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GROUNDWATER SCREENING REPORT

FOR

AK STEEL
KANSAS CITY, MISSOURI

EPA ID# MOD007118029

NOVEMBER 2010

Prepared for

AK Steel

513011
RCRA

By

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LIST OF ACRONYMS AND ABBREVIATIONS

American	American Properties LLP
AOC	area of concern
AST	above ground storage tank
BEHP	bis(2-ethylhexyl)phthalate
bgs	below ground surface
BMcD	Burns & McDonnell Engineering Company, Inc.
BMWCI	Burns & McDonnell Waste Consultants, Inc.
BTEX	benzene, toluene, ethylbenzene, and xylenes
CBB	Compass Big Blue LLC
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm/sec	centimeter per second
1,1-DCA	1,1-Dichloroethane
1,1-DCE	1,1-dichloroethene
1,2-DCA	1,2-Dichloroethane
1,2-DCE	1,2-dichloroethene
cis-1,2-DCE	cis-1,2-dichloroethene
Facility	AK Steel Facility, Kansas City, Missouri
GPS	Global Positioning System
GST	GST Steel Company
Hansen	Hansen Property Development
HSWA	Hazardous and Solid Waste Amendments
I-435	Interstate Highway 435
K	hydraulic conductivity
KCT	Kansas City Terminal Railway Company
LLC	Limited Liability Corporation
MCL	Maximum Contaminant Levels
MDNR	Missouri Department of Natural Resources
mg/Kg	milligrams per kilograms
µg/L	micrograms per liter
mg/L	milligrams per liter
MSL	mean sea level
NFGO	*USEPA's National Functional Guidelines for Organic Data Review*
NGFI	*USEPA's National Functional Guidelines for Inorganic Data Review*
NPDES	National Pollutant Discharge Elimination System
PAH	polynuclear aromatic hydrocarbon
PCBs	polychlorinated biphenyls

PCE	tetrachloroethene
Permit	HWSA Part B Post-Closure Permit, Part II
PID	photoionization detector
ppm	parts per million
QAPP	quality assurance project plans
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RFI Report	*RCRA Facility Investigation Report, Armco Kansas City Facility*
RSL	Regional Screening Level
SDWA	Safe Drinking Water Act
SVOC	semivolatile organic compound
SWMU	solid waste management unit
1,1,1-TCA	1,1,1-trichloroethane
TCE	trichloroethene
Terracon	Terracon Environmental
TPH	total petroleum hydrocarbons
TPRH	Total Recoverable Petroleum Hydrocarbons
USACE	United States. Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound
WCC	Woodward-Clyde Consultants

DOCUMENT DISTRIBUTION

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AK Steel Corporation – Carl Batliner, Dave Miracle, and Cory Levengood

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SECTION 1.0
INTRODUCTION

1.0 INTRODUCTION

Burns & McDonnell Engineering Company, Inc. (BMcD) has prepared this *Groundwater Screening Report* on behalf of AK Steel (formerly Armco Inc.[1]) to compare the analytical results for groundwater samples collected at the AK Steel former Kansas City, Missouri Works (Facility) to applicable screening criteria. Groundwater samples presented in this *Groundwater Screening Report* were primarily collected during a Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) and subsequent Supplemental Investigations. The results of these investigations were summarized in the *RCRA Facility Investigation Report, Armco Kansas City Facility* (RFI Report) (Burns & McDonnell Waste Consultants, Inc. [BMWCI], 1999) and *Supplemental Investigation Report, AK Steel, Kansas City, Missouri* (BMcD, 2008). The United States Environmental Protection Agency (USEPA) and Missouri Department of Natural Resources (MDNR) have approved both of these documents in combination to satisfy Special Permit Condition XXX presented in Part II of AK Steel's final Hazardous and Solid Waste Amendments (HSWA) Part B Post-Closure Permit (Permit), which was issued by the USEPA Region 7 on November 30, 1994 (USEPA ID# MOD 007118029).

1.1 PURPOSE AND SCOPE

The purpose of this *Groundwater Screening Report* is to compare groundwater analytical data obtained during the RFI and Supplemental Investigations to current applicable screening criteria in order to form the basis for further decisions regarding the Facility. The information provided in this *Groundwater Screening Report* will determine the need for further evaluation of human health risk and/or the need to conduct interim or corrective measures for the Facility.

1.2 BACKGROUND

1.2.1 Facility Location

A Facility location map is presented on Figure 1-1. The Facility is located in northeast Kansas City, Missouri within the Blue River and Missouri River floodplains. Portions of the Facility are located both east and west of Interstate Highway 435 (I-435). Industrial activities were performed exclusively in the area west of I-435, north of 12th Street, and east of Ewing Avenue. The Facility, and ownership and operational changes that have occurred since issuance of the Permit, are presented on Figure 1-2.

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[1] Effective September 30, 1999, Armco Inc. was merged with and into AK Steel Corporation, a Delaware Corporation with headquarters in West Chester, Ohio.

The current physical address for the AK Steel Kansas City Facility is:

AK Steel
7000 Winner Road
Kansas City, Missouri 64125

The current mailing address for the AK Steel Kansas City Facility is:

AK Asset Management Company
5050 Section Avenue
Cincinnati, Ohio 45212

1.2.2 Facility History

The Kansas City Bolt and Nut Company first occupied the area in 1888. This company manufactured iron bolts and nuts from purchased iron until the early 1920s when open-hearth furnaces were installed. After that time, the company pioneered the production of carbon steel products from 100-percent recycled scrap iron and steel. The company's name was changed in 1925 from the Kansas City Bolt and Nut Company to Sheffield Steel Corporation, and the company became a subsidiary of Armco Steel Corporation in 1930.

In 1951, Armco completed construction of the No. 1 Melt Shop, which produced steel from 100 percent scrap using electric arc furnace technology. Additional electric arc furnaces were installed in the No. 1 Melt Shop in the mid 1950s and early to late 1960s, for a total of four electric arc furnaces. In 1959, production of steel in open-hearth furnaces was discontinued, and the open-hearth furnaces were later demolished.

Steel ingots produced in both open-hearth and electric arc furnaces were rolled in the 32" Blooming Mill and 18" Rolling Mill to produce billets that were primarily used as feed stock for other plant operations. The 12" Merchant Bar Mill was built and began production in the early 1950s to supplement the 10" Finishing Mill. In 1957, the Rod Mill was built and placed in operation.

A second melt shop complex was built and placed in operation in 1976. The complex included the No. 2 Melt Shop (with two additional electric arc furnaces), a continuous caster, and a 19" Rolling Mill. By 1977, Armco's Kansas City steel production operations included six electric arc furnaces in two melt shops, a blooming mill, and a continuous caster. A multitude of semi-finished and finished products were produced by the 19" Rolling Mill, the 12" Finishing Mill, the Rod Mill, the Wire Mill, the Nail Mill, the Bolt and Nut Plant, and the Grinding Media Facility. A ladle arc refining facility was added to the No. 2

Melt Shop operation in 1989. Economic conditions in the steel industry affected Armco's Kansas City plant, and the diversity of operations was slowly reduced.

The closed on-site Emission Control Dust Landfill (RCRA Landfill) was operated by Armco from July 1980 through January 25, 1983. During this period the landfill received approximately 29,190 tons (36,000 cubic yards) of hazardous waste identified by waste code K061. The waste, which was generated by melting scrap iron and steel in the plant's six electric arc furnaces, was collected in baghouse air pollution control systems and transported to the landfill for disposal. Management of this closed landfill is outlined in AK Steel's Permit. Part I is the final RCRA Hazardous Waste Facility Post-Closure Permit issued by the MDNR with an effective date of February 16, 1994. Part II is the HSWA Corrective Action Permit issued by the USEPA Region VII with an effective date of December 1, 1994.

By 1993, Armco's Kansas City plant had continued to grow in production tonnage, but production was limited to semi-finished steel products and a minor amount of finished steel products. Historically, the plant operations and property owned by Armco (now AK Steel) totaled approximately 860 acres. Production facilities and a portion of the plant real estate were sold to GST Technologies Operating Company, Inc. (GST), which was doing business as GST Steel Company, on November 12, 1993. Armco retained ownership of approximately 560 acres, of which GST leased approximately 100 acres. GST operated facilities on this property until they filed for bankruptcy in April 2001. There are no active manufacturing operations on the AK Steel property. As part of the bankruptcy proceedings, GST sold the majority of their holdings to Compass Big Blue LLC (CBB).

In the intervening years, portions of the CBB tracts have been sold to House of Burgesses LLC, CTE Properties LLC, Smorgon Steel Grinding Systems LLC[2], and/or Blue Summit LLC. Additionally, approximately 20 acres of GST's property were sold to American Properties LLP (American) during the bankruptcy proceedings, and this property has subsequently been sold to Hansen Property Development, Inc. (Hansen). The ownership and operation of these former GST tracts are now the responsibility of CBB, Hansen, House of Burgesses LLC, CTE Properties LLC, OneSteel, and/or Blue Summit LLC; however, certain solid waste management units (SWMUs) and areas of concern (AOCs) are listed in AK Steel's Permit for purposes of RCRA Corrective Action. The property ownership and operational changes since the initial permit application and issuance are shown on Figures 1-2 and 1-3.

[2] Smorgon Steel Grinding Systems LLC merged with OneSteel Limited in August 2007.

1.3 GEOLOGY AND HYDROGEOLOGY

For convenience of the reader, the presentation of the regional and Site-specific geology and hydrogeology discussion from the RFI Report, Section 2.0, Environmental Setting (BMWCI, 1999) is reprinted in Appendix A. A summary is provided in the following sections.

1.3.1 Geology

The site geology consists of artificial fill, alluvium, and bedrock. Artificial fill consisting primarily of slag and refractory brick rubble, has been used extensively at the Facility to fill low-lying ground adjacent to the Blue River; to construct levees and rail sidings; and to surface roads and parking areas. The artificial fill encountered varied in consistency from dense, rock-like material to loose gravel and cobble-size material. The latter was most frequently encountered during subsurface drilling activities, ranging in thickness from 0 to 17 feet.

There are two distinct alluvial sediment profiles at the Facility, which are associated with the Blue River alluvial valley and the Missouri River alluvial valley (see Figure 2-5 in Appendix A):

- The western portion of the Facility (approximately south of SWMUs 8 and 11, including those SWMUs and AOCs west of I-435) is situated within the Blue River alluvial valley which is dominated by fine-grained (clay and silt-size) alluvial sediments. Artificial fill, predominantly slag, is present over much of the area at depths up to 14 feet. Below the artificial fill is approximately 50 feet of alluvial clay, sandy clay, or silty clay, which overlie approximately 5 feet of clayey to fine sandy gravel. The gravel overlies Pennsylvanian age shale bedrock. Laterally discontinuous lenses of clayey or silty fine sand may also be present within the alluvium.

- The eastern portion of the Facility (approximately north and east of SWMUs 8 and 11, including those SWMUs and AOCs east of I-435) is situated within the Missouri River alluvial valley. This sediment profile is dominated by a typical coarsening downward alluvial sequence, locally capped by artificial fill (mostly slag fill). In general, silts and clays predominate at shallow depths (varying between approximately 10 to 25 feet in thickness), grading to fine sands (varying between approximately 30 to 40 feet in thickness), and finally grading to coarse sand and gravel (approximately 5 feet in thickness) above the bedrock.

Pennsylvanian shale bedrock occurs at varying depths beneath the Facility. In the eastern portion of the Facility (vicinity of SWMUs 2, 5, 12, and 22), depth to bedrock varies from 25 to 50 feet below ground

surface (bgs). In the western portion of the Facility (at SWMU 33), depth to bedrock varies from 60 to 70 feet bgs. In general, depth to bedrock increases with increasing distance from the alluvial valley margins.

1.3.2 Hydrogeology

Groundwater flow in the alluvium beneath the Facility is generally to the north-northeast toward the Blue and Missouri Rivers. Differing subsurface geological conditions between the Blue River and the Missouri River alluvial valley sediments (see Figure 2-5 in Appendix A) have resulted in hydrogeologic conditions that are unique to each:

- The Blue River alluvial valley in the vicinity of SWMU 33 is characterized by an upper, unconfined saturated zone underlain by a lower, semi-confined saturated zone. The aquitard separating the unconfined and confined saturated zones varies in thickness and appears to be discontinuous laterally. Water table elevations in the upper unconfined saturated zone ranged from 730 to 740 feet above Mean Sea Level (MSL) (5 to 15 feet bgs). Water table elevations in the lower semi-confined saturated zone ranged from 715 to 725 feet above MSL (20 to 30 feet bgs).

- The Missouri River alluvial valley is characterized by a continuous, unconfined saturated zone that extends to bedrock. Water table elevations ranged from 720 to 740 feet above MSL (5 to 25 feet bgs).

1.4 DATA PRESENTATION AND SCREENING

Groundwater samples were collected from 11 SWMUs and AOCs during the course of investigations at the Facility. For the remaining SWMUs and AOCs, the soil data did not indicate the potential for groundwater contamination, and, as agreed to by USEPA and MDNR, groundwater samples were not collected per data collection plans in the approved project work plans. Only those SWMUs and AOCs that had analytical groundwater samples collected are discussed in this report, as follows:

SWMUs and AOCs with Groundwater Results		
SWMU/AOC	**Description**	**Summary**
SWMU 2	Old Blue River "W" Landfill	Direct-push groundwater samples
SWMU 3	South of Bar Fab Landfill	Direct-push groundwater samples
SWMU 4	1987 Waste Pile	Direct-push groundwater samples
SWMU 5	Plant Rubble Landfill	Direct-push groundwater samples and historical monitoring well data for adjacent RCRA Landfill
SWMU 12	AMOCO Landfarm	Monitoring well groundwater samples

SWMUs and AOCs with Groundwater Results		
SWMU/AOC	**Description**	**Summary**
SWMU 13	Pickle Liquor Tank	Direct-push groundwater samples and monitoring well data associated with SWMU 33 Nail Mill Degreaser VOC plume
SWMU 17	Wire Mill Rinsewater Neutralization Tank	Direct-push groundwater samples and monitoring well data associated with SWMU 33 Nail Mill Degreaser VOC plume
SWMU 22	Mill Ponds	Direct-push groundwater samples and piezometers monitoring data
SWMU 24	Waste Hydraulic Lubricating Oil Storage Tanks	Direct-push groundwater samples
SWMU 33	Nail Mill Degreasing Area	Direct-push groundwater samples and monitoring well data
AOC 1	Abandoned Fuel Oil Storage Tank	Monitoring well groundwater samples

This *Groundwater Screening Report* compares groundwater analytical data obtained during relevant historical investigations, the RFI, and Supplemental Investigations to applicable screening criteria. The screening criteria include the following:

- Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs)[3]
- Tapwater screening values from the May 2010 USEPA Regional Screening Level (RSL) Table[4]

During data screening, the following conventions were used:

- MCLs were the used as the groundwater screening criteria for constituents that had MCLs.
- USEPA tapwater RSLs were used as the groundwater screening criteria for constituents that did not have MCLs.
- Reporting limits of non-detect results are not included in the screening.

[3] The following conventions were used when obtaining MCLs. MCLs were not provided individually for bromodichloromethane, bromoform, chloroform, dibromochloromethane. The MCL for total trihalomethanes was used.

[4] The following conventions were used when obtaining the tapwater screening values from the RSL Table. The laboratory could not distinguish between 3-methylphenol and 4-methylphenol and reported sample results as 3&4-methylphenol. Therefore, the lower screening level for 4-methylphenol was used. The laboratory reported cis-1,3-dichloropropene and trans-1,3-dichloropropene. The RSL Table did not distinguish between the isomers, and the screening level for 1,3-dichloropropene was used for both.

- At SWMUs/AOCs with permanent monitoring wells and/or piezometers, upgradient or background wells were evaluated for the presence of target constituents to determine if detections were likely due to previous activities at the SWMU/AOC or due to potential upgradient source(s).

- Greater significance was assigned to detections of target constituents in more than one sampling event or in more than one sample per event.

Tabulated analytical results are presented in comparison to the screening levels in Sections 2.0 through 6.0. Over the course of the investigations at the Facility, data verification and validation were performed following procedures outlined in quality assurance project plans (QAPPs). Data qualifiers, when appropriate, were added to the data in accordance with *USEPA's National Functional Guidelines for Organic Data Review* ([NFGO] USEPA, 1993 and 1999) and *USEPA's National Functional Guidelines for Inorganic Data Review* ([NFGI] USEPA, 1994 and 2004). A description of data qualifiers assigned by the laboratories and during data verification and validation is provided on Table 1-1. Additionally, constituents that exceed screening levels are highlighted in the data summary tables.

Sections 2.0 through 6.0 contain a general description of each SWMU or AOC and a summary of the data screening results. A table is provided for each SWMU or AOC that summarizes the number of exceedances of the tapwater RSL and the SDWA MCL, as appropriate, for each constituent. Following this summary table, tables are provided that screen each sample and constituent versus the applicable screening level. Figures are provided that present the sample locations. In addition, exhibits are provided that contain figures from various historical reports and include information such as groundwater potentiometric surface maps, data posting figures, etc. Tables, figures, and exhibits are provided at the end of each section of this report.

1.5 REPORT ORGANIZATION

This *Groundwater Screening Report* has been prepared by BMcD and consists of one volume. Screening results for SWMUs and AOCs are organized geographically, as follows:

- Section 1.0 – Introduction
- Section 2.0 – SWMUs/AOCs on Property East of I-435
- Section 3.0 – SWMUs/AOCs South of 24 Highway
- Section 4.0 – AOC 1 – Abandoned Fuel Oil Storage Tank
- Section 5.0 – SWMUs/AOCs at the Former Tank Farm
- Section 6.0 – SWMUs Associated with Nail Mill Degreaser VOC Plume

- Section 7.0 – Summary and Conclusions
- Section 8.0 - References
- Appendices
  - Appendix A – RFI Report Section 2.0, Environmental Setting
  - Appendix B – SWMU 22 Additional Information
  - Appendix C – RCRA Landfill Groundwater Data and Groundwater Contour Maps
  - Appendix D – SWMU 12 Additional Information
  - Appendix E – SWMU 3 Additional Information
  - Appendix F – AOC 1 Additional Information
  - Appendix G – SWMU 33 Additional Information

* * * * *

Table 1-1
Description of Data Qualifiers
Groundwater Screening Report
AK Steel Kansas City Facility

Qualifier	Description
Qualifiers Added by the Laboratories	
B	Blank contamination. Analyte was found in the associated method blank as well as the sample.
D	Samples was diluted prior to analysis (used in historical data).
H	The sample was prepared or analyzed beyond the specified holding time.
J	The compound was detected. The result is less than the reporting limit (RL) but greater than or equal to the method detection limit (MDL), and the reported concentration is an estimated value.
U	The compound was analyzed, but was not detected above the reporting limit.
Qualifiers Assigned during Data Review	
F	Constituent was detected in associated field equipment rinsate blank (used in historical data).
J+	The result is an estimated value and may be biased high.
J-	The result is an estimated value and may be biased low.
J*	The result is an estimated value. Quality control results exhibit accuracy and/or precision criteria outside of limits.
R	The data are unusable. The sample results are rejected due to inability to meet quality control criteria.
T	Constituent was detected in associated trip blank (used in historical data).
U*	The compound was not detected. Results were disregarded as false positive due to blank contamination.
Possible Combinations of Qualifiers (Lab and Data Review)	
BJ+	The analyte was detected in the method blank, and the result should be considered estimated with a high bias due to potential for contamination.
BJ*	The analyte was detected in the method blank. In addition, quality control results exhibited accuracy and/or precision criteria outside of limits. The result is an estimated value.
BU*	The analyte was detected in the method blank, and the result should be considered nondetect (i.e., false positive) due to contamination.
DFJ*	The sample was diluted prior to analysis, and the constituent was detected in the associated field equipment rinsate blank. The result is an estimated value. Quality control results exhibit accuracy and/or precision criteria outside of limits.
DJ	The compound was detected. The result is less than the RL but greater than or equal to the MDL, and the reported concentration is an estimated value. Additionally, the sample was diluted prior to analysis.
DJ*	The result is an estimated value. Quality control results exhibit accuracy and/or precision criteria outside of limits. Additionally, the sample was diluted prior to analysis.
DU	The compound was analyzed, but was not detected above the reporting limit. Sample was diluted prior to analysis and may exhibit elevated reporting limits.

Table 1-1
Description of Data Qualifiers
Groundwater Screening Report
AK Steel Kansas City Facility

Qualifier	Description
Possible Combinations of Qualifiers (Lab and Data Review)	
DUJ*	Sample was diluted prior to analysis and may exhibit elevated reporting limits. The compound was analyzed, but was not detected above the reporting limit; however, the reporting limit is an estimated value due to quality control results outside of limits.
FJ*	The constituent was detected in the associated field equipment rinsate blank. The result is an estimated value. Quality control results exhibit accuracy and/or precision criteria outside of limits.
HBJ*	The sample was prepared or analyzed outside of holding time and blank contamination was noted in the analysis. The result is an estimated value that may be biased due to either the holding time (potential for low bias) or blank contamination (potential for high bias).
HJ-	The sample was prepared or analyzed outside of holding time and the result is an estimated value that may be biased low.
HUJ-	The sample was prepared or analyzed outside of holding time, and the analyte was not detected above the reporting limit. Due to the holding time exceedence, the reporting limit is an approximate value and may be biased low.
JBU*	The analyte was detected in the method blank at a concentration less than the reporting limit, and the result should be considered nondetect (i.e., false positive) due to contamination.
JR	The compound was detected at a concentration between the RL and MDL. However, the data is unusable/rejected due to inability to meet quality control criteria.
JU*	The analyte was detected at a concentration less than the reporting limit, and the result should be considered nondetect (i.e., false positive) due to contamination.
UJ-	The analyte was not detected above the reporting limit. However, the reporting limit is an approximate value and may be biased low.
UJ*	The analyte was not detected above the reporting limit. However, the reporting limit is an approximate value.
UR	The analyte was not detected above the reporting limit. However, the data is unusable/rejected due to inability to meet quality control criteria.

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LEGEND:

AK STEEL PROPERTY BOUNDARY

NORTH

0 2000' 4000'

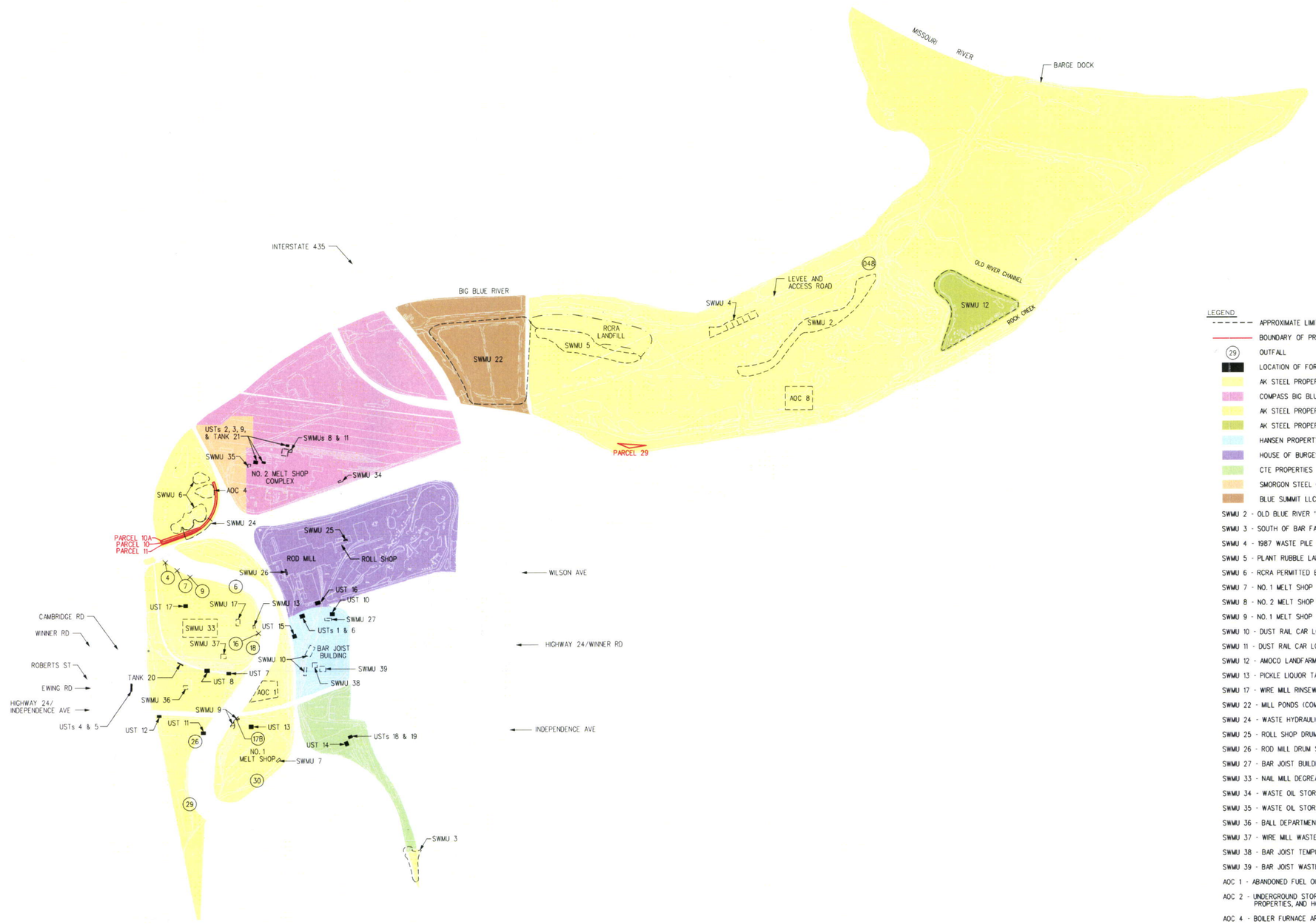
SCALE IN FEET

Burns & McDonnell SINCE 1898

Figure 1-1

FACILITY LOCATION MAP
AK STEEL
KANSAS CITY, MISSOURI

C:\DRAWING1.DWG 11-25-2008 11:06 KSCHUTTE



LEGEND

- APPROXIMATE LIMITS OF SWMU OR AOC AREA
- BOUNDARY OF PROPERTY SOLD TO KC TERMINAL RAILROAD
- (29) OUTFALL
- LOCATION OF FORMER USTs BELONGING TO AOC 2
- AK STEEL PROPERTY
- COMPASS BIG BLUE LLC PROPERTY (FORMERLY GST)
- AK STEEL PROPERTY FORMERLY LEASED TO GST
- AK STEEL PROPERTY FORMERLY LEASED TO AMOCO
- HANSEN PROPERTY DEVELOPMENT, INC.
- HOUSE OF BURGESSES LLC PROPERTY (FORMERLY GST)
- CTE PROPERTIES LLC PROPERTY (FORMERLY GST)
- SMORGON STEEL GRINDING SYSTEMS LLC PROPERTY (FORMERLY GST)
- BLUE SUMMIT LLC

SWMU 2 - OLD BLUE RIVER "W" LANDFILL (AK STEEL PROPERTY)
SWMU 3 - SOUTH OF BAR FAB LANDFILL (AK STEEL PROPERTY)
SWMU 4 - 1987 WASTE PILE (AK STEEL PROPERTY)
SWMU 5 - PLANT RUBBLE LANDFILL (AK STEEL PROPERTY)
SWMU 6 - RCRA PERMITTED BAGHOUSE DUST STORAGE TANKS (AK STEEL PROPERTY)
SWMU 7 - NO. 1 MELT SHOP BAGHOUSE DUST TANK (AK STEEL PROPERTY)
SWMU 8 - NO. 2 MELT SHOP BAGHOUSE DUST TANK (COMPASS PROPERTY)
SWMU 9 - NO. 1 MELT SHOP CANOPY BAGHOUSE DUST CONVEYOR (AK STEEL PROPERTY)
SWMU 10 - DUST RAIL CAR LOADING AREA - BAR JOIST BUILDING (AMERICAN PROPERTIES PROPERTY)
SWMU 11 - DUST RAIL CAR LOADING AREA - NO. 2 MELT SHOP (COMPASS PROPERTY)
SWMU 12 - AMOCO LANDFARM (AK STEEL PROPERTY, AMOCO LEASED 1973 TO 1980)
SWMU 13 - PICKLE LIQUOR TANKS (AK STEEL PROPERTY)
SWMU 17 - WIRE MILL RINSEWATER NEUTRALIZATION TANK (AK STEEL PROPERTY)
SWMU 22 - MILL PONDS (COMPASS PROPERTY)
SWMU 24 - WASTE HYDRAULIC AND LUBRICATING OIL STORAGE TANKS (AK STEEL PROPERTY)
SWMU 25 - ROLL SHOP DRUM STORAGE AREA (HOUSE OF BURGESSES PROPERTY)
SWMU 26 - ROD MILL DRUM STORAGE AREA (HOUSE OF BURGESSES PROPERTY)
SWMU 27 - BAR JOIST BUILDING HAZARDOUS WASTE STORAGE AREA (AMERICAN PROPERTIES PROPERTY)
SWMU 33 - NAIL MILL DEGREASING AREA (AK STEEL PROPERTY)
SWMU 34 - WASTE OIL STORAGE AREA EAST OF GST's NO. 2 MELT SHOP (COMPASS PROPERTY)
SWMU 35 - WASTE OIL STORAGE AREA ON NORTH SIDE OF GST's 19" MILL (COMPASS PROPERTY)
SWMU 36 - BALL DEPARTMENT WASTE OIL STORAGE AREA (AK STEEL PROPERTY, FORMERLY GST LEASED)
SWMU 37 - WIRE MILL WASTE OIL STORAGE AREA (AK STEEL PROPERTY)
SWMU 38 - BAR JOIST TEMPORARY GREASE STORAGE AREA (AMERICAN PROPERTIES PROPERTY)
SWMU 39 - BAR JOIST WASTE OIL AND GREASE STORAGE AREA (AMERICAN PROPERTIES PROPERTY)
AOC 1 - ABANDONED FUEL OIL STORAGE TANK (AK STEEL PROPERTY)
AOC 2 - UNDERGROUND STORAGE TANKS (USTs) (AK STEEL, COMPASS, AMERICAN PROPERTIES, CTE PROPERTIES, AND HOUSE OF BURGESSES LLC PROPERTIES)
AOC 4 - BOILER FURNACE AREA (AK STEEL PROPERTY)
AOC 8 - "OWL GUN CLUB" SHOOTING PARK (AK STEEL PROPERTY)

NOTE:
1. APPROXIMATE FACILITY BOUNDARY, AS DEFINED IN PERMIT, IS SHOWN. AS INDICATED, PORTIONS OF THE FACILITY ARE NO LONGER OWNED BY AK STEEL.

NORTH

500' 0' 500' 1000'
SCALE IN FEET

Burns & McDonnell

Figure 1-2
FACILITY MAP

AK STEEL KANSAS CITY FACILITY

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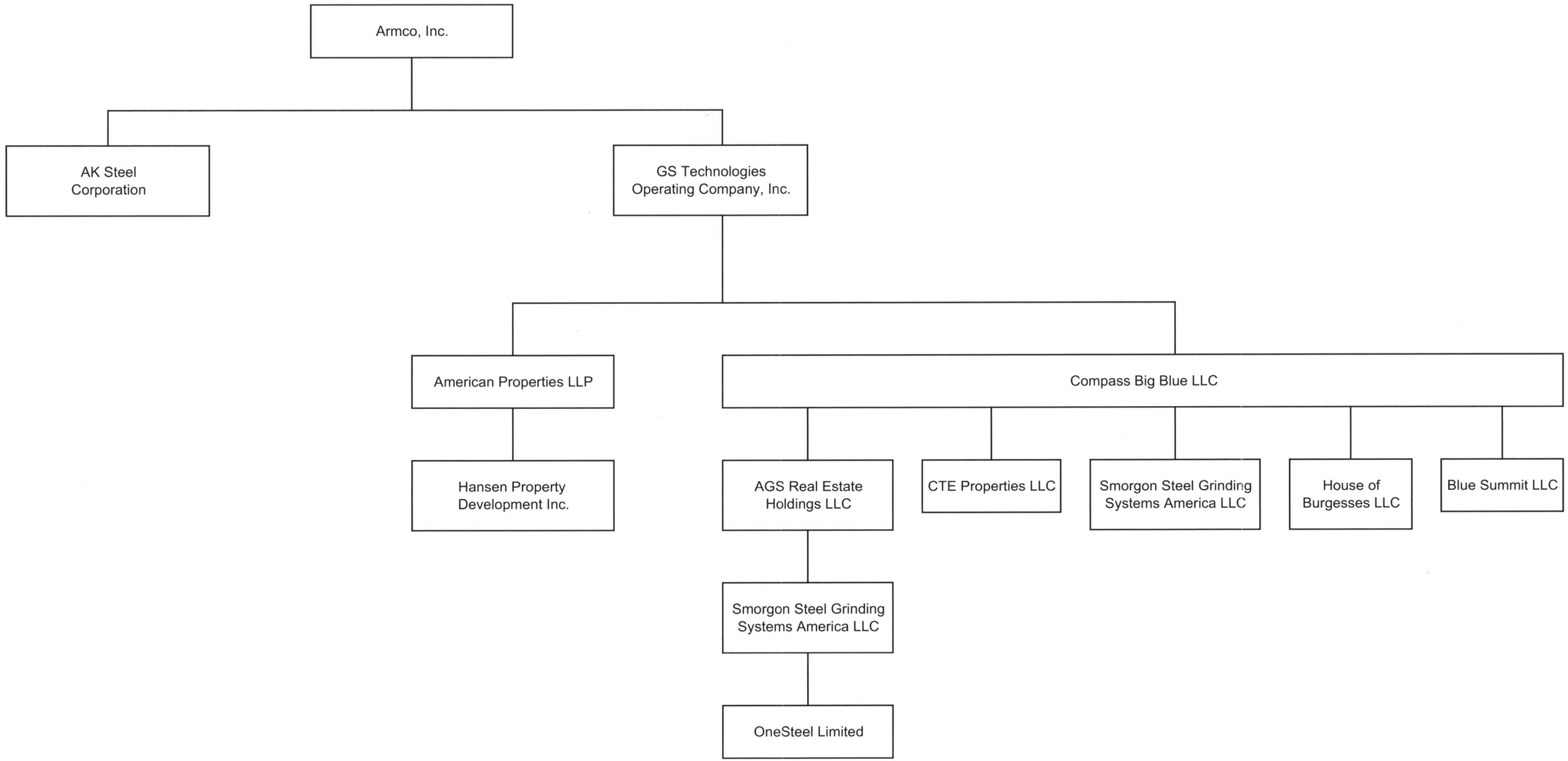

Note: Ownership based on search of Jackson County, Missouri online public records (http://records.co.jackson.mo.us/localization/menu.asp).
Most recent Warranty Deed was dated December 30, 2008 (Blue Summit LLC).
American Grinding Systems (AGS) was sold to Smorgon Steel in October 2004, and Smorgon Steel merged with OneSteel Limited in August 2007.

Burns & McDonnell SINCE 1898

Figure 1-3

Ownership Status

AK Steel Kansas City Facility

K:\ENV\AK STEEL\Site\46620\Deliver\RSL Screening\Figures\Figure 1-3_Ownership Status.xls

SECTION 2.0
SWMUs/AOCs ON PROPERTY EAST OF I-435

2.0 SWMUS/AOCS ON PROPERTY EAST OF I-435

A discussion of groundwater data for SWMUs and AOCs east of I-435 is presented in Section 2.0, and includes the following locations:

- SWMU 2 – Old Blue River "W" Landfill
- SWMU 4 – 1987 Waste Pile
- SWMU 5 – Plant Rubble Landfill
- SWMU 12 – AMOCO Landfarm
- SWMU 22 – Mill Ponds

The data is organized by the current property owner for a given SWMU. This area east of I-435 is within the Missouri River alluvial valley as discussed in Sections 1.3.1 and 1.3.2 (See Figure 1-2).

2.1 BLUE SUMMIT LLC PROPERTY

2.1.1 SWMU 22 – Mill Ponds

2.1.1.1 SWMU Background

The Mill Ponds (SWMU 22), located on property previously owned by GST and currently owned by Blue Summit LLC (see Figure 1-2), were constructed in 1976 for the cooling of mill water from various on-site locations. The two clay-lined ponds are no longer active. Each is in the shape of an irregular polygon and is approximately 7 feet deep and 900 feet long. The width of each pond ranges from 250 to 540 feet. The ponds are located side by side and are separated by a center berm, which contains the influent piping. The western pond is bisected by a berm that divides the pond into northern and southern sections. The ponds are surrounded by a fence with multiple gated and locked access points.

Each pond was equipped with an oil skimmer located near the pond outlets. Oil skimmed from the ponds was collected and transported off site by Safety Kleen as part of GST's waste oil management program. During Armco's operation of the ponds, skimmed oil was managed at the Waste Oil Storage Tanks (SWMU 24). The water managed in this SWMU came from numerous sources including the following:

1. Mill water conveyed to the ponds from the Rod Mill, 19" Rolling Mill, Continuous Casting, Ball Forging, Grinding Media, and other hot-rolling facilities that have since been demolished.

2. Groundwater from a recovery well that was used for groundwater remediation in 1991 at AOC 1, Abandoned Fuel Oil Tank.

3. Hydrochloric acid solution generated in the Etch Lab and spent phosphoric acid associated with the Roll Cleaning operations. Both acids were transported to the ponds from storage tanks via a tank contained on a flatbed truck. These solutions were placed in the Mill Ponds instead of purchased chemicals to control the pH of the mill water. Pickle liquor (spent sulfuric acid) was not taken to SWMU 22.

4. Precipitation falling directly on the ponds. Surface grading prevents precipitation that falls on surrounding areas from entering the ponds.

The management of mill water in these ponds allowed for settlement of mill scale, which is primarily composed of iron oxide. In 1988, Armco cleaned out the west pond by dewatering the pond and removing the mill scale using a dragline. The mill scale removed from the pond was sold or was mixed with other iron oxide from the Facility and was then sold. The materials were sold to the cement industry where they were used to increase cement iron content. The east pond was never cleaned out during Armco's operation of the ponds. In addition, anecdotal evidence indicates that the ponds were not cleaned out during either GST's or CBB's operations.

As a result of the property transfer from Armco to GST in 1993, a revision to the Armco National Pollutant Discharge Elimination System (NPDES) Water Discharge Permit (Permit No. MO-0004952) was requested, and GST submitted an application for an NPDES permit. This request resulted in the transfer of Outfall No. 042, which is associated with the Mill Ponds, to GST. GST continued to place water and phosphoric acid into the Mill Ponds until its bankruptcy in 2001. The rate at which phosphoric acid was placed in the ponds was approximately 750 gallons of solution every three to four months (Fillinger, 1999).

The Mill Ponds (SWMU 22) are no longer active. CBB disposed of the contents of the oil skimmers in 2006. In 2007, CBB dismantled the pump house on the southern end of the ponds and sold the materials as scrap. Since the ponds are no longer operational, the only water present is that retained following precipitation events. During the late summer months and periods of low precipitation, the eastern pond and northern portion of the western pond are primarily dry. The southern portion of the western pond retains water year round.

Blue Summit LLC purchased the ponds and surrounding property in 2008. Mill scale from the ponds is being removed for beneficial reuse by Lafarge in the manufacture of cement. In addition, the City of Kansas City, Missouri Board of Zoning Adjustment issued a conditional use permit for a demolition debris landfill at this location in May 2010. Additional information regarding the removal and beneficial reuse of mill scale and the conditional use permit for a demolition debris landfill are provided in Appendix B.

2.1.1.2 SWMU 22 Groundwater Flow Direction and Gradient, RFI Report

During the RFI, groundwater contour maps were prepared for SWMU 22 using piezometers installed at SWMU 22 and monitoring wells associated with the adjacent RCRA Landfill. Maps for three representative monitoring events are included as part of Exhibit 2-1 (RFI Figures 2-15 through 2-17). During normal to below normal river levels, groundwater flow is generally toward the Blue River.

In general, the groundwater gradient at SWMU 22 is to the north. During RFI activities, groundwater flow paths diverged beneath the southeast corner of the Mill Pond area with groundwater flowing northward to the Blue River and westward into a cone of depression developed by Rock Creek Railroad Tunnel dewatering (Exhibit 2-1: Figure 2-16). The area of influence created by tunnel dewatering varied in size due to river level, groundwater level, and pumping rate. Tunnel dewatering activities are no longer occurring. During RFI activities, Piezometer 22PZ05S also had anomalously high water levels (relative to other wells), and it was not clear why groundwater levels were elevated in 22PZ05S. Based on these representative monitoring events, the average hydraulic gradient (vertical feet per horizontal feet) for groundwater in the unconfined saturated zone in the SWMU 22-Mill Pond vicinity was 4.85E-03 (Appendix A, Table 2-6).

2.1.1.3 Screening Results

SWMU 22 groundwater sampling locations are presented on Figure 2-1. Over the course of investigations at the Facility, the following groundwater data have been collected:

- **1997 RFI** – Groundwater samples 22B01 through 22B10 were collected using direct-push techniques and analyzed for volatile organic compound (VOCs), semivolatile organic compounds (SVOCs), and filtered RCRA metals.

- **1998 RFI** – Based on results of the 1997 data, direct-push borings 22B11 through 22B15 were advanced east and north of SWMU 22. Groundwater samples were collected and analyzed for filtered arsenic.

- **1998 RFI** – Piezometers 22PZ01S, 22PZ02S, 22PZ03S, and 22PZ05S were installed around the perimeter of SWMU 22. Groundwater samples were collected from these piezometers and PZ-Xa associated with the RCRA Landfill monitoring network and analyzed for filtered arsenic.

- **2003 CBB Investigation** – Representatives from CBB collected groundwater samples from 22PZ01S, 22PZ02S, 22PZ03S, and 22PZ05S and analyzed the samples for filtered arsenic and filtered lead. Analytical data for this investigation is provided in Appendix B.

A summary of the groundwater screening results is presented on Table 2-1. Screening of individual samples against the groundwater screening levels is presented on Tables 2-2 through 2-4. A summary of the screening is provided in the following paragraphs:

- **VOCs (Table 2-2 and Exhibit 2-1: Figure 17-3)** – Groundwater samples were collected for VOC analysis from direct-push borings. VOCs were not detected in any of the groundwater samples collected from sampling points in SWMU 22.

- **SVOCs (Table 2-2 and Exhibit 2-1: Figure 17-3)** – Groundwater samples were collected for SVOC analysis from direct-push borings. SVOCs were only sporadically detected in the groundwater samples collected from SWMU 22. 2,4-Dimethylphenol was detected in one sample, and the concentration did not exceed the USEPA tapwater RSL (an MCL is not available). Bis(2-ethylhexyl)phthalate (BEHP) was detected in groundwater samples from two locations (22B08 and 22B10 on the west side of SWMU 22). The BEHP concentrations exceeded the MCL; however, BEHP is a common laboratory contaminant and the lack of other phthalate detections suggests possible laboratory contamination.

- **Filtered RCRA Metals (Tables 2-2 through 2-4 and Exhibit 2-1: Figure 17-2)** – Samples were collected for metals analysis as follows: 1997 RFI direct-push locations (RCRA Metals analysis), 1998 RFI direct-push and piezometers locations (arsenic analysis), and 2003 piezometer locations (arsenic and lead analysis). The 1997 RFI direct-push samples were analyzed for filtered RCRA metals. Arsenic, barium, cadmium, lead, and mercury were detected in at least one sample each (Table 2-2). Arsenic was detected in concentrations that exceeded the MCL in samples from all locations except 22B09 (Exhibit 2-1: Figure 17-2). Additional arsenic sampling from direct-push monitoring points and piezometers occurred during the RFI in 1998 (Table 2-3 and Exhibit 2-1: Figure 17-2). Filtered arsenic was not detected in samples collected from the 1998 direct-push locations (i.e., Borings 22B11 to 22B15); however, filtered arsenic results for samples collected from

the piezometers exceeded the MCL. The piezometers were resampled in 2003 for dissolved arsenic and lead, and neither constituent was detected.

2.1.1.4 Conclusion

Based on the data screening, no additional groundwater monitoring is needed. VOCs were not detected in groundwater samples. BEHP, a common laboratory cross-contaminant, is the only SVOC detected in excess of MCLs, and it was only detected in samples from two locations. Arsenic was detected in 15 RFI groundwater samples at concentration in excess of the MCL; however, arsenic was not detected in samples collected in 2003 from piezometers placed around the perimeter of SWMU 22.

The Mill Ponds (SWMU 22) are currently not owned by AK Steel. Blue Summit LLC is the current owner, and mill scale removal and resale activities have been occurring at the ponds since their acquisition. The eventual goal is to have sufficient mill scale removed from SWMU 22 such that it will not need to be included within the Facility at the time of Permit reissuance. In addition, a conditional use permit for a demolition debris landfill has been issued by the City of Kansas City Missouri Board of Rezoning for this area.

2.2 AK STEEL PROPERTY

2.2.1 SWMU 2 – Old Blue River "W" Landfill

2.2.1.1 SWMU Background

The Old Blue River "W" Landfill (SWMU 2), located on AK Steel property (see Figure 1-2), is a closed landfill previously used to manage emission control dust and solid waste. This W-shaped portion of the Old Blue River channel was used to dispose of emission control dust generated in the No. 1 and No. 2 Melt Shop electric arc furnaces from approximately 1965 until 1980. In addition, general plant and office trash was disposed in this SWMU. SWMU 2 covers an area of approximately 7 acres and is estimated to contain 185,000 cubic yards of material.

The landfill was closed through construction of a soil cap (approximately three feet of compacted soil and a vegetative (fescue grass) cover. The soil cover and vegetative stand remain in good condition. This site has been classified as a Class III Site on the Missouri Registry of Confirmed Abandoned or Uncontrolled Sites. Class III is defined as "does not present a significant threat to public health or the environment – action may be deferred."

2.2.1.2 Screening Results

SWMU 2 groundwater sampling locations are presented on Figure 2-2. Over the course of investigations at the Facility, the following groundwater data have been collected:

- **1997 RFI** - Groundwater samples 02B01 through 02B09 were collected using direct-push techniques and analyzed for filtered cadmium and filtered lead.

- **1998 RFI** - Based on results of the 1997 data, direct-push borings 02B04A and 02B10 through 02B17 were advanced. Groundwater samples were collected and analyzed in the field using a mobile gas chromatograph (GC) for chlorinated VOCs (1,1,1-trichloroethane [1,1,1-TCA], 1,2-dichloroethene [1,2-DCE], trichloroethene [TCE], and vinyl chloride) and aromatic VOCs (benzene, ethylbenzene, toluene, and xylenes [BTEX]). Based on results of the mobile GC, the groundwater samples were submitted to an off-site certified laboratory for analysis of VOCs. In addition, these samples were analyzed for filtered lead. The sample collected from Boring 02B16 was also analyzed for SVOCs.

- **2007 Supplemental Investigation** – Groundwater samples 02B18 through 02B21 were collected using direct-push techniques and analyzed for filtered cadmium, filtered lead, and VOCs.

A summary of the groundwater screening results is presented on Table 2-5. Screening of individual samples against the groundwater screening values is presented on Tables 2-6 through 2-8. A summary of the screening is provided in the following paragraphs:

- **VOCs (Tables 2-7 and 2-8, Exhibit 2-2: Figure 5-3, and Exhibit 2-3: Figure 3-3)** - Samples were collected for VOC analysis as follows: 1998 RFI direct-push locations (Figure 5-3 in Exhibit 2-2) and 2007 supplemental investigation direct-push locations (Figure 3-3 in Exhibit 2-3). VOCs were detected in groundwater samples from eight locations. BTEX were the most frequently detected VOCs. Of the VOCs detected in samples collected from SWMU 2, the following five compounds exceeded the groundwater screening level in one or more samples: benzene (Borings 02B04A and 02B21), ethylbenzene (Borings 02B16 and 02B21), xylenes (Boring 02B16), 1,1-dichloroethane (1,1-DCA, Boring 02B04A), and methylene chloride (Borings 02B15 and 02B19) .

- **SVOCs (Table 2-7)** - One groundwater sample collected from SWMU 2 (02B16/DW1) was analyzed for SVOCs. While 2,4-dimethyl phenol (67 micrograms per liter [µg/L]) and Isophorone (52 µg/L) were detected in this sample, neither detection exceeded the applicable USEPA tapwater RSL (MCLs for 2,4-dimethylphonel and Isophorone were not available).

