 | |
| | Potassium | 4,159.3 | 3,310.0-5,900.0 | 7/7 | |
| | Selenium | ND | ND | 0/7 | |
| | Silver | ND | ND | 0/7 | |
| | Sodium | 1,022.7 | ND-2,510.0 | 2/7 | |
| | Thallium | ND | ND | 0/7 | |
| | Vanadium | 42.2 | 35.0-48.5 | 7/7 | |
| | Zinc | 158.3 | 111.0-220.0 | 7/7 | |
| | TCL Volatiles | 0.01 | ND-0.01 | 1/231 | |
| | TCL Semi-Volatiles | 0.5 | ND-3.7 | 75/448 | |
| | TCL Pesticides/PCBs | 0.02 | ND-0.01 | 33/196 | |

024861

**Table 12-3**
**Summary of Affected Media**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean (ppm) | Range (ppm) | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Landfill Gas - Field analysis of methane, TPH, and organics | Methane | 2.1 | 1.9-2.3 | 2/2 | Soil vapor was analyzed during direct push boring activities on Site 4 to evaluate the potential for explosion hazards during drilling. Methane was detected in the two (2) soil vapor samples collected from a site 4 boring, at concentrations just below 3 ppm. These results did not affect subsequent subsurface drilling activities on Site 4. |
| | TPH | ND | ND | 0/2 | |
| | Benzene | ND | ND | 0/2 | |
| | Chlorobenzene | ND | ND | 0/2 | |
| | 1,2-Dichloroethene (total) | ND | ND | 0/2 | |
| | 1,1-Dichloroethene | ND | ND | 0/2 | |
| | Ethylbenzene | ND | ND | 0/2 | |
| | Tetrachloroethene | ND | ND | 0/2 | |
| | Toluene | ND | ND | 0/2 | |
| | 1,1,1-Trichloroethane | ND | ND | 0/2 | |
| | Trichloroethane | ND | ND | 0/2 | |
| | Vinyl Chloride | ND | ND | 0/2 | |
| | Xylene (total) | ND | ND | 0/2 | |

**Table 12-3**
**Summary of Affected Media**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean (ppm) | Range (ppm) | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Surface Soils (0-2 inches bgs) - Total inorganics and organics summary | Aluminum | 11,786.2 | 3,450.0-30,150.0 | 81/81 | Lead and arsenic were detected in nearly all eighty (80) surface soil samples collected from Site 4 at concentrations up to 6,390 mg/kg and 186 mg/kg, respectively. Cadmium was detected in a little more than half these samples at concentrations up to 8.7 mg/kg. Based on the analytical results, concentrations of many inorganic constituents in Site 4 surface soil appear to be highest in samples collected from the northern cell of the West Dallas Landfill, particularly in areas where battery casing chips and/or slag were observed to be present on the ground surface. These same levels in surface soil collected from other parts of the site, including Jaycee Zaragoza Park, generally were lower by an order of magnitude or more. Only six (6) organic analytes were detected in these samples at low concentrations.<br><br>As calculated for the risk assessment, the additive estimated excess lifetime cancer risks for both current and future child and adult residents, child and adult trespassers, and future workers at Site 4 (exclusive of Jaycee Zaragoza Park) related to soil ingestion, inhalation of fugitive dust, and dermal contact fall within the $10^{-5}$ to $10^{-6}$ range (trespassers within the $10^{-4}$ range only). The hazard indices for both current and future child resident exposures exceeded one (arsenic being the primary contributor). The hazard indices for the adult resident (current and future), trespassers (child and adult), and future workers were all less than one. Risk results for this area predict that, under either current or future use conditions, exposure to lead in soil yields blood-lead distributions where more than 5% of the exposed child population (aged 6 months to 6 years) could exhibit a blood-Pb concentration greater than 10 µg/dL.<br><br>The additive estimated excess lifetime cancer risks associated with soil ingestion and inhalation of fugitive dust for current child and adult residents at Jaycee Zaragoza Park are within the $10^{-4}$ to $10^{-6}$ range. The hazard indices for current resident children exposed to soil exceed one (arsenic and antimony being the primary contributors), and the hazard indices for the current adult residents are less than one. For current and future residents of this particular area, the IEUBK model results indicate a geometric mean blood-lead concentration of 4.0 µg/dL with less than 5% of the population exhibiting a blood-lead concentration greater than 10 µg/dL. |
| | Antimony | 9.2 | ND-239.0 | 51/74 | |
| | Arsenic | 17.1 | ND-186.0 | 73/81 | |
| | Barium | 170.1 | 47.3-2,330.0 | 81/81 | |
| | Beryllium | 0.9 | ND-2.8 | 56/81 | |
| | Cadmium | 1.4 | ND-8.7 | 49/81 | |
| | Calcium | 38,944.8 | 4,080.0-185,000.0 | 81/81 | |
| | Chromium | 24.4 | 8.9-69.1 | 81/81 | |
| | Cobalt | 10.4 | 4.2-264.0 | 81/81 | |
| | Copper | 78.2 | ND-395.0 | 71/81 | |
| | Iron | 25,266.9 | 8,470.0-100,000.0 | 81/81 | |
| | Lead | 573.8 | 9.1-6,390.0 | 81/81 | |
| | Magnesium | 2,446.0 | 1,190.0-4,805.0 | 81/81 | |
| | Manganese | 442.3 | 109.0-970.0 | 81/81 | |
| | Mercury | 0.1 | ND-0.9 | 25/81 | |
| | Nickel | 23.5 | 9.2-62.6 | 81/81 | |
| | Potassium | 2,907.4 | 952.0-5,800.0 | 81/81 | |
| | Selenium | 0.6 | ND-1.8 | 11/81 | |
| | Silver | 0.5 | ND-4.4 | 15/81 | |
| | Sodium | 206.3 | ND-1,140.0 | 30/81 | |
| | Thallium | 0.8 | ND-2.6 | 19/81 | |
| | Vanadium | 29.7 | 15.7-54.7 | 81/81 | |
| | Zinc | 472.7 | ND-17,500.0 | 80/81 | |
| | TCL Volatiles | 0.008 | ND-0.007 | 1/66 | |
| | TCL Semi-Volatiles* | 0.285 | ND-0.350 | 4/128 | |
| | TCL Pesticides/PCB | 0.013 | ND-0.043 | 1/56 | |