- **Filtered Cadmium and Lead (Tables 2-6 and 2-8, Exhibit 2-2: Figure 5-2, and Exhibit 2-3: Figure 3-2)** - Samples were collected for filtered cadmium and lead analysis as follows: 1997 and 1998 RFI direct-push locations (Figure 5-2 in Exhibit 2-2) and 2007 supplemental investigation direct-push locations (Figure 3-2 in Exhibit 2-3). Filtered cadmium was not detected in any of the 13 samples for which it was analyzed. Filtered lead was detected in roughly half (13 of the 22) of the groundwater samples for which it was analyzed. Of these detections, eight exceeded the MCL for dissolved lead. With the exception of Boring 02B17, groundwater sampling locations that exhibited sample results in excess of the MCL were centrally located or to the northeast in close proximity to the landfill. Exceedances were not observed for samples from locations to the southwest and at greater distance from the landfill cap.

2.2.1.3 Conclusion

The groundwater data collected to date at SWMU 2 have been from direct-push sample locations. Monitoring wells have not been placed in this area. Based on the exceedances of MCLs for benzene, ethylbenzene, xylenes, methylene chloride, and lead, installation of a groundwater monitoring network around SWMU 2 is recommended. While the exceedances appear to be localized and in close proximity to the landfill, the network will provide information regarding constituent trends over time and groundwater flow direction. The data from several rounds of groundwater monitoring events can then be used to determine the need for any additional activities.

2.2.2 SWMU 4 – 1987 Waste Pile

2.2.2.1 SWMU Background

The 1987 Waste Pile (SWMU 4), located on AK Steel property (see Figure 1-2), consisted of a pile of emission control dust. This waste pile was discovered in 1987 near the Old Blue River "W" Landfill (SWMU 2). The estimated quantity of emission control dust (i.e., K061 dust) in the waste pile was 14,000 cubic yards. It is not known how long the pile was in existence. In 1988, the waste pile was transported off site for reclamation and manifested as emission control dust. No visible evidence of the waste pile now remains. The original defined SWMU area was approximately 1.5 acres in size. During the RFI, the soil contamination in the SWMU 4 area expanded in size to the west and south to encompass nearly 16 acres.

2.2.2.2 Screening Results

SWMU 4 soil and groundwater sampling locations are presented on Figure 2-3, and groundwater sampling locations are presented in blue on this figure. Over the course of investigations at the Facility, the following groundwater data have been collected:

- **1997 RFI** - Groundwater samples 04B02, 04B05, and 04B06 were collected using direct-push techniques and analyzed for filtered cadmium, filtered lead, SVOCs, and total petroleum hydrocarbons (TPH). In addition, the sample from Boring 04B02 was analyzed for pH and VOCs.

A summary of the groundwater screening results is presented on Table 2-9. Screening of individual samples against the groundwater screening values is presented on Tables 2-10 and 2-11. A summary of the screening is provided in the following paragraphs:

- **Filtered Cadmium and Lead (Table 2-10 and Exhibit 2-4: Figure 7-3)** - Filtered lead was detected in four of the 16 groundwater samples for which it was analyzed. Results for three of the centrally-located samples exceeded the MCL for dissolved lead (Exhibit 2-4: Figure 7-3). Filtered cadmium was detected in one of the three samples for which it was analyzed, and the detection was below the MCL.

- **VOCs (Table 2-11)** - One sample (04B02/DW1) collected from SWMU 4 was analyzed for VOCs. No VOCs were detected in this groundwater sample.

- **SVOCs (Table 2-11)** - Three samples and one duplicate were collected for analysis of SVOCs. Four SVOCs were detected in one sample (04B02/DW1). While detections were reported for 2,4-dimethylphenol, 2-methylphenol, 4-methylphenol, and phenol, none of the detections exceeded their respective tapwater RSLs (MCLs were not available for these SVOCs).

- **TPH (Table 2-11)** - USEPA tapwater RSLs and MCLs are not available for the TPH analyses performed on three groundwater samples and one duplicate from SWMU 4. TPH-extractable was detected for sample 04B02/DW1 at a concentration of 3.32 milligrams per liter (mg/L).

2.2.2.3 Conclusion

The groundwater data collected to date at SWMU 4 have been from direct-push sample locations. Filtered lead was detected at concentrations greater than the MCL in a localized area south of the levee road and north of a former railroad bed (Exhibit 2-4: Figure 7-3). Lead was only detected at one other location. It is anticipated that any additional groundwater monitoring needs for SWMU 4 will be

addressed as part of an overall groundwater monitoring network that was recommended for the adjacent SWMU 2 (Section 2.2.1), and the data collected from this recommended network can then be used to determine the need for any additional activities.

2.2.3 SWMU 5 – Plant Rubble Landfill

2.2.3.1 SWMU Background

The Plant Rubble Landfill (SWMU 5), located on AK Steel property (see Figure 1-2), is a landfill which was used by Armco from 1980 to 1993 to manage rubble and demolition materials. The landfill was capped and subsequently vegetated (fescue grass). The vast majority of the landfill contents are construction debris, including: concrete, sand, earth, rock, etc. SWMU 5 covers an area of less than 3 acres and is located immediately south of the permitted RCRA Landfill. The volume of materials contained in the landfill is estimated at 120,000 cubic yards.

2.2.3.2 SWMU 5 Groundwater Flow Direction and Gradient, RFI Report

The evaluation of groundwater flow direction and gradient presented for SWMU 22 in Section 2.1.1.2 is applicable to SWMU 5. In general, the groundwater surface at SWMU 5 slopes toward the north. Maps for three representative monitoring events are included as part of Exhibit 2-1 (RFI Figures 2-15 through 2-17). In addition, potentiometric surface maps for monitoring events associated with the adjacent RCRA Landfill are provided in Appendix C.

2.2.3.3 Screening Results

SWMU 5 sampling locations are presented on Figure 2-4. Over the course of investigations at the Facility, the following groundwater data have been collected:

- **1997 RFI** - Groundwater samples 05B01 through 05B06 were collected using direct-push techniques and analyzed for filtered cadmium and filtered lead. Direct-push groundwater samples could not be collected on the north side of the SWMU due to the adjacent RCRA Landfill.

A summary of the results of the groundwater screening results is presented on Table 2-12. Screening of individual samples to the groundwater screening levels is presented on Table 2-13. A summary of the screening is provided in the following paragraph:

- **Filtered Metals (Table 2-13, Exhibit 2-5: Figure 8-2)** - Dissolved cadmium and dissolved lead were not detected for any of the six of the groundwater samples collected from SWMU 5. In addition, groundwater data collected from 1983 through 1997 from monitoring wells associated with the

adjacent RCRA Landfill has not shown the presence of dissolved cadmium or lead (i.e., Results were typically non-detect or had limited detections below MCLs). The data for the RCRA Landfill are provided in Appendix C, and the monitoring wells associated with this landfill are shown on Exhibit 2-5: Figure 8-2.

2.2.3.4 Conclusion

Dissolved cadmium and lead were not detected in groundwater samples associated with SWMU 5. No additional activities or corrective measures are needed for SWMU 5. Per a Class 2 modification to the Post-Closure Permit, groundwater monitoring activities associated with the adjacent RCRA Landfill ceased in 1997.

2.2.4 SWMU 12 – AMOCO Landfill

2.2.4.1 SWMU Background

SWMU 12 (see Figure 1-2) was utilized by Amoco from 1975 through 1979 for the landfarming of petroleum refining waste generated at the Amoco Sugar Creek Refinery. SWMU 12 is located on AK Steel property that was leased to Amoco from December 1973 through September 1980. SWMU 12 covers approximately 10 acres.

Amoco hauled petroleum refining waste to SWMU 12 by truck from the refinery which is located east of SWMU 12 in Sugar Creek, Missouri. The waste was incorporated into the soil by surface spreading and discing. Based upon information provided by Amoco, approximately 30,000 tons of petroleum refining waste were placed in SWMU 12 during its five years of operation. It has been estimated that 3 to 8 inches of petroleum refining waste were incorporated into the soil each year (Woodward-Clyde Consultants [WCC], 1980). An estimated total of 24 inches of waste, having a wet weight of 30,000 tons and a dry weight of 15,000 tons, was managed at SWMU 12. Water decanted from the sludge material and precipitation falling on the SWMU was controlled by a dike that surrounds the SWMU. Two culverts were located through the dike so that surface water could be discharged from the area, as necessary. No information is available regarding the quality or quantity of water discharged from SWMU 12 during operation. The culvert gates appeared to be closed during a visit by Armco and BMWCI personnel to the SWMU in early 1995; however, one of the culverts had been silted in and was not visible from the ground surface.

The only known waste activity conducted by Armco at SWMU 12 involved a one-time land application of liquid and sludge sediment generated during the cleaning of a No. 2 fuel oil tank. This activity is believed to have taken place in 1976 or 1977. Although the exact quantity of material associated with this activity

cannot be determined, it is anticipated that the quantity was less than the capacity of the 10,000 gallon No. 2 fuel oil tank , because the product was removed from the tank long before this activity took place. The material transported to SWMU 12 was limited to the residual material remaining at the bottom of the tank. The material was transported to SWMU 12 in a single trip by a vacuum truck. Although the actual quantity of material is unknown, it is not anticipated to have exceeded a few hundred gallons.

In a 103(c) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) notification to USEPA, Amoco classified the materials disposed in SWMU 12 under hazardous waste codes K048, K049, K050, and K051 (Helffrich, 1981). The basis for the listing of these waste codes is the presence of lead and hexavalent chromium. At the time that the petroleum refining waste was managed at SWMU 12, it was not classified as hazardous waste. Samples taken from sludge-incorporated soil passed the EP-Toxicity testing for chromium and lead (WCC, 1980).

During the flood of 1993, SWMU 12 was covered by floodwaters. The SWMU may have been affected by water and silt carried in during the flood conditions. The surface of SWMU 12 does not appear to be eroded; however, the presence of approximately 6-inches of sediment deposited during the 1993 flood is evident.

In November 1998, Armco personnel observed deterioration of the dike located around SWMU 12. Armco and BMWCI personnel performed an engineering evaluation of the dike failure. A slope failure occurred on the southern portion of the dike, directly north of the relocated Rock Creek and the Independence Sewage Treatment Plant outfall location. The failure was approximately 140 feet long and extended back into the bank approximately 40 feet from the toe of the slope at its deepest point. It appeared that the failure was a result of extensive erosion on the supporting toe of the slope and scouring of the dike due to Rock Creek flow combined with discharge from the Sewage Plant outfall. Based on the site evaluation, it did not appear that contents of the SWMU were released due to this condition. USEPA was notified of these conditions in Armco's Fourth Quarter 1998 Progress Report dated January 11, 1999. ThermoRetec Corporation completed repairs to the levee in November 1999.

SWMU 12 is currently heavily vegetated with various brush and trees. A portion of SWMU 12 in is the right-of-way for a planned roadway, the Lewis and Clark Expressway. The conceptual design for this roadway has been completed.

2.2.4.2 SWMU 12 Groundwater Flow Direction and Gradient, RFI Report

The groundwater surface at SWMU 12 appears to have an east-west trough with flow toward the west (Figure 2-14 presented in Exhibit 2- 6). Groundwater gradients from the north and south toward the

trough were 1.02E-02 and 6.67E-03, respectively on February 14, 1997 (See Appendix A, Table 2-6 of the RFI Report). Bedrock topography may be exerting control on the groundwater surface beneath SWMU 12, which is close to the southern edge of the Missouri River alluvial valley (Figure 2-1 presented in Appendix A).

2.2.4.3 Screening Results

SWMU 12 sampling locations and extent of the AMOCO landfill are presented on Figure 2-5. Over the course of investigations at the Facility, the following groundwater data have been collected:

- **1980 WCC Investigation** – Groundwater samples were collected from Observation Wells OWA-5 and OWA-6 in June and August 1980 by WCC on behalf of AMOCO. Samples were analyzed for benzene, toluene, xylenes, metals (including hexavalent chromium), and various water quality parameters. Since the analytical data packages for this data were unavailable for review, it was excluded from screening; however, the investigation report is presented in Appendix D.

- **1994 AMOCO Investigation** – Groundwater samples were collected from Observation Wells OWA-5 and OWA-6 in October 1994 by AMOCO. Samples were analyzed for a select list of VOCs, SVOCs, and metals. Since analytical data and associated QC results are available for this data, it was included in the screening. The data packages for this event are presented in Appendix D.

- **1996 Interim Measures Investigation** - Groundwater samples were collected from two existing observation wells (OWA-5 and OWA-6) and four monitoring wells installed during interim measures activities (12MW1 through 12MW4). Samples were analyzed for the Skinner's List of VOCs and SVOCs, TPH, chromium (total and hexavalent), and lead. Trivalent chromium was calculated as the difference between total chromium and hexavalent chromium.

A summary of the groundwater screening results is presented on Table 2-14. Screening of individual samples to the groundwater screening levels is presented on Tables 2-15 and 2-16. A summary of the screening is provided in the following paragraphs:

- **VOCs (Tables 2-15 and 2-16, Exhibit 2-6: Figure 14-6)** – Carbon disulfide was the only VOC detected in the groundwater samples collected by AMOCO in 1994. The carbon disulfide detection was an order of magnitude below the USEPA tapwater RSL. An MCL is not available for carbon disulfide. VOCs were not detected in the groundwater samples collected in 1996 during interim measures from SWMU 12 (Table 2-16 and Exhibit 2-6: Figure 14-6).

- **SVOCs (Tables 2-15 and 2-16, Exhibit 2-6: Figure 14-6)** – BEHP was the only SVOC detected in the groundwater samples collected from SWMU 12. BEHP was detected in samples collected from Monitoring Wells 12MW1 and 12MW3, and the result for Monitoring Well 12MW1 (26.5 µg/L) exceeded the MCL. BEHP is a common laboratory contaminant and the lack of other SVOC or phthalate detections in samples from SWMU 12 suggests laboratory contamination.

- **Filtered Metals (Table 2-15 and 2-16, Exhibit 2-6: Figure 14-5)** – Samples were analyzed for chromium (total, hexavalent, and trivalent) and lead. None of these constituents were detected.

- **TPH (Table 2-16)** - USEPA tapwater RSLs and MCLs are not available for the TPH analyses performed on six samples from SWMU-12. TPH-extractable was detected in four of the six samples at concentrations ranging from 0.56 to 1.72 mg/L.

2.2.4.4 Conclusion

Metals were not detected in groundwater samples. In addition, carbon disulfide was the only VOC detected, and it was detected in one sample from one event at concentrations below the applicable screening level. BEHP, a common laboratory cross-contaminant, is the only SVOC detected in excess of MCLs, and it was only detected in one event in samples from two locations. Due to a lack of detections of other constituents and other phthalates, the BEHP detections are likely laboratory contamination. TPH-extractable was detected in samples collected from four monitoring wells; however, applicable screening levels are not available. In addition, Observation Well OWA-5 is placed in a downgradient location at the exit point of the groundwater trough, and no detections were noted in the groundwater samples collected from this well in 1994 or 1996. Based on the data screening, no additional groundwater monitoring activities or groundwater corrective measures are needed for SWMU 12.

* * * * *

Table 2-1
Summary of Groundwater Screening Results - SWMU 22
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Volatile Organic Compounds				
1,1,1-Trichloroethane	10	0	0	MCL
1,1,2,2-Tetrachloroethane	10	0	0	RSL
1,1,2-Trichloroethane	10	0	0	MCL
1,1-Dichloroethane	10	0	0	RSL
1,1-Dichloroethene	10	0	0	MCL
1,2-Dichloroethane	10	0	0	MCL
1,2-Dichloropropane	10	0	0	MCL
2-Butanone	10	0	0	RSL
2-Chloroethylvinyl ether	10	0	--	NAp
2-Hexanone	10	0	0	RSL
4-Methyl-2-pentanone	10	0	0	RSL
Acetone	10	0	0	RSL
Benzene	10	0	0	MCL
Bromodichloromethane	10	0	0	MCL
Bromoform	10	0	0	MCL
Bromomethane	10	0	0	RSL
Carbon disulfide	10	0	0	RSL
Carbon tetrachloride	10	0	0	MCL
Chlorobenzene	10	0	0	MCL
Chloroethane	10	0	0	RSL
Chloroform	10	0	0	MCL
cis-1,2-Dichloroethene	10	0	0	MCL
cis-1,3-Dichloropropene	10	0	0	RSL
Dibromochloromethane	10	0	0	MCL
Ethylbenzene	10	0	0	MCL
m,p-Xylene	10	0	0	RSL
Methyl chloride	10	0	0	RSL
Methylene chloride	10	0	0	MCL
o-Xylene	10	0	0	RSL
Styrene	10	0	0	MCL
Tetrachloroethene	10	0	0	MCL
Toluene	10	0	0	MCL
trans-1,2-Dichloroethene	10	0	0	MCL
trans-1,3-Dichloropropene	10	0	0	RSL
Trichloroethene	10	0	0	MCL
Vinyl acetate	10	0	0	RSL
Vinyl chloride	10	0	0	MCL
Semivolatile Organic Compounds				
1,2,4-Trichlorobenzene	10	0	0	MCL
1,2-Dichlorobenzene	10	0	0	MCL
1,3-Dichlorobenzene	10	0	--	NAp
1,4-Dichlorobenzene	10	0	0	MCL
2,4,5-Trichlorophenol	10	0	0	RSL
2,4,6-Trichlorophenol	10	0	0	RSL
2,4-Dichlorophenol	10	0	0	RSL
2,4-Dimethylphenol	10	1	0	RSL
2,4-Dinitrophenol	10	0	0	RSL
2,4-Dinitrotoluene	10	0	0	RSL
2,6-Dinitrotoluene	10	0	0	RSL
2-Chloronaphthalene	10	0	0	RSL
2-Chlorophenol	10	0	0	RSL
2-Methylnaphthalene	10	0	0	RSL

Table 2-1
Summary of Groundwater Screening Results - SWMU 22
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Semivolatile Organic Compounds				
2-Methylphenol	10	0	0	RSL
2-Nitroaniline	10	0	0	RSL
2-Nitrophenol	10	0	--	NAp
3,3'-Dichlorobenzidine	10	0	0	RSL
3-Nitroaniline	10	0	--	NAp
4,6-Dinitro-2-methylphenol	10	0	0	RSL
4-Bromophenyl-phenyl ether	10	0	--	NAp
4-Chloro-3-methylphenol	10	0	0	RSL
4-Chloroaniline	10	0	0	RSL
4-Chlorophenyl-phenyl ether	10	0	--	NAp
4-Methylphenol	10	0	0	RSL
4-Nitroaniline	10	0	0	RSL
4-Nitrophenol	10	0	--	NAp
Acenaphthene	10	0	0	RSL
Acenaphthylene	10	0	--	NAp
Anthracene	10	0	0	RSL
Benzo(a)anthracene	10	0	0	RSL
Benzo(a)pyrene	10	0	0	MCL
Benzo(b)fluoranthene	10	0	0	RSL
Benzo(g,h,i)perylene	10	0	--	NAp
Benzo(k)fluoranthene	10	0	0	RSL
Benzoic acid	10	0	0	RSL
Benzyl alcohol	10	0	0	RSL
Bis(2-chloroethoxy)methane	10	0	0	RSL
Bis(2-chloroethyl)ether	10	0	0	RSL
Bis(2-chloroisopropyl)ether	10	0	0	RSL
Bis(2-ethylhexyl)phthalate	10	2	2	MCL
Butylbenzylphthalate	10	0	0	RSL
Chrysene	10	0	0	RSL
Dibenzo(a,h)anthracene	10	0	0	RSL
Dibenzofuran	10	0	--	RSL
Diethyl phthalate	10	0	0	RSL
Dimethyl phthalate	10	0	--	NAp
Di-n-butylphthalate	10	0	0	RSL
Di-n-octylphthalate	10	0	--	NAp
Fluoranthene	10	0	0	RSL
Fluorene	10	0	0	RSL
Hexachlorobenzene	10	0	0	MCL
Hexachlorobutadiene	10	0	0	RSL
Hexachlorocyclopentadiene	10	0	0	MCL
Hexachloroethane	10	0	0	RSL
Indeno(1,2,3-cd)pyrene	10	0	0	RSL
Isophorone	10	0	0	RSL
Naphthalene	10	0	0	RSL
Nitrobenzene	10	0	0	RSL
N-Nitroso-di-n-propylamine	10	0	0	RSL
N-Nitrosodiphenylamine	10	0	0	RSL
Pentachlorophenol	10	0	0	MCL
Phenanthrene	10	0	--	NAp
Phenol	10	0	0	RSL
Pyrene	10	0	0	RSL

Table 2-1
Summary of Groundwater Screening Results - SWMU 22
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Filtered RCRA Metals				
Arsenic, Dissolved	24	15	15	MCL
Barium, Dissolved	10	10	0	MCL
Cadmium, Dissolved	10	1	0	MCL
Chromium, Dissolved	10	0	0	MCL
Lead, Dissolved	14	7	0	MCL
Mercury, Dissolved	10	1	0	MCL
Selenium, Dissolved	10	0	0	MCL
Silver, Dissolved	10	0	0	RSL

Notes:
Groundwater screening levels are as follows:
1. If a parameter has a MCL, data is screened using the MCL.
2. If a parameter does not have an MCL, data is screened using the USEPA tapwater RSL.

Samples, Duplicates, and Reanalyses are counted as 1 sample.
Exceedance is counted if any one of these exceeds the screening criteria.
NAp - Not applicable
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level

Table 2-2
1997 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steek Kansas City Facility

	Groundwater Screening Level		Sample:	22B01 / DW1		22B02 / DW1		22B03 / DW1		22B03 / DW1D		22B04 / DW1	
			Date Collected:	3/21/1997		3/21/1997		3/21/1997		3/21/1997		3/21/1997	
			Depth (ft bgs):	16 - 18		22 - 24		22 - 24		22 - 24		22 - 24	
			Lab ID:	D97-3447-1		D97-3447-2		D97-3447-3		D97-3447-4		D97-3447-5	
			Comments:							Duplicate			
Parameter			**Units**										
Volatile Organic Compounds													
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
2-Butanone	7100	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U	5	U	5	U	5	U
2-Hexanone	47	RSL	µg/L	50	U	50	U	50	U	50	U	50	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U	100	U	100	U	100	U
Acetone	22000	RSL	µg/L	100	U	100	U	100	U	100	U	100	U
Benzene	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Bromoform	80	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Bromomethane	8.7	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
Chloroform	80	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
m,p-Xylene	10000	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
o-Xylene	10000	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	5	U	5	U	5	U

Table 2-2
1997 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steek Kansas City Facility

	Groundwater Screening Level		Sample:	22B01 / DW1		22B02 / DW1		22B03 / DW1		22B03 / DW1D		22B04 / DW1	
			Date Collected:	3/21/1997		3/21/1997		3/21/1997		3/21/1997		3/21/1997	
			Depth (ft bgs):	16 - 18		22 - 24		22 - 24		22 - 24		22 - 24	
			Lab ID:	D97-3447-1		D97-3447-2		D97-3447-3		D97-3447-4		D97-3447-5	
			Comments:							Duplicate			
Parameter			**Units**										
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Vinyl acetate	410	RSL	µg/L	50	U	50	U	50	U	50	U	50	U
Vinyl chloride	2.0	MCL	µg/L	2	U	2	U	2	U	2	U	2	U
Semivolatile Organic Compounds													
1,2,4-Trichlorobenzene	70	MCL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
1,2-Dichlorobenzene	600	MCL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
1,3-Dichlorobenzene	--		µg/L	10	U	10	U	Not Analyzed		10	U	10	U
1,4-Dichlorobenzene	75	MCL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
2,4,5-Trichlorophenol	3700	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
2,4,6-Trichlorophenol	6.1	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
2,4-Dichlorophenol	110	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
2,4-Dimethylphenol	730	RSL	µg/L	***8.6***	***J***	10	U	Not Analyzed		10	U	10	U
2,4-Dinitrophenol	73	RSL	µg/L	50	U	50	U	Not Analyzed		50	U	50	U
2,4-Dinitrotoluene	0.22	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
2,6-Dinitrotoluene	37	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
2-Chloronaphthalene	2900	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
2-Chlorophenol	180	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
2-Methylnaphthalene	150	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
2-Methylphenol	1800	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
2-Nitroaniline	370	RSL	µg/L	50	U	50	U	Not Analyzed		50	U	50	U
2-Nitrophenol	--		µg/L	10	U	10	U	Not Analyzed		10	U	10	U
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	20	U	20	U	Not Analyzed		20	U	20	U
3-Nitroaniline	--		µg/L	50	U	50	U	Not Analyzed		50	U	50	U
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	50	U	50	U	Not Analyzed		50	U	50	U
4-Bromophenyl-phenyl ether	--		µg/L	10	U	10	U	Not Analyzed		10	U	10	U
4-Chloro-3-methylphenol	3700	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
4-Chloroaniline	0.34	RSL	µg/L	20	U	20	U	Not Analyzed		20	U	20	U
4-Chlorophenyl-phenyl ether	--		µg/L	10	U	10	U	Not Analyzed		10	U	10	U
4-Methylphenol	180	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
4-Nitroaniline	3.4	RSL	µg/L	20	U	20	U	Not Analyzed		20	U	20	U
4-Nitrophenol	--		µg/L	50	U	50	U	Not Analyzed		50	U	50	U
Acenaphthene	2200	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Acenaphthylene	--		µg/L	10	U	10	U	Not Analyzed		10	U	10	U

Table 2-2
1997 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steek Kansas City Facility

	Groundwater Screening Level		Sample:	22B01 / DW1		22B02 / DW1		22B03 / DW1		22B03 / DW1D		22B04 / DW1	
			Date Collected:	3/21/1997		3/21/1997		3/21/1997		3/21/1997		3/21/1997	
			Depth (ft bgs):	16 - 18		22 - 24		22 - 24		22 - 24		22 - 24	
			Lab ID:	D97-3447-1		D97-3447-2		D97-3447-3		D97-3447-4		D97-3447-5	
			Comments:							Duplicate			
Parameter			**Units**										
Anthracene	11000	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Benzo(a)anthracene	0.029	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Benzo(a)pyrene	0.2	MCL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Benzo(b)fluoranthene	0.029	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Benzo(g,h,i)perylene	--		µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Benzo(k)fluoranthene	0.29	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Benzoic acid	150000	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Benzyl alcohol	3700	RSL	µg/L	20	U	20	U	Not Analyzed		20	U	20	U
Bis(2-chloroethoxy)methane	110	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Butylbenzylphthalate	35	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Chrysene	2.9	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Dibenzofuran	37	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Diethyl phthalate	29000	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Dimethyl phthalate	--		µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Di-n-butylphthalate	3700	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Di-n-octylphthalate	--		µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Fluoranthene	1500	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Fluorene	1500	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Hexachlorobenzene	1.0	MCL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Hexachlorobutadiene	0.86	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Hexachlorocyclopentadiene	50	MCL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Hexachloroethane	4.8	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Isophorone	71	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Naphthalene	0.14	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Nitrobenzene	0.12	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
N-Nitrosodiphenylamine	14	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Pentachlorophenol	1.0	MCL	µg/L	50	U	50	U	Not Analyzed		50	U	50	U
Phenanthrene	--		µg/L	10	U	10	U	Not Analyzed		10	U	10	U

Table 2-2
1997 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steek Kansas City Facility

	Groundwater Screening Level		Sample:	22B01 / DW1		22B02 / DW1		22B03 / DW1		22B03 / DW1D		22B04 / DW1	
			Date Collected:	3/21/1997		3/21/1997		3/21/1997		3/21/1997		3/21/1997	
			Depth (ft bgs):	16 - 18		22 - 24		22 - 24		22 - 24		22 - 24	
			Lab ID:	D97-3447-1		D97-3447-2		D97-3447-3		D97-3447-4		D97-3447-5	
			Comments:							Duplicate			
Parameter			**Units**										
Phenol	11000	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Pyrene	1100	RSL	µg/L	10	U	10	U	Not Analyzed		10	U	10	U
Filtered RCRA Metals													
Arsenic, Dissolved	0.01	MCL	mg/L	***0.02***	***J***	***0.25***		***0.05***	***J***	***0.05***	***J***	***0.19***	
Barium, Dissolved	2	MCL	mg/L	***0.162***		***0.54***		***0.474***		***0.481***		***0.397***	
Cadmium, Dissolved	0.005	MCL	mg/L	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Chromium, Dissolved	0.1	MCL	mg/L	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Lead, Dissolved	0.015	MCL	mg/L	***0.0031***		***0.011***		***0.0039***		0.003	U	0.003	U
Mercury, Dissolved	0.002	MCL	mg/L	0.0002	U	0.0002	U	***0.0008***		0.0002	U	0.0002	U
Selenium, Dissolved	0.05	MCL	mg/L	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Silver, Dissolved	0.18	RSL	mg/L	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Lead, dissolved screening levels are for lead and compounds.

m,p-Xylene and o-Xylene screening level is for total xylenes.

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 2-2
1997 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steek Kansas City Facility

	Groundwater Screening Level		Sample:	22B05 / DW1		22B06 / DW1		22B07 / DW1		22B08 / DW1		22B09 / DW1	
			Date Collected:	3/21/1997		3/21/1997		4/25/1997		3/21/1997		3/21/1997	
			Depth (ft bgs):	22 - 24		22 - 24		16.1 - 18.1		30 - 32		30 - 32	
			Lab ID:	D97-3447-6		D97-3447-7		D97-5144-1		D97-3447-8		D97-3447-11	
			Comments:										
Parameter			**Units**										
Volatile Organic Compounds													
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
2-Butanone	7100	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U	5	U	5	U	5	U
2-Hexanone	47	RSL	µg/L	50	U	50	U	50	U	50	U	50	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U	100	U	100	U	100	U
Acetone	22000	RSL	µg/L	100	U	100	U	100	U	100	U	100	U
Benzene	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Bromoform	80	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Bromomethane	8.7	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
Chloroform	80	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
m,p-Xylene	10000	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
o-Xylene	10000	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	5	U	5	U	5	U

Table 2-2
1997 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steek Kansas City Facility

	Groundwater Screening Level		Sample:	22B05 / DW1		22B06 / DW1		22B07 / DW1		22B08 / DW1		22B09 / DW1	
			Date Collected:	3/21/1997		3/21/1997		4/25/1997		3/21/1997		3/21/1997	
			Depth (ft bgs):	22 - 24		22 - 24		16.1 - 18.1		30 - 32		30 - 32	
			Lab ID:	D97-3447-6		D97-3447-7		D97-5144-1		D97-3447-8		D97-3447-11	
			Comments:										
Parameter			**Units**										
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U	5	U	5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U	5	U	5	U	5	U
Vinyl acetate	410	RSL	µg/L	50	U	50	U	50	U	50	U	50	U
Vinyl chloride	2.0	MCL	µg/L	2	U	2	U	2	U	2	U	2	U
Semivolatile Organic Compounds													
1,2,4-Trichlorobenzene	70	MCL	µg/L	10	U	10	U	11	U	10	U	10	U
1,2-Dichlorobenzene	600	MCL	µg/L	10	U	10	U	11	U	10	U	10	U
1,3-Dichlorobenzene	--		µg/L	10	U	10	U	11	U	10	U	10	U
1,4-Dichlorobenzene	75	MCL	µg/L	10	U	10	U	11	U	10	U	10	U
2,4,5-Trichlorophenol	3700	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
2,4,6-Trichlorophenol	6.1	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
2,4-Dichlorophenol	110	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
2,4-Dimethylphenol	730	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
2,4-Dinitrophenol	73	RSL	µg/L	50	U	50	U	55	U	50	U	50	U
2,4-Dinitrotoluene	0.22	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
2,6-Dinitrotoluene	37	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
2-Chloronaphthalene	2900	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
2-Chlorophenol	180	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
2-Methylnaphthalene	150	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
2-Methylphenol	1800	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
2-Nitroaniline	370	RSL	µg/L	50	U	50	U	55	U	50	U	50	U
2-Nitrophenol	--		µg/L	10	U	10	U	11	U	10	U	10	U
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	20	U	20	U	22	U	20	U	20	U
3-Nitroaniline	--		µg/L	50	U	50	U	55	U	50	U	50	U
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	50	U	50	U	55	U	50	U	50	U
4-Bromophenyl-phenyl ether	--		µg/L	10	U	10	U	11	U	10	U	10	U
4-Chloro-3-methylphenol	3700	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
4-Chloroaniline	0.34	RSL	µg/L	20	U	20	U	22	U	20	U	20	U
4-Chlorophenyl-phenyl ether	--		µg/L	10	U	10	U	11	U	10	U	10	U
4-Methylphenol	180	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
4-Nitroaniline	3.4	RSL	µg/L	20	U	20	U	22	U	20	U	20	U
4-Nitrophenol	--		µg/L	50	U	50	U	55	U	50	U	50	U
Acenaphthene	2200	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Acenaphthylene	--		µg/L	10	U	10	U	11	U	10	U	10	U

Table 2-2
1997 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steek Kansas City Facility

	Groundwater Screening Level		Sample:	22B05 / DW1		22B06 / DW1		22B07 / DW1		22B08 / DW1		22B09 / DW1	
			Date Collected:	3/21/1997		3/21/1997		4/25/1997		3/21/1997		3/21/1997	
			Depth (ft bgs):	22 - 24		22 - 24		16.1 - 18.1		30 - 32		30 - 32	
			Lab ID:	D97-3447-6		D97-3447-7		D97-5144-1		D97-3447-8		D97-3447-11	
			Comments:										
Parameter			**Units**										
Anthracene	11000	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Benzo(a)anthracene	0.029	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Benzo(a)pyrene	0.2	MCL	µg/L	10	U	10	U	11	U	10	U	10	U
Benzo(b)fluoranthene	0.029	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Benzo(g,h,i)perylene	--		µg/L	10	U	10	U	11	U	10	U	10	U
Benzo(k)fluoranthene	0.29	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Benzoic acid	150000	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Benzyl alcohol	3700	RSL	µg/L	20	U	20	U	22	U	20	U	20	U
Bis(2-chloroethoxy)methane	110	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	10	U	10	U	11	U	***139***		10	U
Butylbenzylphthalate	35	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Chrysene	2.9	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Dibenzofuran	37	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Diethyl phthalate	29000	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Dimethyl phthalate	--		µg/L	10	U	10	U	11	U	10	U	10	U
Di-n-butylphthalate	3700	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Di-n-octylphthalate	--		µg/L	10	U	10	U	11	U	10	U	10	U
Fluoranthene	1500	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Fluorene	1500	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Hexachlorobenzene	1.0	MCL	µg/L	10	U	10	U	11	U	10	U	10	U
Hexachlorobutadiene	0.86	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Hexachlorocyclopentadiene	50	MCL	µg/L	10	U	10	U	11	U	10	U	10	U
Hexachloroethane	4.8	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Isophorone	71	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Naphthalene	0.14	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Nitrobenzene	0.12	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
N-Nitrosodiphenylamine	14	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Pentachlorophenol	1.0	MCL	µg/L	50	U	50	U	55	U	50	U	50	U
Phenanthrene	--		µg/L	10	U	10	U	11	U	10	U	10	U

Table 2-2
1997 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steek Kansas City Facility

	Groundwater Screening Level		Sample:	22B05 / DW1		22B06 / DW1		22B07 / DW1		22B08 / DW1		22B09 / DW1	
			Date Collected:	3/21/1997		3/21/1997		4/25/1997		3/21/1997		3/21/1997	
			Depth (ft bgs):	22 - 24		22 - 24		16.1 - 18.1		30 - 32		30 - 32	
			Lab ID:	D97-3447-6		D97-3447-7		D97-5144-1		D97-3447-8		D97-3447-11	
			Comments:										
Parameter			**Units**										
Phenol	11000	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Pyrene	1100	RSL	µg/L	10	U	10	U	11	U	10	U	10	U
Filtered RCRA Metals													
Arsenic, Dissolved	0.01	MCL	mg/L	***0.23***		***0.1***	***J***	***0.0784***		***0.04***	***J***	0.1	U
Barium, Dissolved	2	MCL	mg/L	***0.478***		***0.371***		***0.361***		***0.111***		***0.267***	
Cadmium, Dissolved	0.005	MCL	mg/L	0.005	U	***0.0015***	***J***	0.005	U	0.005	U	0.005	U
Chromium, Dissolved	0.1	MCL	mg/L	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Lead, Dissolved	0.015	MCL	mg/L	***0.0135***		***0.0107***		0.003	U	0.003	U	***0.0114***	
Mercury, Dissolved	0.002	MCL	mg/L	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
Selenium, Dissolved	0.05	MCL	mg/L	0.4	U	0.4	U	0.01	U	0.01	U	0.4	U
Silver, Dissolved	0.18	RSL	mg/L	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Lead, dissolved screening levels are for lead and compounds.

m,p-Xylene and o-Xylene screening level is for total xylenes.

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 2-2
1997 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steek Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Depth (ft bgs): / Lab ID: / Comments:	22B10 / DW1 / 3/21/1997 / 30 - 32 / D97-3447-12	
Parameter			**Units**		
Volatile Organic Compounds					
1,1,1-Trichloroethane	200	MCL	µg/L	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U
2-Butanone	7100	RSL	µg/L	5	U
2-Chloroethylvinyl ether	--		µg/L	5	U
2-Hexanone	47	RSL	µg/L	50	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U
Acetone	22000	RSL	µg/L	100	U
Benzene	5.0	MCL	µg/L	5	U
Bromodichloromethane	80	MCL	µg/L	5	U
Bromoform	80	MCL	µg/L	5	U
Bromomethane	8.7	RSL	µg/L	5	U
Carbon disulfide	1000	RSL	µg/L	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U
Chlorobenzene	100	MCL	µg/L	5	U
Chloroethane	21000	RSL	µg/L	5	U
Chloroform	80	MCL	µg/L	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
Dibromochloromethane	80	MCL	µg/L	5	U
Ethylbenzene	700	MCL	µg/L	5	U
Methyl chloride	190	RSL	µg/L	5	U
Methylene chloride	5.0	MCL	µg/L	5	U
m,p-Xylene	10000	MCL	µg/L	5	U
o-Xylene	10000	MCL	µg/L	5	U
Styrene	100	MCL	µg/L	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U
Toluene	1000	MCL	µg/L	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U

Table 2-2
1997 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steek Kansas City Facility

	Groundwater Screening Level		Sample:	22B10 / DW1	
			Date Collected:	3/21/1997	
			Depth (ft bgs):	30 - 32	
			Lab ID:	D97-3447-12	
			Comments:		
Parameter			**Units**		
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
Trichloroethene	5.0	MCL	µg/L	5	U
Vinyl acetate	410	RSL	µg/L	50	U
Vinyl chloride	2.0	MCL	µg/L	2	U
Semivolatile Organic Compounds					
1,2,4-Trichlorobenzene	70	MCL	µg/L	10	U
1,2-Dichlorobenzene	600	MCL	µg/L	10	U
1,3-Dichlorobenzene	--		µg/L	10	U
1,4-Dichlorobenzene	75	MCL	µg/L	10	U
2,4,5-Trichlorophenol	3700	RSL	µg/L	10	U
2,4,6-Trichlorophenol	6.1	RSL	µg/L	10	U
2,4-Dichlorophenol	110	RSL	µg/L	10	U
2,4-Dimethylphenol	730	RSL	µg/L	10	U
2,4-Dinitrophenol	73	RSL	µg/L	50	U
2,4-Dinitrotoluene	0.22	RSL	µg/L	10	U
2,6-Dinitrotoluene	37	RSL	µg/L	10	U
2-Chloronaphthalene	2900	RSL	µg/L	10	U
2-Chlorophenol	180	RSL	µg/L	10	U
2-Methylnaphthalene	150	RSL	µg/L	10	U
2-Methylphenol	1800	RSL	µg/L	10	U
2-Nitroaniline	370	RSL	µg/L	50	U
2-Nitrophenol	--		µg/L	10	U
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	20	U
3-Nitroaniline	--		µg/L	50	U
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	50	U
4-Bromophenyl-phenyl ether	--		µg/L	10	U
4-Chloro-3-methylphenol	3700	RSL	µg/L	10	U
4-Chloroaniline	0.34	RSL	µg/L	20	U
4-Chlorophenyl-phenyl ether	--		µg/L	10	U
4-Methylphenol	180	RSL	µg/L	10	U
4-Nitroaniline	3.4	RSL	µg/L	20	U
4-Nitrophenol	--		µg/L	50	U
Acenaphthene	2200	RSL	µg/L	10	U
Acenaphthylene	--		µg/L	10	U

Table 2-2
1997 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steek Kansas City Facility

	Groundwater Screening Level		Sample:	22B10 / DW1	
			Date Collected:	3/21/1997	
			Depth (ft bgs):	30 - 32	
			Lab ID:	D97-3447-12	
			Comments:		
Parameter			**Units**		
Anthracene	11000	RSL	µg/L	10	U
Benzo(a)anthracene	0.029	RSL	µg/L	10	U
Benzo(a)pyrene	0.2	MCL	µg/L	10	U
Benzo(b)fluoranthene	0.029	RSL	µg/L	10	U
Benzo(g,h,i)perylene	--		µg/L	10	U
Benzo(k)fluoranthene	0.29	RSL	µg/L	10	U
Benzoic acid	150000	RSL	µg/L	10	U
Benzyl alcohol	3700	RSL	µg/L	20	U
Bis(2-chloroethoxy)methane	110	RSL	µg/L	10	U
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	10	U
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	10	U
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	***67.7***	
Butylbenzylphthalate	35	RSL	µg/L	10	U
Chrysene	2.9	RSL	µg/L	10	U
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	10	U
Dibenzofuran	37	RSL	µg/L	10	U
Diethyl phthalate	29000	RSL	µg/L	10	U
Dimethyl phthalate	--		µg/L	10	U
Di-n-butylphthalate	3700	RSL	µg/L	10	U
Di-n-octylphthalate	--		µg/L	10	U
Fluoranthene	1500	RSL	µg/L	10	U
Fluorene	1500	RSL	µg/L	10	U
Hexachlorobenzene	1.0	MCL	µg/L	10	U
Hexachlorobutadiene	0.86	RSL	µg/L	10	U
Hexachlorocyclopentadiene	50	MCL	µg/L	10	U
Hexachloroethane	4.8	RSL	µg/L	10	U
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	10	U
Isophorone	71	RSL	µg/L	10	U
Naphthalene	0.14	RSL	µg/L	10	U
Nitrobenzene	0.12	RSL	µg/L	10	U
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	10	U
N-Nitrosodiphenylamine	14	RSL	µg/L	10	U
Pentachlorophenol	1.0	MCL	µg/L	50	U
Phenanthrene	--		µg/L	10	U

Table 2-2
1997 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steek Kansas City Facility

	Groundwater Screening Level		Sample:	22B10 / DW1	
			Date Collected:	3/21/1997	
			Depth (ft bgs):	30 - 32	
			Lab ID:	D97-3447-12	
			Comments:		
Parameter			**Units**		
Phenol	11000	RSL	µg/L	10	U
Pyrene	1100	RSL	µg/L	10	U
Filtered RCRA Metals					
Arsenic, Dissolved	0.01	MCL	mg/L	***0.05***	***J***
Barium, Dissolved	2	MCL	mg/L	***0.436***	
Cadmium, Dissolved	0.005	MCL	mg/L	0.005	U
Chromium, Dissolved	0.1	MCL	mg/L	0.01	U
Lead, Dissolved	0.015	MCL	mg/L	***0.0078***	
Mercury, Dissolved	0.002	MCL	mg/L	0.0002	U
Selenium, Dissolved	0.05	MCL	mg/L	0.4	U
Silver, Dissolved	0.18	RSL	mg/L	0.02	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Lead, dissolved screening levels are for lead and compounds.

m,p-Xylene and o-Xylene screening level is for total xylenes.

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 2-3
1998 Groundwater Results for Arsenic - SWMU 22

Groundwater Screening Report
AK Steel Kansas City Facility

Sample Name	Date Collected	Depth (ft bgs)	Lab ID:	Units	Arsenic, Dissolved	
			Groundwater Screening Level		0.01 MCL	
22B11 / DW1	7/10/1998	8 - 12	D98-4827-1	mg/L	0.01	U
22B12 / DW1	7/10/1998	6 - 10	D98-4827-2	mg/L	0.01	U
22B13 / DW1	7/10/1998	6 - 10	D98-4827-3	mg/L	0.01	U
22B14 / DW1	7/10/1998	6 - 10	D98-4827-4	mg/L	0.01	U
22B15 / DW1	7/10/1998	6 - 10	D98-4827-5	mg/L	0.01	U
22PZ01S / GW1	7/9/1998	--	D98-4800-1	mg/L	***0.084***	
22PZ02S / GW1	7/9/1998	--	D98-4800-2	mg/L	***0.174***	
22PZ03S / GW1	7/9/1998	--	D98-4800-3	mg/L	***0.025***	
22PZ05S / GW1	7/9/1998	--	D98-4800-4	mg/L	***0.102***	
22PZXA / GW1	7/9/1998	--	D98-4800-5	mg/L	***0.025***	

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

Piezometers were screened in the shallow unconfined saturated zone.

MCL - Safe Drinking Water Act Maximum Contaminant Level
mg/L - milligrams per liter

Table 2-4
2003 Groundwater Results - SWMU 22
Groundwater Screening Report
AK Steel Kansas City Facility

Sample Name	Comment	Date Collected	Depth (ft bgs)	Lab ID:	Units	Arsenic, Dissolved		Lead, Dissolved	
				Groundwater Screening Level		0.01 MCL		0.015 MCL	
22PZ01S / GW1		10/28/2003	--	606544450	mg/L	0.085	U	0.05	U
22PZ02S / GW1		10/28/2003	--	606544443	mg/L	0.085	U	0.05	U
22PZ03S / GW1		10/28/2003	--	606544435	mg/L	0.085	U	0.05	U
BD / 102803	Duplicate 22PZ03S	10/28/2003	--	606544468	mg/L	0.085	U	0.05	U
22PZ05S / GW1		9/3/2003	--	606385920	mg/L	0.01	U	0.005	U

Notes:
Bold, italic = Compound was detected.
Description of data flags is provided on Table 1-1.
Lead, dissolved screening levels are for lead and compounds.
Piezometers were screened in the shallow unconfined saturated zone.
MCL - Safe Drinking Water Act Maximum Contaminant Level
mg/L - milligrams per liter

Table 2-5
Summary of Groundwater Screening Results - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Volatile Organic Compounds				
1,1,1-Trichloroethane	14	0	0	MCL
1,1,2,2-Tetrachloroethane	14	0	0	RSL
1,1,2-Trichloroethane	14	0	0	MCL
1,1-Dichloroethane	14	2	1	RSL
1,1-Dichloroethene	14	1	0	MCL
1,2-Dichloroethane	14	0	0	MCL
1,2-Dichloropropane	14	0	0	MCL
2-Butanone	14	0	0	RSL
2-Chloroethylvinyl ether	10	0	--	NAp
2-Hexanone	14	0	--	NAp
4-Methyl-2-pentanone	14	0	0	RSL
Acetone	14	2	0	RSL
Benzene	14	3	2	MCL
Bromodichloromethane	14	0	0	MCL
Bromoform	14	0	0	MCL
Bromomethane	14	0	0	RSL
Carbon disulfide	14	2	0	RSL
Carbon tetrachloride	14	0	0	MCL
Chlorobenzene	14	0	0	MCL
Chloroethane	14	0	0	RSL
Chloroform	14	0	0	MCL
Chloromethane	4	0	0	RSL
cis-1,2-Dichloroethene	14	0	0	MCL
cis-1,3-Dichloropropene	14	0	0	RSL
Dibromochloromethane	14	0	0	MCL
Ethylbenzene	14	6	2	MCL
Methyl chloride	10	0	0	RSL
Methylene chloride	14	2	2	MCL
Styrene	14	0	0	MCL
Tetrachloroethene	14	0	0	MCL
Toluene	14	5	0	MCL
trans-1,2-Dichloroethene	14	1	0	MCL
trans-1,3-Dichloropropene	14	0	0	RSL
Trichloroethene	14	0	0	MCL
Vinyl acetate	14	0	0	RSL
Vinyl chloride	14	0	0	MCL
m,p-Xylene	10	3	1	MCL
o-Xylene	10	3	0	MCL
Xylenes, Total	4	3	0	MCL
Semivolatile Organic Compounds				
1,2,4-Trichlorobenzene	1	0	0	MCL
1,2-Dichlorobenzene	1	0	0	MCL
1,3-Dichlorobenzene	1	0	--	NAp
1,4-Dichlorobenzene	1	0	0	MCL
2,4,5-Trichlorophenol	1	0	0	RSL
2,4,6-Trichlorophenol	1	0	0	RSL
2,4-Dichlorophenol	1	0	0	RSL
2,4-Dimethylphenol	1	1	0	RSL
2,4-Dinitrophenol	1	0	0	RSL
2,4-Dinitrotoluene	1	0	0	RSL
2,6-Dinitrotoluene	1	0	0	RSL
2-Chloronaphthalene	1	0	0	RSL
2-Chlorophenol	1	0	0	RSL
2-Methylnaphthalene	1	0	0	RSL
2-Methylphenol	1	0	0	RSL
2-Nitroaniline	1	0	0	RSL
2-Nitrophenol	1	0	--	NAp
3,3'-Dichlorobenzidine	1	0	0	RSL
3-Nitroaniline	1	0	--	NAp
4,6-Dinitro-2-methylphenol	1	0	0	MCL

Table 2-5
Summary of Groundwater Screening Results - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Semivolatile Organic Compounds				
4-Bromophenyl-phenyl ether	1	0	--	NAp
4-Chloro-3-methylphenol	1	0	--	NAp
4-Chloroaniline	1	0	0	RSL
4-Chlorophenyl-phenyl ether	1	0	--	NAp
4-Methylphenol	1	0	0	RSL
4-Nitroaniline	1	0	0	RSL
4-Nitrophenol	1	0	0	RSL
Acenaphthene	1	0	0	RSL
Acenaphthylene	1	0	--	NAp
Anthracene	1	0	0	RSL
Benzo(a)anthracene	1	0	0	RSL
Benzo(a)pyrene	1	0	0	MCL
Benzo(b)fluoranthene	1	0	0	RSL
Benzo(g,h,i)perylene	1	0	--	NAp
Benzo(k)fluoranthene	1	0	0	RSL
Benzoic acid	1	0	0	RSL
Benzyl alcohol	1	0	0	RSL
Bis(2-chloroethoxy)methane	1	0	0	RSL
Bis(2-chloroethyl)ether	1	0	--	NAp
Bis(2-chloroisopropyl)ether	1	0	--	NAp
Bis(2-ethylhexyl)phthalate	1	0	0	MCL
Butylbenzylphthalate	1	0	0	RSL
Carbazole	1	0	--	NAp
Chrysene	1	0	0	RSL
Dibenzo(a,h)anthracene	1	0	0	RSL
Dibenzofuran	1	0	--	NAp
Diethyl phthalate	1	0	0	RSL
Dimethyl phthalate	1	0	--	NAp
Di-n-butylphthalate	1	0	--	NAp
Di-n-octylphthalate	1	0	--	NAp
Fluoranthene	1	0	0	RSL
Fluorene	1	0	0	RSL
Hexachlorobenzene	1	0	0	MCL
Hexachlorobutadiene	1	0	0	RSL
Hexachlorocyclopentadiene	1	0	0	MCL
Hexachloroethane	1	0	0	RSL
Indeno(1,2,3-cd)pyrene	1	0	0	RSL
Isophorone	1	1	0	RSL
Naphthalene	1	0	0	RSL
Nitrobenzene	1	0	0	RSL
N-Nitroso-di-n-propylamine	1	0	0	RSL
N-Nitrosodiphenylamine	1	0	0	RSL
Pentachlorophenol	1	0	0	MCL
Phenanthrene	1	0	--	NAp
Phenol	1	0	0	RSL
Pyrene	1	0	0	RSL
Filtered RCRA Metals				
Cadmium, Dissolved	13	0	0	MCL
Lead, Dissolved	22	13	8	MCL

Notes:
Groundwater screening levels are as follows:
1. If a parameter has a MCL, data is screened using the MCL.
2. If a parameter does not have an MCL, data is screened using the USEPA tapwater RSL.

Samples, Duplicates, and Reanalyses are counted as 1 sample.
Exceedance is counted if any one of these exceeds the screening criteria.
NAp - Not applicable
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level

Table 2-6
1997-1998 Groundwater Results for Metals - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

Sample Name	Comment	Date Collected	Depth (ft bgs)	Lab ID:	Units	Cadmium, Dissolved		Lead, Dissolved	
					Groundwater Screening Level	0.005 MCL		0.015 MCL	
02B01 / DW1		3/17/1997	16-18	D97-3254-1	mg/L	0.005	U	***0.012***	
02B02 / DW1		3/17/1997	17-19	D97-3254-2	mg/L	0.005	U	0.003	U
02B02 / DW1D	Duplicate	3/17/1997	17-19	D97-3254-2	mg/L	0.005	U	0.003	U
02B03 / DW1		3/18/1997	17-19	D97-3254-4	mg/L	0.005	U	***0.029***	
02B04 / DW1		3/18/1997	16-18	D97-3254-5	mg/L	0.005	U	***18.1***	
02B04A / DW1		5/15/1998	4-8	D98-3702-11	mg/L	Not Analyzed		***0.116***	
02B05 / DW1		3/18/1997	16 - 18	D97-3254-6	mg/L	0.005	U	0.003	U
02B06 / DW1		3/18/1997	16 - 18	D97-3254-7	mg/L	0.005	U	***0.047***	
02B07 / DW1		3/18/1997	15 - 17	D97-3254-8	mg/L	0.005	U	0.003	U
02B08 / DW1		3/18/1997	13 - 15	D97-3254-11	mg/L	0.005	U	***0.069***	
02B09 / DW1		3/18/1997	18 - 20	D97-3254-12	mg/L	0.005	U	***0.003***	
02B10 / DW1		5/15/1998	20 - 24	D98-3702-10	mg/L	Not Analyzed		0.005	U
02B11 / DW1		5/15/1998	18 - 22	D98-3702-2	mg/L	Not Analyzed		0.005	U
02B12 / DW1		5/15/1998	18 - 22	D98-3702-3	mg/L	Not Analyzed		***0.0032***	***J***
02B13 / DW1		5/15/1998	20 - 24	D98-3702-6	mg/L	Not Analyzed		0.005	U
02B13 / DW1D	Duplicate	5/15/1998	20 - 24	D98-3702-7	mg/L	Not Analyzed		0.005	U
02B14 / DW1		5/15/1998	20 - 24	D98-3702-8	mg/L	Not Analyzed		0.005	U
02B15 / DW1		5/15/1998	4 - 8	D98-3702-9	mg/L	Not Analyzed		***0.009***	
02B16 / DW1		5/7/1998	3 - 7	D98-3498-1	mg/L	Not Analyzed		***0.0197***	
02B17 / DW1		5/15/1998	0 - 3	D98-3702-12	mg/L	Not Analyzed		***0.0337***	

Notes:
Bold, italic = Compound was detected.
ft bgs = feet below ground surface
Direct-push groundwater samples were collected from depth where water was first encountered.
Description of data flags is provided on Table 1-1.
Lead, dissolved screening levels are for lead and compounds.
MCL - Safe Drinking Water Act Maximum Contaminant Level
mg/L - milligrams per liter

Table 2-7
1998 Groundwater Results for Organics - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	02B04A / DW1	02B10 / DW1	02B11 / DW1	02B12 / DW1	02B12 / DW1
			Date Collected:	5/15/1998	5/15/1998	5/15/1998	5/15/1998	5/15/1998
			Depth (ft bgs):	4 - 8	20 - 24	18 - 22	18 - 22	18 - 22
			Lab ID:	D98-3702-11	D98-3702-10	D98-3702-2	D98-3702-3	D98-3702-3R2
			Comments:					Reanalysis
Parameter			**Units**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	200	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	2.4	RSL	µg/L	***52.7***	5 U	5 U	5 U	5 U
1,1-Dichloroethene	7.0	MCL	µg/L	5 U	5 U	5 U	5 U	***3.78 J***
1,2-Dichloroethane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
2-Butanone	7100	RSL	µg/L	5 U	5 U	5 U	5 U	100 U
2-Chloroethylvinyl ether	--		µg/L	5 U	5 U	5 U	5 U	10 U
2-Hexanone	47	RSL	µg/L	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone	2000	RSL	µg/L	100 U	100 U	100 U	100 U	100 U
Acetone	22000	RSL	µg/L	***26.8 J***	100 U	100 U	100 U	100 U
Benzene	5.0	MCL	µg/L	***5.79***	5 U	5 U	5 U	5 U
Bromodichloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Bromoform	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Bromomethane	8.7	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	1000	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	100	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Chloroethane	21000	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Chloroform	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	70	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	700	MCL	µg/L	***123***	5 U	5 U	5 U	5 U
Methyl chloride	190	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Methylene chloride	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
m,p-Xylene	10000	MCL	µg/L	***291***	5 U	5 U	5 U	5 U
o-Xylene	10000	MCL	µg/L	***167***	5 U	5 U	5 U	5 U
Styrene	100	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Toluene	1000	MCL	µg/L	***118***	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	100	MCL	µg/L	5 U	5 U	***2.6 JT***	5 U	5 U

Table 2-7
1998 Groundwater Results for Organics - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	02B04A / DW1	02B10 / DW1	02B11 / DW1	02B12 / DW1	02B12 / DW1
			Date Collected:	5/15/1998	5/15/1998	5/15/1998	5/15/1998	5/15/1998
			Depth (ft bgs):	4 - 8	20 - 24	18 - 22	18 - 22	18 - 22
			Lab ID:	D98-3702-11	D98-3702-10	D98-3702-2	D98-3702-3	D98-3702-3R2
			Comments:					Reanalysis
Parameter			**Units**					
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Vinyl acetate	410	RSL	µg/L	50 U	50 U	50 U	50 U	50 U
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U	2 U	2 U	2 U
Semivolatile Organic Compounds								
1,2,4-Trichlorobenzene	70	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,2-Dichlorobenzene	600	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,3-Dichlorobenzene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,4-Dichlorobenzene	75	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4,5-Trichlorophenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4,6-Trichlorophenol	6.1	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dichlorophenol	110	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dimethylphenol	730	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dinitrophenol	73	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dinitrotoluene	0.22	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,6-Dinitrotoluene	37	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Chloronaphthalene	2900	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Chlorophenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Methylnaphthalene	150	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Methylphenol	1800	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Nitroaniline	370	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
3-Nitroaniline	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Bromophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chloro-3-methylphenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chloroaniline	0.34	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chlorophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Methylphenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Nitroaniline	3.4	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Acenaphthene	2200	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Acenaphthylene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Table 2-7
1998 Groundwater Results for Organics - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	02B04A / DW1	02B10 / DW1	02B11 / DW1	02B12 / DW1	02B12 / DW1
			Date Collected:	5/15/1998	5/15/1998	5/15/1998	5/15/1998	5/15/1998
			Depth (ft bgs):	4 - 8	20 - 24	18 - 22	18 - 22	18 - 22
			Lab ID:	D98-3702-11	D98-3702-10	D98-3702-2	D98-3702-3	D98-3702-3R2
			Comments:					Reanalysis
Parameter			**Units**					
Anthracene	11000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(a)anthracene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(a)pyrene	0.2	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(b)fluoranthene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(g,h,i)perylene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(k)fluoranthene	0.29	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzoic acid	150000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzyl alcohol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroethoxy)methane	110	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Butylbenzylphthalate	35	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Carbazole	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Chrysene	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dibenzofuran	37	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Diethyl phthalate	29000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dimethyl phthalate	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Di-n-butylphthalate	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Di-n-octylphthalate	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Fluoranthene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Fluorene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorobenzene	1.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorobutadiene	0.86	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorocyclopentadiene	50	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachloroethane	4.8	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Isophorone	71	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Naphthalene	0.14	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Nitrobenzene	0.12	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
N-Nitrosodiphenylamine	14	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Pentachlorophenol	1.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Table 2-7
1998 Groundwater Results for Organics - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	02B04A / DW1	02B10 / DW1	02B11 / DW1	02B12 / DW1	02B12 / DW1
			Date Collected:	5/15/1998	5/15/1998	5/15/1998	5/15/1998	5/15/1998
			Depth (ft bgs):	4 - 8	20 - 24	18 - 22	18 - 22	18 - 22
			Lab ID:	D98-3702-11	D98-3702-10	D98-3702-2	D98-3702-3	D98-3702-3R2
			Comments:					Reanalysis
Parameter			**Units**					
Phenanthrene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Phenol	11000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Pyrene	1100	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Notes:

Bold, italic = Compound was detected.

ft bgs = feet below ground surface

Direct-push groundwater samples were collected from depth where water was first encountered.

Description of data flags is provided on Table 1-1.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

m,p-Xylene and o-Xylene screening level is for total xylenes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 2-7
1998 Groundwater Results for Organics - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Depth (ft bgs): / Lab ID: / Comments:	02B13 / DW1 5/15/1998 20 - 24 D98-3702-6	02B13 / DW1D 5/15/1998 20 - 24 D98-3702-7	02B14 / DW1 5/15/1998 20 - 24 D98-3702-8	02B15 / DW1 5/15/1998 4 - 8 D98-3702-9	02B16 / DW1 5/7/1998 3 - 7 D98-3498-1
Parameter			**Units**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	200	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5 U	5 U	5 U	5 U	1250 DU
1,1,2-Trichloroethane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
1,1-Dichloroethane	2.4	RSL	µg/L	5 U	5 U	5 U	5 U	1250 DU
1,1-Dichloroethene	7.0	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
1,2-Dichloroethane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
1,2-Dichloropropane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
2-Butanone	7100	RSL	µg/L	5 U	5 U	5 U	5 U	1250 DU
2-Chloroethylvinyl ether	--		µg/L	5 U	5 U	5 U	5 U	1250 DU
2-Hexanone	47	RSL	µg/L	50 U	50 U	50 U	50 U	12500 DU
4-Methyl-2-pentanone	2000	RSL	µg/L	100 U	100 U	100 U	100 U	25000 DU
Acetone	22000	RSL	µg/L	100 U	100 U	100 U	100 U	25000 DU
Benzene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Bromodichloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Bromoform	80	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Bromomethane	8.7	RSL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Carbon disulfide	1000	RSL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Carbon tetrachloride	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Chlorobenzene	100	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Chloroethane	21000	RSL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Chloroform	80	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
cis-1,2-Dichloroethene	70	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Dibromochloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Ethylbenzene	700	MCL	µg/L	5 U	5 U	5 U	***61.4***	***4140 D***
Methyl chloride	190	RSL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Methylene chloride	5.0	MCL	µg/L	5 U	5 U	5 U	***33.7***	1250 DU
m,p-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	***221***	***16700 D***
o-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	***87.3***	***5400 D***
Styrene	100	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Tetrachloroethene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Toluene	1000	MCL	µg/L	5 U	5 U	5 U	***9.77***	1250 DU
trans-1,2-Dichloroethene	100	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU

Table 2-7
1998 Groundwater Results for Organics - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Depth (ft bgs): / Lab ID: / Comments:	02B13 / DW1 5/15/1998 20 - 24 D98-3702-6	02B13 / DW1D 5/15/1998 20 - 24 D98-3702-7	02B14 / DW1 5/15/1998 20 - 24 D98-3702-8	02B15 / DW1 5/15/1998 4 - 8 D98-3702-9	02B16 / DW1 5/7/1998 3 - 7 D98-3498-1
Parameter			**Units**					
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Trichloroethene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	1250 DU
Vinyl acetate	410	RSL	µg/L	50 U	50 U	50 U	50 U	12500 DU
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U	2 U	2 U	500 DU
Semivolatile Organic Compounds								
1,2,4-Trichlorobenzene	70	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
1,2-Dichlorobenzene	600	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
1,3-Dichlorobenzene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
1,4-Dichlorobenzene	75	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
2,4,5-Trichlorophenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
2,4,6-Trichlorophenol	6.1	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
2,4-Dichlorophenol	110	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
2,4-Dimethylphenol	730	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	***67 DJ***
2,4-Dinitrophenol	73	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	1020 DU
2,4-Dinitrotoluene	0.22	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
2,6-Dinitrotoluene	37	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
2-Chloronaphthalene	2900	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
2-Chlorophenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
2-Methylnaphthalene	150	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
2-Methylphenol	1800	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
2-Nitroaniline	370	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	1020 DU
2-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	408 DU
3-Nitroaniline	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	1020 DU
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	1020 DU
4-Bromophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
4-Chloro-3-methylphenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	408 DU
4-Chloroaniline	0.34	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	408 DU
4-Chlorophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
4-Methylphenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
4-Nitroaniline	3.4	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	1020 DU
4-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	1020 DU
Acenaphthene	2200	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
Acenaphthylene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU

Table 2-7
1998 Groundwater Results for Organics - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	02B13 / DW1	02B13 / DW1D	02B14 / DW1	02B15 / DW1	02B16 / DW1	
			Date Collected:	5/15/1998	5/15/1998	5/15/1998	5/15/1998	5/7/1998	
			Depth (ft bgs):	20 - 24	20 - 24	20 - 24	4 - 8	3 - 7	
			Lab ID:	D98-3702-6	D98-3702-7	D98-3702-8	D98-3702-9	D98-3498-1	
			Comments:						
Parameter			**Units**						
Anthracene	11000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Benzo(a)anthracene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Benzo(a)pyrene	0.2	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Benzo(b)fluoranthene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Benzo(g,h,i)perylene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Benzo(k)fluoranthene	0.29	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Benzoic acid	150000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	1020	DU
Benzyl alcohol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	408	DU
Bis(2-chloroethoxy)methane	110	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Butylbenzylphthalate	35	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Carbazole	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Chrysene	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Dibenzofuran	37	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Diethyl phthalate	29000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Dimethyl phthalate	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Di-n-butylphthalate	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Di-n-octylphthalate	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Fluoranthene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Fluorene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Hexachlorobenzene	1.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Hexachlorobutadiene	0.86	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Hexachlorocyclopentadiene	50	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Hexachloroethane	4.8	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Isophorone	71	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	***52***	***DJ***
Naphthalene	0.14	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Nitrobenzene	0.12	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
N-Nitrosodiphenylamine	14	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204	DU
Pentachlorophenol	1.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	1020	DU

Table 2-7
1998 Groundwater Results for Organics - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	02B13 / DW1	02B13 / DW1D	02B14 / DW1	02B15 / DW1	02B16 / DW1
			Date Collected:	5/15/1998	5/15/1998	5/15/1998	5/15/1998	5/7/1998
			Depth (ft bgs):	20 - 24	20 - 24	20 - 24	4 - 8	3 - 7
			Lab ID:	D98-3702-6	D98-3702-7	D98-3702-8	D98-3702-9	D98-3498-1
			Comments:					
Parameter			**Units**					
Phenanthrene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
Phenol	11000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU
Pyrene	1100	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	204 DU

Notes:

Bold, italic = Compound was detected.

ft bgs = feet below ground surface

Direct-push groundwater samples were collected from depth where water was first encountered.

Description of data flags is provided on Table 1-1.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes

m,p-Xylene and o-Xylene screening level is for total xylenes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 2-7
1998 Groundwater Results for Organics - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	02B17 / DW1
			Date Collected:	5/15/1998
			Depth (ft bgs):	0 - 3
			Lab ID:	D98-3702-12
			Comments:	
Parameter			**Units**	
Volatile Organic Compounds				
1,1,1-Trichloroethane	200	MCL	µg/L	10 DUR
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	10 DUR
1,1,2-Trichloroethane	5.0	MCL	µg/L	10 DUR
1,1-Dichloroethane	2.4	RSL	µg/L	10 DUR
1,1-Dichloroethene	7.0	MCL	µg/L	10 DUR
1,2-Dichloroethane	5.0	MCL	µg/L	10 DUR
1,2-Dichloropropane	5.0	MCL	µg/L	10 DUR
2-Butanone	7100	RSL	µg/L	10 DUR
2-Chloroethylvinyl ether	--		µg/L	10 DUR
2-Hexanone	47	RSL	µg/L	100 DUR
4-Methyl-2-pentanone	2000	RSL	µg/L	200 DUR
Acetone	22000	RSL	µg/L	200 DUR
Benzene	5.0	MCL	µg/L	10 DUR
Bromodichloromethane	80	MCL	µg/L	10 DUR
Bromoform	80	MCL	µg/L	10 DUR
Bromomethane	8.7	RSL	µg/L	10 DUR
Carbon disulfide	1000	RSL	µg/L	10 DUR
Carbon tetrachloride	5.0	MCL	µg/L	10 DUR
Chlorobenzene	100	MCL	µg/L	10 DUR
Chloroethane	21000	RSL	µg/L	10 DUR
Chloroform	80	MCL	µg/L	10 DUR
cis-1,2-Dichloroethene	70	MCL	µg/L	10 DUR
cis-1,3-Dichloropropene	0.43	RSL	µg/L	10 DUR
Dibromochloromethane	80	MCL	µg/L	10 DUR
Ethylbenzene	700	MCL	µg/L	10 DUR
Methyl chloride	190	RSL	µg/L	10 DUR
Methylene chloride	5.0	MCL	µg/L	10 DUR
m,p-Xylene	10000	MCL	µg/L	10 DUR
o-Xylene	10000	MCL	µg/L	10 DUR
Styrene	100	MCL	µg/L	10 DUR
Tetrachloroethene	5.0	MCL	µg/L	10 DUR
Toluene	1000	MCL	µg/L	10 DUR
trans-1,2-Dichloroethene	100	MCL	µg/L	10 DUR

Table 2-7
1998 Groundwater Results for Organics - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Depth (ft bgs): / Lab ID: / Comments:	02B17 / DW1 / 5/15/1998 / 0 - 3 / D98-3702-12
Parameter			**Units**	
trans-1,3-Dichloropropene	0.43	RSL	µg/L	10 DUR
Trichloroethene	5.0	MCL	µg/L	10 DUR
Vinyl acetate	410	RSL	µg/L	100 DUR
Vinyl chloride	2.0	MCL	µg/L	4 DUR
Semivolatile Organic Compounds				
1,2,4-Trichlorobenzene	70	MCL	µg/L	Not Analyzed
1,2-Dichlorobenzene	600	MCL	µg/L	Not Analyzed
1,3-Dichlorobenzene	--		µg/L	Not Analyzed
1,4-Dichlorobenzene	75	MCL	µg/L	Not Analyzed
2,4,5-Trichlorophenol	3700	RSL	µg/L	Not Analyzed
2,4,6-Trichlorophenol	6.1	RSL	µg/L	Not Analyzed
2,4-Dichlorophenol	110	RSL	µg/L	Not Analyzed
2,4-Dimethylphenol	730	RSL	µg/L	Not Analyzed
2,4-Dinitrophenol	73	RSL	µg/L	Not Analyzed
2,4-Dinitrotoluene	0.22	RSL	µg/L	Not Analyzed
2,6-Dinitrotoluene	37	RSL	µg/L	Not Analyzed
2-Chloronaphthalene	2900	RSL	µg/L	Not Analyzed
2-Chlorophenol	180	RSL	µg/L	Not Analyzed
2-Methylnaphthalene	150	RSL	µg/L	Not Analyzed
2-Methylphenol	1800	RSL	µg/L	Not Analyzed
2-Nitroaniline	370	RSL	µg/L	Not Analyzed
2-Nitrophenol	--		µg/L	Not Analyzed
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	Not Analyzed
3-Nitroaniline	--		µg/L	Not Analyzed
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	Not Analyzed
4-Bromophenyl-phenyl ether	--		µg/L	Not Analyzed
4-Chloro-3-methylphenol	3700	RSL	µg/L	Not Analyzed
4-Chloroaniline	0.34	RSL	µg/L	Not Analyzed
4-Chlorophenyl-phenyl ether	--		µg/L	Not Analyzed
4-Methylphenol	180	RSL	µg/L	Not Analyzed
4-Nitroaniline	3.4	RSL	µg/L	Not Analyzed
4-Nitrophenol	--		µg/L	Not Analyzed
Acenaphthene	2200	RSL	µg/L	Not Analyzed
Acenaphthylene	--		µg/L	Not Analyzed

Table 2-7
1998 Groundwater Results for Organics - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	02B17 / DW1
			Date Collected:	5/15/1998
			Depth (ft bgs):	0 - 3
			Lab ID:	D98-3702-12
			Comments:	
Parameter			**Units**	
Anthracene	11000	RSL	µg/L	Not Analyzed
Benzo(a)anthracene	0.029	RSL	µg/L	Not Analyzed
Benzo(a)pyrene	0.2	MCL	µg/L	Not Analyzed
Benzo(b)fluoranthene	0.029	RSL	µg/L	Not Analyzed
Benzo(g,h,i)perylene	--		µg/L	Not Analyzed
Benzo(k)fluoranthene	0.29	RSL	µg/L	Not Analyzed
Benzoic acid	150000	RSL	µg/L	Not Analyzed
Benzyl alcohol	3700	RSL	µg/L	Not Analyzed
Bis(2-chloroethoxy)methane	110	RSL	µg/L	Not Analyzed
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	Not Analyzed
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	Not Analyzed
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	Not Analyzed
Butylbenzylphthalate	35	RSL	µg/L	Not Analyzed
Carbazole	--		µg/L	Not Analyzed
Chrysene	2.9	RSL	µg/L	Not Analyzed
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	Not Analyzed
Dibenzofuran	37	RSL	µg/L	Not Analyzed
Diethyl phthalate	29000	RSL	µg/L	Not Analyzed
Dimethyl phthalate	--		µg/L	Not Analyzed
Di-n-butylphthalate	3700	RSL	µg/L	Not Analyzed
Di-n-octylphthalate	--		µg/L	Not Analyzed
Fluoranthene	1500	RSL	µg/L	Not Analyzed
Fluorene	1500	RSL	µg/L	Not Analyzed
Hexachlorobenzene	1.0	MCL	µg/L	Not Analyzed
Hexachlorobutadiene	0.86	RSL	µg/L	Not Analyzed
Hexachlorocyclopentadiene	50	MCL	µg/L	Not Analyzed
Hexachloroethane	4.8	RSL	µg/L	Not Analyzed
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	Not Analyzed
Isophorone	71	RSL	µg/L	Not Analyzed
Naphthalene	0.14	RSL	µg/L	Not Analyzed
Nitrobenzene	0.12	RSL	µg/L	Not Analyzed
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	Not Analyzed
N-Nitrosodiphenylamine	14	RSL	µg/L	Not Analyzed
Pentachlorophenol	1.0	MCL	µg/L	Not Analyzed

Table 2-7
1998 Groundwater Results for Organics - SWMU 2

Groundwater Screening Report

AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	02B17 / DW1
			Date Collected:	5/15/1998
			Depth (ft bgs):	0 - 3
			Lab ID:	D98-3702-12
			Comments:	
Parameter			**Units**	
Phenanthrene	--		µg/L	Not Analyzed
Phenol	11000	RSL	µg/L	Not Analyzed
Pyrene	1100	RSL	µg/L	Not Analyzed

Notes:

Bold, italic = Compound was detected.

ft bgs = feet below ground surface

Direct-push groundwater samples were collected from depth where water was first encountered.

Description of data flags is provided on Table 1-1.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes

m,p-Xylene and o-Xylene screening level is for total xylenes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 2-8
2007 Groundwater Results - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	02B18 / DW1		02B19 / DW1		02B20 / DW1		02B21 / DW1		02B21 / DW1D	
			Date Collected:	9/12/2007		9/12/2007		9/12/2007		9/12/2007		9/12/2007	
			Depth (ft bgs):	24 - 28		14 - 18		22 - 26		16 - 20		16 - 20	
			Lab ID:	510-18114-2		510-18114-5		510-18114-6		510-18114-3		510-18114-4	
			Comments:									Duplicate	
Parameter			**Units**										
Volatile Organic Compounds													
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	5	U	100	U	100	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	***1.4***	***J***	5	U	100	U	100	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
2-Butanone (MEK)	7100	RSL	µg/L	10	U	10	U	10	U	200	U	200	U
2-Hexanone	47	RSL	µg/L	10	U	10	U	10	U	200	U	200	U
4-Methyl-2-pentanone (MIBK)	2000	RSL	µg/L	10	U	10	U	10	U	200	U	200	U
Acetone	22000	RSL	µg/L	10	U	***50***		10	U	200	U	200	U
Benzene	5.0	MCL	µg/L	5	U	***1.2***	***J***	5	U	***7.0***	***J***	100	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
Bromoform	80	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
Bromomethane	8.7	RSL	µg/L	10	U	10	U	10	U	200	U	200	U
Carbon disulfide	1000	RSL	µg/L	5	U	***1.7***	***J +***	***0.29***	***J +***	100	U	100	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
Chloroethane	21000	RSL	µg/L	10	U J-	10	U J-	10	U	200	U J-	200	U J-
Chloroform	80	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
Chloromethane	190	RSL	µg/L	10	U	10	U	10	U	200	U	200	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U	100	U	100	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
Ethylbenzene	700	MCL	µg/L	5	U	***28***		***0.55***	***J***	***830***		***880***	***J+***
Methylene Chloride	5.0	MCL	µg/L	5	U	***8.9***		5	U	100	U	100	U
Styrene	100	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
Toluene	1000	MCL	µg/L	5	U	***17***		***0.31***	***J***	***180***		***190***	***J+***
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	5	U	100	U	100	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U	100	U	100	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U	5	U	100	U	100	U

Table 2-8
2007 Groundwater Results - SWMU 2
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	02B18 / DW1	02B19 / DW1	02B20 / DW1	02B21 / DW1	02B21 / DW1D
			Date Collected:	9/12/2007	9/12/2007	9/12/2007	9/12/2007	9/12/2007
			Depth (ft bgs):	24 - 28	14 - 18	22 - 26	16 - 20	16 - 20
			Lab ID:	510-18114-2	510-18114-5	510-18114-6	510-18114-3	510-18114-4
			Comments:					Duplicate
Parameter			**Units**					
Vinyl acetate	410	RSL	µg/L	5 U	5 U	5 U	100 U	100 U
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U	2 U	40 U	40 U
Xylenes, Total	10000	MCL	µg/L	10 U	***180***	***2.0 J***	***3200***	***3300 J+***
Filtered RCRA Metals								
Cadmium, Dissolved	0.005	MCL	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lead, Dissolved	0.015	MCL	mg/L	0.0005 U	***0.012***	0.0005 U	***0.057***	***0.021***

Notes:

Bold, italic = Compound was detected.

ft bgs = feet below ground surface

Direct-push groundwater samples were collected from depth where water was first encountered.

Description of data flags is provided on Table 1-1.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Lead, dissolved screening levels are for lead and compounds.

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 2-9
Summary of Groundwater Screening Results - SWMU 4
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Volatile Organic Compounds				
1,1,1-Trichloroethane	1	0	0	MCL
1,1,2,2-Tetrachloroethane	1	0	0	RSL
1,1,2-Trichloroethane	1	0	0	MCL
1,1-Dichloroethane	1	0	0	RSL
1,1-Dichloroethene	1	0	0	MCL
1,2-Dichloroethane	1	0	0	MCL
1,2-Dichloropropane	1	0	0	MCL
2-Butanone	1	0	0	RSL
2-Chloroethylvinyl ether	1	0	--	NAp
2-Hexanone	1	0	--	NAp
4-Methyl-2-pentanone	1	0	0	RSL
Acetone	1	0	0	RSL
Benzene	1	0	0	MCL
Bromodichloromethane	1	0	0	MCL
Bromoform	1	0	0	MCL
Bromomethane	1	0	0	RSL
Carbon disulfide	1	0	0	RSL
Carbon tetrachloride	1	0	0	MCL
Chlorobenzene	1	0	0	MCL
Chloroethane	1	0	0	RSL
Chloroform	1	0	0	MCL
cis-1,2-Dichloroethene	1	0	0	MCL
cis-1,3-Dichloropropene	1	0	0	RSL
Dibromochloromethane	1	0	0	MCL
Ethylbenzene	1	0	0	MCL
Methyl chloride	1	0	0	RSL
Methylene chloride	1	0	0	MCL
m,p-Xylene	1	0	0	MCL
o-Xylene	1	0	0	MCL
Styrene	1	0	0	MCL
Tetrachloroethene	1	0	0	MCL
Toluene	1	0	0	MCL
trans-1,2-Dichloroethene	1	0	0	MCL
trans-1,3-Dichloropropene	1	0	0	RSL
Trichloroethene	1	0	0	MCL
Vinyl acetate	1	0	0	RSL
Vinyl chloride	1	0	0	MCL
Semivolatile Organic Compounds				
1,2,4-Trichlorobenzene	3	0	0	MCL
1,2-Dichlorobenzene	3	0	0	MCL
1,3-Dichlorobenzene	3	0	--	NAp
1,4-Dichlorobenzene	3	0	0	MCL
2,4,5-Trichlorophenol	3	0	0	RSL
2,4,6-Trichlorophenol	3	0	0	RSL
2,4-Dichlorophenol	3	0	0	RSL
2,4-Dimethylphenol	3	1	0	RSL
2,4-Dinitrophenol	3	0	0	RSL
2,4-Dinitrotoluene	3	0	0	RSL
2,6-Dinitrotoluene	3	0	0	RSL
2-Chloronaphthalene	3	0	0	RSL
2-Chlorophenol	3	0	0	RSL
2-Methylnaphthalene	3	0	0	RSL
2-Methylphenol	3	1	0	RSL

Table 2-9
Summary of Groundwater Screening Results - SWMU 4
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Semivolatile Organic Compounds				
2-Nitroaniline	3	0	0	RSL
2-Nitrophenol	3	0	--	NAp
3,3'-Dichlorobenzidine	3	0	0	RSL
3-Nitroaniline	3	0	--	NAp
4,6-Dinitro-2-methylphenol	3	0	0	RSL
4-Bromophenyl-phenyl ether	3	0	--	NAp
4-Chloro-3-methylphenol	3	0	--	NAp
4-Chloroaniline	3	0	0	RSL
4-Chlorophenyl-phenyl ether	3	0	--	NAp
4-Methylphenol	3	1	0	RSL
4-Nitroaniline	3	0	0	RSL
4-Nitrophenol	3	0	--	NAp
Acenaphthene	3	0	0	RSL
Acenaphthylene	3	0	--	NAp
Anthracene	3	0	0	RSL
Benzo(a)anthracene	3	0	0	RSL
Benzo(a)pyrene	3	0	0	MCL
Benzo(b)fluoranthene	3	0	0	RSL
Benzo(g,h,i)perylene	3	0	--	NAp
Benzo(k)fluoranthene	3	0	0	RSL
Benzoic acid	3	0	0	RSL
Benzyl alcohol	3	0	0	RSL
Bis(2-chloroethoxy)methane	3	0	0	RSL
Bis(2-chloroethyl)ether	3	0	--	NAp
Bis(2-chloroisopropyl)ether	3	0	--	NAp
Bis(2-ethylhexyl)phthalate	3	0	0	MCL
Butylbenzylphthalate	3	0	0	RSL
Chrysene	3	0	0	RSL
Dibenzo(a,h)anthracene	3	0	0	RSL
Dibenzofuran	3	0	--	NAp
Diethyl phthalate	3	0	0	RSL
Dimethyl phthalate	3	0	--	NAp
Di-n-butylphthalate	3	0	--	NAp
Di-n-octylphthalate	3	0	--	NAp
Fluoranthene	3	0	0	RSL
Fluorene	3	0	0	RSL
Hexachlorobenzene	3	0	0	MCL
Hexachlorobutadiene	3	0	0	RSL
Hexachlorocyclopentadiene	3	0	0	MCL
Hexachloroethane	3	0	0	RSL
Indeno(1,2,3-cd)pyrene	3	0	0	RSL
Isophorone	3	0	0	RSL
Naphthalene	3	0	0	RSL
Nitrobenzene	3	0	0	RSL
N-Nitroso-di-n-propylamine	3	0	0	RSL
N-Nitrosodiphenylamine	3	0	0	RSL
Pentachlorophenol	3	0	0	MCL
Phenanthrene	3	0	--	NAp
Phenol	3	1	0	RSL
Pyrene	3	0	0	RSL
Petroleum Hydrocarbons				
TPH (extractable)	3	1	--	NAp
TPH (volatile)	2	0	--	NAp

Table 2-9
Summary of Groundwater Screening Results - SWMU 4
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Filtered RCRA Metals				
Cadmium, Dissolved	3	1	0	MCL
Lead, Dissolved	16	4	3	MCL

Notes:
Groundwater screening levels are as follows:
1. If a parameter has a MCL, data is screened using the MCL.
2. If a parameter does not have an MCL, data is screened using the USEPA tapwater RSL.

Samples, Duplicates, and Reanalyses are counted as 1 sample.
Exceedance is counted if any one of these exceeds the screening criteria.
NAp - Not applicable
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level

Table 2-10
1997-1998 Groundwater Results for Metals - SWMU 4
Groundwater Screening Report
AK Steel Kansas City Facility

Sample Name	Comment	Date Collected	Depth (ft bgs)	Lab ID:	Units	Cadmium, Dissolved		Lead, Dissolved	
				Groundwater Screening Level		0.005 MCL		0.015 MCL	
04B02 / DW1		4/21/1997	5.5 - 7.5	D97-4833-7	mg/L	0.005	U	***0.158***	
04B05 / DW1		4/25/1997	2 - 7	D97-5144-13	mg/L	0.005	U	***0.0228***	
04B05 / DW1D	Duplicate	4/25/1997	2 - 7	D97-5144-14	mg/L	0.005	U	***0.0214***	
04B06 / DW1		4/25/1997	5 - 7	D97-5144-17	mg/L	***0.0025***	***J***	***0.0794***	
04B08 / DW1		5/20/1998	15 - 17	D98-3837-6	mg/L	Not Analyzed		0.005	U
04B08 / DW1D	Duplicate	5/20/1998	15 - 17	D98-3837-7	mg/L	Not Analyzed		0.005	U
04B10 / DW1		5/20/1998	15 - 17	D98-3837-8	mg/L	Not Analyzed		0.005	U
04B12 / DW1		5/22/1998	19 - 21	D98-3877-1	mg/L	Not Analyzed		0.005	U
04B14 / DW1		5/21/1998	15 - 17	D98-3865-2	mg/L	Not Analyzed		0.005	U
04B16 / DW1		5/21/1998	18 - 20	D98-3865-1	mg/L	Not Analyzed		0.005	U
04B18 / DW1		5/21/1998	18 - 20	D98-3865-5	mg/L	Not Analyzed		***0.0062***	
04B20 / DW1		5/21/1998	19 - 21	D98-3865-6	mg/L	Not Analyzed		0.005	U
04B21 / DW1		5/21/1998	20 - 22	D98-3865-7	mg/L	Not Analyzed		0.005	U
04B24 / DW1		5/20/1998	15 - 17	D98-3837-1	mg/L	Not Analyzed		0.005	U
04B25 / DW1		5/20/1998	9 - 11	D98-3837-2	mg/L	Not Analyzed		0.005	U
04B26 / DW1		5/20/1998	12 - 14	D98-3837-3	mg/L	Not Analyzed		0.005	U
04B27 / DW1		5/20/1998	15 - 17	D98-3837-4	mg/L	Not Analyzed		0.005	U
04B28 / DW1		5/20/1998	12 - 14	D98-3837-5	mg/L	Not Analyzed		0.005	U

Notes:
Bold, italic = Compound was detected.
ft bgs = feet below ground surface
Direct-push groundwater samples were collected from depth where water was first encountered.
Description of data flags is provided on Table 1-1.
Lead, dissolved screening levels are for lead and compounds.
MCL - Safe Drinking Water Act Maximum Contaminant Level
mg/L milligrams per liter

Table 2-11
1997 Groundwater Results for Organics - SWMU 4
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	04B02 / DW1		04B05 / DW1	04B05 / DW1D	04B06 / DW1
			Date Collected:	4/21/1997		4/25/1997	4/25/1997	4/25/1997
			Depth (ft bgs):	5.5 - 7.5		2 - 7	2 - 7	5 - 7
			Lab ID:	D97-4833-7		D97-5144-13	D97-5144-14	D97-5144-17
			Comments:				Duplicate	
Parameter			**Units**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
2-Butanone	7100	RSL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
2-Chloroethylvinyl ether	--		µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
2-Hexanone	47	RSL	µg/L	50	U	Not Analyzed	Not Analyzed	Not Analyzed
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	Not Analyzed	Not Analyzed	Not Analyzed
Acetone	22000	RSL	µg/L	100	U	Not Analyzed	Not Analyzed	Not Analyzed
Benzene	5.0	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Bromodichloromethane	80	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Bromoform	80	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Bromomethane	8.7	RSL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Carbon disulfide	1000	RSL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Carbon tetrachloride	5.0	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Chlorobenzene	100	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Chloroethane	21000	RSL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Chloroform	80	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Dibromochloromethane	80	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Ethylbenzene	700	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Methyl chloride	190	RSL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Methylene chloride	5.0	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
m,p-Xylene	10000	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
o-Xylene	10000	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Styrene	100	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Tetrachloroethene	5.0	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
Toluene	1000	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	Not Analyzed	Not Analyzed	Not Analyzed

Table 2-11
1997 Groundwater Results for Organics - SWMU 4
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Depth (ft bgs): / Lab ID: / Comments:	04B02 / DW1 4/21/1997 5.5 - 7.5 D97-4833-7		04B05 / DW1 4/25/1997 2 - 7 D97-5144-13		04B05 / DW1D 4/25/1997 2 - 7 D97-5144-14 Duplicate		04B06 / DW1 4/25/1997 5 - 7 D97-5144-17	
Parameter			**Units**								
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	Not Analyzed		Not Analyzed		Not Analyzed	
Trichloroethene	5.0	MCL	µg/L	5	U	Not Analyzed		Not Analyzed		Not Analyzed	
Vinyl acetate	410	RSL	µg/L	50	U	Not Analyzed		Not Analyzed		Not Analyzed	
Vinyl chloride	2.0	MCL	µg/L	2	U	Not Analyzed		Not Analyzed		Not Analyzed	
Semivolatile Organic Compounds											
1,2,4-Trichlorobenzene	70	MCL	µg/L	10.2	U	11	U	11	U	10.7	U
1,2-Dichlorobenzene	600	MCL	µg/L	10.2	U	11	U	11	U	10.7	U
1,3-Dichlorobenzene	--		µg/L	10.2	U	11	U	11	U	10.7	U
1,4-Dichlorobenzene	75	MCL	µg/L	10.2	U	11	U	11	U	10.7	U
2,4,5-Trichlorophenol	3700	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
2,4,6-Trichlorophenol	6.1	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
2,4-Dichlorophenol	110	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
2,4-Dimethylphenol	730	RSL	µg/L	***65.1***		11	U	11	U	10.7	U
2,4-Dinitrophenol	73	RSL	µg/L	51	U	55	U	55	U	53.5	U
2,4-Dinitrotoluene	0.22	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
2,6-Dinitrotoluene	37	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
2-Chloronaphthalene	2900	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
2-Chlorophenol	180	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
2-Methylnaphthalene	150	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
2-Methylphenol	1800	RSL	µg/L	***5.5***	***J***	11	U	11	U	10.7	U
2-Nitroaniline	370	RSL	µg/L	51	U	55	U	55	U	53.5	U
2-Nitrophenol	--		µg/L	10.2	U	11	U	11	U	10.7	U
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	20.4	U	22	U	22	U	21.4	U
3-Nitroaniline	--		µg/L	51	U	55	U	55	U	53.5	U
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	51	U	55	U	55	U	53.5	U
4-Bromophenyl-phenyl ether	--		µg/L	10.2	U	11	U	11	U	10.7	U
4-Chloro-3-methylphenol	3700	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
4-Chloroaniline	0.34	RSL	µg/L	20.4	U	22	U	22	U	21.4	U
4-Chlorophenyl-phenyl ether	--		µg/L	10.2	U	11	U	11	U	10.7	U
4-Methylphenol	180	RSL	µg/L	***21.8***		11	U	11	U	10.7	U
4-Nitroaniline	3.4	RSL	µg/L	20.4	U	22	U	22	U	21.4	U
4-Nitrophenol	--		µg/L	51	U	55	U	55	U	53.5	U
Acenaphthene	2200	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Acenaphthylene	--		µg/L	10.2	U	11	U	11	U	10.7	U

Table 2-11
1997 Groundwater Results for Organics - SWMU 4
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	04B02 / DW1		04B05 / DW1		04B05 / DW1D		04B06 / DW1	
			Date Collected:	4/21/1997		4/25/1997		4/25/1997		4/25/1997	
			Depth (ft bgs):	5.5 - 7.5		2 - 7		2 - 7		5 - 7	
			Lab ID:	D97-4833-7		D97-5144-13		D97-5144-14		D97-5144-17	
			Comments:					Duplicate			
Parameter			**Units**								
Anthracene	11000	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Benzo(a)anthracene	0.029	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Benzo(a)pyrene	0.2	MCL	µg/L	10.2	U	11	U	11	U	10.7	U
Benzo(b)fluoranthene	0.029	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Benzo(g,h,i)perylene	--		µg/L	10.2	U	11	U	11	U	10.7	U
Benzo(k)fluoranthene	0.29	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Benzoic acid	150000	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Benzyl alcohol	3700	RSL	µg/L	20.4	U	22	U	22	U	21.4	U
Bis(2-chloroethoxy)methane	110	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	10.2	U	11	U	11	U	10.7	U
Butylbenzylphthalate	35	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Chrysene	2.9	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Dibenzofuran	37	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Diethyl phthalate	29000	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Dimethyl phthalate	--		µg/L	10.2	U	11	U	11	U	10.7	U
Di-n-butylphthalate	3700	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Di-n-octylphthalate	--		µg/L	10.2	U	11	U	11	U	10.7	U
Fluoranthene	1500	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Fluorene	1500	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Hexachlorobenzene	1.0	MCL	µg/L	10.2	U	11	U	11	U	10.7	U
Hexachlorobutadiene	0.86	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Hexachlorocyclopentadiene	50	MCL	µg/L	10.2	U	11	U	11	U	10.7	U
Hexachloroethane	4.8	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Isophorone	71	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Naphthalene	0.14	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Nitrobenzene	0.12	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
N-Nitrosodiphenylamine	14	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Pentachlorophenol	1.0	MCL	µg/L	51	U	55	U	55	U	53.5	U
Phenanthrene	--		µg/L	10.2	U	11	U	11	U	10.7	U

Table 2-11
1997 Groundwater Results for Organics - SWMU 4
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	04B02 / DW1		04B05 / DW1		04B05 / DW1D		04B06 / DW1	
			Date Collected:	4/21/1997		4/25/1997		4/25/1997		4/25/1997	
			Depth (ft bgs):	5.5 - 7.5		2 - 7		2 - 7		5 - 7	
			Lab ID:	D97-4833-7		D97-5144-13		D97-5144-14		D97-5144-17	
			Comments:					Duplicate			
Parameter			**Units**								
Phenol	11000	RSL	µg/L	***27.9***		11	U	11	U	10.7	U
Pyrene	1100	RSL	µg/L	10.2	U	11	U	11	U	10.7	U
Petroleum Hydrocarbons											
TPH (extractable)	--		mg/L	***3.32***		0.56	U	0.56	U	0.55	U
TPH (volatile)	--		µg/L	50	U	50	U	50	U	Not Analyzed	

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

m,p-Xylene and o-Xylene screening level is for total xylenes.

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 2-12
Summary of Groundwater Screening Results - SWMU 5
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Filtered RCRA Metals				
Cadmium, Dissolved	6	0	0	MCL
Lead, Dissolved	6	0	0	MCL

Notes:
Groundwater screening levels are as follows:
1. If a parameter has a MCL, data is screened using the MCL.
2. If a parameter does not have an MCL, data is screened using the USEPA tapwater RSL.