024863

**Table 12-3**
**Summary of Affected Media**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean (ppm) | Range (ppm) | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Subsurface Soils (0-26 feet bgs) - Total inorganics and organics summary | Aluminum | 8,153.2 | 37.7-19,000.0 | 32/32 | Subsurface soil samples were collected from the thirty-three (33) soil borings advanced on Site 4. The detected concentrations of inorganic constituents in samples collected from less than 3 feet bgs (up to 11,500J mg/kg lead, 114J mg/kg arsenic, and 15.1 mg/kg cadmium) generally were higher than those in samples collected from depths greater than 3 feet bgs (up to 2,060 mg/kg lead, 58.5 mg/kg arsenic, and 4.8 mg/kg cadmium). The highest detected concentrations of most inorganic constituents in subsurface soil less than 3 feet bgs was observed in samples from borings advanced on the Nomas and West Dallas Landfills, respectively), both of which are characterized by battery casing chips and slag over the ground surface). The higher inorganic concentrations of soil greater than 3 feet bgs generally was associated with landfill debris containing with battery casing chips, which was encountered at isolated boring locations. Several organic analytes were detected in these samples at low concentrations. One (1) sample, collected from a boring where battery casing chips were encountered in the subsurface to a depth of 3 feet bgs, exhibited a TCLP lead concentration of 5.87 mg/L, slightly above the toxicity characteristic for hazardous waste of 5.0 mg/L.<br><br>Subsurface soils are not considered to represent a significant source for offsite migration of contaminants. Soil exposure is limited to surface soil (see discussion above). |
| | Antimony | 6.5 | ND-45.8 | 12/30 | |
| | Arsenic | 14.9 | ND-114.0 | 30/32 | |
| | Barium | 183.8 | 1.0-1,060.0 | 32/32 | |
| | Beryllium | 0.7 | ND-1.5 | 31/32 | |
| | Cadmium | 2.0 | ND-15.1 | 16/32 | |
| | Calcium | 37,757.3 | 52.3-92,100.0 | 32/32 | |
| | Chromium | 65.1 | ND-1,420.0 | 31/32 | |
| | Cobalt | 8.6 | 0.6-25.7 | 32/32 | |
| | Copper | 147.4 | 0.4-2,090.0 | 32/32 | |
| | Iron | 28,666.1 | 245.0-129,000.0 | 32/32 | |
| | Lead | 763.3 | ND-11,500.0 | 31/32 | |
| | Magnesium | 1,878.0 | 9.3-4,560.0 | 32/32 | |
| | Manganese | 453.4 | 2.7-1,200.0 | 32/32 | |
| | Mercury | 0.1 | ND-0.5 | 10/32 | |
| | Nickel | 27.7 | ND-95.8 | 31/32 | |
| | Potassium | 1,818.6 | ND-3,610.0 | 30/32 | |
| | Selenium | 0.5 | ND-1.4 | 10/32 | |
| | Silver | 1.0 | ND-6.2 | 7/32 | |
| | Sodium | 177.0 | ND-721.0 | 17/32 | |
| | Thallium | 0.9 | ND-5.4 | 8/32 | |
| | Vanadium | 24.8 | 0.7-44.4 | 32/32 | |
| | Zinc | 443.8 | 1.3-4,250.0 | 32/32 | |
| | TCL Volatiles | 0.007 | ND-0.076 | 18/495 | |
| | TCL Semi-Volatiles | 0.242 | ND-0.330 | 25/960 | |
| | TCL Pesticides/PCBs | 0.011 | ND-0.023 | 26/420 | |