Samples, Duplicates, and Reanalyses are counted as 1 sample.
Exceedance is counted if any one of these exceeds the screening criteria.
NAp - Not applicable
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level

Table 2-13
1997 Groundwater Results for Metals - SWMU 5
Groundwater Screening Report
AK Steel Kansas City Facility

Sample Name	Comment	Date Collected	Depth (ft bgs)	Lab ID:	Units	Cadmium, Dissolved		Lead, Dissolved	
					Groundwater Screening Level	0.005 MCL		0.015 MCL	
05B01 / DW1		3/19/1997	19 - 21	D97-3350-1	mg/L	0.005	U	0.003	U
05B02 / DW1		3/19/1997	19 - 21	D97-3350-2	mg/L	0.005	U	0.003	U
05B03 / DW1		3/19/1997	18 - 20	D97-3350-3	mg/L	0.005	U	0.003	U
05B03 / DW1D	Duplicate	3/19/1997	18 - 20	D97-3350-4	mg/L	0.005	U	0.003	U
05B04 / DW1		3/19/1997	18 - 20	D97-3350-5	mg/L	0.005	U	0.003	U
05B05 / DW1		3/19/1997	18 - 20	D97-3350-6	mg/L	0.005	U	0.003	U
05B06 / DW1		3/19/1997	18 - 20	D97-3350-9	mg/L	0.005	U	0.003	U

Notes:
Bold, italic = Compound was detected.
ft bgs = feet below ground surface
Direct-push groundwater samples were collected from depth where water was first encountered.
Description of data flags is provided on Table 1-1.
Lead, dissolved screening levels are for lead and compounds.
MCL - Safe Drinking Water Act Maximum Contaminant Level
mg/L - milligrams per liter

Table 2-14
Summary of Groundwater Screening Results - SWMU 12
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Volatile Organic Compounds				
1,2-Dichloroethane	8	0	0	MCL
1,4-Dioxane	8	0	0	RSL
2-Butanone	8	0	0	RSL
Benzene	8	0	0	MCL
Carbon disulfide	8	1	0	RSL
Chlorobenzene	8	0	0	MCL
Chloroform	8	0	0	MCL
Ethylbenzene	8	0	0	MCL
Ethylene dibromide	8	0	0	MCL
Styrene	8	0	0	MCL
Toluene	8	0	0	MCL
Xylenes, total	8	0	0	MCL
Semivolatile Organic Compounds				
1-Methylnaphthalene	8	0	0	RSL
2,4-Dimethylphenol	8	0	0	RSL
2,4-Dinitrophenol	8	0	0	RSL
4-Nitrophenol	8	0	--	NAp
7,12-Dimethylbenz(a)anthracene	8	0	0	RSL
Anthracene	8	0	0	RSL
Beno(b)fluoranthene	8	0	0	RSL
Benzenethiol	8	0	0	RSL
Benzo(a)anthracene	8	0	0	RSL
Benzo(a)pyrene	8	0	0	MCL
Benzo(k)fluoranthene	8	0	0	RSL
Bis(2-ethylhexyl)phthalate	8	2	1	MCL
Butylbenzylphthalate	8	0	0	RSL
Chrysene	8	0	0	RSL
Di-n-butyl phthalate	8	0	0	RSL
Di-n-octyl phthalate	8	0	--	NAp
Dibenz(a,h)acridine	8	0	--	NAp
Dibenz(a,h)anthracene	8	0	0	RSL
Dichlorobenzenes	8	0	0	MCL
Diethyl phthalate	8	0	0	RSL
Dimethyl phthalate	6	0	--	NAp
Di-n-butylphthalate	6	0	0	RSL
Di-n-octylphthalate	6	0	--	NAp
Fluornathene	8	0	0	RSL
Indene	8	0	--	NAp
m-Cresol	8	0	0	RSL
Methyl chrysene	8	0	--	NAp
Methylphenols	8	0	0	RSL
Naphthalene	8	0	0	RSL
o-Cresol	8	0	0	RSL
p-Cresol	8	0	0	RSL
Phenanthrene	8	0	--	NAp
Phenol	8	0	0	RSL
Pyrene	8	0	0	RSL
Pyridine	8	0	0	RSL
Quinoline	8	0	0	RSL
Dissolved Metals				
Cadmium	2	0	0	MCL
Chromium, hexavalent	6	0	0	RSL
Chromium, total	8	0	0	MCL
Chromium, trivalent	6	0	0	RSL
Lead	8	0	0	MCL

Table 2-14
Summary of Groundwater Screening Results - SWMU 12
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Petroleum Hydrocarbons				
TPH (extractable)	6	4	--	NAp
TPH (volatile)	6	0	--	NAp

Notes:
Groundwater screening levels are as follows:
1. If a parameter has a MCL, data is screened using the MCL.
2. If a parameter does not have an MCL, data is screened using the USEPA tapwater RSL.

Samples, Duplicates, and Reanalyses are counted as 1 sample.
Exceedance is counted if any one of these exceeds the screening criteria.
NAp - Not applicable
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level

Table 2-15
1994 Groundwater Results - SWMU 12
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	OWA-5 10/14/1994 60124831		OWA-6 10/14/1994 60124856	
Parameter			**Units**				
Volatile Organic Compounds							
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U
1,4-Dioxane	6.1	RSL	µg/L	500	U	500	U
2-Butanone	7100	RSL	µg/L	10	U	10	U
Benzene	5.0	MCL	µg/L	5	U	5	U
Carbon disulfide	1000	RSL	µg/L	5	U	***130***	
Chlorobenzene	100	MCL	µg/L	5	U	5	U
Chloroform	80	MCL	µg/L	5	U	5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U
Ethylene dibromide	0.05	MCL	µg/L	5	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U
Xylene	10000	MCL	µg/L	5	U	5	U
Semivolatile Organic Compounds							
1-Methylnaphthalene	2.3	RSL	µg/L	10	U	10	U
2,4-Dimethylphenol	730	RSL	µg/L	10	U	10	U
2,4-Dinitrophenol	73	RSL	µg/L	50	U	50	U
4-Nitrophenol	--		µg/L	50	U	50	U
7,12-Dimethylbenz(a)anthracene	0.00027	RSL	µg/L	10	U	10	U
Anthracene	11000	RSL	µg/L	10	U	10	U
Benzo(b)fluoranthene	0.029	RSL	µg/L	10	U	10	U
Benzenethiol	0.37	RSL	µg/L	10	U	10	U
Benzo(a)anthracene	0.029	RSL	µg/L	10	U	10	U
Benzo(a)pyrene	0.2	MCL	µg/L	10	U	10	U
Benzo(k)fluoranthene	0.29	RSL	µg/L	10	U	10	U
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	10	U	10	U
Butylbenzylphthalate	35	RSL	µg/L	10	U	10	U
Chrysene	2.9	RSL	µg/L	10	U	10	U
Di-n-butyl phthalate	3700	RSL	µg/L	10	U	10	U
Di-n-octyl phthalate	--		µg/L	10	U	10	U
Dibenz(a,h)acridine	--		µg/L	10	U	10	U
Dibenz(a,h)anthracene	0.0029	RSL	µg/L	10	U	10	U
Dichlorobenzenes	75	MCL	µg/L	10	U	10	U
Diethyl phthalate	29000	RSL	µg/L	10	U	10	U
Dimethyl phthalate	--		µg/L	10	U	10	U
Fluoranthene	1500	RSL	µg/L	10	U	10	U
Indene	--		µg/L	10	U	10	U
m-Cresol	1800	RSL	µg/L	10	U	10	U
Methyl chrysene	--		µg/L	10	U	10	U
Naphthalene	0.14	RSL	µg/L	10	U	10	U
o-Cresol	1800	RSL	µg/L	10	U	10	U
p-Cresol	180	RSL	µg/L	10	U	10	U
Phenanthrene	--		µg/L	10	U	10	U
Phenol	11000	RSL	µg/L	10	U	10	U
Pyrene	1100	RSL	µg/L	10	U	10	U
Pyridine	37	RSL	µg/L	20	U	20	U
Quinoline	0.022	RSL	µg/L	10	U	10	U
Filtered RCRA Metals							
Cadmium	0.005	MCL	mg/L	0.005	U	0.005	U
Chromium, total	0.1	MCL	mg/L	0.02	U	0.02	U
Lead	0.015	MCL	mg/L	0.005	U	0.005	U

Table 2-15
1994 Groundwater Results - SWMU 12
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level	Sample: Date Collected: Lab ID: Comments:	OWA-5 10/14/1994 60124831	OWA-6 10/14/1994 60124856
Parameter		**Units**		

Notes:
Bold, italic = Compound was detected.
Description of data flags is provided on Table 1-1.
Dichlorobenzenes screening level is for 1,4-dichlorobenzene
Lead and lead, dissolved screening levels are for lead and compounds.
MCL for chloroform is for total trihalomethanes.
Shallow wells were screened in the shallow unconfined saturated zone.
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level
mg/L - milligrams per liter
µg/L - micrograms per liter

Table 2-16
1996 Groundwater Results - SWMU 12
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	12MW1 / GW1 12/11/1996 D96-14212-2		12MW2 / GW1 12/11/1996 D96-14212-3		12MW3 / GW1 12/11/1996 D96-14212-4		12MW4 / GW1 12/11/1996 D96-14212-7	
Parameter			**Units**								
Volatile Organic Compounds											
1,2-Dibromoethane	0.05	MCL	µg/L	10	U	10	U	10	U	10	U
1,2-Dichloroethane	5.0	MCL	µg/L	10	U	10	U	10	U	10	U
1,4-Dioxane	6.1	RSL	µg/L	100	U	100	U	100	U	100	U
2-Butanone	7100.0	RSL	µg/L	10	U	10	U	10	U	10	U
Benzene	5.0	MCL	µg/L	10	U	10	U	10	U	10	U
Carbon disulfide	1000.0	RSL	µg/L	10	U	10	U	10	U	10	U
Chlorobenzene	100	MCL	µg/L	10	U	10	U	10	U	10	U
Chloroform	80	MCL	µg/L	10	U	10	U	10	U	10	U
Ethylbenzene	700	MCL	µg/L	10	U	10	U	10	U	10	U
Styrene	100	MCL	µg/L	10	U	10	U	10	U	10	U
Toluene	1000	MCL	µg/L	10	U	10	U	10	U	10	U
Xylenes (total)	10000	MCL	µg/L	10	U	10	U	10	U	10	U
Semivolatile Organic Compounds											
1-Methylnaphthalene	2.3	RSL	µg/L	10	U	10	U	10	U	10	U
2,4-Dimethylphenol	730	RSL	µg/L	10	U	10	U	10	U	10	U
2,4-Dinitrophenol	73	RSL	µg/L	50	U	50	U	50	U	50	U
4-Nitrophenol	--		µg/L	50	U	50	U	50	U	50	U
7,12-Dimethylbenz(a)anthracene	0.00027	RSL	µg/L	10	U	10	U	10	U	10	U
Anthracene	11000	RSL	µg/L	10	U	10	U	10	U	10	U
Benzo(a)anthracene	0.029	RSL	µg/L	10	U	10	U	10	U	10	U
Benzo(a)pyrene	0.2	MCL	µg/L	10	U	10	U	10	U	10	U
Benzo(b)fluoranthene	0.029	RSL	µg/L	10	U	10	U	10	U	10	U
Benzo(k)fluoranthene	0.29	RSL	µg/L	10	U	10	U	10	U	10	U
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	***26.5***		10	U	***4***	***J***	10	U
Butylbenzylphthalate	35	RSL	µg/L	10	U	10	U	10	U	10	U
Chrysene	2.9	RSL	µg/L	10	U	10	U	10	U	10	U
Dibenz(a,h)acridine	--		µg/L	10	U	10	U	10	U	10	U
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	10	U	10	U	10	U	10	U
Dichlorobenzenes	75	MCL	µg/L	10	U	10	U	10	U	10	U
Diethyl phthalate	29000	RSL	µg/L	10	U	10	U	10	U	10	U
Dimethyl phthalate	--		µg/L	10	U	10	U	10	U	10	U
Di-n-butylphthalate	3700	RSL	µg/L	10	U	10	U	10	U	10	U
Di-n-octylphthalate	--		µg/L	10	U	10	U	10	U	10	U
Fluoranthene	1500	RSL	µg/L	10	U	10	U	10	U	10	U

Table 2-16
1996 Groundwater Results - SWMU 12
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	12MW1 / GW1 12/11/1996 D96-14212-2		12MW2 / GW1 12/11/1996 D96-14212-3		12MW3 / GW1 12/11/1996 D96-14212-4		12MW4 / GW1 12/11/1996 D96-14212-7	
Parameter			**Units**								
Indene	--		µg/L	10	U	10	U	10	U	10	U
Methyl chrysene	--		µg/L	10	U	10	U	10	U	10	U
Methylphenols	930	RSL	µg/L	10	U	10	U	10	U	10	U
Naphthalene	0.14	RSL	µg/L	10	U	10	U	10	U	10	U
Phenanthrene	--		µg/L	10	U	10	U	10	U	10	U
Phenol	11000	RSL	µg/L	10	U	10	U	10	U	10	U
Pyrene	1100	RSL	µg/L	10	U	10	U	10	U	10	U
Pyridine	37	RSL	µg/L	10	U	10	U	10	U	10	U
Quinoline	0.022	RSL	µg/L	10	U	10	U	10	U	10	U
Thiophenol (Benzenthiol)	0.37	RSL	µg/L	20	U	20	U	20	U	20	U
Petroleum Hydrocarbons											
TPH (extractable)	--		mg/L	***1.04***		***0.94***		***1.72***		***0.56***	
TPH (volatile)	--		µg/L	50	U	50	U	50	U	50	U
Filtered RCRA Metals											
Chromium, Dissolved	0.1	MCL	mg/L	0.01	U	0.01	U	0.01	U	0.01	U
Chromium, Hexavalent	0.000043	RSL	mg/L	0.01	U	0.01	U	0.01	U	0.01	U
Chromium, Trivalent	55	RSL	mg/L	0.01	U	0.01	U	0.01	U	0.01	U
Lead, Dissolved	0.015	MCL	mg/L	0.003	U	0.003	U	0.003	U	0.003	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

MCL for chloroform is for total trihalomethanes.

Dichlorobenzenes screening levels are for 1,4-dichlorobenzene (isomer not specified).

Chromium, trivalent is calculated as the difference of Chromium, dissolved and chromium, hexavalent.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 2-16
1996 Groundwater Results - SWMU 12
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	12MW4 / GW1D 12/11/1996 D96-14212-8 Duplicate		OWA05 / GW1 12/11/1996 D96-14212-9		OWA06 / GW1 12/11/1996 D96-14212-10	
Parameter			**Units**						
Volatile Organic Compounds									
1,2-Dibromoethane	0.05	MCL	µg/L	10	U	10	U	10	U
1,2-Dichloroethane	5.0	MCL	µg/L	10	U	10	U	10	U
1,4-Dioxane	6.1	RSL	µg/L	100	U	100	U	100	U
2-Butanone	7100.0	RSL	µg/L	10	U	10	U	10	U
Benzene	5.0	MCL	µg/L	10	U	10	U	10	U
Carbon disulfide	1000.0	RSL	µg/L	10	U	10	U	10	U
Chlorobenzene	100	MCL	µg/L	10	U	10	U	10	U
Chloroform	80	MCL	µg/L	10	U	10	U	10	U
Ethylbenzene	700	MCL	µg/L	10	U	10	U	10	U
Styrene	100	MCL	µg/L	10	U	10	U	10	U
Toluene	1000	MCL	µg/L	10	U	10	U	10	U
Xylenes (total)	10000	MCL	µg/L	10	U	10	U	10	U
Semivolatile Organic Compounds									
1-Methylnaphthalene	2.3	RSL	µg/L	10	U	10	U	10	U
2,4-Dimethylphenol	730	RSL	µg/L	10	U	10	U	10	U
2,4-Dinitrophenol	73	RSL	µg/L	50	U	50	U	50	U
4-Nitrophenol	--		µg/L	50	U	50	U	50	U
7,12-Dimethylbenz(a)anthracene	0.00027	RSL	µg/L	10	U	10	U	10	U
Anthracene	11000	RSL	µg/L	10	U	10	U	10	U
Benzo(a)anthracene	0.029	RSL	µg/L	10	U	10	U	10	U
Benzo(a)pyrene	0.2	MCL	µg/L	10	U	10	U	10	U
Benzo(b)fluoranthene	0.029	RSL	µg/L	10	U	10	U	10	U
Benzo(k)fluoranthene	0.29	RSL	µg/L	10	U	10	U	10	U
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	10	U	10	U	10	U
Butylbenzylphthalate	35	RSL	µg/L	10	U	10	U	10	U
Chrysene	2.9	RSL	µg/L	10	U	10	U	10	U
Dibenz(a,h)acridine	--		µg/L	10	U	10	U	10	U
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	10	U	10	U	10	U
Dichlorobenzenes	75	MCL	µg/L	10	U	10	U	10	U
Diethyl phthalate	29000	RSL	µg/L	10	U	10	U	10	U
Dimethyl phthalate	--		µg/L	10	U	10	U	10	U
Di-n-butylphthalate	3700	RSL	µg/L	10	U	10	U	10	U
Di-n-octylphthalate	--		µg/L	10	U	10	U	10	U
Fluoranthene	1500	RSL	µg/L	10	U	10	U	10	U

Table 2-16
1996 Groundwater Results - SWMU 12
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	12MW4 / GW1D		OWA05 / GW1		OWA06 / GW1	
			Date Collected:	12/11/1996		12/11/1996		12/11/1996	
			Lab ID:	D96-14212-8		D96-14212-9		D96-14212-10	
			Comments:	Duplicate					
Parameter			**Units**						
Indene	--		µg/L	10	U	10	U	10	U
Methyl chrysene	--		µg/L	10	U	10	U	10	U
Methylphenols	930	RSL	µg/L	10	U	10	U	10	U
Naphthalene	0.14	RSL	µg/L	10	U	10	U	10	U
Phenanthrene	--		µg/L	10	U	10	U	10	U
Phenol	11000	RSL	µg/L	10	U	10	U	10	U
Pyrene	1100	RSL	µg/L	10	U	10	U	10	U
Pyridine	37	RSL	µg/L	10	U	10	U	10	U
Quinoline	0.022	RSL	µg/L	10	U	10	U	10	U
Thiophenol (Benzenthiol)	0.37	RSL	µg/L	20	U	20	U	20	U
Petroleum Hydrocarbons									
TPH (extractable)	--		mg/L	***0.8***		0.5	U	0.5	U
TPH (volatile)	--		µg/L	50	U	50	U	50	U
Filtered RCRA Metals									
Chromium, Dissolved	0.1	MCL	mg/L	0.01	U	0.01	U	0.01	U
Chromium, Hexavalent	0.000043	RSL	mg/L	0.01	U	0.01	U	0.01	U
Chromium, Trivalent	55	RSL	mg/L	0.01	U	0.01	U	0.01	U
Lead, Dissolved	0.015	MCL	mg/L	0.003	U	0.003	U	0.003	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

MCL for chloroform is for total trihalomethanes.

Dichlorobenzenes screening levels are for 1,4-dichlorobenzene (isomer not specified).

Chromium, trivalent is calculated as the difference of Chromium, dissolved and chromium, hexavalent.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

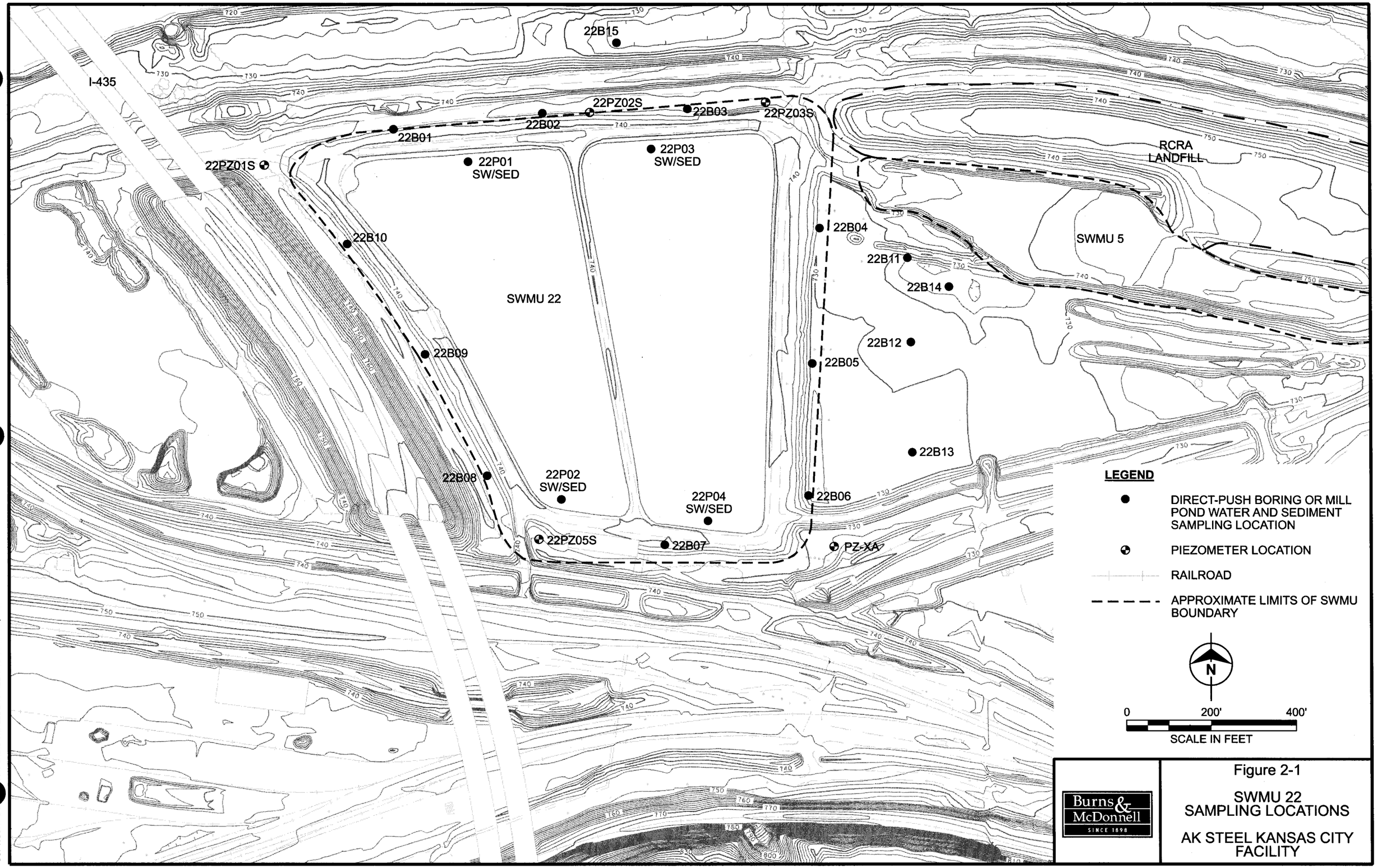

Figure 2-1

SWMU 22
SAMPLING LOCATIONS

AK STEEL KANSAS CITY
FACILITY

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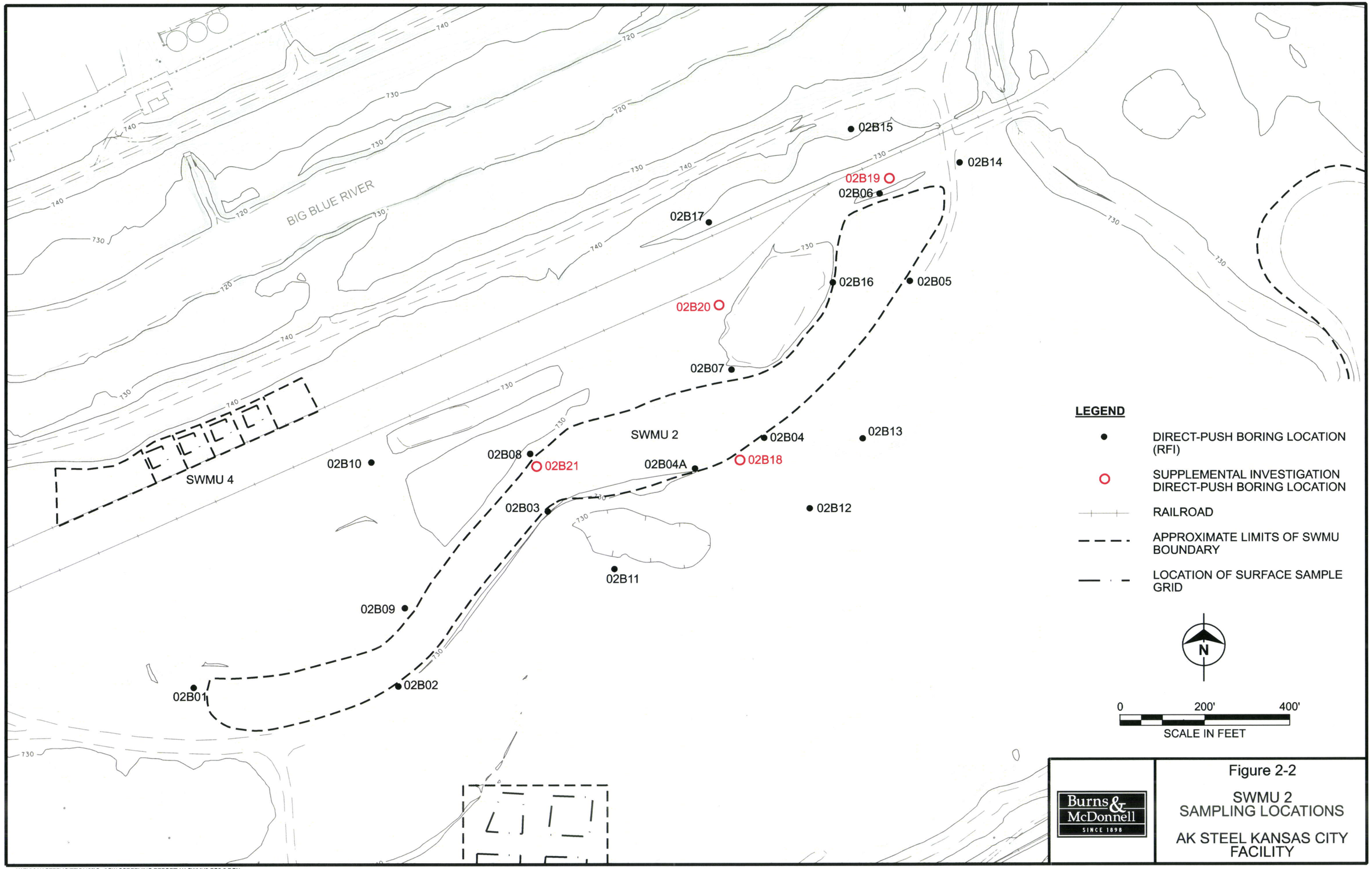

Figure 2-2

SWMU 2
SAMPLING LOCATIONS

AK STEEL KANSAS CITY FACILITY

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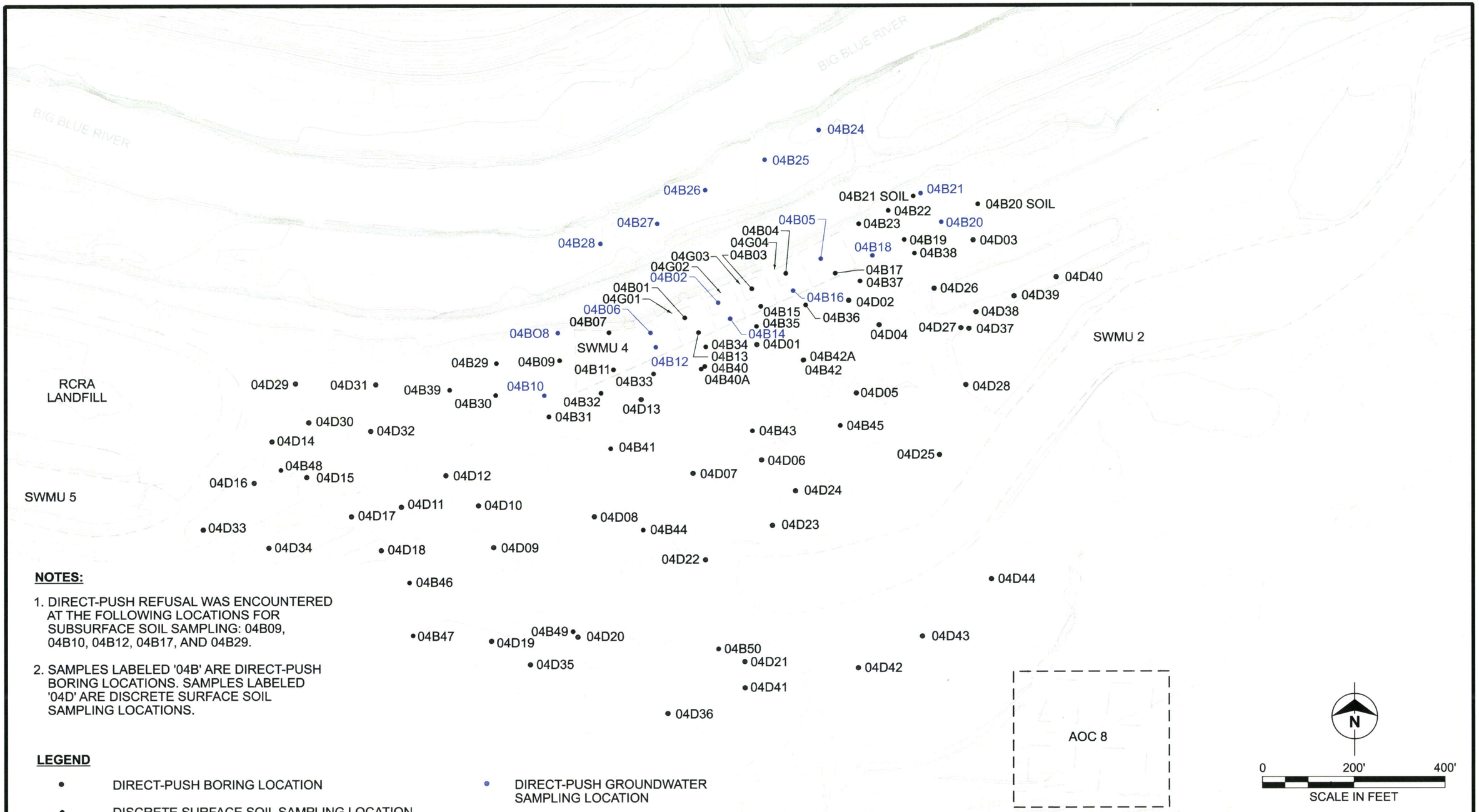
K:\ENV\AK STEEL\SITE\54199\Cad\GW SCREENING REPORT\AK-SWMU2-FG2-2.DGN



NOTES:

1. DIRECT-PUSH REFUSAL WAS ENCOUNTERED AT THE FOLLOWING LOCATIONS FOR SUBSURFACE SOIL SAMPLING: 04B09, 04B10, 04B12, 04B17, AND 04B29.

2. SAMPLES LABELED '04B' ARE DIRECT-PUSH BORING LOCATIONS. SAMPLES LABELED '04D' ARE DISCRETE SURFACE SOIL SAMPLING LOCATIONS.

LEGEND

- DIRECT-PUSH BORING LOCATION
- DISCRETE SURFACE SOIL SAMPLING LOCATION
- RAILROAD
- APPROXIMATE LIMITS OF AOC/SWMU BOUNDARY
- LOCATION OF SURFACE SAMPLE GRID
- DIRECT-PUSH GROUNDWATER SAMPLING LOCATION

Burns & McDonnell
SINCE 1898

Figure 2-3
SWMU 4 SOIL AND GROUNDWATER SAMPLING LOCATIONS
AK STEEL
KANSAS CITY FACILITY

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K:\ENV\AK STEEL\SITE\54199\Cad\GW REPORT\AK-SWMU4-FG2-3.DGN

BIG BLUE RIVER

BIG BLUE RIVER

PZ-9D

PZ-9M

MW-9

RCRA LANDFILL

MW-1

MW-2

MW-3

MW-4

SWMU 4

05B01

05B02

MW-10

SWMU 5

SWMU 22

05B03

MW-5

05B04

05B05

05B06

SWMU 2

MW-6

PZ-6D

PZ-6M

MW-7

MW-8

N

0 200' 400'

SCALE IN FEET

LEGEND

- DIRECT-PUSH BORING LOCATION
- RCRA LANDFILL MONITORING WELL LOCATION
- RAILROAD
- APPROXIMATE LIMITS OF SWMU BOUNDARY
- RCRA LANDFILL BOUNDARY

Burns & McDonnell SINCE 1898

Figure 2-4

SWMU 5
SAMPLING LOCATIONS

AK STEEL KANSAS CITY FACILITY

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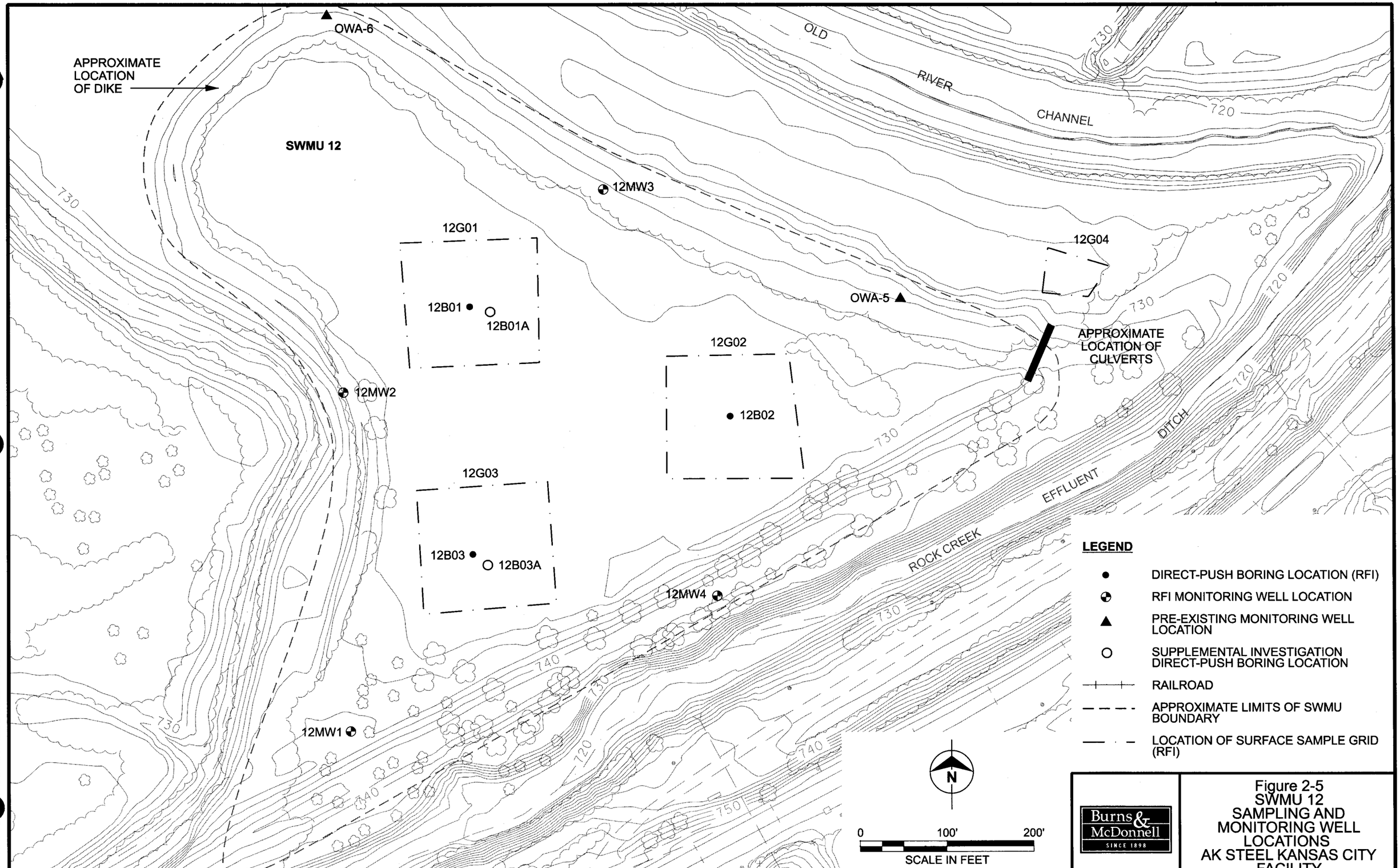

Figure 2-5
SWMU 12
SAMPLING AND MONITORING WELL LOCATIONS
AK STEEL KANSAS CITY FACILITY

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EXHIBIT 2-1

RFI REPORT FIGURES FOR SWMU 22 – MILL PONDS

Figure 2-15 – SWMU 22 Area Groundwater Contour Map – Jun. 30, 1998
Figure 2-16 – SWMU 22 Area Groundwater Contour Map – Jan. 18, 1999
Figure 2-17 – SWMU 22 Area Groundwater Contour Map – Mar. 11, 1999

Figure 17-2 – SWMU 22 Dissolved Arsenic Groundwater Results
Figure 17-3 – SWMU 22 total VOC and Total SVOC Groundwater Results

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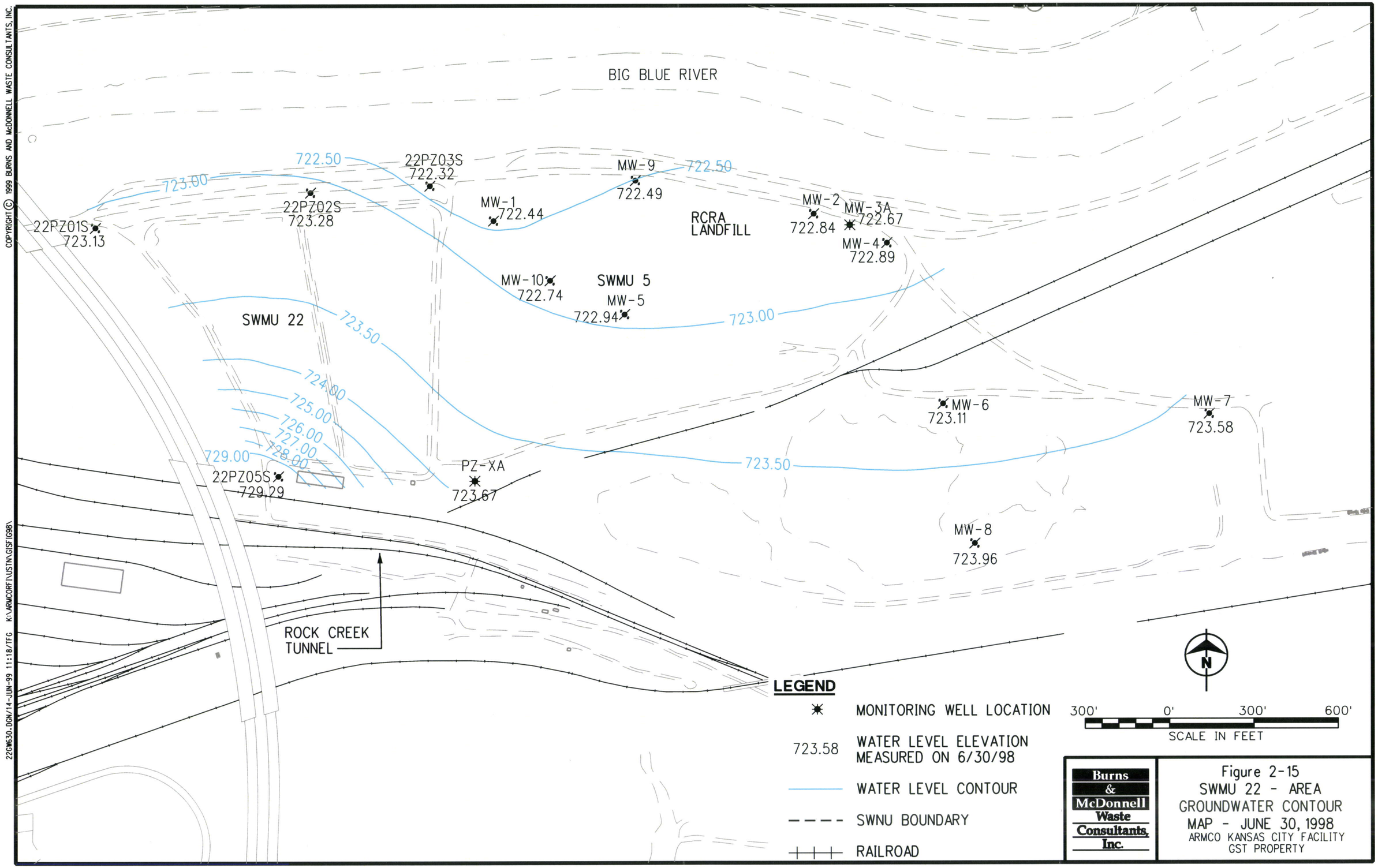

Figure 2-15
SWMU 22 - AREA
GROUNDWATER CONTOUR
MAP - JUNE 30, 1998
ARMCO KANSAS CITY FACILITY
GST PROPERTY

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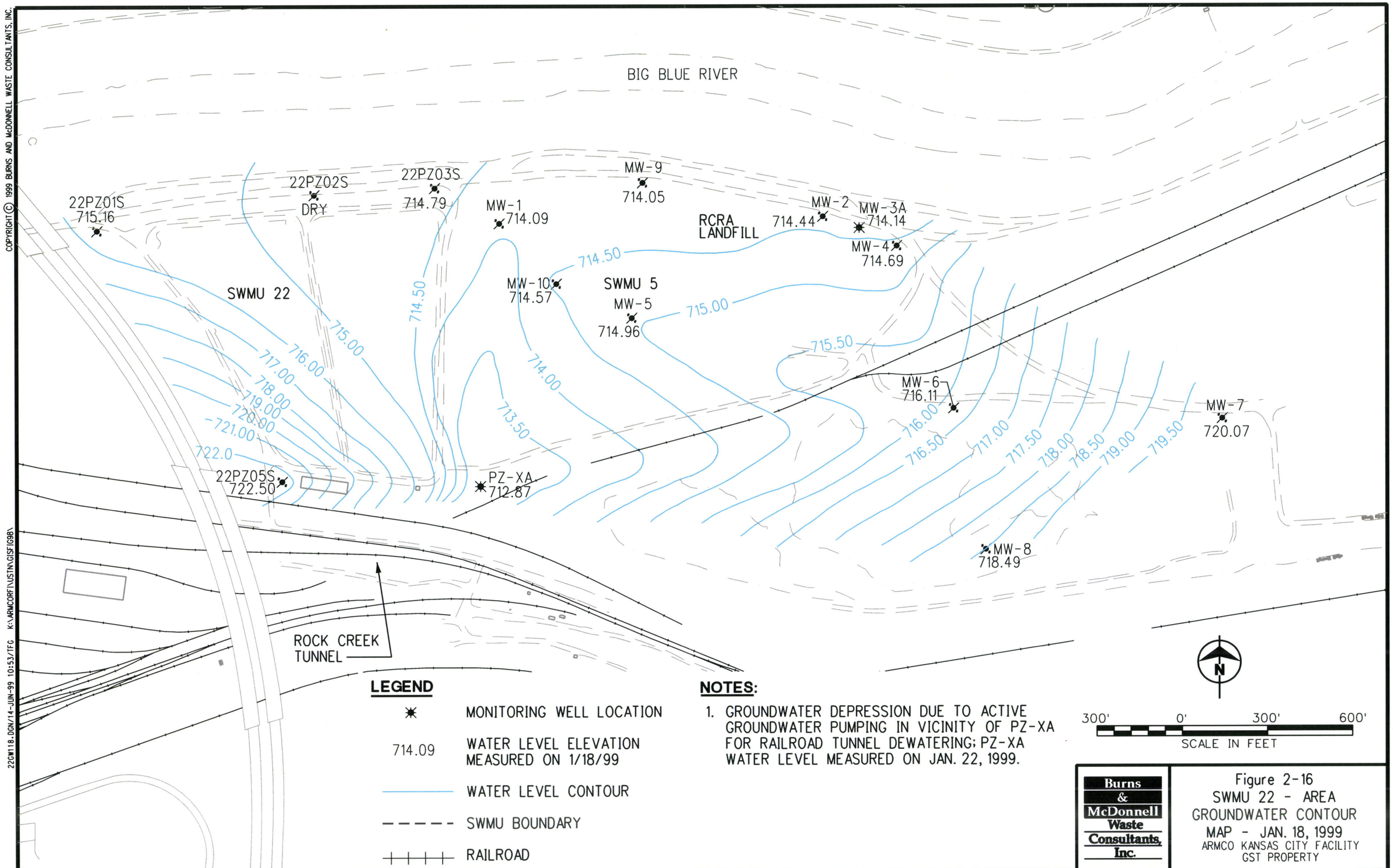

LEGEND

- ✷ MONITORING WELL LOCATION
- 714.09 WATER LEVEL ELEVATION MEASURED ON 1/18/99
- WATER LEVEL CONTOUR
- SWMU BOUNDARY
- RAILROAD

NOTES:

1. GROUNDWATER DEPRESSION DUE TO ACTIVE GROUNDWATER PUMPING IN VICINITY OF PZ-XA FOR RAILROAD TUNNEL DEWATERING; PZ-XA WATER LEVEL MEASURED ON JAN. 22, 1999.

Burns & McDonnell Waste Consultants, Inc.

Figure 2-16
SWMU 22 - AREA
GROUNDWATER CONTOUR
MAP - JAN. 18, 1999
ARMCO KANSAS CITY FACILITY
GST PROPERTY

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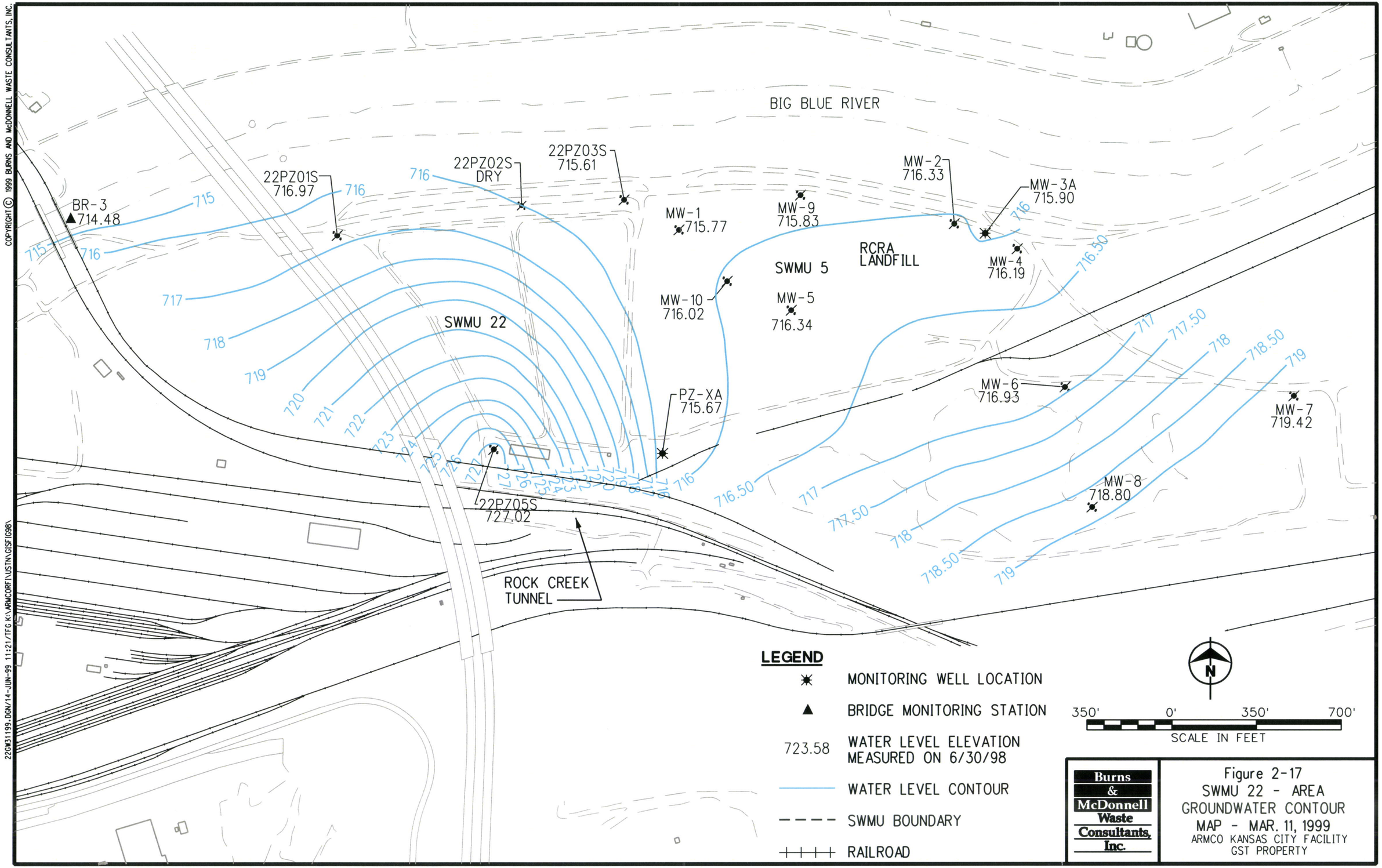

Figure 2-17
SWMU 22 - AREA
GROUNDWATER CONTOUR
MAP - MAR. 11, 1999
ARMCO KANSAS CITY FACILITY
GST PROPERTY

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220\31199.DGN/14-JUN-99 11:21/TFG K:\ARMCORFI\USTN\GISFIG98\

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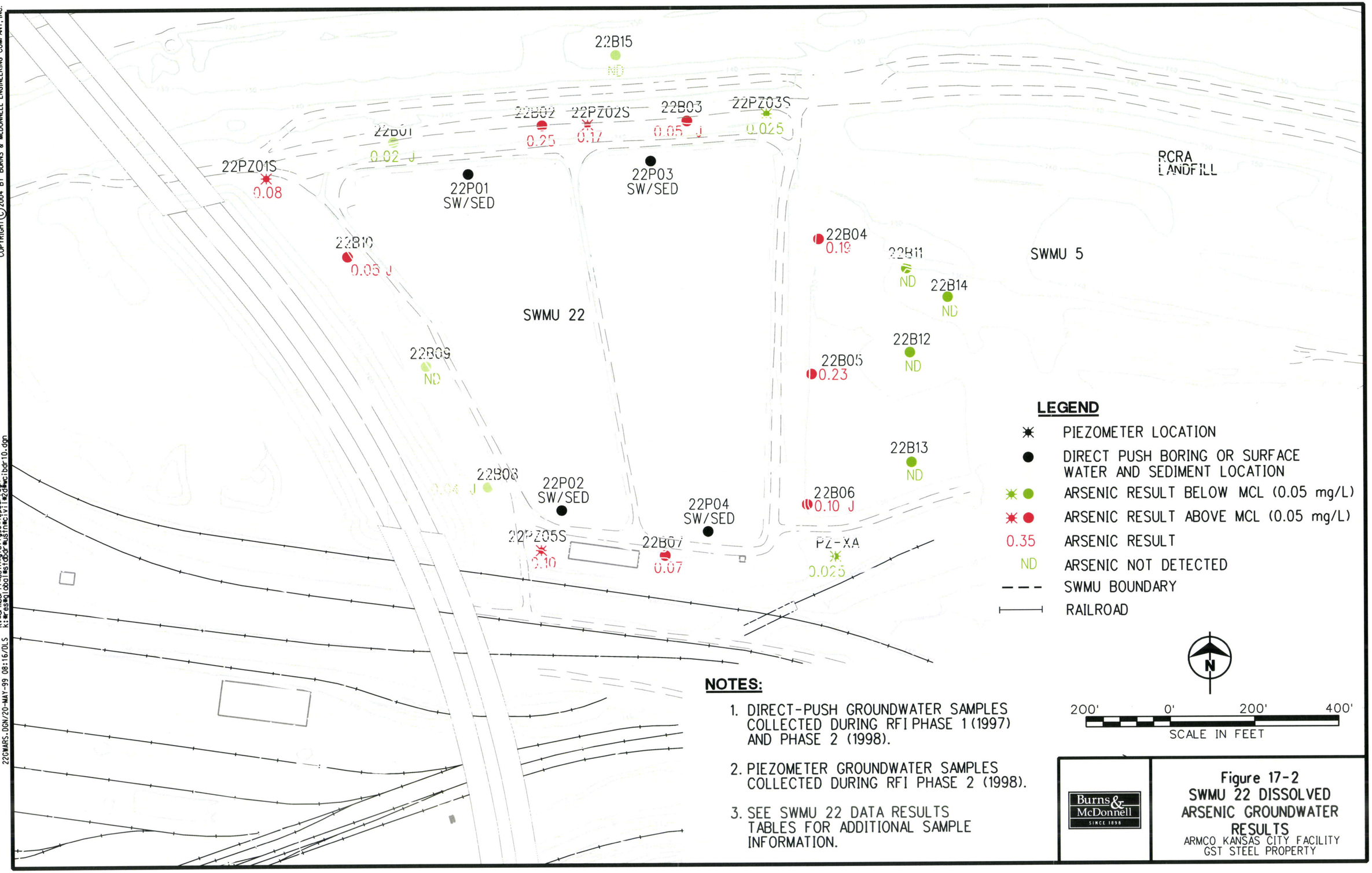

NOTES:

1. DIRECT-PUSH GROUNDWATER SAMPLES COLLECTED DURING RFI PHASE 1 (1997) AND PHASE 2 (1998).
2. PIEZOMETER GROUNDWATER SAMPLES COLLECTED DURING RFI PHASE 2 (1998).
3. SEE SWMU 22 DATA RESULTS TABLES FOR ADDITIONAL SAMPLE INFORMATION.

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Figure 17-2
SWMU 22 DISSOLVED ARSENIC GROUNDWATER RESULTS
ARMCO KANSAS CITY FACILITY
GST STEEL PROPERTY

22GWARS.DGN/20-MAY-99 08:16/OLS
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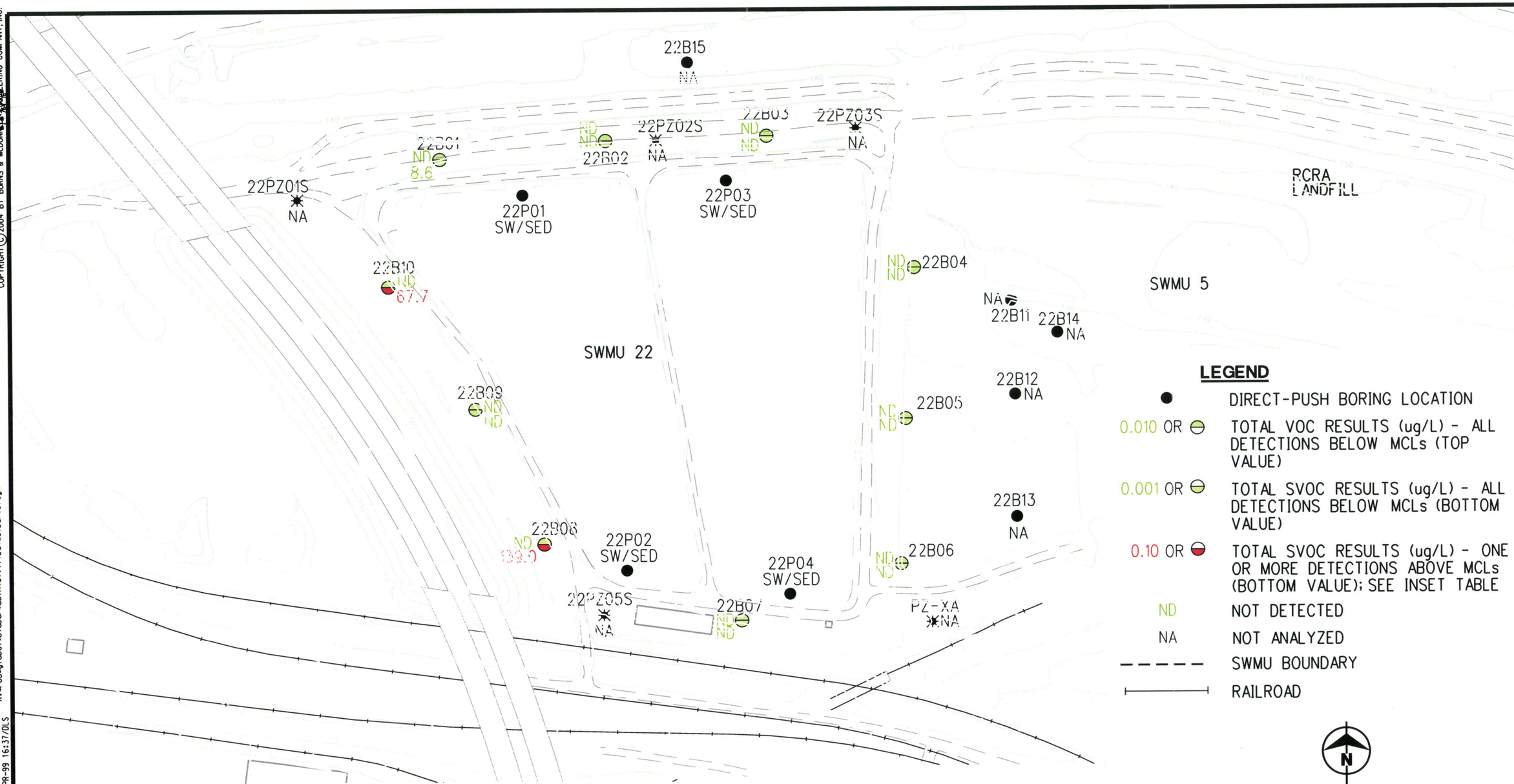

SVOC GROUNDWATER DETECTIONS ABOVE MCLs			
PARAMETER	MCL (ug/L)	SAMPLE	SAMPLE RESULT (ug/L)
BIS(2-ETHYLHEXYL)PHTHALATE	6	22B08/ DW1	139
		22B10/ DW1	67.7

NOTES:

1. DIRECT-PUSH GROUNDWATER SAMPLES COLLECTED DURING RFI PHASE 1 (1997).
2. SEE SWMU 22 DATA RESULTS TABLES FOR ADDITIONAL SAMPLE INFORMATION.

Burns & McDonnell SINCE 1898

Figure 17-3
SWMU 22 TOTAL VOC AND TOTAL SVOC GROUNDWATER RESULTS
ARMCO KANSAS CITY FACILITY
GST STEEL PROPERTY

k:\armcorfi\ustn\ref98\swmu0001.dgn
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22SVOC.DGN/27-APR-99 16:37/DLS

EXHIBIT 2-2

RFI REPORT FIGURES FOR
SWMU 2 – OLD BLUE RIVER "W" LANDFILL

Figure 5-2 – SWMU 2 Dissolved Lead and Cadmium Groundwater Results
Figure 5-3 – SWMU 2 Total VOC Groundwater Results

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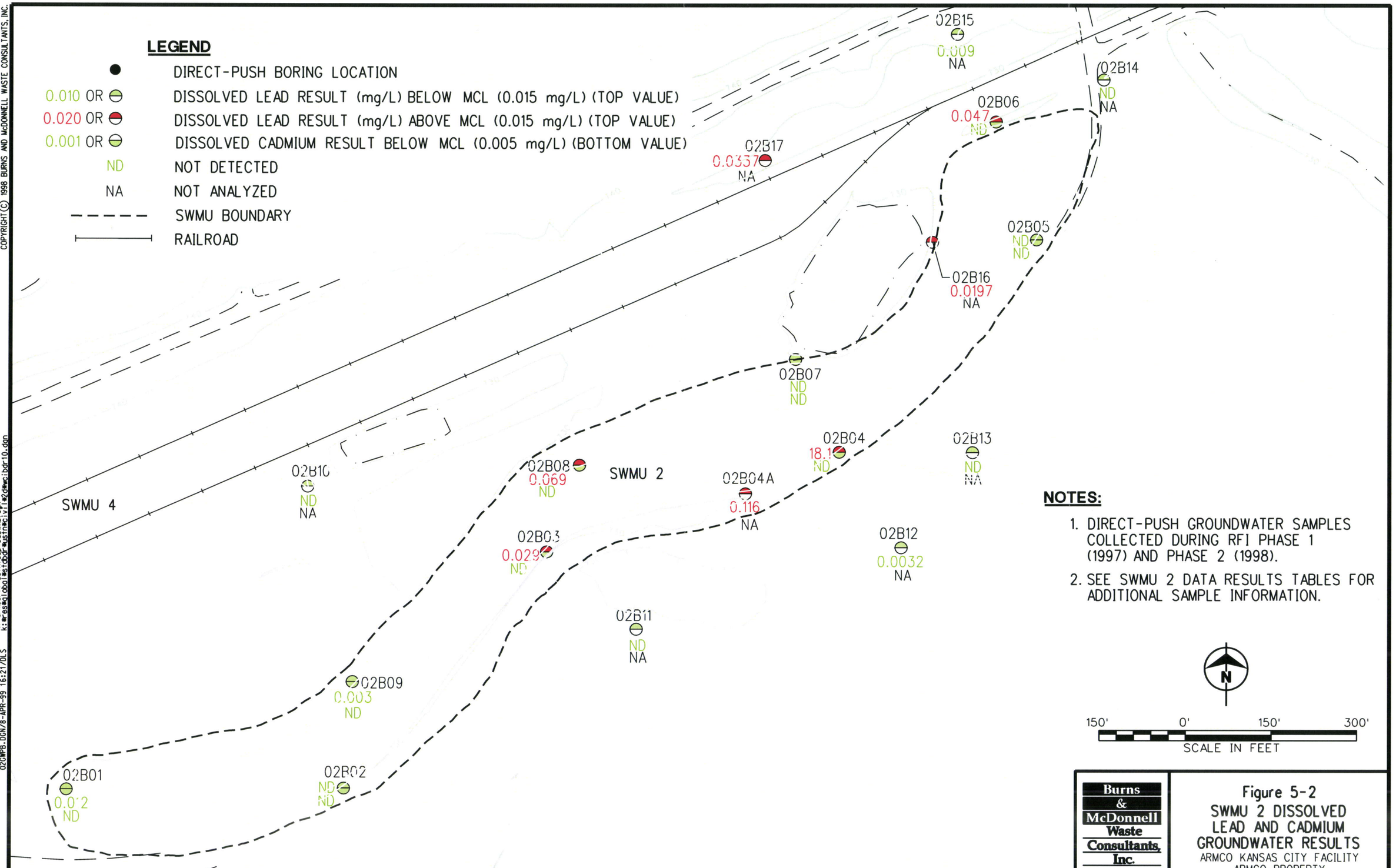

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VOC GROUNDWATER DETECTIONS ABOVE MCLs			
PARAMETER	MCL (ug/L)	SAMPLE	SAMPLE RESULT (ug/L)
BENZENE	5	02B04A/DW1	5.79
ETHYLBENZENE	700	02B16/DW1	4140 D
METHYLENE CHLORIDE	5	02B15/DW1	33.7
M,P-XYLENE	10000*	02B16/DW1	16700 D
O-XYLENE		02B16/DW1	5400 D

*MCL IS FOR TOTAL XYLENES

QUALIFIER NOTES:
D = DILUTED SAMPLE

NOTES:

1. DIRECT-PUSH GROUNDWATER SAMPLES COLLECTED DURING RFI PHASE 1 (1997) AND PHASE 2 (1998).
2. VOC RESULTS FOR LOCATION 02B17 WERE QUALIFIED AS UNUSABLE (R) DURING THE QC EVALUATION DUE TO A POSSIBLE LOW-BIAS IN THE RESULTS.
3. SEE SWMU 2 DATA RESULTS TABLES FOR ADDITIONAL SAMPLE INFORMATION.

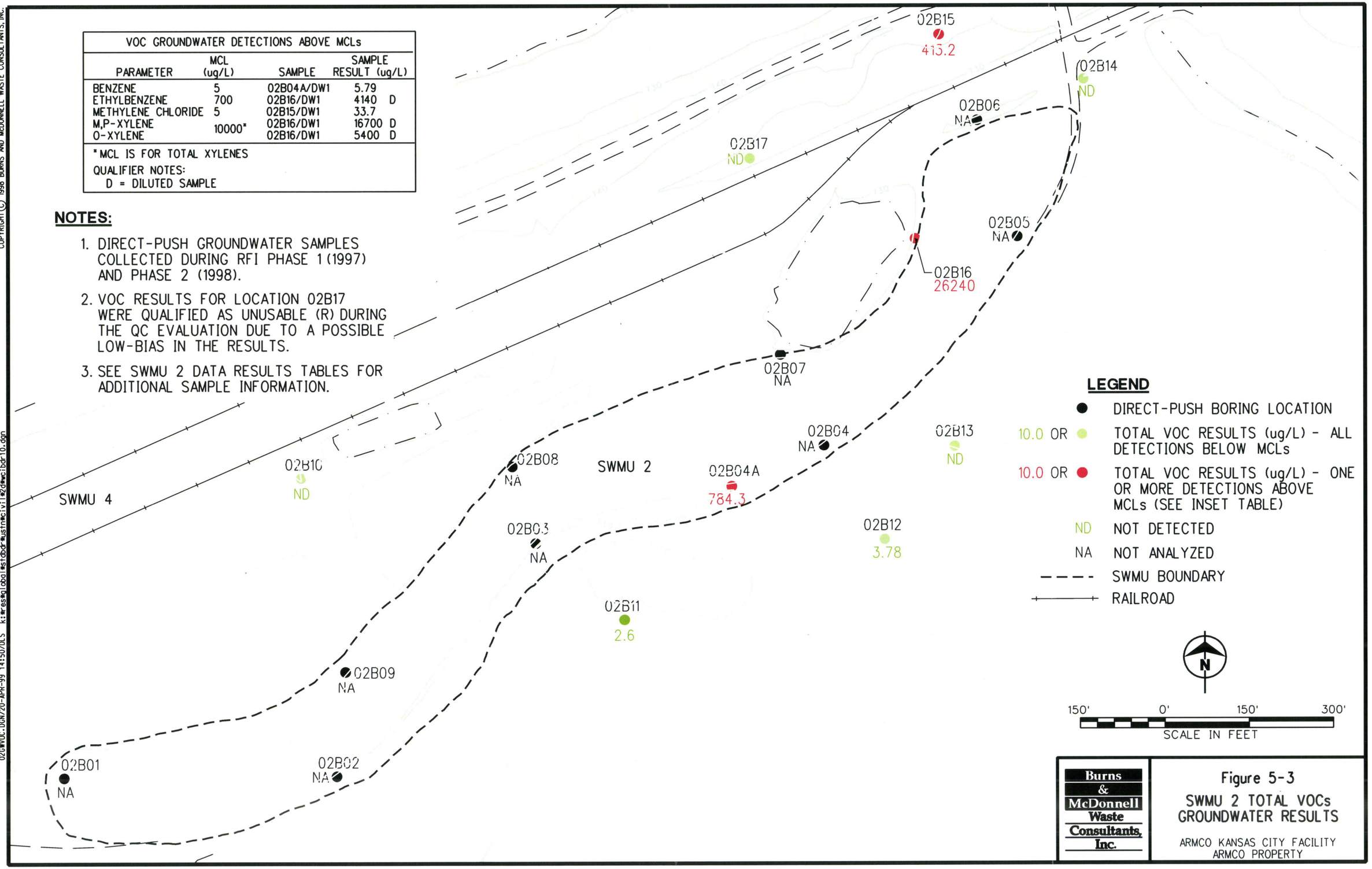

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Figure 5-3
SWMU 2 TOTAL VOCs GROUNDWATER RESULTS

ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

026WVOC.DGN/20-APR-99 14:50/DLS
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EXHIBIT 2-3

SUPPLEMENTAL INVESTIGATION REPORT FIGURES FOR SWMU 2 – OLD BLUE RIVER "W" LANDFILL

Figure 3-2 – SWMU 2: Cadmium and Lead Results
Figure 3-3 – SWMU 2: Total BTEX Results

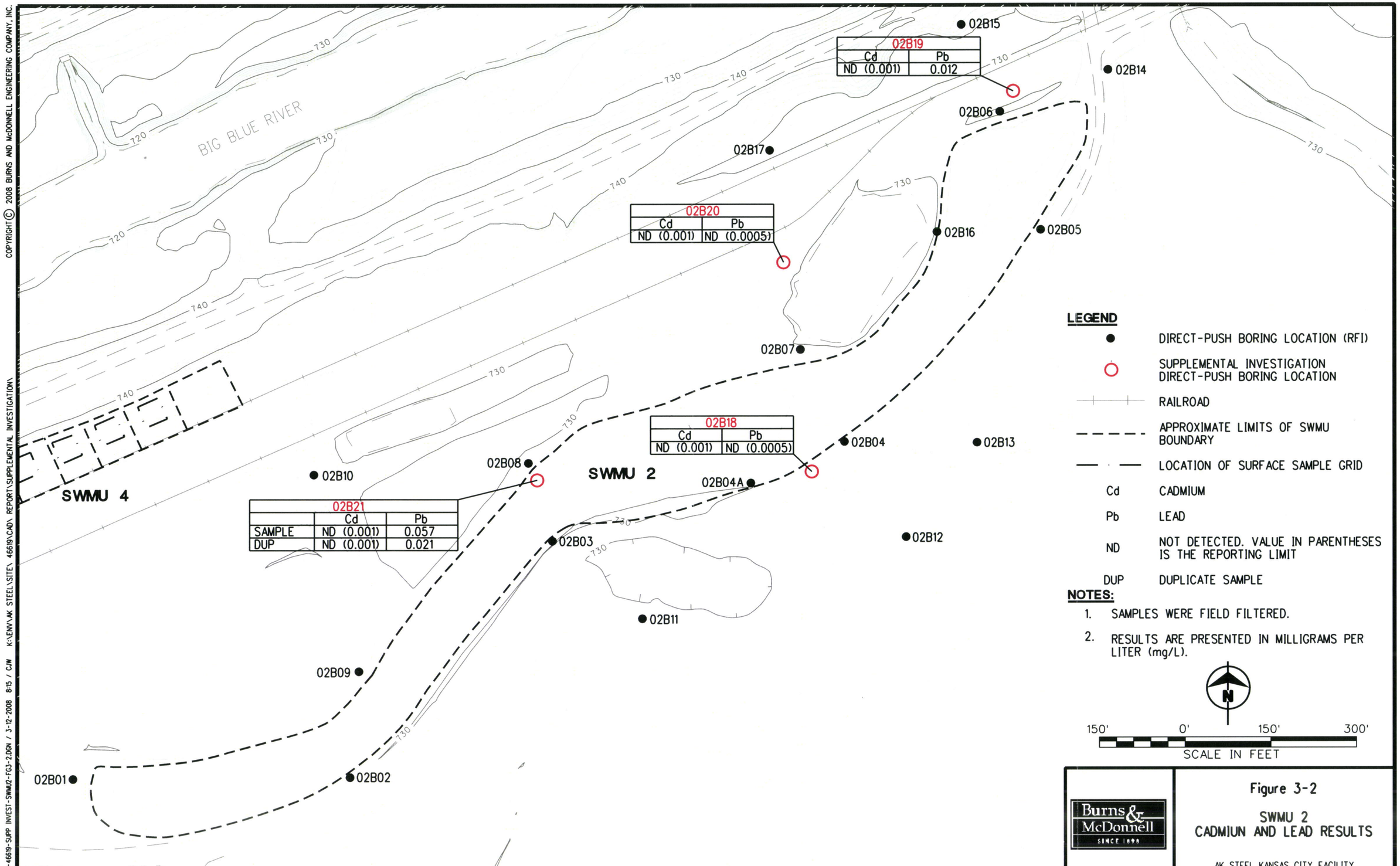

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Figure 3-2

SWMU 2
CADMIUN AND LEAD RESULTS

AK STEEL KANSAS CITY FACILITY

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AK-17X11-2008.DGN\ Off=59,61
AK-SITE.DGN\SITE\ Off=2,17,61-63
AK-CONTOUR.DGN\CONTOUR\ Off=1,3-9,12-63
AK-ALLSWMU.DGN\SWMU\ Off=62-63

AK-46619-SUPP INVEST-SWMU2-FG3-2.DGN / 3-12-2008 8:15 / CJW K:\ENV\AK STEEL\SITE\ 46619\CAD\ REPORT\SUPPLEMENTAL INVESTIGATION\

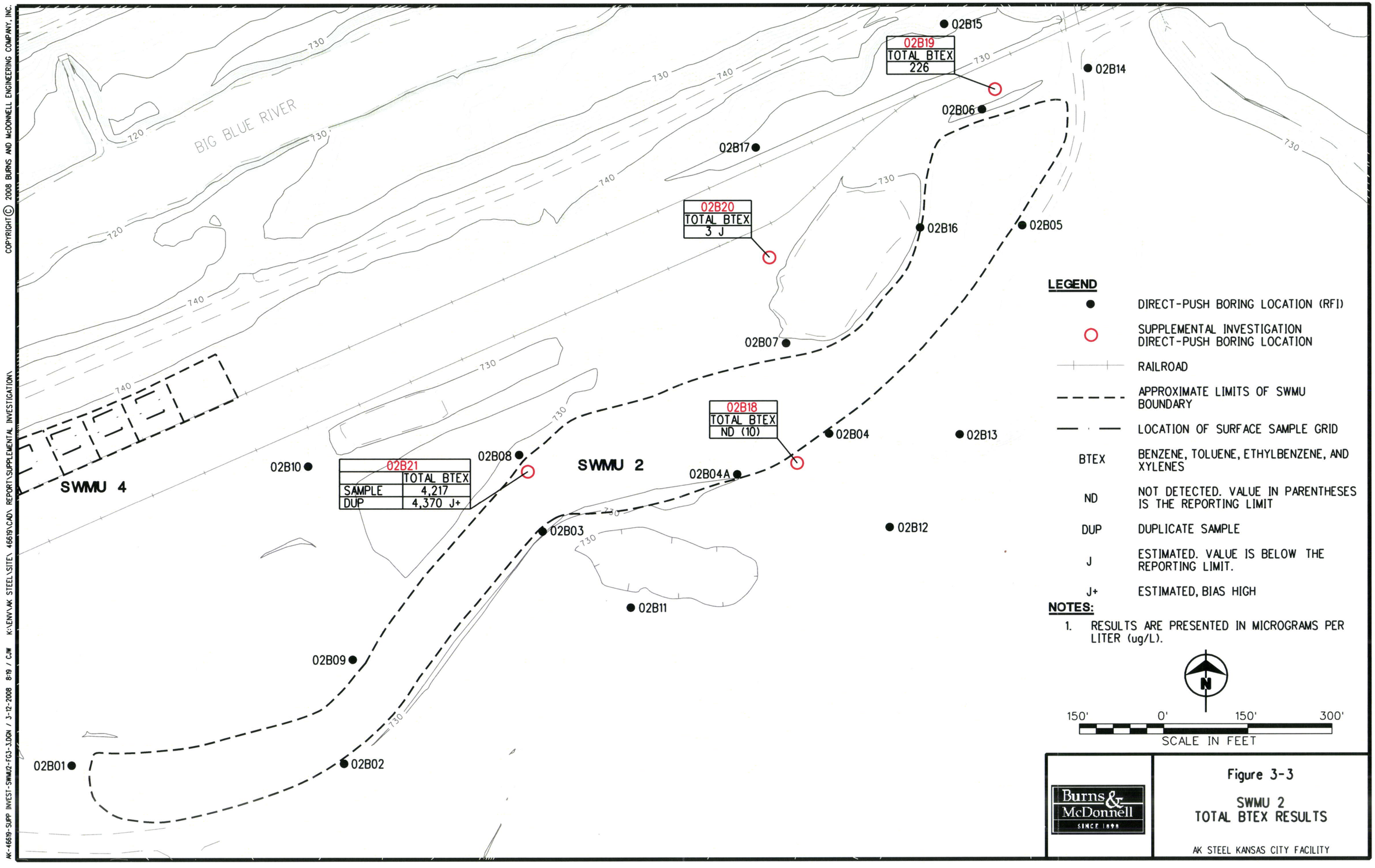

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Figure 3-3

SWMU 2
TOTAL BTEX RESULTS

AK STEEL KANSAS CITY FACILITY

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AK-46619-SUPP INVEST-SWMU2-FG3-3.DGN / 3-12-2008 8:19 / CJW K:\ENV\AK STEEL\SITE\ 46619\CAD\ REPORT\SUPPLEMENTAL INVESTIGATION\

EXHIBIT 2-4

RFI REPORT FIGURES FOR SWMU 4 – 1987 WASTE PILE

Figure 7-3 – SWMU 4 Dissolved Lead and Cadmium Groundwater Results

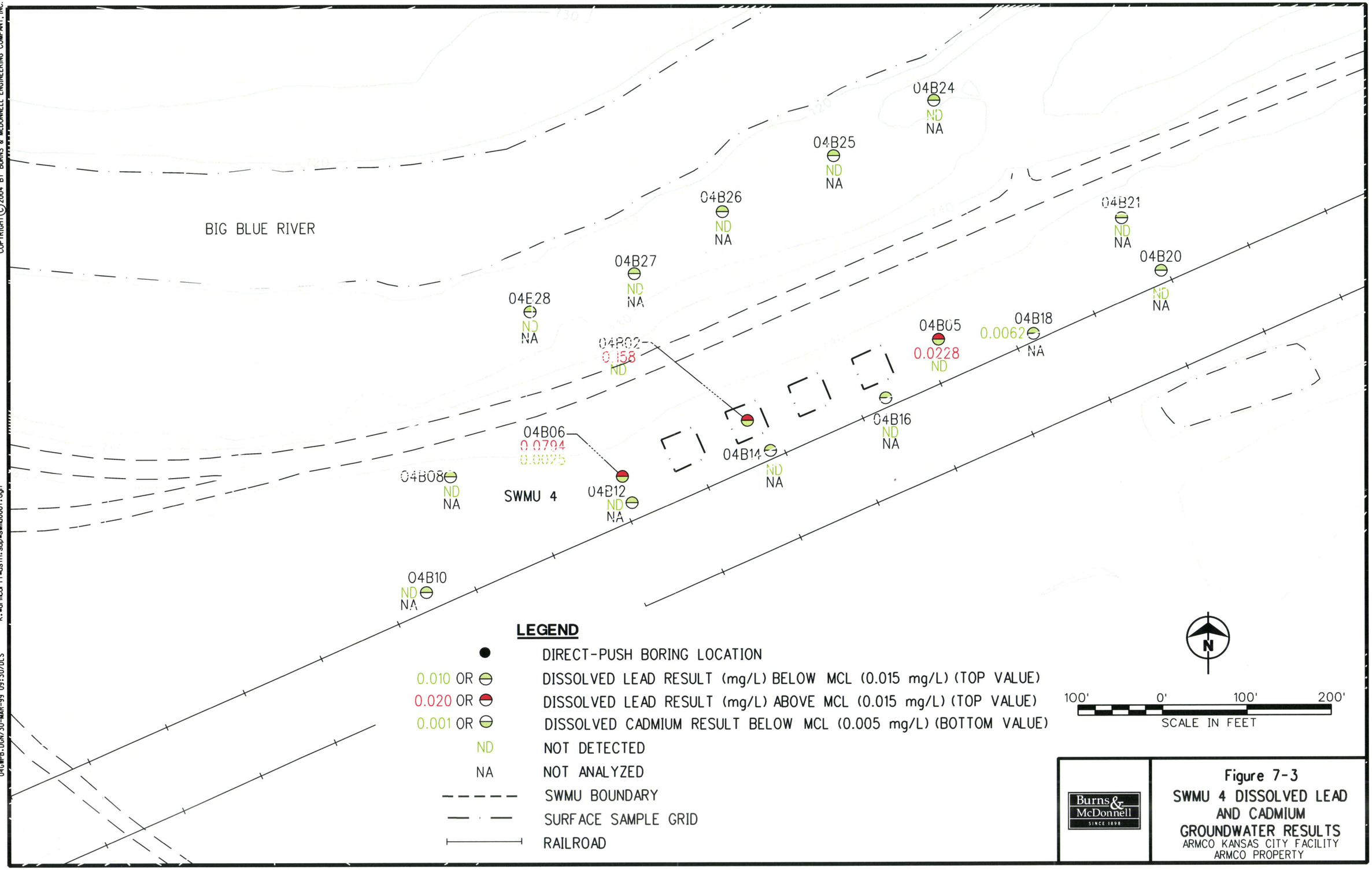

Figure 7-3
SWMU 4 DISSOLVED LEAD AND CADMIUM GROUNDWATER RESULTS
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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04GWPB.DGN/30-MAR-99 09:30/DLS

EXHIBIT 2-5

RFI REPORT FIGURES FOR
SWMU 5 – PLANT RUBBLE LANDFILL

Figure 8-2 – SWMU 5 Dissolved Lead and Cadmium Groundwater Results

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k:\armcofi\ustn.sup\armcona.dgn
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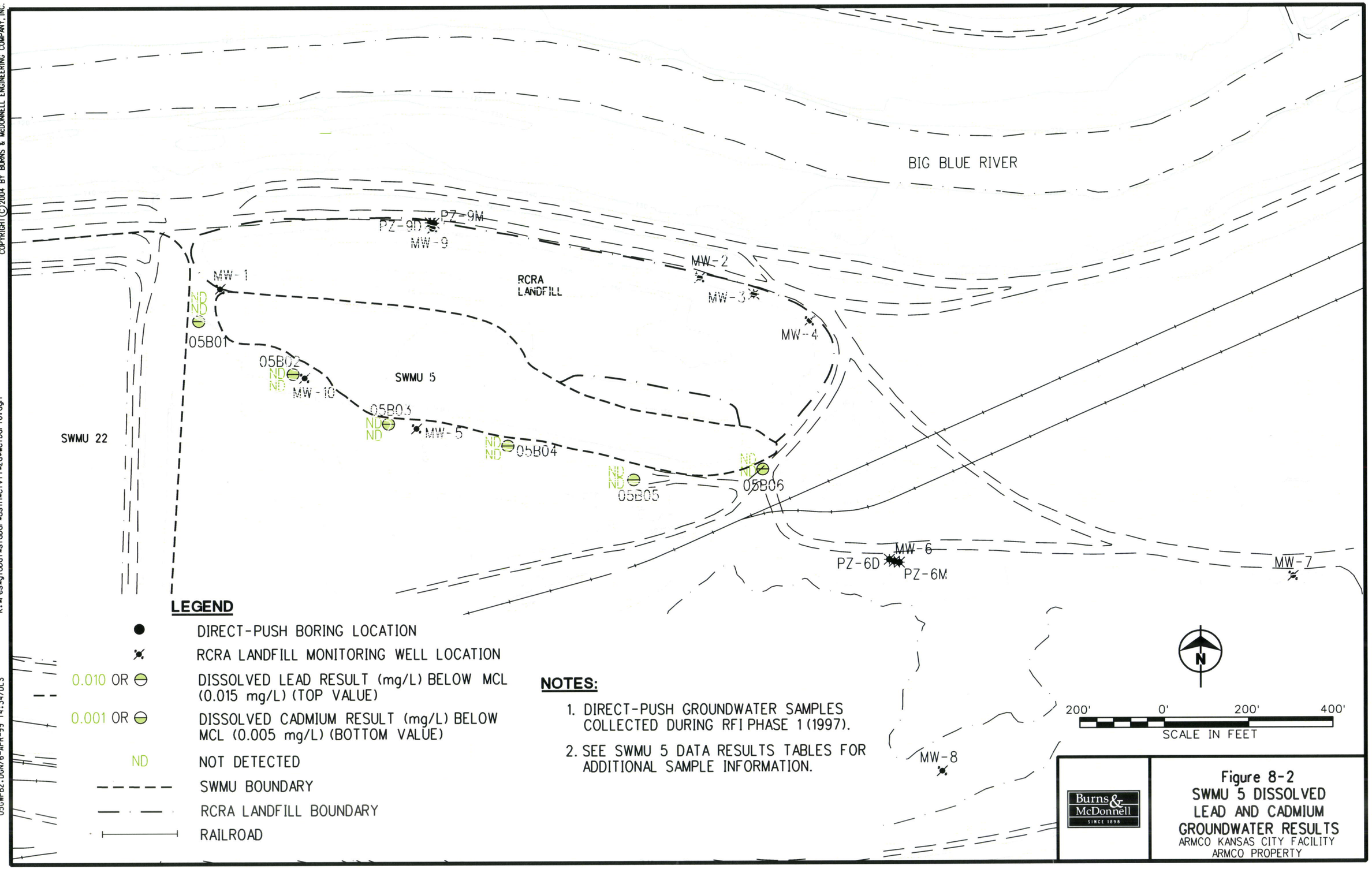

Figure 8-2
SWMU 5 DISSOLVED LEAD AND CADMIUM GROUNDWATER RESULTS
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

EXHIBIT 2-6

RFI REPORT FIGURES FOR
SWMU 12 – AMOCO Landfarm

Figure 2-14 – SWMU 12 Groundwater Contour Map, Feb. 14, 1997

Figure 14-5 – SWMU 12 Dissolved Metals Groundwater Results
Figure 14-6 – SWMU 12 Total VOC and Total SVOC Groundwater Results

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k:\armcorfi\ustn.sup\site.dgn
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12GW297.DGN/11-JUN-99 10:39/TFG K:\ARMCORFI\USTN\GISFIG98\

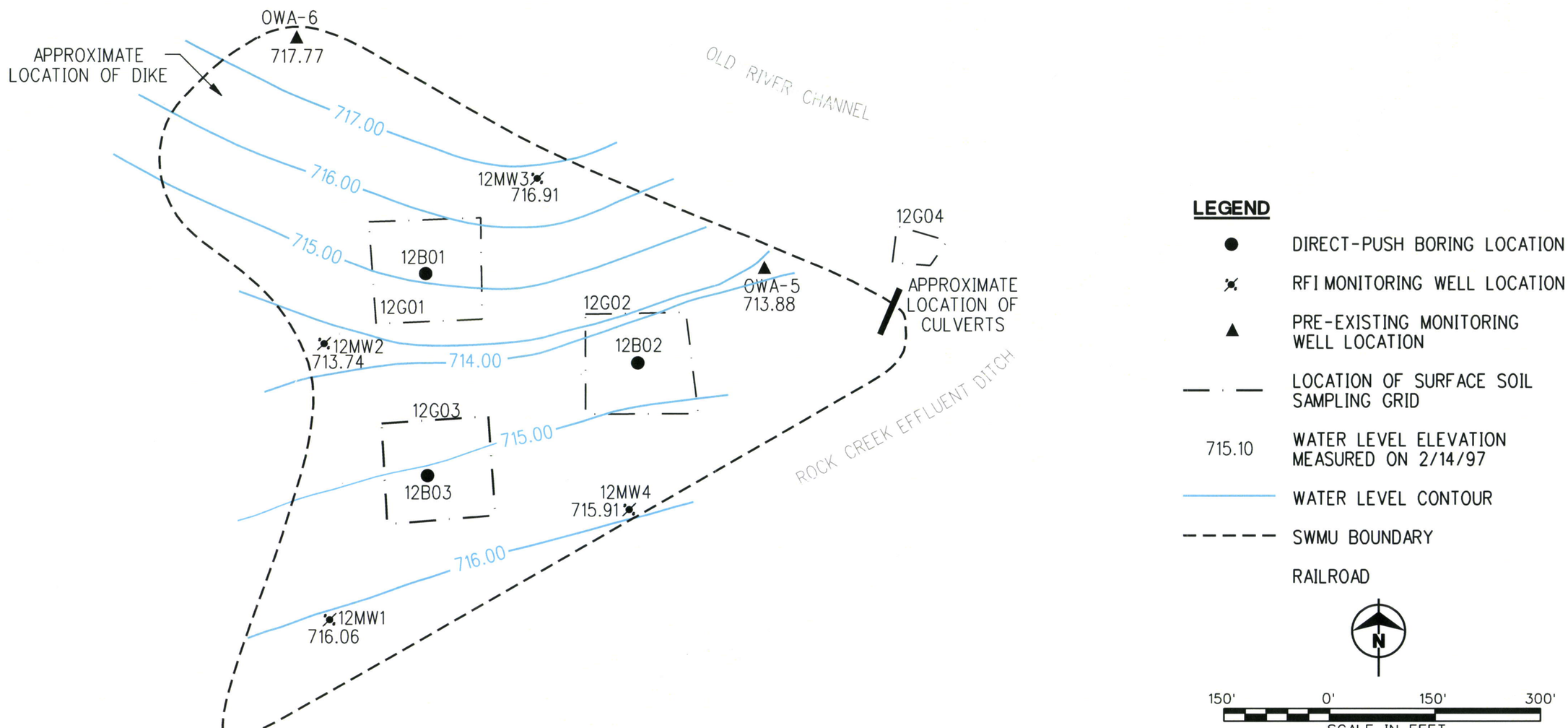

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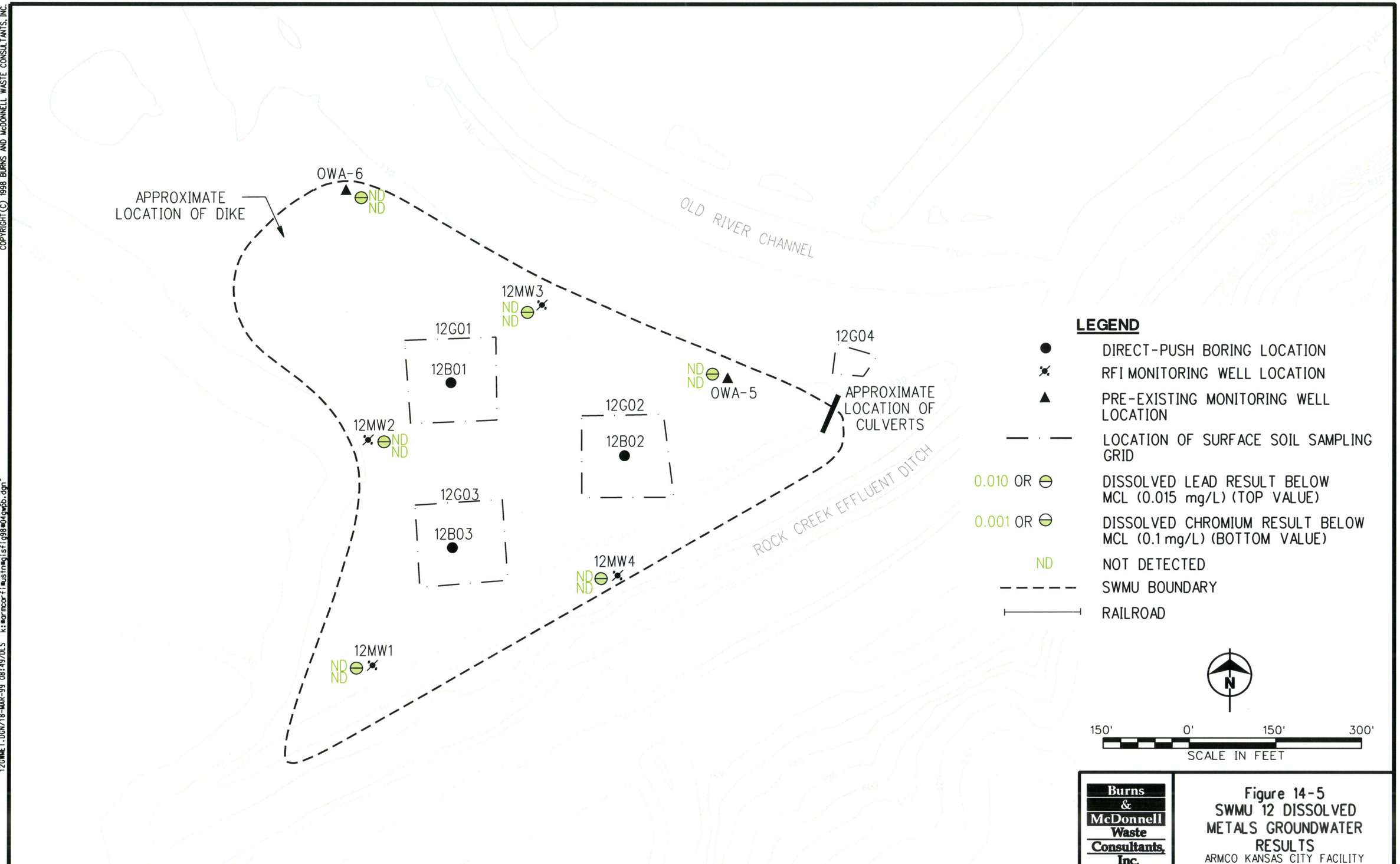
Figure 2-14
SWMU 12 GROUNDWATER CONTOUR MAP-FEB. 14, 1997

ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY



Burns & McDonnell Waste Consultants, Inc.

Figure 14-5
SWMU 12 DISSOLVED METALS GROUNDWATER RESULTS
ARMCO KANSAS CITY FACILITY
AMOCO LEASED ARMCO PROPERTY

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12GWMET.DGN/18-MAR-99 08:49/DLS

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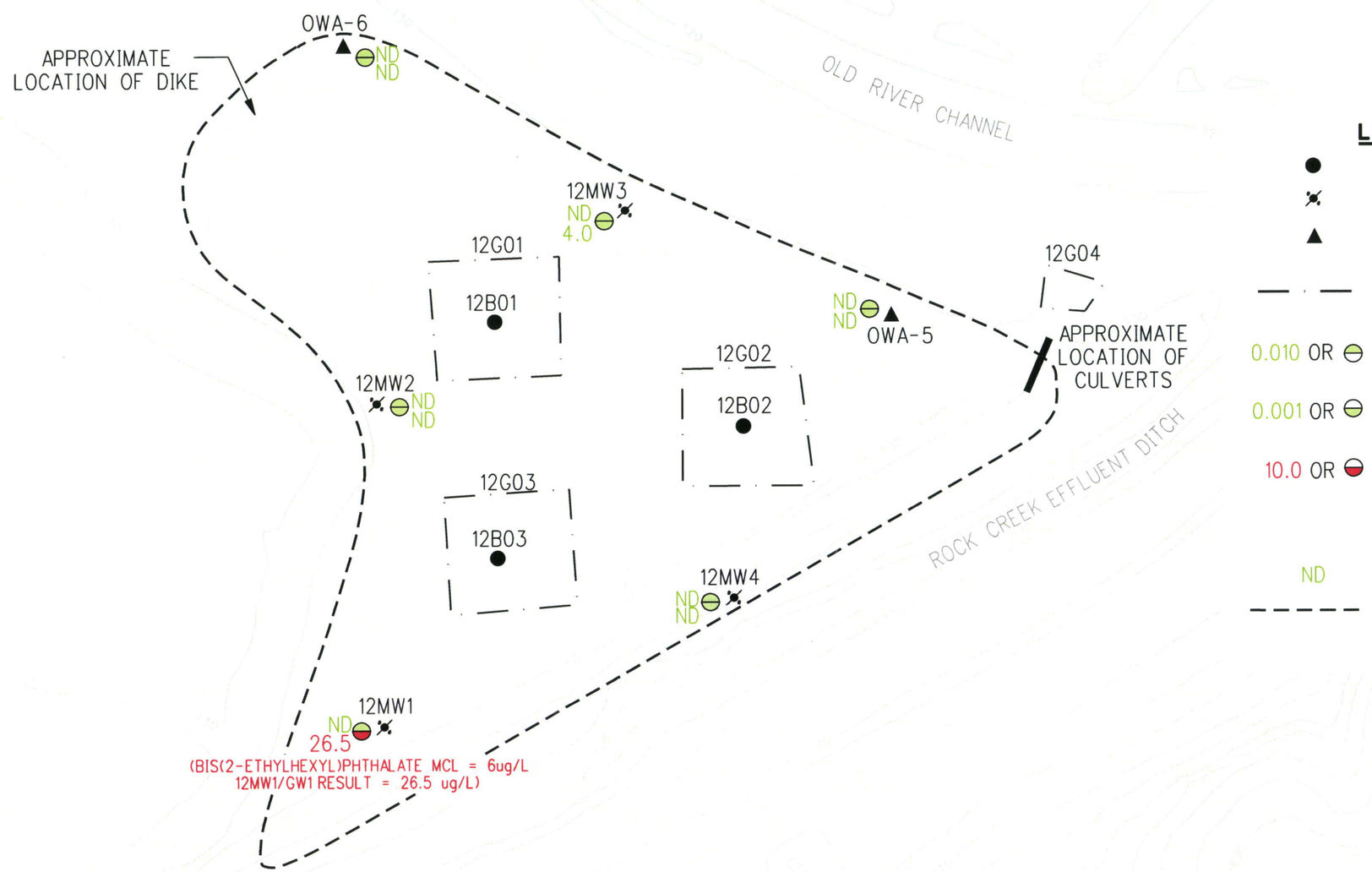

LEGEND

- ● DIRECT-PUSH BORING LOCATION
- RFI MONITORING WELL LOCATION
- ▲ PRE-EXISTING MONITORING WELL LOCATION
- LOCATION OF SURFACE SOIL SAMPLING GRID
- 0.010 OR — TOTAL VOC RESULTS (ug/L) - ALL DETECTIONS BELOW MCLs (TOP VALUE)
- 0.001 OR — TOTAL SVOC RESULTS (ug/L) - ALL DETECTIONS BELOW MCLs (BOTTOM VALUE)
- 10.0 OR — TOTAL SVOC RESULTS (ug/L) - ONE OR MORE DETECTIONS ABOVE MCLs (BOTTOM VALUE); COMPOUND, MCL, AND SAMPLE RESULT PROVIDED
- ND — NOT DETECTED
- SWMU BOUNDARY
- RAILROAD

N

150' 0' 150' 300'
SCALE IN FEET

Burns & McDonnell Waste Consultants, Inc.