024864

**Table 12-3**
**Summary of Affected Media**
**Operable Unit No. 3, Site 4**
**RSR Corporation Superfund Site**
**Dallas, Texas**



| Media | COCs | Mean [ppm] | Range [ppm] | Frequency of Detection | Basis |
|---|---|---|---|---|---|
| Groundwater - Total inorganics and organics summary | Aluminum | 66.383 | 2.260-204.000 | 13/13 | The thirteen (13) groundwater monitoring wells installed on Site 4 were screened in a water-bearing sand and gravel alluvial material (in places mixed with landfill debris) directly above the Eagle Ford Shale. Well depths range from 12 to 26 feet bgs. Total lead was detected in all thirteen (13 groundwater samples collected from these wells at concentrations up to 2,010 µg/L. Total arsenic was detected in twelve (12) samples and total cadmium in one (1) sample, at concentrations up to 142 µg/L and 3.4 µg/L, respectively. Neither dissolved lead nor arsenic were detected in any of these samples, but dissolved arsenic was detected in ten (10) samples at concentrations up to 21.5 µg/L. Several organic analytes were detected in these samples, mostly at low concentrations; two (2) exceptions are benzene and chlorobenzene were detected in only a few samples at concentrations up to 25 µg/L and 300 µg/L, respectively.<br><br>Overall, the groundwater sample results indicate no apparent geographic pattern to the distribution of organic and inorganic constituents detected in Site 4 groundwater. The relatively high concentrations exhibited by samples from particular wells across the site is indicative of the composition of the subsurface material in which the well is screened, or an interval close to the screened interval (i.e., one that contains landfill debris and/or battery casing chips). The groundwater in the water-bearing zone at Site 4 appears to have been affected only minimally, if at all, by site constituents. The shallow groundwater in this area is assumed to flow toward, and discharge to , the drainage channels surrounding the site; therefore, any contaminants in groundwater also could be transported to surface water in these drainages. Based on the analytical results, however, migration of site contaminants via this pathway is expected to be minimal.<br><br>Groundwater is not considered in the risk assessment because ingestion, inhalation, and dermal contact with groundwater are considered to be incomplete pathways. |
| | Antimony | 0.003 | ND-0.026 | 2/13 | |
| | Arsenic | 0.047 | ND-0.142 | 12/13 | |
| | Barium | 1.525 | 0.122-6.060 | 13/13 | |
| | Beryllium | 0.005 | ND-0.013 | 10/13 | |
| | Cadmium | 0.001 | ND-0.003 | 1/13 | |
| | Calcium | 277.846 | 119.000-503.000 | 13/13 | |
| | Chromium | 0.138 | 0.006-0.327 | 13/13 | |
| | Cobalt | 0.059 | ND-0.153 | 12/13 | |
| | Copper | 0.133 | 0.007-0.667 | 13/13 | |
| | Iron | 135.496 | 20.900-276.000 | 13/13 | |
| | Lead | 0.228 | 0.008-2.010 | 13/13 | |
| | Magnesium | 41.015 | 20.000-62.900 | 13/13 | |
| | Manganese | 2.656 | 0.318-9.510 | 13/13 | |
| | Mercury | 0.001 | ND-0.005 | 5/13 | |
| | Nickel | 0.153 | ND-0.367 | 12/13 | |
| | Potassium | 61.100 | 15.300-113.000 | 13/13 | |
| | Selenium | 0.002 | ND-0.003 | 1/13 | |
| | Silver | 0.001 | ND-0.001 | 1/13 | |
| | Sodium | 121.338 | 42.500-197.000 | 13/13 | |
| | Thallium | 0.002 | ND-0.006 | 2/13 | |
| | Vanadium | 0.163 | 0.009-0.409 | 13/13 | |
| | Zinc | 0.713 | 0.030-5.360 | 13/13 | |
| | Benzene | 0.007 | ND-0.025 | 2/13 | |
| | Toluene | ND | ND | 0/13 | |
| | Ethylbenzene | ND | ND | 0/13 | |
| | Xylene (Total) | ND | ND | 0/13 | |
| | TCL Volatiles | 0.006 | ND-0.300 | 15/429 | |
| | TCL Semi-Volatiles | 0.006 | ND-0.018 | 41/832 | |
| | TCL Pesticides | 0.0003 | ND-0.00004 | 13/364 | |

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