Figure 14-6
SWMU 12 TOTAL VOC AND TOTAL SVOC GROUNDWATER RESULTS
ARMCO KANSAS CITY FACILITY
AMOCO LEASED ARMCO PROPERTY

k:\armcor\fi\ustn.sup\site.dgn
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12TVOCS.DGN/27-APR-99 13:04/DLS

SECTION 3.0
SWMUs/AOCs SOUTH OF 24 HIGHWAY

3.0 SWMUS/AOCS SOUTH OF 24 HIGHWAY

A discussion of groundwater data for SWMUs and AOCs south of 24 Highway is presented in Section 3.0, and includes only one location:

- SWMU 3 – South of Bar Fab Landfill

This area south of 24 Highway is within the Blue River alluvial valley as discussed in Sections 1.3.1 and 1.3.2.

3.1 SWMU 3 – SOUTH OF BAR FAB LANDFILL

3.1.1 SWMU Background

The South of Bar Fab Landfill (SWMU 3) is located partially on AK Steel property (see Figure 1-2) and partially on property owned by the City of Kansas City, Missouri. SWMU 3 is a closed landfill that was previously used to manage emission control dust and various solid waste materials. SWMU 3, which covers an area of just over 1 acre, was closed in 1980 through construction of a soil cap (approximately three feet of compacted soil) and a vegetative cover (fescue grass). A portion of the area in the general vicinity of the SWMU, including a portion of the landfill itself, was deeded to the City in 1983 for completion of channelization work on the adjacent Blue River. The cap was subsequently upgraded on the western side of the landfill to a concrete cover, which was also extended across a drainage culvert located along the northern edge of the landfill. In the spring of 1998, modifications were made in the SWMU 3 area when a paved access road was constructed over the top of the closed landfill. The landfill encompasses approximately 44,000 square feet and has a maximum thickness of 17 feet. Total volume of the landfill was estimated to be 14,000 cubic yards (Remcor, 1988 in Appendix E).

3.1.2 Screening Results

SWMU 3 groundwater sampling locations are presented on Figure 3-1. Over the course of investigations at the Facility, the following groundwater data have been collected:

- **1997 RFI** - Groundwater samples 03B01 through 03B05 and 03B08 were collected using direct-push techniques and analyzed for filtered cadmium and filtered lead.

- **2007 Supplemental Investigation** – Direct-push sampling was conducted to verify the results of groundwater samples collected during the RFI. Groundwater samples 03B08A and its duplicate were collected using direct-push techniques and analyzed for filtered cadmium and filtered lead. The

sampling location was advanced at 1997 RFI location 03B08. Samples were planned from three additional locations (03B01A through 03B03A) during the 2007 Supplemental Investigation, but these samples could not be collected due to a lack of groundwater. Multiple offsets for locations 03B01A through 03B03A were attempted and borings were advanced to bedrock (approximately 40 feet bgs); however, groundwater was not encountered.

A summary of the groundwater screening results is presented on Table 3-1. Screening of individual samples against the groundwater screening values is presented on Tables 3-2 and 3-3. A summary of the screening is provided in the following paragraphs:

- **Filtered Cadmium (Tables 3-2 and 3-3; Exhibits 3-1 and 3-2)** – Filtered cadmium was not detected in any of the groundwater samples collected in 1997 (Table 3-2 and Exhibit 3-1). Filtered cadmium was detected in the sample and duplicate collected during the 2007 Supplemental Investigation (Table 3-3 and Exhibit 3-2). The filtered cadmium detection was below the MCL.

- **Filtered Lead (Tables 3-2 and 3-3; Exhibits 3-1 and 3-2)** – Filtered lead was detected in samples collected from four locations (03B01, 03B02, 03B05, and 03B08) during the 1997 RFI. Filtered lead concentrations ranged from 0.005 to 0.012 mg/L, which are below the MCL. Filtered lead was not detected in the 2007 Supplemental Investigation sample or duplicate from location 03B08A.

3.1.3 Conclusion

Based on the data screening, no additional groundwater monitoring is needed. While filtered cadmium and filtered lead have been detected in direct-push groundwater samples collected from this area, none of the concentrations exceeded applicable screening levels. During the 2007 Supplemental Investigation, several sampling locations were dry. Multiple offsets were attempted for these locations and borings were advanced to bedrock (approximately 40 feet bgs) in an attempt to locate groundwater; however, groundwater was not encountered. It is likely that infiltration in this area is minimal since the area is paved with either concrete or asphalt and the adjacent bank of the Blue River is also paved.

* * * * *

Table 3-1
Summary of Groundwater Screening Results - SWMU 3
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Exceedances	
Filtered RCRA Metals				
Cadmium, Dissolved	7	1	0	MCL
Lead, Dissolved	7	4	0	MCL

Notes:
Groundwater screening levels are as follows:
1. If a parameter has a MCL, data is screened using the MCL.
2. If a parameter does not have an MCL, data is screened using the USEPA tapwater RSL.

Samples, Duplicates, and Reanalyses are counted as 1 sample.
Exceedance is counted if any one of these exceeds the screening criteria.
NAp - Not applicable
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level

Table 3-2
1997 Groundwater Results - SWMU 3
Groundwater Screening Report
AK Steel Kansas City Facility

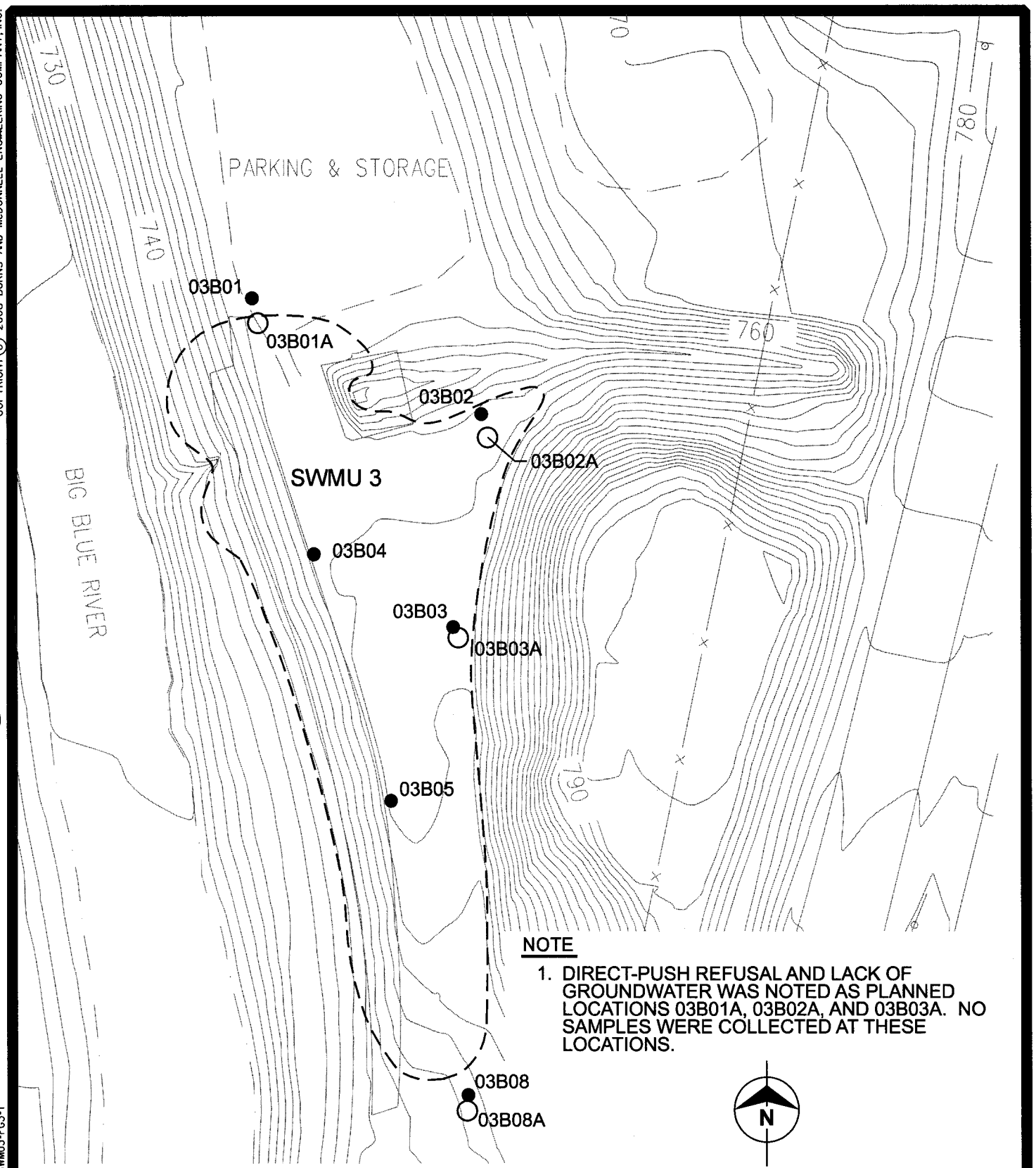
Sample Name	Comment	Date Collected	Depth (ft bgs)	Lab ID:	Units	Cadmium, Dissolved	Lead, Dissolved
				Groundwater Screening Level		0.005 MCL	0.015 MCL
03B01 / DW1		3/20/1997	28-30	D97-3397-1	mg/L	0.005 U	***0.005***
03B02 / DW1		3/20/1997	16-18	D97-3397-2	mg/L	0.005 U	***0.006***
03B03 / DW1		3/20/1997	16-18	D97-3397-3	mg/L	0.005 U	0.003 U
03B04 / DW1		3/20/1997	26-28	D97-3397-5	mg/L	0.005 U	0.003 U
03B05 / DW1		3/20/1997	27-29	D97-3397-6	mg/L	0.005 U	***0.012***
03B08 / DW1		3/20/1997	18-20	D97-3397-9	mg/L	0.005 U	***0.005***
03B08 / DW1D	Duplicate	3/20/1997	18-20	D97-3397-4	mg/L	0.005 U	***0.008***

Notes:
Bold, italic = Compound was detected.
ft bgs = feet below ground surface
Direct-push groundwater samples were collected from depth where water was first encountered.
Description of data flags is provided on Table 1-1.
Lead, dissolved screening levels are for lead and compounds.
MCL - Safe Drinking Water Act Maximum Contaminant Level
mg/L - milligrams per liter

Table 3-3
2007 Groundwater Results - SWMU 3
Groundwater Screening Report
AK Steel Kansas City Facility

Sample Name	Comment	Date Collected	Depth (ft bgs)	Lab ID:	Units	Cadmium, Dissolved	Lead, Dissolved
					Groundwater Screening Level	0.005 MCL	0.015 MCL
03B08A / DW1		9/13/2007	23-27	510-18156-1	mg/L	***0.0010***	0.0005 U
03B08A / DW1D	Duplicate	9/13/2007	23-27	510-18156-2	mg/L	***0.0014***	0.0005 U

Notes:
Bold, italic = Compound was detected.
ft bgs = feet below ground surface
Direct-push groundwater samples were collected from depth where water was first encountered.
Description of data flags is provided on Table 1-1.
Lead, dissolved screening levels are for lead and compounds.
MCL - Safe Drinking Water Act Maximum Contaminant Level
mg/L - milligrams per liter



NOTE

1. DIRECT-PUSH REFUSAL AND LACK OF GROUNDWATER WAS NOTED AS PLANNED LOCATIONS 03B01A, 03B02A, AND 03B03A. NO SAMPLES WERE COLLECTED AT THESE LOCATIONS.

LEGEND

- ● RFI DIRECT-PUSH BORING LOCATION FOR GROUNDWATER
- ○ SUPPLEMENTAL INVESTIGATION DIRECT-PUSH BORING LOCATION
- — — — SWMU BOUNDARY

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Figure 3-1

SWMU 3
SAMPLING LOCATIONS
AK STEEL
KANSAS CITY FACILITY

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AKSITE.DGN() Off=3,6,11-12,63
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AK-ALLSWMU.DGN() Off=62

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EXHIBIT 3-1

RFI REPORT FIGURES FOR
SWMU 3 – South of Bar Fab Landfill

Figure 6-2 – SWMU 3 Dissolved Lead and Cadmium Groundwater Results

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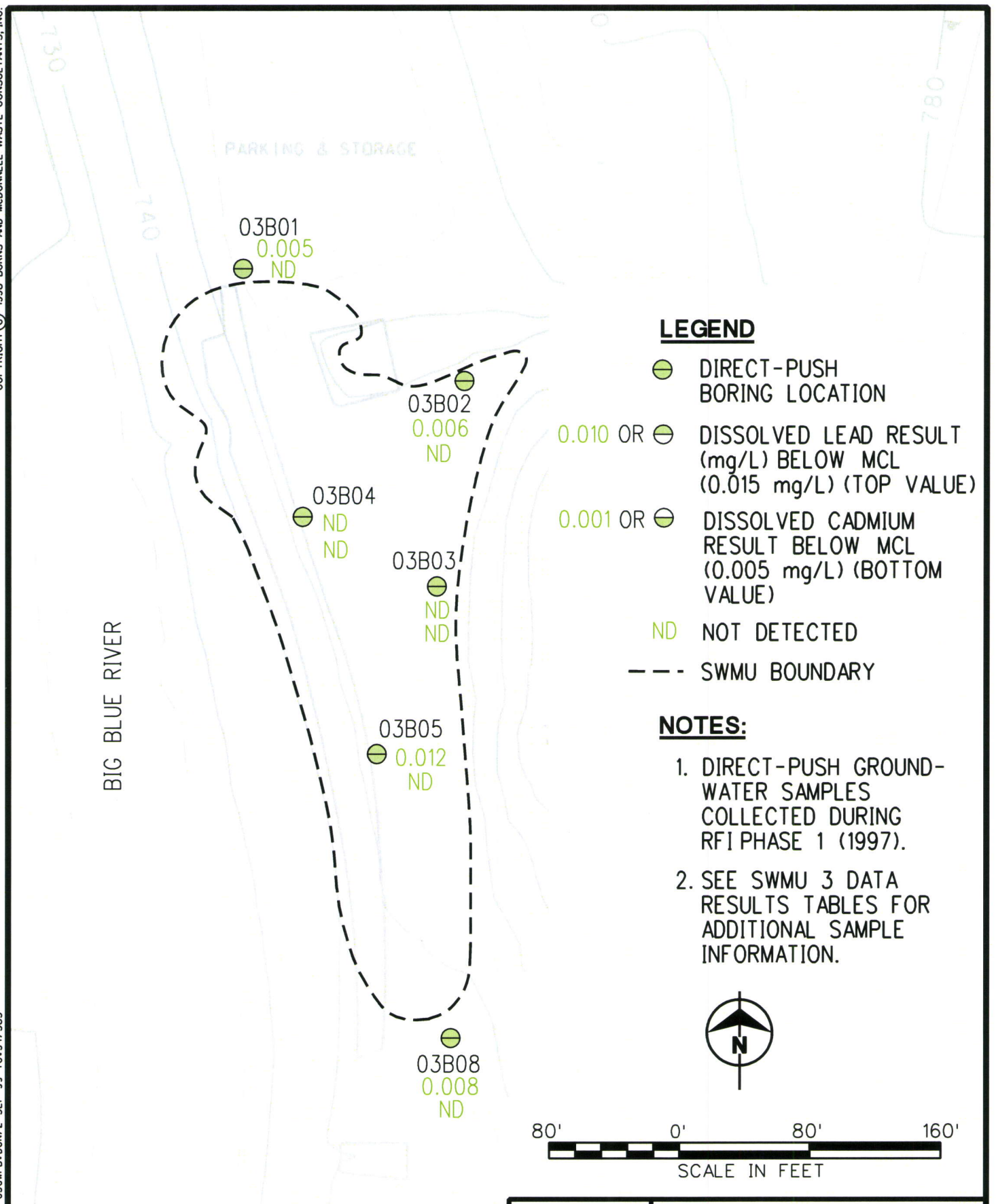

Burns & McDonnell Waste Consultants, Inc.

Figure 6-2
SWMU 3 DISSOLVED LEAD AND CADMIUM GROUNDWATER RESULTS
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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k:\armcor fi\austn.sup\armcon0.dgn
k:\armcor fi\austn.sup\swmu0001.dgn
03GWPB.DGN/2-SEP-99 10:34/SOS

EXHIBIT 3-2

SUPPLEMENTAL INVESTIGATION REPORT FIGURES FOR SWMU 3 – South of Bar Fab Landfill

Figure 6-2 – SWMU 3 Cadmium and Lead Results

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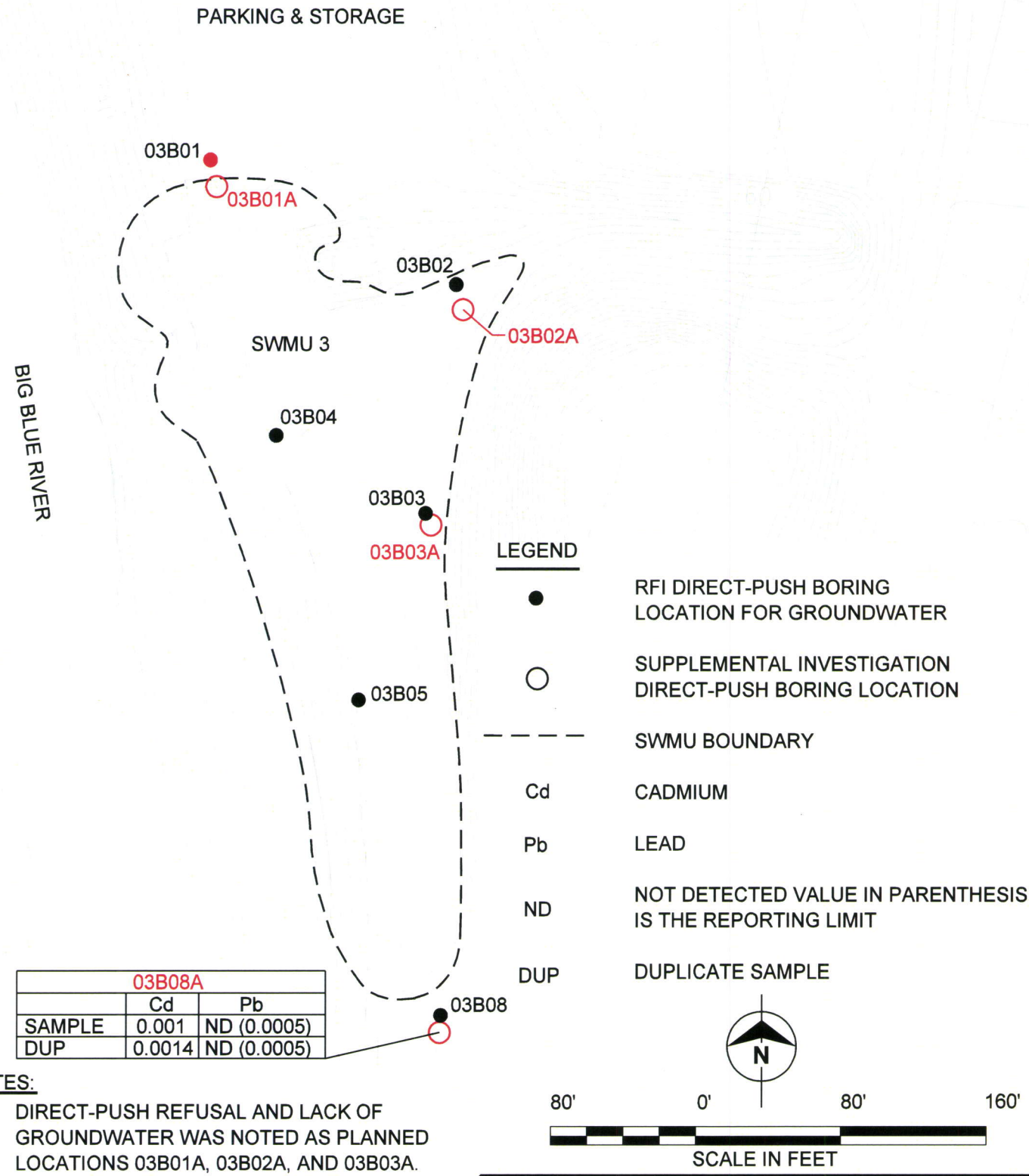

03B08A		
	Cd	Pb
SAMPLE	0.001	ND (0.0005)
DUP	0.0014	ND (0.0005)

NOTES:

1. DIRECT-PUSH REFUSAL AND LACK OF GROUNDWATER WAS NOTED AS PLANNED LOCATIONS 03B01A, 03B02A, AND 03B03A. NO SAMPLES WERE COLLECTED AT THESE LOCATIONS.
2. SAMPLES WERE FIELD FILTERED.
3. RESULTS ARE PRESENTED IN MILLIGRAMS PER LITER (mg/L).

Burns & McDonnell SINCE 1898

Figure 6-2

SWMU 3
CADMIUM AND LEAD RESULTS
AK STEEL
KANSAS CITY FACILITY

K:\EVAK STEEL\SITE\ 54199\CAD\GW REPORT\SWMU3-FG6-2

SECTION 4.0
AOC 1 – ABANDONED FUEL OIL STORAGE TANK

4.0 AOC 1 – ABANDONED FUEL OIL STORAGE TANK

Section 4.0 includes a discussion of AOC 1 – Abandoned Fuel Oil Storage Tank. This tank was located just north of 24 Highway along the east bank of the Blue River. AOC 1 is located within the Blue River alluvial valley as discussed in Sections 1.3.1 and 1.3.2, and the portion of the Blue River immediately adjacent to this AOC is channelized and paved.

4.1 AOC BACKGROUND

The Abandoned Fuel Oil Storage Tank (AOC 1) located on AK Steel property (see Figure 1-2), consisted of a single aboveground storage tank (AST) that was used for the storage of heating oil. Oil was delivered to the oil platform by railcar, and aboveground piping was used for fuel transfer. The tank was installed in 1951 and had a capacity of 840,000 gallons. It was located north of U.S. Highway 24 (Independence Avenue) and east of the Big Blue River. From 1951 until 1962 it was used for the storage of No. 6 fuel oil. Beginning in 1962, and continuing until 1982, the tank was used for the storage of No. 2 fuel oil. The tank was removed from service in 1982, and was cleaned and removed in 1991. During its operation, the tank was surrounded by a containment dike. The defined AOC area was approximately 1.5 acres in size.

Oil sheen, discovered on the adjacent Blue River in October 1988, was traced to this location. The sheen was discovered by United States Army Corps of Engineers (USACE) personnel who were working along the river. Investigation activities were undertaken to determine the condition of the AST area and to determine if petroleum contamination was present between the tank site and the river. From November 1988 through January 1989, the USACE collected soil samples from the eastern bank of the Big Blue River. In 1988 and 1989, soil samples collected by the USACE had total recoverable petroleum hydrocarbons (TRPH) ranging from 38 to 728 milligrams per kilogram (mg/kg) and oil and grease ranging from 76 to 9,505 mg/kg. Polychlorinated biphenyls (PCBs) were not detected (< 1 mg/kg), and VOCs were not detected (< 1 mg/kg) except for one sample that had a total VOC concentration of 12.5 mg/kg (Remcor, 1989).

A Preliminary Site Investigation completed in 1989 by Remcor indicated the following (See Appendix F):

- Borings drilled in the oil unloading platform encountered mill scale fill overlying aggregate fill overlying alluvium. The mill scale fill had oil and grease concentrations less than 0.1 percent. Oil and grease concentrations in the aggregate fill ranged from 53 to 7,700 mg/kg. One soil sample was collected from the alluvium and contained 53 mg/kg oil and grease.

- Borings drilled in the river bank were logged as aggregate fill over alluvium. Free product was observed on the water table in this area. Remcor concluded that the source for the petroleum hydrocarbons was the oil unloading platform area. Soil samples had oil and grease concentrations ranging from nondetect to 4,300 mg/kg.

Based upon the investigation, a recovery well, two observation wells, and one observation piezometer were installed at the site. Armco began recovering petroleum hydrocarbons and water from the recovery well in 1991. Recovery activities ceased in the fall of 1991 because petroleum hydrocarbons were no longer present in the wells (Remcor, 1991). A copy of Remcor's groundwater remediation report is provided in Appendix F.

4.2 AOC1 GROUNDWATER FLOW DIRECTION AND GRADIENT,RFI REPORT

During the RFI, groundwater contour maps were prepared for AOC 1 using monitoring wells installed in this area. A map for a monitoring event is included as part of Exhibit 4-1 (RFI Figures 2-13). The groundwater gradient at AOC 1 is relatively flat. As seen on Figure 2-13, there was only 0.01 feet difference in water surface elevations between the seven monitoring wells when measured on May 29, 1997. The flat gradient at this location could be associated with the paved flood control channel of the Blue River adjacent to AOC 1.

This area is underlain by approximately 15 to 18 feet of gravel to boulder size slag that is extremely dense from being placed as fill while still very hot and / or from compaction from repeated heavy truck traffic. All attempts to drill through the slag with either direct-push or hollow-stem auger drilling equipment met with refusal. Four trenches were excavated through the slag layer into the underlying silty clay sediments of the Blue River floodplain. Four monitoring wells were then drilled and completed through these trenches. Groundwater ranged from 7 to 9 feet bgs in these monitoring wells.

4.3 SCREENING RESULTS

AOC 1 groundwater sampling locations are presented on Figure 4-1. Over the course of investigations at the Facility, the following groundwater data have been collected:

- **1997 RFI -** Groundwater samples were collected from seven monitoring wells (A01MW01 through A01MW07). Four of the wells were newly installed during the RFI and three wells (A01MW01 through A01MW03) previously existed at AOC 1. Groundwater samples were collected in May 1997, and all groundwater samples were analyzed for VOCs, PAHs, and TPH.

A summary of the groundwater screening results is presented on Table 4-1. Screening of individual samples to the groundwater screening levels is presented on Table 4-2. A summary of the screening is provided in the following paragraphs:

- **VOCs (Table 4-2 and Exhibit 4-1: Figure 23-3)** - Seven groundwater samples were collected from AOC 1 and analyzed for VOCs. Acetone and vinyl acetate were detected in the groundwater sample from Monitoring Well A01MW1 at concentrations of 26.1 µg/L and 25.5 µg/L, respectively. Both detections were below their respective USEPA tapwater RSLs (MCLs are not available for acetone and vinyl acetate). No other VOCs were detected in groundwater samples from AOC 1.

- **Polynuclear Aromatic Hydrocarbons (PAHs) (Table 4-2 and Exhibit 4-1: Figure 23-3)** - Naphthalene was detected in the groundwater sample from Monitoring Well A01MW6 at a concentration of 9.7 J µg/L, which is above the USEPA tapwater RSL of 0.14 µg/L (an MCL is not available for naphthalene). This detection was below the laboratory's reporting limit and is considered an estimated result. No other PAHs were detected in groundwater samples from AOC 1.

- **TPH (Table 4-2)** – SDWA MCLs and USEPA tapwater RSLs are not available for the TPH–extractable and TPH–volatile analyses performed on groundwater samples collected from AOC 1. TPH-extractable was detected in all seven samples, and concentrations ranged from 1.19 to 4.12 mg/L. TPH-volatile was detected in samples from Monitoring Wells A01MW4 and A01MW6 at concentrations of 55.7 and 242 µg/L, respectively.

4.4 CONCLUSION

VOCs and PAHs were only sporadically detected in groundwater samples. Acetone and vinyl acetate were the only VOCs detected, and these constituents were only detected in the sample from one well at concentrations below the applicable screening level. Naphthalene, a PAH, was detected in the groundwater sample from one well, and this concentration exceeded the USEPA tapwater RSL (a MCL is not available for naphthalene); however, this concentration was below the laboratory reporting limit and should be considered an estimated value. A groundwater remediation system previously operated in this area in 1991; however, operations were ceased due to lack of petroleum hydrocarbons in the recovery wells (Remcor, 1991). TPH-extractable was detected in samples collected from all seven monitoring wells, and TPH-volatile was detected in samples from two wells; however, applicable screening levels are not available. Based on the data screening, no additional groundwater monitoring activities or groundwater corrective measures are needed for AOC 1.

* * * * *

Table 4-1
Summary of Groundwater Screening Results - AOC 1
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Volatile Organic Compounds				
1,1,1-Trichloroethane	7	0	0	MCL
1,1,2,2-Tetrachloroethane	7	0	0	RSL
1,1,2-Trichloroethane	7	0	0	MCL
1,1-Dichloroethane	7	0	0	RSL
1,1-Dichloroethene	7	0	0	MCL
1,2-Dichloroethane	7	0	0	MCL
1,2-Dichloropropane	7	0	0	MCL
2-Butanone	7	0	0	RSL
2-Chloroethylvinyl ether	7	0	--	NAp
2-Hexanone	7	0	0	RSL
4-Methyl-2-pentanone	7	0	0	RSL
Acetone	7	1	0	RSL
Benzene	7	0	0	MCL
Bromodichloromethane	7	0	0	MCL
Bromoform	7	0	0	MCL
Bromomethane	7	0	0	RSL
Carbon disulfide	7	0	0	RSL
Carbon tetrachloride	7	0	0	MCL
Chlorobenzene	7	0	0	MCL
Chloroethane	7	0	0	RSL
Chloroform	7	0	0	MCL
cis-1,2-Dichloroethene	7	0	0	MCL
cis-1,3-Dichloropropene	7	0	0	RSL
Dibromochloromethane	7	0	0	MCL
Ethylbenzene	7	0	0	MCL
Methyl chloride	7	0	0	RSL
Methylene chloride	7	0	0	MCL
m,p-Xylene	7	0	0	MCL
o-Xylene	7	0	0	MCL
Styrene	7	0	0	MCL
Tetrachloroethene	7	0	0	MCL
Toluene	7	0	0	MCL
trans-1,2-Dichloroethene	7	0	0	MCL
trans-1,3-Dichloropropene	7	0	0	RSL
Trichloroethene	7	0	0	MCL
Vinyl acetate	7	1	0	RSL
Vinyl chloride	7	0	0	MCL
Polynuclear Aromatic Hydrocarbons				
Acenaphthene	7	0	0	RSL
Acenaphthylene	7	0	--	NAp
Anthracene	7	0	0	RSL
Benzo(a)anthracene	7	0	0	RSL
Benzo(a)pyrene	7	0	0	MCL
Benzo(b)fluoranthene	7	0	0	RSL
Benzo(g,h,i)perylene	7	0	--	NAp
Benzo(k)fluoranthene	7	0	0	RSL
Chrysene	7	0	0	RSL
Dibenzo(a,h)anthracene	7	0	0	RSL
Fluoranthene	7	0	0	RSL
Fluorene	7	0	0	RSL
Indeno(1,2,3-cd)pyrene	7	0	0	RSL
Naphthalene	7	1	1	RSL
Phenanthrene	7	0	--	NAp
Pyrene	7	0	0	RSL

Table 4-1
Summary of Groundwater Screening Results - AOC 1
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Petroleum Hydrocarbons				
TPH (extractable)	7	7	--	NAp
TPH (volatile)	7	2	--	NAp

Notes:
Groundwater screening levels are as follows:
1. If a parameter has a MCL, data is screened using the MCL.
2. If a parameter does not have an MCL, data is screened using the USEPA tapwater RSL.

Samples, Duplicates, and Reanalyses are counted as 1 sample.
Exceedance is counted if any one of these exceeds the screening criteria.
NAp - Not applicable
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level

Table 4-2
1997 Groundwater Results - AOC 1
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	A01MW1 / GW1 5/14/1997 D97-5891-7	A01MW2 / GW1 5/14/1997 D97-5891-8	A01MW3 / GW1 5/14/1997 D97-5891-9	A01MW4 / GW1 5/12/1997 D97-5825-14
Parameter			**Units**				
Volatile Organic Compounds							
1,1,1-Trichloroethane	200	MCL	µg/L	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
1,1-Dichloroethane	2.4	RSL	µg/L	5 U	5 U	5 U	5 U
1,1-Dichloroethene	7.0	MCL	µg/L	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
2-Butanone	7100	RSL	µg/L	5 U	5 U	5 U	5 U
2-Chloroethylvinyl ether	--		µg/L	5 U	5 U	5 U	5 U
2-Hexanone	47	RSL	µg/L	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone	2000	RSL	µg/L	100 U	100 U	100 U	100 U
Acetone	22000	RSL	µg/L	***26.1 J***	100 U	100 U	100 U
Benzene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
Bromodichloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U
Bromoform	80	MCL	µg/L	5 U	5 U	5 U	5 U
Bromomethane	8.7	RSL	µg/L	5 U	5 U	5 U	5 U
Carbon disulfide	1000	RSL	µg/L	5 U	5 U	5 U	5 U
Carbon tetrachloride	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
Chlorobenzene	100	MCL	µg/L	5 U	5 U	5 U	5 U
Chloroethane	21000	RSL	µg/L	5 U	5 U	5 U	5 U
Chloroform	80	MCL	µg/L	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	70	MCL	µg/L	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U
Dibromochloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U
Ethylbenzene	700	MCL	µg/L	5 U	5 U	5 U	5 U
Methyl chloride	190	RSL	µg/L	5 U	5 U	5 U	5 U
Methylene chloride	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
m,p-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	5 U
o-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	5 U
Styrene	100	MCL	µg/L	5 U	5 U	5 U	5 U
Tetrachloroethene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
Toluene	1000	MCL	µg/L	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	100	MCL	µg/L	5 U	5 U	5 U	5 U

Table 4-2
1997 Groundwater Results - AOC 1
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	A01MW1 / GW1 5/14/1997 D97-5891-7	A01MW2 / GW1 5/14/1997 D97-5891-8	A01MW3 / GW1 5/14/1997 D97-5891-9	A01MW4 / GW1 5/12/1997 D97-5825-14
Parameter			**Units**				
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U
Trichloroethene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
Vinyl acetate	410	RSL	µg/L	***25.5 J***	50 U	50 U	50 U
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U	2 U	2 U
Polynuclear Aromatic Hydrocarbons							
Acenaphthene	2200	RSL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Acenaphthylene	--		µg/L	10.3 U	10.4 U	10.4 U	10 U
Anthracene	11000	RSL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Benzo(a)anthracene	0.029	RSL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Benzo(a)pyrene	0.2	MCL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Benzo(b)fluoranthene	0.029	RSL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Benzo(g,h,i)perylene	--		µg/L	10.3 U	10.4 U	10.4 U	10 U
Benzo(k)fluoranthene	0.29	RSL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Chrysene	2.9	RSL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Fluoranthene	1500	RSL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Fluorene	1500	RSL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Naphthalene	0.14	RSL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Phenanthrene	--		µg/L	10.3 U	10.4 U	10.4 U	10 U
Pyrene	1100	RSL	µg/L	10.3 U	10.4 U	10.4 U	10 U
Petroleum Hydrocarbons							
TPH (extractable)	--		mg/L	***1.31***	***1.19***	***1.8***	***1.57***
TPH (volatile)	--		µg/L	50 U	50 U	50 U	***55.7***

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene screening level is for total xylenes.

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

MCL - Safe Drinking Water Act Maximum Contaminant Level

RSL - Regional Screening Level Summary Table (USEPA May 2010) for tapwater

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 4-2
1997 Groundwater Results - AOC 1
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	A01MW5 / GW1 5/14/1997 D97-5891-1	A01MW5 / GW1D 5/14/1997 D97-5891-2 Duplicate	A01MW6 / GW1 5/14/1997 D97-5891-3	A01MW7 / GW1 5/14/1997 D97-5891-4
Parameter			**Units**				
Volatile Organic Compounds							
1,1,1-Trichloroethane	200	MCL	µg/L	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
1,1-Dichloroethane	2.4	RSL	µg/L	5 U	5 U	5 U	5 U
1,1-Dichloroethene	7.0	MCL	µg/L	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
2-Butanone	7100	RSL	µg/L	5 U	5 U	5 U	5 U
2-Chloroethylvinyl ether	--		µg/L	5 U	5 U	5 U	5 U
2-Hexanone	47	RSL	µg/L	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone	2000	RSL	µg/L	100 U	100 U	100 U	100 U
Acetone	22000	RSL	µg/L	100 U	100 U	100 U	100 U
Benzene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
Bromodichloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U
Bromoform	80	MCL	µg/L	5 U	5 U	5 U	5 U
Bromomethane	8.7	RSL	µg/L	5 U	5 U	5 U	5 U
Carbon disulfide	1000	RSL	µg/L	5 U	5 U	5 U	5 U
Carbon tetrachloride	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
Chlorobenzene	100	MCL	µg/L	5 U	5 U	5 U	5 U
Chloroethane	21000	RSL	µg/L	5 U	5 U	5 U	5 U
Chloroform	80	MCL	µg/L	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	70	MCL	µg/L	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U
Dibromochloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U
Ethylbenzene	700	MCL	µg/L	5 U	5 U	5 U	5 U
Methyl chloride	190	RSL	µg/L	5 U	5 U	5 U	5 U
Methylene chloride	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
m,p-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	5 U
o-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	5 U
Styrene	100	MCL	µg/L	5 U	5 U	5 U	5 U
Tetrachloroethene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
Toluene	1000	MCL	µg/L	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	100	MCL	µg/L	5 U	5 U	5 U	5 U

Table 4-2
1997 Groundwater Results - AOC 1
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	A01MW5 / GW1	A01MW5 / GW1D	A01MW6 / GW1	A01MW7 / GW1
			Date Collected:	5/14/1997	5/14/1997	5/14/1997	5/14/1997
			Lab ID:	D97-5891-1	D97-5891-2	D97-5891-3	D97-5891-4
			Comments:		Duplicate		
Parameter			**Units**				
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U
Trichloroethene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U
Vinyl acetate	410	RSL	µg/L	50 U	50 U	50 U	50 U
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U	2 U	2 U
Polynuclear Aromatic Hydrocarbons							
Acenaphthene	2200	RSL	µg/L	10.5 U	11.1 U	10.5 U	11 U
Acenaphthylene	--		µg/L	10.5 U	11.1 U	10.5 U	11 U
Anthracene	11000	RSL	µg/L	10.5 U	11.1 U	10.5 U	11 U
Benzo(a)anthracene	0.029	RSL	µg/L	10.5 U	11.1 U	10.5 U	11 U
Benzo(a)pyrene	0.2	MCL	µg/L	10.5 U	11.1 U	10.5 U	11 U
Benzo(b)fluoranthene	0.029	RSL	µg/L	10.5 U	11.1 U	10.5 U	11 U
Benzo(g,h,i)perylene	--		µg/L	10.5 U	11.1 U	10.5 U	11 U
Benzo(k)fluoranthene	0.29	RSL	µg/L	10.5 U	11.1 U	10.5 U	11 U
Chrysene	2.9	RSL	µg/L	10.5 U	11.1 U	10.5 U	11 U
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	10.5 U	11.1 U	10.5 U	11 U
Fluoranthene	1500	RSL	µg/L	10.5 U	11.1 U	10.5 U	11 U
Fluorene	1500	RSL	µg/L	10.5 U	11.1 U	10.5 U	11 U
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	10.5 U	11.1 U	10.5 U	11 U
Naphthalene	0.14	RSL	µg/L	10.5 U	11.1 U	***9.7 J***	11 U
Phenanthrene	--		µg/L	10.5 U	11.1 U	10.5 U	11 U
Pyrene	1100	RSL	µg/L	10.5 U	11.1 U	10.5 U	11 U
Petroleum Hydrocarbons							
TPH (extractable)	--		mg/L	***3.11***	***1.56***	***2.21 J****	***4.12***
TPH (volatile)	--		µg/L	50 U	50 U	***242***	50 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene screening level is for total xylenes.

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethane

MCL - Safe Drinking Water Act Maximum Contaminant Level

RSL - Regional Screening Level Summary Table (USEPA May 2010) for tapwater

mg/L - milligrams per liter

µg/L - micrograms per liter

SWMU 37

SWMU 10

STORAGE

SWMU 38

SWMU 39

SWMU 10

STORAGE

BIG BLUE RIVER

720

730

740

750

760

24 HWY

A01MW4

A01B02

A01MW5

A01B01

A01MW3

A01G01

A01G02

A01G04

A01B04

A01B05

A01B03

A01G05

A01MW2

A01B08

A01G14

A01G08

A01G03

A01G06

A01G07

A01B07

A01MW1

A01B06

A01MW7

A01G11

A01G09

AOC 1

A01G13

A01G10

A01MW6

A01G12

SWMU 9

STORAGE

PAF

LEGEND

- DIRECT-PUSH BORING LOCATION
- RFI MONITORING WELL LOCATION
- PRE-EXISTING MONITORING WELL LOCATION
- RAILROAD
- APPROXIMATE LIMITS OF AOC/SWMU BOUNDARY
- LOCATION OF SURFACE SAMPLE GRID

NOTE:

1. DIRECT-PUSH REFUSAL WAS ENCOUNTERED AT THE FOLLOWING LOCATIONS FOR SUBSURFACE SOIL SAMPLING: A01BO1, A01B02, A01B05, A01B06, A01B08.

N

0 100' 200'

SCALE IN FEET

Burns & McDonnell SINCE 1898

Figure 4-1
AOC 1 SOIL SAMPLING AND MONITORING WELL LOCATIONS
AK STEEL KANSAS CITY FACILITY

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K:\ENV\AK STEEL\SITE\54199\Cad\GW REPORT\AK-AOC1-FG4-1.DGN

EXHIBIT 4-1

RFI REPORT FIGURES FOR
AOC 1 – Abandoned Fuel Oil Storage Tank

Figure 2-13 – AOC 1 Groundwater Contour Map, May 29, 1997

Figure 23-3 – AOC 1 Total VOC and Total PAH Groundwater Results

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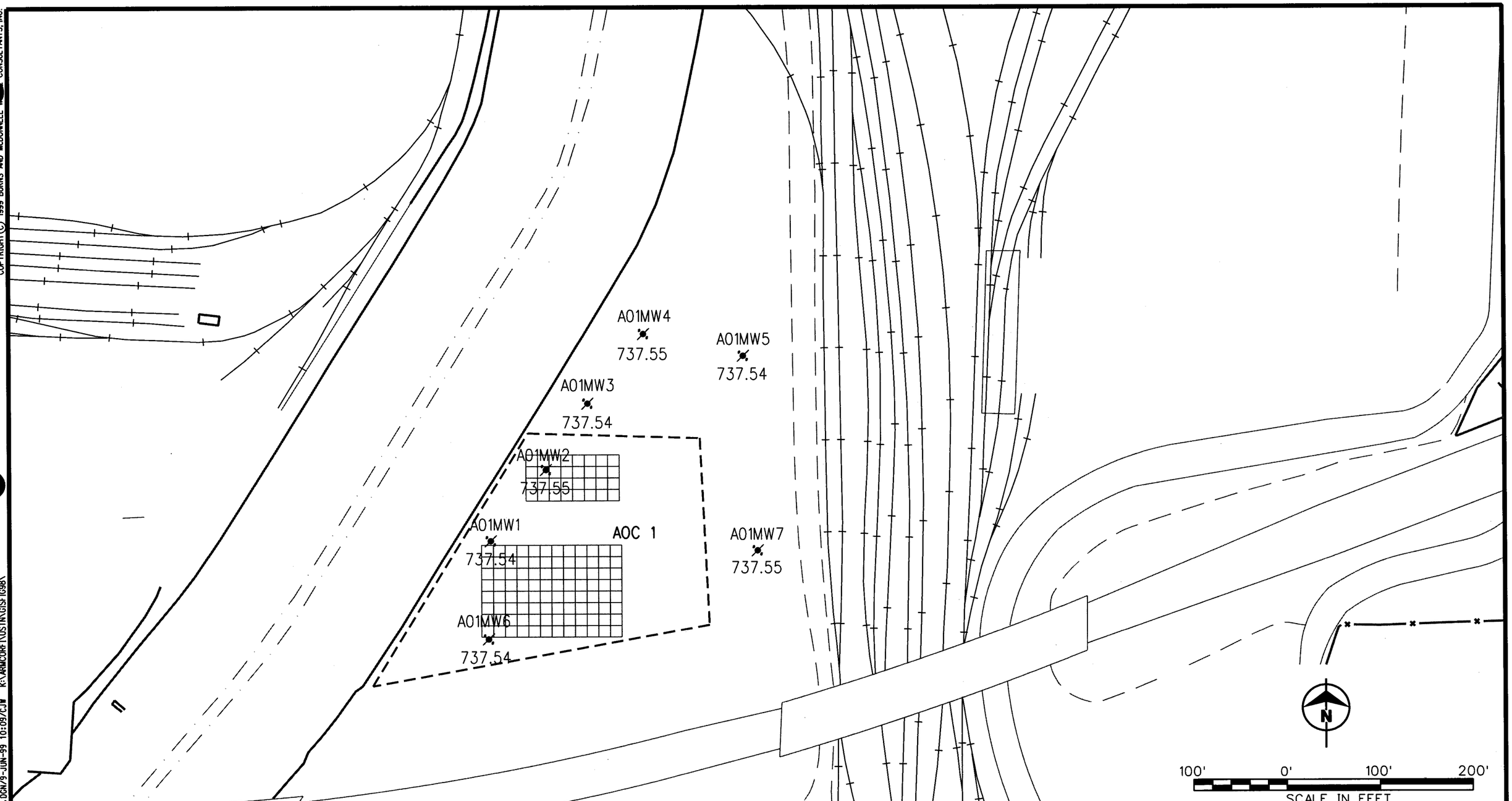

LEGEND

✱ MONITORING WELL LOCATION

738.99 WATER LEVEL ELEVATION MEASURED ON 5/29/97

+++ RAILROAD

NOTE:

RANGE OF WATER LEVEL ELEVATIONS WAS 0.01 FOOT WHICH IS THE LIMIT OF ACCURACY FOR THE MEASURING INSTRUMENT UTILIZED. DATA NOT CONTOURABLE; NO DISCERNIBLE HYDRAULIC GRADIENT.

Burns & McDonnell Waste Consultants, Inc.

Figure 2-13
AOC 1
GROUNDWATER CONTOUR MAP
MAY 29, 1997
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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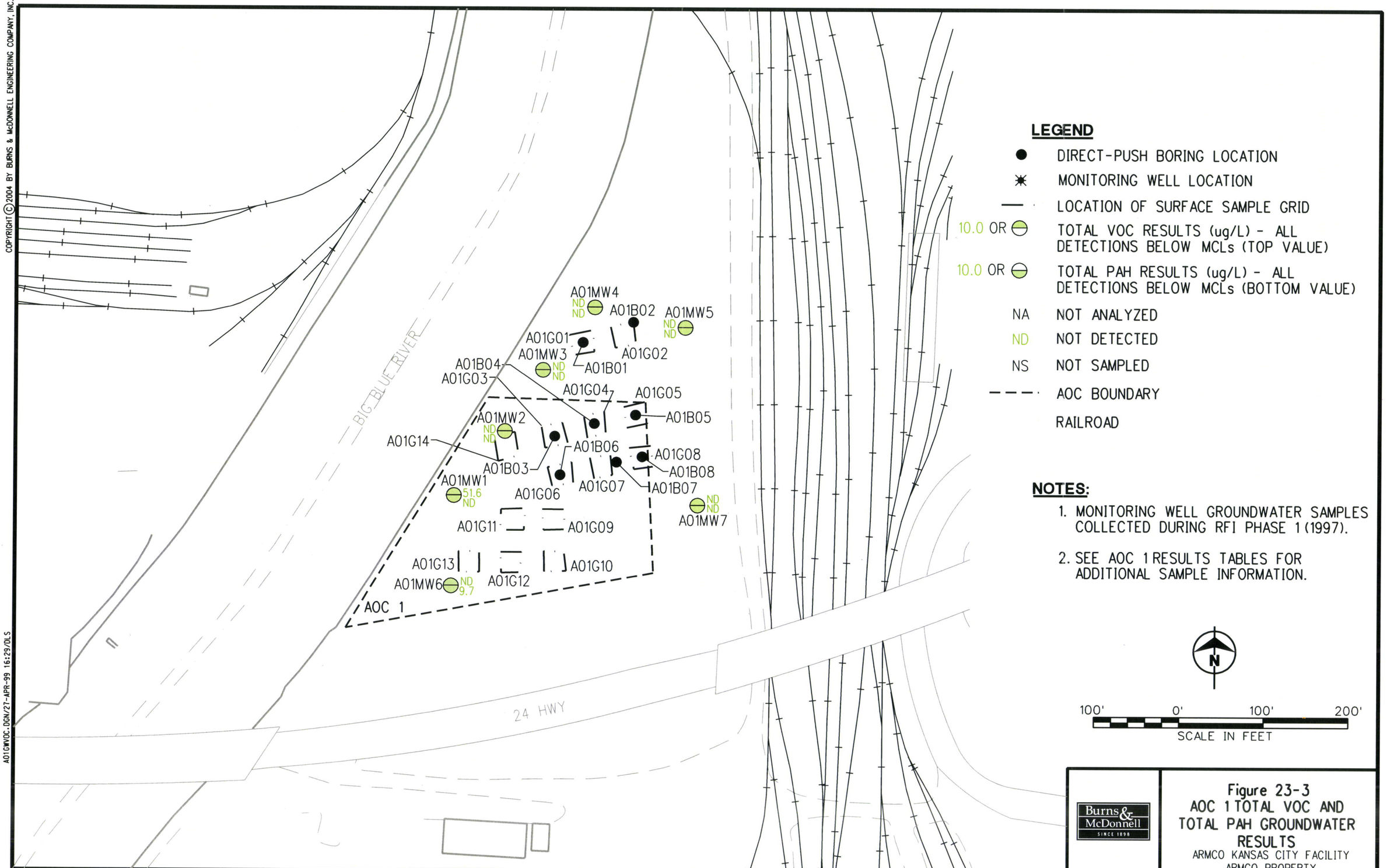

Burns & McDonnell SINCE 1898

Figure 23-3
AOC 1 TOTAL VOC AND TOTAL PAH GROUNDWATER RESULTS
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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SECTION 5.0
SWMUs/AOCs AT THE FORMER TANK FARM

5.0 SWMUS/AOCS AT THE FORMER TANK FARM

The former Tank Farm is located directly north of the Kansas City Terminal Railway Company (KCT) Railroad flyover bridge on the east side of the Blue River. The former Tank Farm area used to include five large ASTs that were used for the storage of No. 2 and No. 6 fuel oil and/or emission control dust. The area also included two smaller ASTs that were used for waste hydraulic lubricating oil. No tanks remain at this location.

Groundwater data were collected in association with investigation activities at SWMU 24. The former Tank Farm area is within the Blue River alluvial valley as discussed in Sections 1.3.1 and 1.3.2, and the former Tank Farm is located just after the channelized, paved portion of the river.

5.1 SWMU 24 – WASTE HYDRAULIC LUBRICATING OIL STORAGE TANKS

5.1.1 SWMU Background

The former Waste Hydraulic and Lubricating Oil Storage Tanks (SWMU 24), located on AK Steel and KCT property (Figure 1-2), functioned between 1975 and 1993 as a waste oil collection system for the entire Facility. Waste oil of various types was brought to the area in drummed containers or 600-gallon waste oil "tote boxes". Until 1991, the waste oil from SWMU 24 was incorporated into the heating oil supply; however, after November 1991, waste oil was sent off site for fuel blending. The defined SWMU area was approximately 1 acre in size.

When the SWMU was removed from service in 1993, its components were cleaned and subsequently dismantled and removed. The two ASTs at SWMU 24 were cut up and recycled in 1996.

Various records indicated that for a brief time in the 1980s, 1,1,1-TCA might have been mixed into the waste oil, which was subsequently mixed with the fuel oil and utilized in the boiler furnaces (AOC 4). There was no mechanism at the Boiler Furnace Area to incorporate the addition of any material to the fuel oil supply. If 1,1,1-TCA was added to the fuel oil system, it most likely would have been added in the waste oil area.

As reported to USEPA and MDNR in a letter dated March 9, 1999, Armco sold a portion of its property, totaling less than one (1) acre, to KCT for construction of an overhead Railroad Bridge known as the Flyover Project to relieve transportation congestion and public safety issues in the area. This parcel of land contained a portion of SWMU 24. As part of the Flyover Project, the low-lying area at the center of SWMU 24 has been partially filled by KCT.

5.1.2 Screening Results

SWMU 24 sampling locations are presented on Figure 5-1. Over the course of investigations at the Facility, the following groundwater data have been collected:

- **1996 Interim Measures** – During the interim measures investigation, water seeped into Trench 24T06, and a single unfiltered groundwater sample was collected and analyzed for VOCs, PAHs, TPH, and total RCRA metals.

- **1997 RFI** – During 1997 RFI soil sampling activities, perched groundwater with elevated photoionization detector (PID) readings was encountered in Boring 24B04, and a groundwater sample was collected and analyzed for VOCs, PAHs, TPH, and dissolved RCRA metals.

- **1998 RFI** - To further define the horizontal extent of VOCs in groundwater, direct-push groundwater samples were collected from eight locations (Borings 06B06A, 06B07A, 06B10A, 06B11A, and 24B07 through 24B10) and analyzed for VOCs. Samples were collected from the upper 10 feet of the water table at depths from 24 to 42 feet bgs. Borings identified as"06B_A" were installed adjacent to 1997 RFI boring locations (e.g., Boring 06B06) at SWMU 6, which is located directly north of SWMU 24 (See Figure 5-1).

- **2007 Supplemental Investigation** - Rotosonic drilling techniques were used to collect groundwater samples in the vicinity of SWMU 24. The intent of this sampling was to verify results of groundwater samples collected during the RFI. Since portions of SWMU 24 were sold to KCT in 1998, care was taken to place borings on property currently owned by AK Steel. Two borings were placed in the vicinity of SWMU 24. Since Boring 24B04 previously exhibited elevated concentrations of VOCs in groundwater, One boring (i.e., 24B11) was placed as near as practicable to RFI Boring 24B04 based on accessibility and property ownership. The second boring (i.e., 24B12) was placed in the presumed downgradient direction of groundwater flow, which is expected to be to the west toward the Blue River. Emphasis was placed on collecting groundwater samples within 10 feet of the water table surface. Samples were collected and analyzed for VOCs.

A summary of the groundwater screening results is presented on Table 5-1. Screening of individual samples to the groundwater screening levels is presented on Tables 5-2 through 5-5. A summary of the screening is provided in the following paragraphs:

- **VOCs (Tables 5-2 through 5-5, Exhibit 5-1: Figure 18-5, and Exhibit 5-2: Figure 10-2)** - VOCs were detected in groundwater samples collected in 1997 and 1998 (Tables 5-3 and 5-4; Exhibit 5-1).

VOCs were not detected in the 1996 sample or the 2007 samples (Tables 5-2 and 5-5; Exhibit 5-2). Sample 24B04/DW1, a perched groundwater sample collected from 2.5 to 5.5 feet bgs exhibited detections of cis-1,2-DCE, TCE, and vinyl chloride that exceeded MCLs and a detection of 1,1-DCA that exceeded the RSL (Table 5-3). TCE was detected in samples 06B11A/DW1 and 24B07/DW1 (initial analysis), neither detection exceeded the MCL (Table 5-4). It should be noted that Sample 24B07/DW1 was analyzed twice by the lab. Based on the number and types of constituents detected in initial analysis of 24B07/DW1, the laboratory suspected cross-contamination and reanalyzed 24B07/DW1 for confirmation. VOCs were not detected in the reanalysis which suggests that the low-level (i.e., J-coded) detections in the initial analysis are false positives due to laboratory contamination.

The only other locations with detections of VOCs included: 06B06A at 30 to 32 feet bgs (1,1-DCA) and 24B08 at 40 to 42 feet bgs (4-methyl-2-pentanone, acetone, ethylbenzene, m,p-xylene, o-xylene, and toluene). The 1,1-DCA detection exceeded the USEPA tapwater RSL (a MCL does not exist for 1,1-DCA). None of the detections in the groundwater sample from 24B08 exceeded screening levels. VOCs were not detected in the groundwater samples collected in 2007.

- **PAHs (Tables 5-2 and 5-3)** - Two groundwater samples were collected and analyzed for PAHs. PAHs were not detected in either sample.

- **TPH (Tables 5-2 and 5-3) -** USEPA tapwater RSL and SDWA MCL groundwater screening levels are not available for the TPH-extractable and TPH-volatile analyses. TPH-volatile and TPH-extractable results are reported for two perched groundwater samples. TPH-volatile was only detected in Sample 24B04/DW1 at a concentration of 253 µg/L. TPH-extractable was detected in both 24B04/DW1 and trench seep sample 24T06/GW1 at concentrations of 22 mg/L and 1.48 mg/L, respectively.

- **Total RCRA Metals (Table 5-2)** – Total RCRA metals were collected and analyzed for 1996 trench seep Sample 24T06/GW1. Barium, cadmium, chromium, lead, and mercury were detected in this groundwater sample; however only cadmium (0.0333 mg/L) and lead (0.768 mg/L) were detected at concentrations that exceeded MCLs. It is likely that these groundwater exceedances were caused by particulate matter which was suspended in the sample rather than dissolved metals present in the groundwater.

- **Filtered RCRA Metals (Table 5-3)** - Filtered RCRA metals were collected and analyzed for 1997 perched groundwater sample 24B04/DW1. Dissolved arsenic and dissolved barium were detected at

concentrations of 0.02 and 0.0699 mg/L, respectively. Arsenic results were reported above the MCL; however, arsenic is known to be present in the alluvium associated with the Blue River Valley.

5.1.3 Conclusion

Surface cover material at SWMU 24 is primarily slag fill, and the former tank location has been partially backfilled as part of KCT's Flyover Project. Berms of gravel to cobble sized slag fill surround the former AST pit at SWMU 24. The slag fill is underlain by silty clay. Perched groundwater was occasionally encountered above the slag fill/silty clay contact as a result of the lower permeability (and resultant lower infiltration rate) of the silty clay.

Throughout the course of investigations, groundwater samples have been collected and analyzed for VOCs, PAHs, TPH, total RCRA metals, and filtered RCRA metals. PAHs were not detected. Extractable TPH was detected in two perched groundwater samples; however applicable screening criteria are not available. Total barium, total cadmium, total chromium, total lead, and mercury were detected in a sample collected from groundwater seeping into Trench 24T06; however the detections were likely caused by particulate matter in the sample water than the dissolved phase. Dissolved arsenic and dissolved barium were detected in a perched groundwater sample from Boring 24B04, and the arsenic results exceeded the MCL. Arsenic is known to be present in the Blue River Valley alluvium.

VOCs were sporadically detected. The one sample with detections above MCLs was collected from perched groundwater (Boring 24B04) encountered at a shallow depth (2.5 feet bgs) above the saturated zone. No other occurrences of perched groundwater were noted during sampling. At SWMU 24, the saturated zone was typically encountered between 24 to 40 feet bgs. VOCs were either not-detected or detected in concentrations below MCLs in groundwater samples collected from the saturated zone. SWMU 24 is located approximately 500 feet east of the Blue River and groundwater is expected to flow toward the Blue River in a west-northwest direction. VOCs were not detected in the groundwater sample collected from the saturated zone in the downgradient direction in 2007. No additional groundwater monitoring is needed in this area.

* * * * *

Table 5-1
Summary of Groundwater Screening Results - SWMU 24
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Volatile Organic Compounds				
1,1,1-Trichloroethane	12	1	0	MCL
1,1,2,2-Tetrachloroethane	12	0	0	RSL
1,1,2-Trichloroethane	12	1	0	MCL
1,1-Dichloroethane	12	3	3	RSL
1,1-Dichloroethene	12	0	0	MCL
1,2-Dichloroethane	12	1	0	MCL
1,2-Dichloropropane	12	1	0	MCL
2-Butanone	12	0	0	RSL
2-Chloroethylvinyl ether	10	0	--	NAp
2-Hexanone	12	0	0	RSL
4-Methyl-2-pentanone	12	2	0	RSL
Acetone	12	2	0	RSL
Benzene	12	1	0	MCL
Bromodichloromethane	12	0	0	MCL
Bromoform	12	0	0	MCL
Bromomethane	12	0	0	RSL
Carbon disulfide	12	2	0	RSL
Carbon tetrachloride	12	1	0	MCL
Chlorobenzene	12	0	0	MCL
Chloroethane	12	0	0	RSL
Chloroform	12	1	0	MCL
Chloromethane	2	0	0	RSL
cis-1,2-Dichloroethene	12	1	1	MCL
cis-1,3-Dichloropropene	12	0	0	RSL
Dibromochloromethane	12	0	0	MCL
Ethylbenzene	12	2	0	MCL
Methyl chloride	10	0	0	RSL
Methylene chloride	12	1	0	MCL
Styrene	12	0	0	MCL
Tetrachloroethene	12	0	0	MCL
Toluene	12	2	0	MCL
trans-1,2-Dichloroethene	12	2	0	MCL
trans-1,3-Dichloropropene	12	0	0	RSL
Trichloroethene	12	3	1	MCL
Vinyl acetate	12	1	0	RSL
Vinyl chloride	12	1	1	MCL
m,p-Xylene	10	2	0	MCL
o-Xylene	10	2	0	MCL
Xylenes, Total	2	0	0	MCL
Polynuclear Aromatic Hydrocarbons				
Acenaphthene	2	0	0	RSL
Acenaphthylene	2	0	--	NAp
Anthracene	2	0	0	RSL
Benzo(a)anthracene	2	0	0	RSL
Benzo(a)pyrene	2	0	0	MCL
Benzo(b)fluoranthene	2	0	0	RSL
Benzo(g,h,i)perylene	2	0	--	NAp
Benzo(k)fluoranthene	2	0	0	RSL
Chrysene	2	0	0	RSL
Dibenzo(a,h)anthracene	2	0	0	RSL
Fluoranthene	2	0	0	RSL
Fluorene	2	0	0	RSL
Indeno(1,2,3-cd)pyrene	2	0	0	RSL
Naphthalene	2	0	0	RSL
Phenanthrene	2	0	--	NAp
Pyrene	2	0	0	RSL

Table 5-1
Summary of Groundwater Screening Results - SWMU 24
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Petroleum Hydrocarbons				
TPH (extractable)	2	2	--	NAp
TPH (volatile)	2	1	--	NAp
Filtered RCRA Metals				
Arsenic, Dissolved	1	1	1	MCL
Barium, Dissolved	1	1	0	MCL
Cadmium, Dissolved	1	0	0	MCL
Chromium, Dissolved	1	0	0	MCL
Lead, Dissolved	1	0	0	MCL
Mercury, Dissolved	1	0	0	MCL
Selenium, Dissolved	1	0	0	MCL
Silver, Dissolved	1	0	0	RSL
Total RCRA Metals				
Arsenic, Total	1	0	0	MCL
Barium, Total	1	1	0	MCL
Cadmium, Total	1	1	1	MCL
Chromium, Total	1	1	0	MCL
Lead, Total	1	1	1	MCL
Mercury, Total	1	1	0	MCL
Selenium, Total	1	0	0	MCL
Silver, Total	1	0	0	RSL
Water Quality Parameters				
pH	1	1	--	NAp

Notes:
Groundwater screening levels are as follows:
1. If a parameter has a MCL, data is screened using the MCL.
2. If a parameter does not have an MCL, data is screened using the USEPA tapwater RSL.

Samples, Duplicates, and Reanalyses are counted as 1 sample.
Exceedance is counted if any one of these exceeds the screening criteria.
NAp - Not applicable
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level

Table 5-2
1996 Trench Seep Water Results - SWMU 24
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	24T06/GW1	
			Date Collected:	11/8/1996	
			Depth (ft bgs):	10	
			Lab ID:	D96-12805-18	
			Comment:	Water seeping into Trench	
Parameter			**Units**		
Volatile Organic Compounds					
1,1,1,2-Tetrachloroethane	0.52	RSL	µg/L	5	U
1,1,1-Trichloroethane	200	MCL	µg/L	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U
1,1-Dichloropropene	--		µg/L	5	U
1,2,3-Trichlorobenzene	29	RSL	µg/L	5	U
1,2,3-Trichloropropane	0.00072	RSL	µg/L	5	U
1,2,4-Trichlorobenzene	70	MCL	µg/L	5	U
1,2,4-Trimethylbenzene	15	RSL	µg/L	5	U
1,2-Dibromo-3-chloropropane	0.2	MCL	µg/L	25	U
1,2-Dibromoethane	0.05	MCL	µg/L	5	U
1,2-Dichlorobenzene	600	MCL	µg/L	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U
1,3,5-Trimethylbenzene	370	RSL	µg/L	5	U
1,3-Dichlorobenzene	--		µg/L	5	U
1,3-Dichloropropane	730	RSL	µg/L	5	U
1,4-Dichlorobenzene	75	MCL	µg/L	5	U
2,2-Dichloropropane	--		µg/L	5	U
2-Butanone	7100	RSL	µg/L	100	U
2-Chloroethylvinyl ether	--		µg/L	10	U
2-Chlorotoluene	730	RSL	µg/L	5	U
2-Hexanone	47	RSL	µg/L	50	U
4-Chlorotoluene	2600	RSL	µg/L	5	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U
Acetone	22000	RSL	µg/L	100	U
Acrylonitrile	0.045	RSL	µg/L	5	U
Benzene	5.0	MCL	µg/L	5	U
Bromobenzene	88	RSL	µg/L	5	U
Bromochloromethane	--		µg/L	5	U
Bromodichloromethane	80	MCL	µg/L	5	U
Bromoform	80	MCL	µg/L	5	U
Bromomethane	8.7	RSL	µg/L	5	U
Carbon disulfide	1000	RSL	µg/L	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U
Chlorobenzene	100	MCL	µg/L	5	U
Chloroethane	21000	RSL	µg/L	5	U
Chloroform	80	MCL	µg/L	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
Dibromochloromethane	80	MCL	µg/L	5	U
Dibromomethane	8.2	RSL	µg/L	5	U
Ethylbenzene	700	MCL	µg/L	5	U
Iodomethane	--		µg/L	5	U
Methyl chloride	190	RSL	µg/L	5	U
Methylene chloride	5.0	MCL	µg/L	5	U
m,p-Xylene	10000	MCL	µg/L	5	U
o-Xylene	10000	MCL	µg/L	5	U

Table 5-2
1996 Trench Seep Water Results - SWMU 24
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	24T06/GW1	
			Date Collected:	11/8/1996	
			Depth (ft bgs):	10	
			Lab ID:	D96-12805-18	
			Comment:	Water seeping into Trench	
Parameter			**Units**		
Volatile Organic Compounds					
Styrene	100	MCL	µg/L	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U
Toluene	1000	MCL	µg/L	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
trans-1,4-Dichloro-2-butene	0.0012	RSL	µg/L	100	U
Trichloroethene	5.0	MCL	µg/L	5	U
Trichlorofluoromethane	1300	RSL	µg/L	5	U
Vinyl acetate	410	RSL	µg/L	50	U
Vinyl chloride	2.0	MCL	µg/L	5	U
Polynuclear Aromatic Hydrocarbons					
Acenaphthene	2200	RSL	µg/L	11.6	U
Acenaphthylene	--		µg/L	11.6	U
Anthracene	11000	RSL	µg/L	11.6	U
Benzo(a)anthracene	0.029	RSL	µg/L	11.6	U
Benzo(a)pyrene	0.2	MCL	µg/L	11.6	U
Benzo(b)fluoranthene	0.029	RSL	µg/L	11.6	U
Benzo(g,h,i)perylene	--		µg/L	11.6	U
Benzo(k)fluoranthene	0.29	RSL	µg/L	11.6	U
Chrysene	2.9	RSL	µg/L	11.6	U
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	11.6	U
Fluoranthene	1500	RSL	µg/L	11.6	U
Fluorene	1500	RSL	µg/L	11.6	U
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	11.6	U
Naphthalene	0.14	RSL	µg/L	11.6	U
Phenanthrene	--		µg/L	11.6	U
Pyrene	1100	RSL	µg/L	11.6	U
Petroleum Hydrocarbons					
TPH (extractable)	--		mg/L	***1.48***	
TPH (volatile)	--		µg/L	50	U
Unfiltered RCRA Metals					
Arsenic, Total	0.01	MCL	mg/L	0.1	U
Barium, Total	2.0	MCL	mg/L	***0.395***	
Cadmium, Total	0.005	MCL	mg/L	***0.0333***	***FJ****
Chromium, Total	0.1	MCL	mg/L	***0.0864***	***F***
Lead, Total	0.015	MCL	mg/L	***0.768***	
Mercury, Total	0.002	MCL	mg/L	***0.0004***	
Selenium, Total	0.05	MCL	mg/L	0.4	U
Silver, Total	0.18	RSL	mg/L	0.02	U

Notes:

Bold, italic = Compound was detected.

Sample is of water seeping into the base of Trench 24T06 at the interface of aggregate fill and silty clay.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

ft bgs = feet below ground surface

Lead, dissolved screening levels are for lead and compounds.

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 5-3
1997 Groundwater Results - SWMU 24
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Depth (ft bgs): / Lab ID: / Comments:	24B04 / DW1 9/10/1997 2.5 - 5.5 D97-11023-11	24B04 / DW1 9/10/1997 2.5 - 5.5 D97-11023-11R2 Reanlaysis
Parameter			**Units**		
Volatile Organic Compounds					
1,1,1-Trichloroethane	200	MCL	µg/L	5 U	Not Analyzed
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5 U	Not Analyzed
1,1,2-Trichloroethane	5.0	MCL	µg/L	5 U	Not Analyzed
1,1-Dichloroethane	2.4	RSL	µg/L	***12***	Not Analyzed
1,1-Dichloroethene	7.0	MCL	µg/L	5 U	Not Analyzed
1,2-Dichloroethane	5.0	MCL	µg/L	5 U	Not Analyzed
1,2-Dichloropropane	5.0	MCL	µg/L	5 U	Not Analyzed
2-Butanone	7100	RSL	µg/L	5 U	Not Analyzed
2-Chloroethylvinyl ether	--		µg/L	5 U	Not Analyzed
2-Hexanone	47	RSL	µg/L	50 U	Not Analyzed
4-Methyl-2-pentanone	2000	RSL	µg/L	***18.2 J***	Not Analyzed
Acetone	22000	RSL	µg/L	***138***	Not Analyzed
Benzene	5.0	MCL	µg/L	5 U	Not Analyzed
Bromodichloromethane	80	MCL	µg/L	5 U	Not Analyzed
Bromoform	80	MCL	µg/L	5 U	Not Analyzed
Bromomethane	8.7	RSL	µg/L	5 U	Not Analyzed
Carbon disulfide	1000	RSL	µg/L	5 U	Not Analyzed
Carbon tetrachloride	5.0	MCL	µg/L	5 U	Not Analyzed
Chlorobenzene	100	MCL	µg/L	5 U	Not Analyzed
Chloroethane	21000	RSL	µg/L	5 U	Not Analyzed
Chloroform	80	MCL	µg/L	5 U	Not Analyzed
cis-1,2-Dichloroethene	70	MCL	µg/L	***295***	Not Analyzed
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	Not Analyzed
Dibromochloromethane	80	MCL	µg/L	5 U	Not Analyzed
Ethylbenzene	700	MCL	µg/L	5 U	Not Analyzed
Methyl chloride	190	RSL	µg/L	5 U	Not Analyzed
Methylene chloride	5.0	MCL	µg/L	5 U	Not Analyzed
m,p-Xylene	10000	MCL	µg/L	5 U	Not Analyzed
o-Xylene	10000	MCL	µg/L	5 U	Not Analyzed
Styrene	100	MCL	µg/L	5 U	Not Analyzed
Tetrachloroethene	5.0	MCL	µg/L	5 U	Not Analyzed
Toluene	1000	MCL	µg/L	5 U	Not Analyzed
trans-1,2-Dichloroethene	100	MCL	µg/L	***10.1***	Not Analyzed
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	Not Analyzed
Trichloroethene	5.0	MCL	µg/L	***149***	Not Analyzed
Vinyl acetate	410	RSL	µg/L	***54.6***	Not Analyzed
Vinyl chloride	2.0	MCL	µg/L	***5.34***	Not Analyzed
Polynuclear Aromatic Hydrocarbons					
Acenaphthene	2200	RSL	µg/L	11.4 U	114 DU
Acenaphthylene	--		µg/L	11.4 U	114 DU
Anthracene	11000	RSL	µg/L	11.4 U	114 DU
Benzo(a)anthracene	0.029	RSL	µg/L	11.4 U	114 DU
Benzo(a)pyrene	0.2	MCL	µg/L	11.4 U	114 DU
Benzo(b)fluoranthene	0.029	RSL	µg/L	11.4 U	114 DU
Benzo(g,h,i)perylene	--		µg/L	11.4 U	114 DU
Benzo(k)fluoranthene	0.29	RSL	µg/L	11.4 U	114 DU
Chrysene	2.9	RSL	µg/L	11.4 U	114 DU
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	11.4 U	114 DU
Fluoranthene	1500	RSL	µg/L	11.4 U	114 DU
Fluorene	1500	RSL	µg/L	11.4 U	114 DU
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	11.4 U	114 DU
Naphthalene	0.14	RSL	µg/L	11.4 U	114 DU

Table 5-3
1997 Groundwater Results - SWMU 24
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	24B04 / DW1		24B04 / DW1	
			Date Collected:	9/10/1997		9/10/1997	
			Depth (ft bgs):	2.5 - 5.5		2.5 - 5.5	
			Lab ID:	D97-11023-11		D97-11023-11R2	
			Comments:			Reanlaysis	
Parameter			**Units**				
Phenanthrene	--		µg/L	11.4	U	114	DU
Pyrene	1100	RSL	µg/L	11.4	U	114	DU
Petroleum Hydrocarbons							
TPH (extractable)	--		mg/L	***22***		Not Analyzed	
TPH (volatile)	--		µg/L	***253***		Not Analyzed	
Filtered RCRA Metals							
Arsenic, Dissolved	0.01	MCL	mg/L	***0.02***		Not Analyzed	
Barium, Dissolved	2	MCL	mg/L	***0.0699***		Not Analyzed	
Cadmium, Dissolved	0.005	MCL	mg/L	0.005	U	Not Analyzed	
Chromium, Dissolved	0.1	MCL	mg/L	0.005	U	Not Analyzed	
Lead, Dissolved	0.015	MCL	mg/L	0.003	U	Not Analyzed	
Mercury, Dissolved	0.002	MCL	mg/L	0.0002	U	Not Analyzed	
Selenium, Dissolved	0.05	MCL	mg/L	0.01	U	Not Analyzed	
Silver, Dissolved	0.18	RSL	mg/L	0.005	U	Not Analyzed	
Water Quality Parameters							
pH	--		SU	***9.5***		Not Analyzed	

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

Lead, dissolved screening levels are for lead and compounds.

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 5-4
1998 Groundwater Results - SWMU 24
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	06B06A / DW1	06B07A / DW1	06B10A / DW1	06B11A / DW1	06B11A / DW1
			Date Collected:	5/22/1998	5/22/1998	5/22/1998	5/18/1998	5/18/1998
			Depth (ft bgs):	30 - 32	30 - 32	30 - 32	35 - 37	35 - 37
			Lab ID:	D98-3877-5	D98-3877-6	D98-3877-2	D98-3742-2	D98-3742-2R2
			Comments:					Reanalysis
Parameter			**Units**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	200	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	2.4	RSL	µg/L	***26***	5 U	5 U	5 U	5 U
1,1-Dichloroethene	7.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
2-Butanone	7100	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
2-Chloroethylvinyl ether	--		µg/L	5 U	5 U	5 U	5 U	5 U
2-Hexanone	47	RSL	µg/L	50 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone	2000	RSL	µg/L	100 U	100 U	100 U	100 U	100 U
Acetone	22000	RSL	µg/L	100 U	100 U	100 U	100 U	100 U
Benzene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Bromoform	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Bromomethane	8.7	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	1000	RSL	µg/L	5 U	5 U	5 U	***2.77 J***	5 U
Carbon tetrachloride	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	100	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Chloroethane	21000	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Chloroform	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	70	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	700	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Methyl chloride	190	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Methylene chloride	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
m,p-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
o-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Styrene	100	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Toluene	1000	MCL	µg/L	5 U	5 U	5 U	5 U	5 U

Table 5-4
1998 Groundwater Results - SWMU 24
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	06B06A / DW1	06B07A / DW1	06B10A / DW1	06B11A / DW1	06B11A / DW1
			Date Collected:	5/22/1998	5/22/1998	5/22/1998	5/18/1998	5/18/1998
			Depth (ft bgs):	30 - 32	30 - 32	30 - 32	35 - 37	35 - 37
			Lab ID:	D98-3877-5	D98-3877-6	D98-3877-2	D98-3742-2	D98-3742-2R2
			Comments:					Reanalysis
Parameter			**Units**					
trans-1,2-Dichloroethene	100	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5.0	MCL	µg/L	5 U	5 U	5 U	***2.62 J***	5 U
Vinyl acetate	410	RSL	µg/L	50 U	50 U	50 U	50 U	50 U
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U	2 U	2 U	2 U

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 5-4
1998 Groundwater Results - SWMU 24
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	24B07 / DW1	24B07 / DW1	24B08 / DW1	24B08 / DW1D	24B09 / DW1	24B10 / DW1
			Date Collected:	5/18/1998	5/18/1998	5/26/1998	5/26/1998	5/22/1998	5/26/1998
			Depth (ft bgs):	24 - 26	24 - 26	40 - 42	40 - 42	37 - 39	30 - 32
			Lab ID:	D98-3742-1	D98-3742-1R2	D98-3898-2	D98-3898-3	D98-3877-7	D98-3898-1
			Comments:		Reanalysis		Duplicate		
Parameter			**Units**						
Volatile Organic Compounds									
1,1,1-Trichloroethane	200	MCL	µg/L	***3.28 J***	5 U	10 DU	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
1,1,2-Trichloroethane	5.0	MCL	µg/L	***2.58 J***	5 U	10 DU	5 U	5 U	5 U
1,1-Dichloroethane	2.4	RSL	µg/L	***4.9 J***	5 U	10 DU	5 U	5 U	5 U
1,1-Dichloroethene	7.0	MCL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
1,2-Dichloroethane	5.0	MCL	µg/L	***4.35 J***	5 U	10 DU	5 U	5 U	5 U
1,2-Dichloropropane	5.0	MCL	µg/L	***2.74 J***	5 U	10 DU	5 U	5 U	5 U
2-Butanone	7100	RSL	µg/L	5 UJ*	5 U	200 DU	5 U	5 U	5 U
2-Chloroethylvinyl ether	--		µg/L	5 UJ*	5 U	20 DU	5 U	5 U	5 U
2-Hexanone	47	RSL	µg/L	50 UJ*	5 U	100 DU	5 U	5 U	5 U
4-Methyl-2-pentanone	2000	RSL	µg/L	100 UJ*	100 U	***11.1 DJ***	***4.82 J***	100 U	100 U
Acetone	22000	RSL	µg/L	100 UJ*	100 U	***36.5 DJ***	***24.4 J***	100 U	100 U
Benzene	5.0	MCL	µg/L	***3.31 J***	5 U	10 DU	5 U	5 U	5 U
Bromodichloromethane	80	MCL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
Bromoform	80	MCL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
Bromomethane	8.7	RSL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
Carbon disulfide	1000	RSL	µg/L	***3.46 J***	5 U	10 DU	5 U	5 U	5 U
Carbon tetrachloride	5.0	MCL	µg/L	***2.98 J***	5 U	10 DU	5 U	5 U	5 U
Chlorobenzene	100	MCL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
Chloroethane	21000	RSL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
Chloroform	80	MCL	µg/L	***3.48 J***	5 U	10 DU	5 U	5 U	5 U
cis-1,2-Dichloroethene	70	MCL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
Dibromochloromethane	80	MCL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
Ethylbenzene	700	MCL	µg/L	***5.62 J****	5 U	***18 D***	***7.29 J****	5 U	5 U
Methyl chloride	190	RSL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
Methylene chloride	5.0	MCL	µg/L	***2.66 J***	5 U	10 DU	5 U	5 U	5 U
m,p-Xylene	10000	MCL	µg/L	***10.3 J****	5 U	***65 D***	***27.1 J****	5 U	5 U
o-Xylene	10000	MCL	µg/L	***4.35 J***	5 U	***15.4 D***	5 U	5 U	5 U
Styrene	100	MCL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
Tetrachloroethene	5.0	MCL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
Toluene	1000	MCL	µg/L	***4.95 J***	5 U	***41.9 D***	***16.6 J****	5 U	5 U

Table 5-4
1998 Groundwater Results - SWMU 24
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	24B07 / DW1	24B07 / DW1	24B08 / DW1	24B08 / DW1D	24B09 / DW1	24B10 / DW1
			Date Collected:	5/18/1998	5/18/1998	5/26/1998	5/26/1998	5/22/1998	5/26/1998
			Depth (ft bgs):	24 - 26	24 - 26	40 - 42	40 - 42	37 - 39	30 - 32
			Lab ID:	D98-3742-1	D98-3742-1R2	D98-3898-2	D98-3898-3	D98-3877-7	D98-3898-1
			Comments:		Reanalysis		Duplicate		
Parameter			**Units**						
trans-1,2-Dichloroethene	100	MCL	µg/L	***4.08 J***	5 U	10 DU	5 U	5 U	5 U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5 UJ*	5 U	10 DU	5 U	5 U	5 U
Trichloroethene	5.0	MCL	µg/L	***4.02 J***	5 U	10 DU	5 U	5 U	5 U
Vinyl acetate	410	RSL	µg/L	50 UJ*	50 U	100 DU	50 U	50 U	50 U
Vinyl chloride	2.0	MCL	µg/L	2 UJ*	2 U	4 DU	2 U	2 U	2 U

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalc

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 5-5
2007 Groundwater Results - SWMU 24
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample:	24B11 / DW1		24B12 / DW1	
			Date Collected:	9/17/2007		9/17/2007	
			Depth (ft bgs):	30 - 35		30 - 35	
			Lab ID:	510-18284-6		510-18284-11	
			Comments:				
Parameter			**Units**				
Volatile Organic Compounds							
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U
2-Butanone (MEK)	7100	RSL	µg/L	10	U	10	U
2-Hexanone	47	RSL	µg/L	10	U	10	U
4-Methyl-2-pentanone (MIBK)	2000	RSL	µg/L	10	U	10	U
Acetone	22000	RSL	µg/L	10	U	10	U
Benzene	5.0	MCL	µg/L	5	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U
Bromoform	80	MCL	µg/L	5	U	5	U
Bromomethane	8.7	RSL	µg/L	10	U	10	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U
Chloroethane	21000	RSL	µg/L	10	U	10	U
Chloroform	80	MCL	µg/L	5	U	5	U
Chloromethane	190	RSL	µg/L	10	U	10	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U
Methylene Chloride	5.0	MCL	µg/L	5	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U
Vinyl acetate	410	RSL	µg/L	5	U	5	U
Vinyl chloride	2.0	MCL	µg/L	2	U	2	U
Xylenes, Total	10000	MCL	µg/L	10	U	10	U

Notes:

Bold, italic = Compound was detected.

ft bgs = feet below ground surface

Direct-push groundwater samples were collected from depth where water was first encountered.

Description of data flags is provided on Table 1-1.

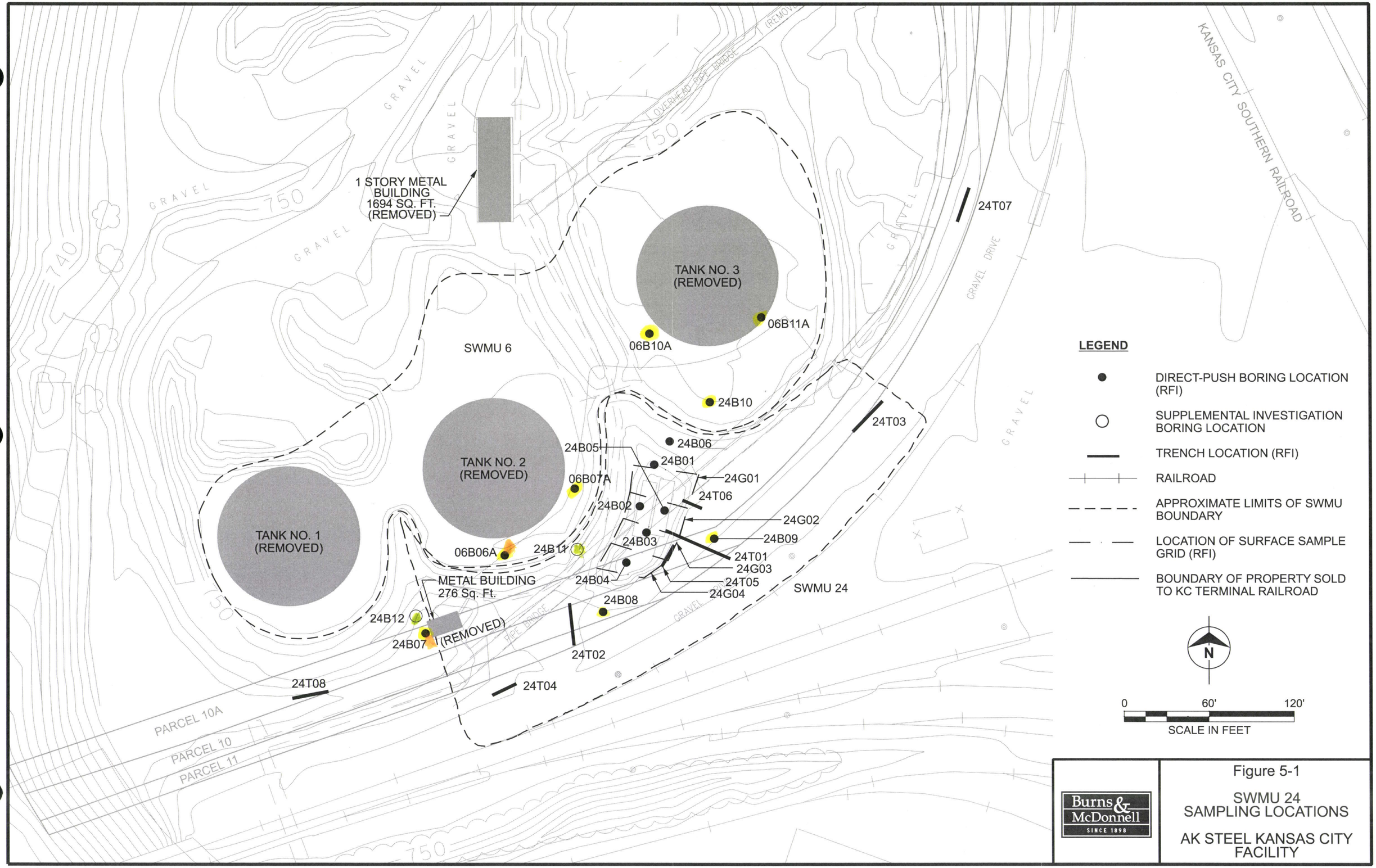
cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter



Burns & McDonnell
SINCE 1898

Figure 5-1

SWMU 24
SAMPLING LOCATIONS

AK STEEL KANSAS CITY FACILITY

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K:\ENV\AK STEEL\SITE\54199\Cad\GW REPORT\AK-SWMU24-FG5-1.DGN

EXHIBIT 5-1

RFI REPORT FIGURES FOR
SWMU 24 – Waste Hydraulic Lubricating Oil Storage Tanks

Figure 18-5 – SWMU 24 Total VOC Groundwater Results

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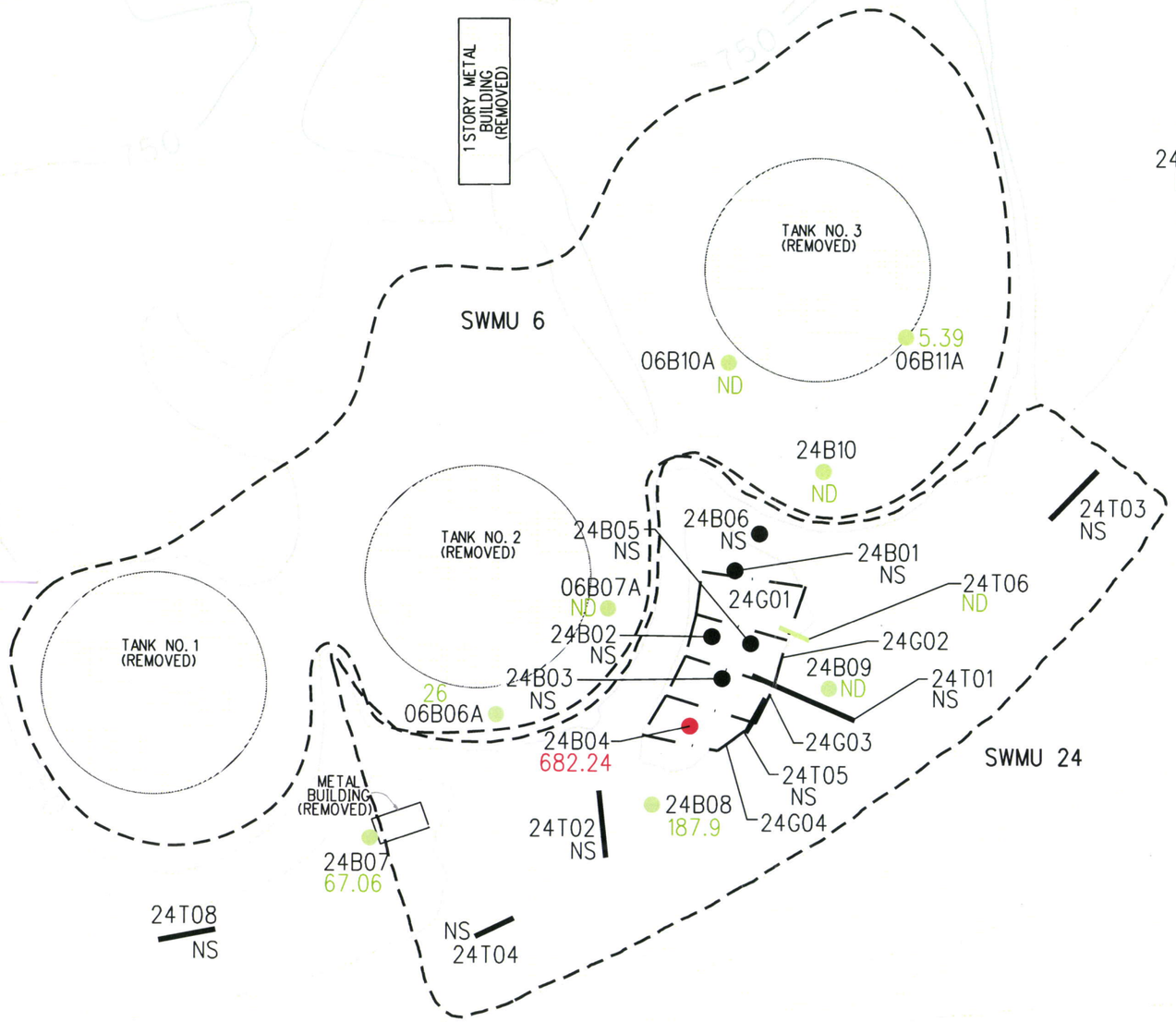

VOC GROUNDWATER DETECTIONS ABOVE MCLs				
PARAMETER	MCL (ug/L)	SAMPLE	SAMPLE DEPTH (FT)	SAMPLE RESULT (ug/L)
cis-1,2-DICHLOROETHENE	70	24B04/DW1	2.5-5.5	295
TRICHLOROETHENE	5	24B04/DW1	2.5-5.5	149
VINYL CHLORIDE	2	24B04/DW1	2.5-5.5	5.34

LEGEND

- ● DIRECT-PUSH BORING LOCATION
- 10.0 OR ● TOTAL VOC RESULTS (ug/L) - ALL DETECTIONS BELOW MCLs
- 10.0 OR ● TOTAL VOC RESULTS (ug/L) - ONE OR MORE DETECTIONS ABOVE MCLs (SEE INSET TABLE)
- ▬ TRENCH LOCATION
- — · — LOCATION OF SURFACE SOIL SAMPLE GRID
- ND NOT DETECTED
- NS NOT SAMPLED
- - - - SWMU BOUNDARY
- RAILROAD

NOTES:

1. DIRECT-PUSH GROUNDWATER SAMPLES COLLECTED DURING RFI PHASES 1 AND 2 (1997-1998).
2. TRENCH SAMPLES TAKEN DURING RFI INTERIM MEASURES (1996).
3. SEE SWMU 24 DATA RESULTS TABLES FOR ADDITIONAL SAMPLE INFORMATION.

N

60' 0' 60' 120'
SCALE IN FEET

Burns & McDonnell Waste Consultants, Inc.

Figure 18-5
SWMU 24 TOTAL VOC GROUNDWATER RESULTS

ARMCO KANSAS CITY FACILITY
ARMCO AND KANSAS CITY TERMINAL PROPERTY

k:\armcor\ustn\gisfig98\tankanal.dgn
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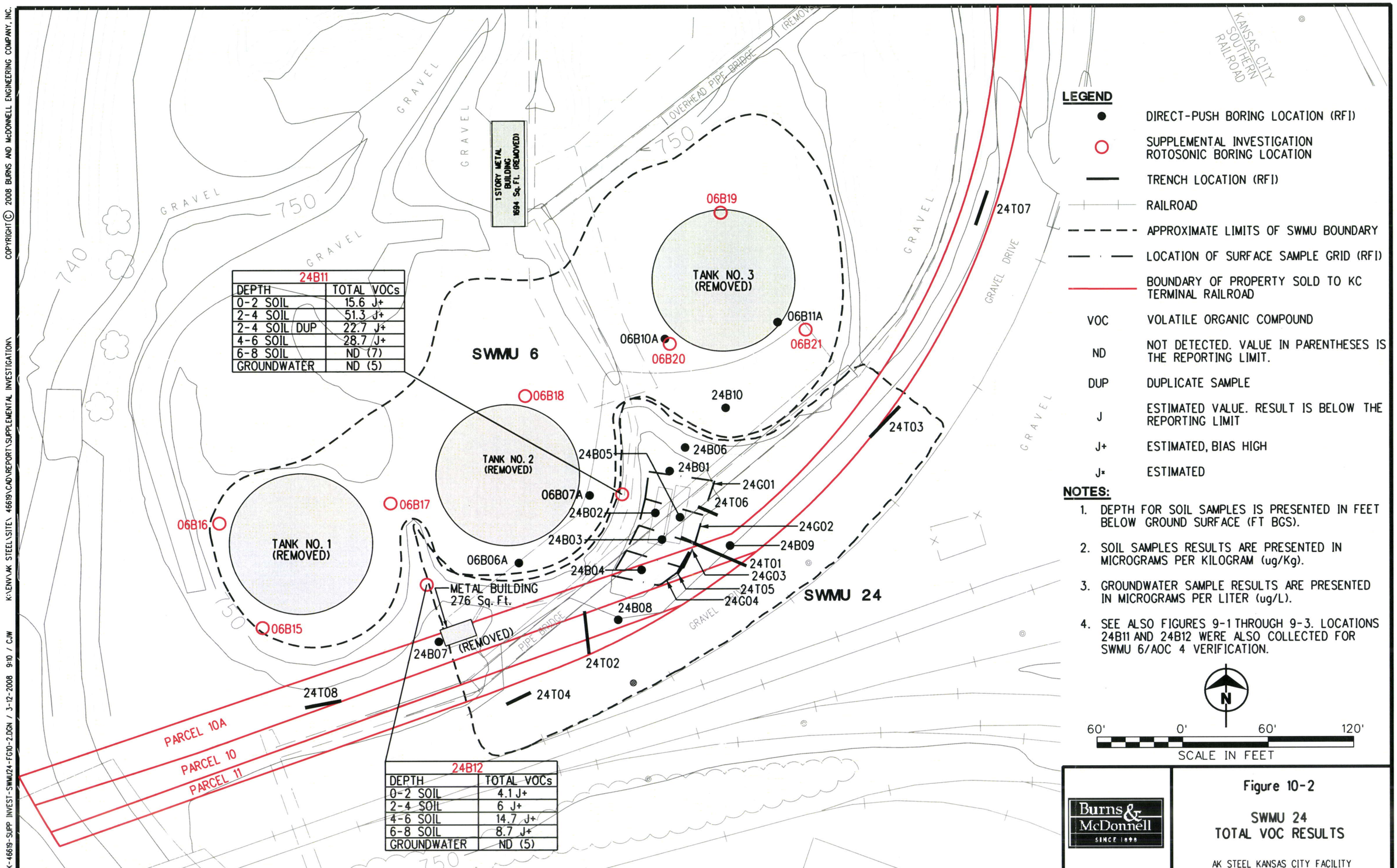
24VOCW.DGN/23-APR-99 16:23/DLS

EXHIBIT 5-2

SUPPLEMENTAL INVESTIGATION REPORT FIGURES FOR SWMU 24 – Waste Hydraulic Lubricating Oil Storage Tanks

Figure 10-2 – SWMU 24 Total VOC Results



24B11	
DEPTH	TOTAL VOCs
0-2 SOIL	15.6 J+
2-4 SOIL	51.3 J+
2-4 SOIL DUP	22.7 J+
4-6 SOIL	28.7 J+
6-8 SOIL	ND (7)
GROUNDWATER	ND (5)

24B12	
DEPTH	TOTAL VOCs
0-2 SOIL	4.1 J+
2-4 SOIL	6 J+
4-6 SOIL	14.7 J+
6-8 SOIL	8.7 J+
GROUNDWATER	ND (5)

LEGEND

- DIRECT-PUSH BORING LOCATION (RFI)
- SUPPLEMENTAL INVESTIGATION ROTOSONIC BORING LOCATION
- TRENCH LOCATION (RFI)
- RAILROAD
- APPROXIMATE LIMITS OF SWMU BOUNDARY
- LOCATION OF SURFACE SAMPLE GRID (RFI)
- BOUNDARY OF PROPERTY SOLD TO KC TERMINAL RAILROAD
- VOC — VOLATILE ORGANIC COMPOUND
- ND — NOT DETECTED. VALUE IN PARENTHESES IS THE REPORTING LIMIT.
- DUP — DUPLICATE SAMPLE
- J — ESTIMATED VALUE. RESULT IS BELOW THE REPORTING LIMIT
- J+ — ESTIMATED, BIAS HIGH
- J= — ESTIMATED

NOTES:

1. DEPTH FOR SOIL SAMPLES IS PRESENTED IN FEET BELOW GROUND SURFACE (FT BGS).
2. SOIL SAMPLES RESULTS ARE PRESENTED IN MICROGRAMS PER KILOGRAM (ug/Kg).
3. GROUNDWATER SAMPLE RESULTS ARE PRESENTED IN MICROGRAMS PER LITER (ug/L).
4. SEE ALSO FIGURES 9-1 THROUGH 9-3. LOCATIONS 24B11 AND 24B12 WERE ALSO COLLECTED FOR SWMU 6/AOC 4 VERIFICATION.

N

60' 0' 60' 120'

SCALE IN FEET

Burns & McDonnell SINCE 1898

Figure 10-2

SWMU 24
TOTAL VOC RESULTS

AK STEEL KANSAS CITY FACILITY

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AK-TANK-PARCEL.DGN() Off=2,17-18,56-63

AK-17X11-2008.DGN(BORDER) Off=59,61
AK-SITE.DGN(SITE) Off=17,61-63
AK-CONTOUR.DGN(CONTOUR) Off=1,3-9,12-63
AK-ALLSWMU.DGN(SWMU) Off=62-63

K:\ENV\AK STEEL\SITE\ 46619\CAD\REPORT\SUPPLEMENTAL INVESTIGATION\

AK-46619-SUPP INVEST-SWMU24-FG10-2.DGN / 3-12-2008 9:10 / CJW

SECTION 6.0
SWMUs ASSOCIATED WITH NAIL MILL DEGREASER VOC PLUME

6.0 SWMUS ASSOCIATED WITH NAIL MILL DEGREASER VOC PLUME

Prior to the RFI, historical investigations (see Appendix G) indicated the presence of a chlorinated VOC plume that centered on the former Nail Mill degreaser (SWMU 33). During the RFI, it became apparent that the chlorinated VOC plume radiated outward from this area and a monitoring well network was installed across a broad area that included both SWMU 13 (Pickle Liquor Tanks) and SWMU 17 (Wire Mill Rinsewater Neutralization Tank). For this reason, much of the groundwater discussion related to geology, hydrogeology, and groundwater flow direction is presented on an area-wide basis that includes the following SWMUs:

- SWMU 13 – Pickle Liquor Tanks
- SWMU 17 – Wire Mill Rinsewater Neutralization Tank
- SWMU 33 – Nail Mill Degreasing Area

This area is located west and south of a bend in the Blue River, and as such is within the Blue River alluvial valley as discussed in Sections 1.3.1 and 1.3.2. The paved, channelized portion of the Blue River channel is adjacent to the SWMU 13/17/33 area. In this area the total depth from the top of slope to the bottom of the low flow channel is approximately 30 feet.

6.1 SWMU 33 AND SURROUNDING AREA GROUNDWATER FLOW DIRECTION AND GRADIENT

Groundwater contour maps were generated using groundwater level data from the following events:

- **RFI (Exhibit 6-1)** - Groundwater contour maps for the shallow, unconfined saturated zone and the deep semi-confined saturated zone at SWMU 33 were prepared using groundwater level data from four representative monitoring events as shown in Exhibit 6-1 on Figures 2-18 and 2-19 (May 29, 1997); Figures 2-20 and 2-21 (July 6, 1998); Figures 2-22 and 2-23 (January 18, 1999), and Figures 2-24 and 2-25 (March 11, 1999).
- **2001 Groundwater Sampling Event (Exhibit 6-2)** – Maps were prepared using groundwater level data obtained on February 1, 2001.
- **2007 Supplemental Investigation (Exhibit 6-3)** – Maps were prepared using groundwater level data obtained on September 24, 2007.

At SWMU 33, during normal to below normal river levels, groundwater flow is toward the Blue River. During periods of heavy precipitation and high water levels within the Blue River channel, the hydraulic

gradient may be temporarily reversed in the immediate vicinity of the River. These periods of flow reversal are probably of short duration. Locally, the paved concrete flood control channel may influence groundwater flow within the shallow, unconfined saturated zone.

Additionally, infilled basement foundations and deep storm sewers may be exerting some hydraulic influence. The deepest known storm sewer from the former Armco mill works at (and north of) SWMU 33 traverses from a catch basin near Monitoring Well 33MW4S to Outfall 009 near the railroad bridges northwest of SWMU 33 (i.e., 48" Bristol Ave. Sewer as shown on Figure 2-6 in Appendix A). The approximate invert elevation of this storm sewer is shown on geologic profile 33B-33B' (Figure 2-8 in Appendix A) for comparison with the shallow, unconfined saturated zone and deep, semi-confined saturated zone groundwater surface elevations. It is apparent that this storm sewer is above the deep groundwater surface and below the shallow unconfined saturated zone surface. From examination of the groundwater contour maps, there may be some influence exerted by the storm drains or their backfill upon the shallow, unconfined saturated zone groundwater surface. Based on the groundwater elevation maps (Exhibits 6-1 through 6-3), it appears that the higher the water level in the deep wells, the more pronounced the effect of the 48" Bristol Ave. Sewer near Monitoring Well 33MW4S. A groundwater trough appears to form at Outfall 009/011 when the deep groundwater levels are up. The Gooseneck Creek sewer system (outfalls to the Blue River near the northwest corner of SWMU 33 with an outfall large enough to drive a truck into) may be influencing groundwater flow in the deep, semi-confined saturated zone. This is a Kansas City owned storm sewer with all of its drainage area lying outside of the Facility (See northwest corner of Figure 2-6 in Appendix A). During the RFI, the average groundwater gradients at SWMU 33 (determined from representative groundwater level measurements taken during this RFI) were 1.30E-02 in the shallow, unconfined saturated zone and 1.22E-03 in the deep semi-confined saturated zone (Table 2-6 in Appendix A).

6.2 SATURATED ZONE PERMEABILITY TESTING

Slug testing and a limited pumping test were performed in the SWMU 13/17/33 area during the RFI to determine saturated zone permeability characteristics. Details of this testing are provided in Appendix A. In summary, the pumping test results provide the most representative hydraulic conductivity (K) value for the shallow, unconfined saturated zone and the slug test results provide an indication of deep, semi-confined saturated zone K values in this area. Based on Monitoring Well 33MW5S pumping test results, it appears that the slag and brick fill material (which is approximately 12 feet thick at the 33MW5S, 33MW5I, and 33MW5D monitoring well cluster) has a relatively higher K than the clays and silty clays composing the rest of the unconfined saturated zone above the semiconfining layer. Average K in

Monitoring Well 33MW5I (4.86E-04 cm/sec; 1.4 feet/day) is two orders of magnitude lower than for Monitoring Well 33MW5S (1.59E-02 cm/sec; 45.1 feet/day). Average slug test derived K for the deep semi-confined saturated zone immediately above the bedrock contact in Monitoring Well 33MW5D (1.74E-02 cm/sec; 49.2 feet/day) is comparable with K in the slag and brick material of the shallow, unconfined saturated zone. The relatively high permeability in 33MW5D is probably due to the clayey gravel immediately above the bedrock contact.

6.3 SWMU 13 – PICKLE LIQUOR TANKS

6.3.1 SWMU Background

The pickle liquor tanks (SWMU 13), located on AK Steel property (see Figure 1-2), were operated from May of 1971 to 1989 and were removed in 1992. As part of the steel rod cleaning operation, sulfuric acid was used to clean iron oxide from steel rods prior to the production of nails, fence, and wire. The term used to describe this process is pickling, and the waste sulfuric acid generated by these pickling activities is referred to as spent pickle liquor.

In 1980, spent pickle liquor became a RCRA-listed hazardous waste with the waste code K062. Prior to 1981, the spent pickle liquor accumulated at this SWMU was sent off site for treatment and disposal. In 1981, Armco installed a recycling system for the spent pickle liquor that remained in use until 1989 when the steel rod cleaning operation ceased and the Cleaning House closed.

Spent pickle liquor was stored in three tanks at different times during the operational life of SWMU 13. These tanks were of varying capacities and dimensions and were located on the east side of the Cleaning House, also known as the Rod Cleaning Building. The spent pickle liquor was transferred from brick-lined acid tubs in the production line by means of overhead piping. Regeneration was accomplished by cooling the spent pickle liquor in a 3,000-gallon, rubber-lined, steel, above ground cooling tank located adjacent to the AST. The cooling caused ferrous sulfate heptahydrate to precipitate from the spent pickle liquor. From the cooling system, regenerated acid was returned to the tubs in the production line. The ferrous sulfate heptahydrate precipitate was sold to chemical supply companies for a number of uses. The most significant use was as a wastewater treatment chemical. The amount of spent pickle liquor generated during cleaning activities varied with the amount of rod cleaned.

The defined SWMU 13 area is less than 0.1 acre in size. In August 1998, modifications were made in the vicinity of SWMU 13 as Armco extended Wilson Avenue in an east-west direction. As part of this modification, various concrete basement walls near SWMU 13 were lowered to below ground surface.

The concrete from the walls and other imported aggregate materials were used to fill any voids in the subsurface.

6.3.2 Screening Results

SWMU 13 sampling locations are presented on Figures 6-1 and 6-2. Over the course of investigations at the Facility, the following groundwater data have been collected:

- **1997 RFI (Figure 6-1)** - Groundwater samples were collected from 15 direct-push borings (Borings 13B01 through 13B09, 13B11 through 13B15, and 13B07A). Ten of these samples were added due to signs of contamination encountered in Boring 13B02 near the water table. A water sample could not be collected from Boring 13B10 because refusal was encountered prior to reaching the water table. Groundwater samples were analyzed for dissolved RCRA metals and pH. After the sample from 13B02 showed signs of organic contamination, VOC and TPH analyses were added to groundwater samples from Borings 13B01 through 13B09 and Boring 13B11. VOC analysis was discontinued prior to the completion of Borings 13B07A and 13B12 through 13B14 due to the lack of VOC detections in the other samples; however, SVOC analysis was added to these samples. VOC and TPH analyses were added to Boring 13B15 due to a PID reading of 63 parts per million (ppm). Metals analysis was not performed on the groundwater sample from Boring 13B12.

- **1998 RFI (Figure 6-2)** - Monitoring Well Clusters 33MW5S/5I/5D, 33MW11S/11D, 33MW12S/12D, and 33MW13S/13D, which are associated with SWMU 33, are located in the vicinity of SWMU 13. In particular, Monitoring Well Cluster 33MW13S/13D is located within the boundary of SWMU 13. Therefore, these monitoring wells were sampled in 1998 for dissolved RCRA metals and pH analyses to obtain additional information regarding SWMU 13.

- **2007 Supplemental Investigation (Figure 6-2)** – Monitoring Wells 33MW5S/5I/5D, 33MW11S/11D, 33MW12S/12D, and 33MW13S/13D were again sampled during the 2007 Supplemental Investigation. For this event, groundwater samples were collected and analyzed for both total and dissolved RCRA metals.

A summary of the groundwater screening results is presented on Table 6-1. Screening of individual samples to the groundwater screening levels is presented on Tables 6-2 through 6-4. A summary of the screening is provided in the following paragraphs:

- **VOCs (Table 6-2 and Exhibit 6-4: Figure 15-5)** – Eleven direct-push groundwater samples were collected and submitted for analysis of VOCs. Chloroform was the only VOC detected in the in the 11 groundwater samples collected from SWMU 13. Chloroform was detected in two groundwater samples, and the concentrations were below the MCL. No other VOCs were detected.

- **SVOCs (Table 6-2 and Exhibit 6-4: Figure 15-5)** – Five direct-push groundwater samples were collected and submitted for analysis of SVOCs. SVOCs were only detected in the sample collected from location 13B12. Detections were limited to the PAH fraction. Sample results for benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene exceeded the USEPA tapwater RSL in sample 13B12/DW1 (MCLs are not available for these PAHs). Benzo(a)pyrene results for Sample 13B12/DW1 exceeded the MCL.

- **TPH (Table 6-2) -** SDWA MCL and USEPA tapwater RSL screening levels are not available for the TPH-extractable and TPH-volatile analyses. TPH-extractable was detected in 11 of the 14 groundwater samples, and concentrations ranged from 0.6 to 336 D mg/L. TPH-volatile was detected in 8 of the 14 groundwater samples, and concentrations ranged from 51 to 4960 D µg/L.

- **Total RCRA Metals (Table 6-4)** – Groundwater samples were collected from nine monitoring wells in 2007 and analyzed for total RCRA metals. With the exception of total mercury and total silver, each metal was detected. Total arsenic detections were above the SDWA MCL in two of the nine groundwater samples (33MW5D and 33MW5I). All other total metal detections were below their respective screening levels.

- **Filtered RCRA Metals (Tables 6-2 through 6-4 and Exhibit 6-4: Figure 15-4) -** Groundwater samples were collected for filtered RCRA metals analysis as follows: 1) 1997 – 13 direct-push borings; 2) 1998 – 9 monitoring wells; and, 3) 2007 – 9 monitoring wells. With the exception of dissolved mercury, each analyte was detected in the groundwater samples analyzed for filtered RCRA metals. The following analytes were detected above the groundwater screening levels:

  - Dissolved arsenic was detected in 14 of the 31 groundwater samples at concentrations ranging from 0.00021 J to 0.138 mg/L. Eleven (11) of these detections exceeded the SDWA MCL.

  - Dissolved cadmium was detected in 10 of the 31 groundwater samples at concentrations ranging from 0.00056 J to 0.0543 mg/L. Six of the seven dissolved cadmium detections were above the SDWA MCL.

- Dissolved lead was detected in ten of the 31 groundwater samples at concentrations ranging from 0.0026 to 0.198 mg/L. Six of the dissolved lead concentrations were above the SDWA MCL.

- Dissolved selenium was detected in 15 of the 31 groundwater samples at concentrations ranging from 0.00038 J to 0.187 mg/L. Six of the dissolved selenium detections were above the SDWA MCL.

Monitoring Well Cluster 33MW13S/13D was located in closest proximity to the direct-push sampling locations and is within the defined boundaries of SWMU 13 (See Figure 6-2). In general, the concentrations of filtered metals in samples collected from this well cluster were lower than samples collected from the direct-push borings. None of the filtered RCRA metals results exceeded the groundwater screening levels for samples collected from Monitoring Wells 33MW13S/13D in 1998 or 2007.

- **pH (Table 6-2) -** Groundwater samples were collected from 14 direct-push borings and submitted for analysis of pH. An USEPA tapwater RSL and SDWA MCL is not available for pH. Sample results for pH ranged from pH 3.9 J* in sample 13B04/DW1 (31-33 feet bgs) to pH 8.2 J* in sample 13B06/DW1 (24-26 feet bgs).

6.3.3 Conclusion

Over the course of investigations, groundwater samples have been collected and analyzed for VOCs, SVOCs, TPH, total RCRA metals, filtered RCRA metals, and pH. Chloroform was the only VOC detected, and it was detected in two samples at concentrations below the MCL. Therefore, the SWMU 13 area does not appear to be a source of VOCs. Any additional sampling for VOCs will be in conjunction with samples collected from monitoring wells associated with the SWMU 33 chlorinated VOC plume (Section 6.5).

SVOCs were only detected in one sample (13B12/DW1), and detections were limited to the PAH fraction. Each of the PAH detections exceeded the applicable USEPA tapwater RSL, and the benzo(a)pyrene result also exceeded the MCL. Extractable TPH was detected in 11 groundwater samples and volatile TPH was detected in eight groundwater samples; however applicable screening criteria are not available.

Sample results for pH ranged from 3.9 J* to 8.2 J*. Sample from three locations (13B04, 13B05, and 13B15) which were south and southeast of the SWMU 13 boundary exhibited acidic pH results ranging from 3.9 J* to 4.1 J*.

Metals were the primary analytes detected within SWMU 13. Results for dissolved arsenic, cadmium, lead, and selenium exceeded MCLs for various groundwater samples collected from direct-push borings. However, it was noted that metals concentrations were lower in groundwater samples collected from Monitoring Well Cluster 33MW13S/33MW13D, which was placed inside the boundary of SWMU 13, as compared to samples from the direct-push borings. Groundwater samples from the 33MW13S/33MW13D cluster and wells in the surrounding area were collected using low-flow sampling techniques in 2007, and arsenic (total and dissolved) was the only metal that exhibited concentrations in excess of screening criteria; however, arsenic was only detected slightly above the 0.01 mg/L MCL in samples collected from 33MW5D (0.011 mg/L) and 33MW5I (0.013 mg/L). These results correlated with the 1998 sampling event in which similar dissolved arsenic data were collected from Monitoring Wells 33MW5D and 33MW5I. While the arsenic exceedances appear to be localized, additional monitoring will provide information regarding analyte trends over time. Additionally, arsenic is known to be present in the alluvium associated with the Blue River Valley. The data from several rounds of groundwater monitoring events can then be used to determine if there is need for any additional activities.

6.4 SWMU 17 – WIRE MILL RINSEWATER NEUTRALIZATION TANK

6.4.1 SWMU Background

The Wire Mill Rinsewater Neutralization Tank (SWMU 17), located on AK Steel property (see Figure 1-2), consisted of an open-topped 18,000-gallon concrete underground storage tank (UST) with an acid-proof brick lining. During its operation, the tank received acid rinse waters from the hydrochloric acid wire cleaning operations and the sulfuric acid rod cleaning operations. The SWMU 17 tank was cleaned and closed in place in 1991 as part of the closure activities at the Wire Mill. The defined SWMU area is approximately 50 feet by 80 feet (less than 0.1 acres). In August 1998, modifications were made in the area as Wilson Avenue was extended in an east-west direction across the west of SWMU 17. As part of this modification, the concrete walls of SWMU 17 were lowered to below ground surface. The concrete from the walls and other imported aggregate materials were used to fill the void left by the former tank.

6.4.2 Screening Results

SWMU 17 sampling locations are presented on Figure 6-3. Over the course of investigations at the Facility, the following groundwater data have been collected:

- **1997-1998 RFI** - Groundwater samples were collected from nine direct-push borings (17B01 through 17B06, 17B04A, 17B08, and 17B09) in 1997. All groundwater samples were analyzed for dissolved RCRA metals and pH. In addition, groundwater samples collected from Borings 17B04A, 17B06, 17B08, and 17B09 were analyzed for VOCs, SVOCs, and TPH. One additional groundwater sample was collected from Boring 17B10 and analyzed for VOCs in 1998.

A summary of the groundwater screening results is presented on Table 6-5. Screening of individual samples to the groundwater screening levels is presented on Table 6-6. A summary of the screening is provided in the following paragraphs:

- **VOCs (Table 6-6 and Exhibit 6-6: Figures 22-3 and 22-5)** – Five direct-push groundwater samples were collected and submitted for analysis of VOCs. The following VOCs were detected in these samples:

VOC Detections in Groundwater at SWMU 17					
	Location				
Analyte	17B04A	17B06	17B08	17B09	17B10
1,1,1-Trichloroethane			O	O	
1,1,2-Trichloroethane			X		
1,1-Dichloroethane			X		
Chloroform			O		
Tetrachloroethene			O		
Trichloroethene	X	X	X	X	
1,1-Dichloroethene	X		X	X	
cis-1,2-Dichloroethene	X	X	X	X	O
trans-1,2-Dichloroethene	O		O	O	O
Vinyl chloride	X	X	X	X	X
Ethylbenzene					O
X – Detected in sample at concentration that exceeds MCL (or USEPA tapwater RSL if MCL is not available). O – Detected in sample, but concentration does not exceed applicable screening levels.					

The detected analytes included constituents that are commonly associated with chlorinated solvents, such as TCE and its associated breakdown products (i.e., cis-1,2-DCE and vinyl chloride).

- **SVOCs (Table 6-6)** – Four direct-push groundwater samples were collected and submitted for analysis of SVOCs. SVOCs were not detected in these groundwater samples.

- **TPH (Table 6-6)** – Four direct-push groundwater samples were collected and submitted for analysis of TPH-extractable and TPH-volatile. SDWA MCLs and USEPA tapwater RSLs are not available for

the TPH–extractable and TPH-volatile analyses performed on groundwater samples collected from SWMU 17. TPH-extractable was detected in all four groundwater samples at concentrations ranging from 1.06 to 1.84 mg/L. TPH-volatile was also detected in all four groundwater samples at a concentrations ranging from 721 to 9,990 D µg/L. The location of the highest concentration of TPH-volatile (17B08/DW1) correlated with the location with the highest concentration of chlorinated VOCs.

- **pH (Table 6-6 and Exhibit 6-5: Figure 16-3)** – Eight direct-push groundwater samples were collected and submitted for analysis of pH. SDWA MCLs and USEPA tapwater RSL groundwater screening results are not available for pH. Sample results for pH were neutral, ranging from pH 6.6 J* to pH 6.9 J.

- **Filtered RCRA Metals (Table 6-6 and Exhibit 6-5: Figure 16-3)** – Eight direct-push groundwater samples were collected and submitted for analysis of filtered RCRA metals. With the exception of selenium, each of the RCRA metals was detected in at least one sample. Sample 17B06/DW1 was the only sample with concentrations of RCRA metals in excess of screening levels, and dissolved arsenic and dissolved lead exceeded the MCL in this sample.

6.4.3 Conclusion

The groundwater data collected to date within the boundaries of SWMU 17 have been from direct-push sample locations. Monitoring wells are present within the surrounding area in association with the SWMU 33 chlorinated VOC plume; however, no wells are currently present within the boundaries of SWMU 17. Elevated concentrations of chlorinated VOCs were noted at SWMU 17. Based upon its history as an acid rinsewater area, VOCs were not expected in this area and the source of these VOCs is unclear. Review of known sewers in the area (See Figure 6-4 and Figure 2-6 in Appendix A) indicates that there may be a preferential pathway for groundwater from the SWMU 33 to migrate to SWMU 17. Installation of a monitoring well cluster at SWMU 17 and groundwater monitoring is recommended to track analyte trends over time. Wells present in the area that are associated with the SWMU 33 monitoring network provide monitoring for the extent of contamination (See Figure 6-4). The data from several rounds of groundwater monitoring events can then be used to determine the need for any additional activities.

6.5 SWMU 33 – NAIL MILL DEGREASING AREA

6.5.1 SWMU Background

The Nail Mill Degreasing Area (SWMU 33), located on AK Steel property (see Figure 1-2), was used for the removal of residue during the production of nails. The degreasing operation was located in the northwest portion of the Nail Mill. The presence of chlorinated VOCs in the surrounding area was discovered and reported in 1991 while Armco was preparing for the closure and conversion of the mill into a warehouse. The nail mill was subsequently demolished and a wood block floor contaminated with TCE was removed and properly disposed. The area currently consists of rubble over the concrete floor of the former building. The defined SWMU 33 area was approximately 2.5 acres in size.

During preparation for the closure of the nail mill, Remcor collected samples of the wood block floor, concrete floor, and soil from beneath the floor in June 1990. All samples were analyzed for VOCs. TCE, 1,1,1-TCA, tetrachloroethene (PCE), 1,1-dichloroethene (1,1-DCE), and benzene were detected in the samples (Remcor, 1990).

In July 1991, Terracon Environmental (Terracon) conducted a Phase I and Phase II soil vapor survey of the area for TCE, 1,1,1-TCA, and total volatile organics. Terracon concluded that degreasing materials remain sorbed onto the shallower soils underlying the degreaser area and that a groundwater plume of VOCs was present in the area (Terracon, 1991a).

Terracon conducted a Phase II Investigation in September 1991 and collected soil and groundwater samples for VOC analysis (Terracon, 1991b). TCE, 1,2-DCE, 1,1,1-TCA, and chloroform were detected in soil samples. In addition, TCE and 1,2-DCE were detected in groundwater samples. Terracon concluded that TCE was present in soil near the degreaser location and decreased with depth and distance from the degreaser. Terracon also concluded that existing data were too limited to provide precise delineation of groundwater contamination. Four monitoring wells were installed during the Phase II Investigation. Monitoring Well MW-1 was located northeast of the previous degreaser location but was destroyed during demolition activities completed in that vicinity. Wells MW-2 through MW-4 (now labeled 33MW2 through 33MW4) still exist at the SWMU.

Copies of these historical reports are provided in Appendix G.

6.5.2 Screening Results

SWMU 33 monitoring well locations are presented on Figure 6-4. Direct-push sampling locations are provided on Figures 22-3, 22-4, and 22-5 in Exhibit 6-6. Over the course of investigations at the Facility, the following groundwater data have been collected:

- **1997 and 1998 RFI Direct-Push Investigation -** Groundwater samples were collected from 47 direct-push borings (Borings 33B03 through 33B17, 33B19 through 33B47, 33B22A, 33B51, and 33MW6D) in 1997. Groundwater samples were collected from direct-push Borings 33B52 through 33B55 in 1998. A large number of borings were advanced in order to assist in characterization and delineation of VOCs for the purposes of monitoring well placement. Samples were collected from the upper 10 feet of the water table and analyzed using a field GC for chlorinated VOCs and/or BTEX. Nine of the groundwater samples were sent to the analytical laboratory with eight samples analyzed for VOCs and three samples analyzed for SVOCs and TPH.

- **1997 RFI Monitoring Well Sampling Event -** Nine monitoring wells were installed at SWMU 33 (Wells 33MW2S, 33MW4S, 33MW5S/5D, 33MW6D, 33MW7S/7D, 33MW8S, 33MW9S) in 1997. Wells were typically completed in two well clusters, with one well screened in the shallow unconfined saturated zone (approximately 10 to 20 feet bgs) and one screened just above bedrock in the semi-confined deep saturated zone (approximately 60 to 70 feet bgs). These shallow and deep wells are identified with an "S" or "D," respectively, to identify their general screen location. Groundwater samples were collected from these newly-installed wells and three existing wells (Wells 33MW2, 33MW3, and 33MW4) and analyzed for VOCs. In addition, the groundwater sample collected from Well 33MW5S was analyzed for SVOCs and TPH.

- **1998 RFI Monitoring Well Sampling Event -** Eleven additional monitoring wells (33MW10S/10D, 33MW11S/11D, 33MW12S/12D, 33MW13S/13D, 33MW14S/14D, and 33MW5I) were installed in the SWMU 33 area in 1998. Wells were typically completed in two well clusters, with one well screened in the shallow unconfined saturated zone and the second screened just above bedrock in the deep semiconfined saturated zone. Monitoring wells labeled with an "I," represent intermediate depth monitoring wells that are screened directly over the semi-confining layer of the shallow saturated zone. Groundwater was collected from all of the monitoring wells in the SWMU 33 area in 1998 and analyzed for VOCs and natural attenuation parameters (see Appendix T of the RFI Report). Groundwater samples from Wells 33MW5S/5I/5D, 33MW11S/11D, 33MW12S/12D, and 33MW13S/13D were also analyzed for

pH and RCRA metals to aid in characterization of dissolved metals in groundwater at SWMU 13, and these results were previously presented with SWMU 13 (Section 6.3).

- **2001 Monitoring Well Sampling Event** – A sampling event was conducted in February 2001. Groundwater samples were collected from 14 monitoring wells (33MW2/2S, 33MW3, 33MW4/4S, 33MW6D, 33MW7S/7D, 33MW10S/10D, 33MW11S/11D, and 33MW13S/13D) and analyzed for VOCs.

- **2007 Supplemental Investigation** – Four additional monitoring wells (33MW15S/15D and 33MW16S/16D) were installed in the northwest portion of the SWMU 33 to assist with determination of the source of vinyl chloride in deep monitoring well 33MW10D, which is located near the bank of the Blue River. Groundwater samples were collected from 27 monitoring wells using low-flow sample collection techniques and submitted for analysis of VOCs. In addition, groundwater samples from select monitoring wells were analyzed for both unfiltered and field filtered RCRA metals to assist with characterization of SWMU 13 (See Section 6.3).

A summary of the groundwater screening results is presented on Table 6-7. Screening of individual samples to the groundwater screening levels is presented on Tables 6-8 through 6-36. A summary of the screening is provided in the following paragraphs:

- **VOCs (Tables 6-8 to 6-36, Exhibits 6-6 and 6-7)** – VOCs were detected in the majority of the groundwater samples from SWMU 33. The predominant fraction of VOCs detected in groundwater samples included constituents that are associated with chlorinated solvents. In particular TCE and cis-1,2-DCE, and vinyl chloride were detected in multiple wells for each sampling event. The majority of the TCE, cis-1,2-DCE, and vinyl chloride detections exceeded the SDWA MCLs. Other VOCs that were more sporadically detected above the groundwater screening levels include the following: 1,1,1-TCA, 1,1,2-TCA, 1,1-DCA, 1,1-DCE, 1,2-dichloroethane, benzene, methylene chloride, PCE, and trans-1,2-dichloroethene.

  VOCs were detected throughout the SWMU 33 area. TCE and related degradation products of cis-1,2-DCE and vinyl chloride were the primary VOCs detected. The highest concentrations were located around the SWMU 33 former degreasing pit near Monitoring Wells 33MW2S, 33MW2, 33MW3, and decrease radially outward from this location. Concentrations in the shallow saturated zone at this location have decreased significantly from concentrations detected historically (Exhibit 6-6: Figures 22-3 and 22-5 versus Exhibit 6-7: Figure13-4). In addition, elevated VOC concentrations

have also been noted in samples collected from shallow and intermediate-depth wells at Monitoring Well cluster 33MW5S/5I/5D and shallow direct-push groundwater samples from SWMU 17 (Exhibit 6-6: Figure 22-5).

Based on groundwater data from Monitoring Well 33MW2S/2/3 cluster, VOCs appeared to have migrated from the shallow saturated zone to the deep saturated zone. This hydraulic connection between the saturated zones is supported by the results of the pump test conducted at this location (See Appendix A). Additionally, vertical contaminant migration may be also occurring at Monitoring Well 33MW3 (deep), which was installed during Terracon's 1991 Phase II Investigation. Based on the well log and monitoring well construction diagram for Monitoring Well 33MW3, this well was installed through the upper water bearing aquifer and the low permeability confining zone and screened in the lower semi-confined water bearing unit without casing off the contaminated upper water bearing unit. This well construction practice can produce a vertical migration pathway for contaminant transport. Vertical contaminant migration at this location is suggested based on time-series comparison of groundwater sample results from the initial 1991 investigation versus subsequent events (See Figures 6-5 through 6-7). The only parameter detected in Monitoring Well 33MW3 (deep) in the 1991 investigation was TCE at 5 μg/L, which may have been "smeared" to this depth during well installation and construction. Over time, the concentration of TCE has increased in Monitoring Well 33MW3 (deep), and cis-1,2-DCE and vinyl chloride, which were initially not detected in samples from this well, are detected. By the 2007 monitoring event, the concentrations of TCE, cis-1,2-DCE, and vinyl chloride were 480 μg/L, 940 μg/L, and 60 μg/L.

The horizontal extent of VOCs in the shallow saturated zone was defined by samples collected from the perimeter of the SWMU 33 area. The extent of VOCs in the deep saturated zone was less clearly defined to the north due to vinyl chloride detections in excess of MCLs in samples from Well 33MW10D. Groundwater elevation and gradient data collected during periods of low water levels in the deep zone (see Exhibit 6-1: Figure 2-19) suggest a possible connection from the degreaser area to the Monitoring Well 33MW10S/10D cluster. However, VOCs were not detected in a sample collected from Monitoring Well 33MW15D, which was placed to intercept this potential migration pathway. Additional monitoring in this area is needed to determine if such a connection exists or if the low-level detections of vinyl chloride at Monitoring Well 33MW10D are isolated from the plume centered on the former degreaser location.

- **SVOCs (Tables 6-9 and 6-17)** — Three direct-push and one monitoring well groundwater samples were collected and analyzed for SVOCs (Tables 6-9 and 6-17). 4-Chloroaniline, 4-methylphenol, and

naphthalene were detected in sample 33B47/DW1. Both 4-chloroaniline and naphthalene were detected above the USEPA tapwater RSL (MCLs for 4-chloroaniline or naphthalene are not available). However, SVOCs were not detected in the sample collected from Well 33MW5S (Table 6-17), which was installed at the approximate location and depth of Boring 33B47.

- **TPH (Table 6-9)** – Three direct-push and one monitoring well groundwater samples were collected and analyzed for TPH-extractable. Two direct-push and one monitoring well groundwater samples were collected and analyzed for TPH-volatile. SDWA MCL and USEPA tapwater RSL groundwater screening results are not available for the TPH–extractable and TPH-volatile. TPH-extractable was detected in all of the groundwater samples, and concentrations ranged from 1.21 to 10 mg/L. TPH-volatile was also detected in one of the groundwater samples at a concentration of 660 µg/L.

6.5.3 Conclusion

Chlorinated VOCs were detected throughout the SWMU 33 area. TCE and related degradation products of cis-1,2-DCE and vinyl chloride were the primary VOCs detected. The highest concentrations were located around the SWMU 33 former degreasing pit near Monitoring Wells 33MW2S, 33MW2 (intermediate), 33MW3 (deep), and decrease radially outward from this location. The horizontal extent of VOCs in the shallow saturated zone was defined by samples collected from the perimeter of the SWMU 33 area. The extent of VOCs in the deep saturated zone was less clearly defined to the north due to vinyl chloride detections in excess of MCLs in samples from Well 33MW10D. Groundwater elevation and gradient data collected during periods of low water levels in the deep zone (see Exhibit 6-1: Figure 2-19) suggest a possible connection from the degreaser area to the Monitoring Well 33MW10S/10D cluster. However, VOCs were not detected in a sample collected from Monitoring Well 33MW15D, which was placed to intercept this potential migration pathway. Additional monitoring in this area is needed to determine if such a connection exists or if the low-level detections of vinyl chloride at Monitoring Well 33MW10D are isolated from the plume centered on the former degreaser location.

Nearest the former degreaser, VOCs appeared to have migrated from the shallow saturated zone to the deep saturated zone. Review of well log and monitoring well construction diagrams for Monitoring Well 33MW3 (deep) also suggest that this well may be acting as a vertical contaminant migration pathway. Time series plots of TCE, cis-1,2-DCE, and vinyl chloride results for Monitoring Well 33MW3 (deep) show increasing trends for each of these constituents over time (See Figures 6-5 through 6-7). Based upon these observations, Monitoring Well 33MW3 should be abandoned in accordance with Missouri requirements, and the well should be replaced with a properly cased well that will prevent additional vertical migration of contamination.

Based on review of all of the information available to date, conceptual site models for the shallow and deep water bearing units are presented in Figures 6-8 and 6-9. While data collected periodically from 1997 through 2007 do not indicate that the plume is migrating off-site, periodic groundwater monitoring for VOCs is recommended in this area to monitor analyte trends over time. The data from several rounds of groundwater monitoring events can then be used to determine if there is need for any additional activities beyond currently planned soil source remedial measures for the area in the immediate vicinity of the former degreaser pit.

* * * * *

Table 6-1
Summary of Groundwater Screening Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Volatile Organic Compounds				
1,1,1-Trichloroethane	11	0	0	MCL
1,1,2,2-Tetrachloroethane	11	0	0	RSL
1,1,2-Trichloroethane	11	0	0	MCL
1,1-Dichloroethane	11	0	0	RSL
1,1-Dichloroethene	11	0	0	MCL
1,2-Dichloroethane	11	0	0	MCL
1,2-Dichloropropane	11	0	0	MCL
2-Butanone	11	0	0	RSL
2-Chloroethylvinyl ether	11	0	--	NAp
2-Hexanone	11	0	0	RSL
4-Methyl-2-pentanone	11	0	0	RSL
Acetone	11	0	0	RSL
Benzene	11	0	0	MCL
Bromodichloromethane	11	0	0	MCL
Bromoform	11	0	0	MCL
Bromomethane	11	0	0	RSL
Carbon disulfide	11	0	0	RSL
Carbon tetrachloride	11	0	0	MCL
Chlorobenzene	11	0	0	MCL
Chloroethane	11	0	0	RSL
Chloroform	11	2	0	MCL
cis-1,2-Dichloroethene	11	0	0	MCL
cis-1,3-Dichloropropene	11	0	0	RSL
Dibromochloromethane	11	0	0	MCL
Ethylbenzene	11	0	0	MCL
Methyl chloride	11	0	0	RSL
Methylene chloride	11	0	0	MCL
m,p-Xylene	11	0	0	MCL
o-Xylene	11	0	0	MCL
Styrene	11	0	0	MCL
Tetrachloroethene	11	0	0	MCL
Toluene	11	0	0	MCL
trans-1,2-Dichloroethene	11	0	0	MCL
trans-1,3-Dichloropropene	11	0	0	RSL
Trichloroethene	11	0	0	MCL
Vinyl acetate	11	0	0	RSL
Vinyl chloride	11	0	0	MCL
Semivolatile Organic Compounds				
1,2,4-Trichlorobenzene	5	0	0	MCL
1,2-Dichlorobenzene	5	0	0	MCL
1,3-Dichlorobenzene	5	0	--	NAp
1,4-Dichlorobenzene	5	0	0	MCL
2,4,5-Trichlorophenol	5	0	0	RSL
2,4,6-Trichlorophenol	5	0	0	RSL
2,4-Dichlorophenol	5	0	0	RSL
2,4-Dimethylphenol	5	0	0	RSL
2,4-Dinitrophenol	5	0	0	RSL
2,4-Dinitrotoluene	5	0	0	RSL
2,6-Dinitrotoluene	5	0	0	RSL
2-Chloronaphthalene	5	0	0	RSL
2-Chlorophenol	5	0	0	RSL
2-Methylnaphthalene	5	0	0	RSL
2-Methylphenol	5	0	0	RSL
2-Nitroaniline	5	0	0	RSL
2-Nitrophenol	5	0	--	NAp

Table 6-1
Summary of Groundwater Screening Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Semivolatile Organic Compounds				
3,3'-Dichlorobenzidine	5	0	0	RSL
3-Nitroaniline	5	0	--	NAp
4,6-Dinitro-2-methylphenol	5	0	0	RSL
4-Bromophenyl-phenyl ether	5	0	--	NAp
4-Chloro-3-methylphenol	5	0	--	NAp
4-Chloroaniline	5	0	0	RSL
4-Chlorophenyl-phenyl ether	5	0	--	NAp
4-Methylphenol	5	0	0	RSL
4-Nitroaniline	5	0	0	RSL
4-Nitrophenol	5	0	--	NAp
Acenaphthene	5	0	0	RSL
Acenaphthylene	5	0	--	NAp
Anthracene	5	0	0	RSL
Benzo(a)anthracene	5	0	0	RSL
Benzo(a)pyrene	5	1	1	MCL
Benzo(b)fluoranthene	5	1	1	RSL
Benzo(g,h,i)perylene	5	0	--	NAp
Benzo(k)fluoranthene	5	1	1	RSL
Benzoic acid	5	0	0	RSL
Benzyl alcohol	5	0	0	RSL
Bis(2-chloroethoxy)methane	5	0	0	RSL
Bis(2-chloroethyl)ether	5	0	0	RSL
Bis(2-chloroisopropyl)ether	5	0	0	RSL
Bis(2-ethylhexyl)phthalate	5	0	0	MCL
Butylbenzylphthalate	5	0	0	RSL
Chrysene	5	1	1	RSL
Dibenzo(a,h)anthracene	5	0	0	RSL
Dibenzofuran	5	0	0	RSL
Diethyl phthalate	5	0	0	RSL
Dimethyl phthalate	5	0	--	NAp
Di-n-butylphthalate	5	0	0	RSL
Di-n-octylphthalate	5	0	--	NAp
Fluoranthene	5	1	0	RSL
Fluorene	5	0	0	RSL
Hexachlorobenzene	5	0	0	MCL
Hexachlorobutadiene	5	0	0	RSL
Hexachlorocyclopentadiene	5	0	0	MCL
Hexachloroethane	5	0	0	RSL
Indeno(1,2,3-cd)pyrene	5	0	0	RSL
Isophorone	5	0	0	RSL
Naphthalene	5	0	0	RSL
Nitrobenzene	5	0	0	RSL
N-Nitroso-di-n-propylamine	5	0	0	RSL
N-Nitrosodiphenylamine	5	0	0	RSL
Pentachlorophenol	5	0	0	MCL
Phenanthrene	5	1	--	NAp
Phenol	5	0	0	RSL
Pyrene	5	1	0	RSL
Petroleum Hydrocarbons				
TPH (extractable)	14	11	--	NAp
TPH (volatile)	14	8	--	NAp

Table 6-1
Summary of Groundwater Screening Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Total RCRA Metals				
Arsenic	9	8	2	MCL
Barium	9	9	0	MCL
Cadmium	9	7	0	MCL
Chromium	9	5	0	MCL
Lead	9	8	0	MCL
Mercury	9	0	0	MCL
Selenium	9	5	0	MCL
Silver	9	0	0	RSL
Filtered RCRA Metals				
Arsenic, Dissolved	31	14	11	MCL
Barium, Dissolved	31	31	0	MCL
Cadmium, Dissolved	31	10	6	MCL
Chromium, Dissolved	31	19	0	MCL
Lead, Dissolved	31	10	6	MCL
Mercury, Dissolved	31	0	0	MCL
Selenium, Dissolved	31	15	6	MCL
Silver, Dissolved	31	7	0	RSL
Water Quality Parameters				
pH	14	14	--	NAp

Notes:
Groundwater screening levels are as follows:
1. If a parameter has a MCL, data is screened using the MCL.
2. If a parameter does not have an MCL, data is screened using the USEPA tapwater RSL.

Samples, Duplicates, and Reanalyses are counted as 1 sample.
Exceedance is counted if any one of these exceeds the screening criteria.
NAp - Not applicable
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B01 / DW1		13B01 / DW1D		13B02 / DW1		13B03 / DW1		13B03 / DW1	
			Date Collected:	3/27/1997		3/27/1997		3/26/1997		3/26/1997		3/27/1997	
			Depth (ft bgs):	24 - 26		24 - 26		24 - 26		43 - 45		43 - 45	
			Lab ID:	D97-3771-1		D97-3771-2		D97-3689-7		D97-3689-11		D97-3771-28	
			Comments:			Duplicate							
Parameter			**Units**										
Volatile Organic Compounds													
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
2-Butanone	7100	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U	5	U	Not Analyzed		5	U
2-Hexanone	47	RSL	µg/L	50	U	50	U	50	U	Not Analyzed		50	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U	100	U	Not Analyzed		100	U
Acetone	22000	RSL	µg/L	100	U	100	U	100	U	Not Analyzed		100	U
Benzene	5.0	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Bromoform	80	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Bromomethane	8.7	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Chloroform	80	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Methyl chloride	190	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
m,p-Xylene	10000	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
o-Xylene	10000	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Styrene	100	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
Toluene	1000	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		5	U

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B01 / DW1	13B01 / DW1D	13B02 / DW1	13B03 / DW1	13B03 / DW1
			Date Collected:	3/27/1997	3/27/1997	3/26/1997	3/26/1997	3/27/1997
			Depth (ft bgs):	24 - 26	24 - 26	24 - 26	43 - 45	43 - 45
			Lab ID:	D97-3771-1	D97-3771-2	D97-3689-7	D97-3689-11	D97-3771-28
			Comments:		Duplicate			
Parameter			**Units**					
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Trichloroethene	5.0	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Vinyl acetate	410	RSL	µg/L	50 U	50 U	50 U	Not Analyzed	50 U
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U	2 U	Not Analyzed	2 U
Semivolatile Organic Compounds								
1,2,4-Trichlorobenzene	70	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,2-Dichlorobenzene	600	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,3-Dichlorobenzene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,4-Dichlorobenzene	75	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4,5-Trichlorophenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4,6-Trichlorophenol	6.1	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dichlorophenol	110	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dimethylphenol	730	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dinitrophenol	73	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dinitrotoluene	0.22	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,6-Dinitrotoluene	37	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Chloronaphthalene	2900	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Chlorophenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Methylnaphthalene	150	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Methylphenol	1800	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Nitroaniline	370	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
3-Nitroaniline	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Bromophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chloro-3-methylphenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chloroaniline	0.34	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chlorophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Methylphenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Nitroaniline	3.4	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Acenaphthene	2200	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Acenaphthylene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B01 / DW1	13B01 / DW1D	13B02 / DW1	13B03 / DW1	13B03 / DW1
			Date Collected:	3/27/1997	3/27/1997	3/26/1997	3/26/1997	3/27/1997
			Depth (ft bgs):	24 - 26	24 - 26	24 - 26	43 - 45	43 - 45
			Lab ID:	D97-3771-1	D97-3771-2	D97-3689-7	D97-3689-11	D97-3771-28
			Comments:		Duplicate			
Parameter			**Units**					
Anthracene	11000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(a)anthracene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(a)pyrene	0.2	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(b)fluoranthene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(g,h,i)perylene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(k)fluoranthene	0.29	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzoic acid	150000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzyl alcohol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroethoxy)methane	110	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Butylbenzylphthalate	35	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Chrysene	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dibenzofuran	37	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Diethyl phthalate	29000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dimethyl phthalate	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Di-n-butylphthalate	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Di-n-octylphthalate	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Fluoranthene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Fluorene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorobenzene	1.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorobutadiene	0.86	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorocyclopentadiene	50	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachloroethane	4.8	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Isophorone	71	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Naphthalene	0.14	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Nitrobenzene	0.12	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
N-Nitrosodiphenylamine	14	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Pentachlorophenol	1.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Phenanthrene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B01 / DW1	13B01 / DW1D	13B02 / DW1	13B03 / DW1	13B03 / DW1
			Date Collected:	3/27/1997	3/27/1997	3/26/1997	3/26/1997	3/27/1997
			Depth (ft bgs):	24 - 26	24 - 26	24 - 26	43 - 45	43 - 45
			Lab ID:	D97-3771-1	D97-3771-2	D97-3689-7	D97-3689-11	D97-3771-28
			Comments:		Duplicate			
Parameter			**Units**					
Phenol	11000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Pyrene	1100	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Petroleum Hydrocarbons								
TPH (extractable)	--		mg/L	***1.16***	***1.41***	***6.89***	Not Analyzed	***3.57***
TPH (volatile)	--		µg/L	***69.5***	50 U	***87.1***	Not Analyzed	***258***
Filtered RCRA Metals								
Arsenic, Dissolved	0.01	MCL	mg/L	0.01 U	0.01 U	***0.0937***	0.01 U	Not Analyzed
Barium, Dissolved	2	MCL	mg/L	***0.0859***	***0.0878***	***0.0853 J****	***0.63 J****	Not Analyzed
Cadmium, Dissolved	0.005	MCL	mg/L	***0.0538***	***0.0543***	0.005 UJ*	0.005 UJ*	Not Analyzed
Chromium, Dissolved	0.1	MCL	mg/L	***0.0389***	***0.0363***	***0.0236 J****	0.01 UJ*	Not Analyzed
Lead, Dissolved	0.015	MCL	mg/L	***0.177***	***0.189***	***0.0112 J****	0.003 UJ*	Not Analyzed
Mercury, Dissolved	0.002	MCL	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	Not Analyzed
Selenium, Dissolved	0.05	MCL	mg/L	***0.168***	***0.187***	***0.06***	0.01 U	Not Analyzed
Silver, Dissolved	0.18	RSL	mg/L	0.02 U	0.02 U	***0.0266 J****	0.02 UJ*	Not Analyzed
Water Quality Parameters								
pH	--		SU	***6.3 J****	***5.9 J****	***5.7 J****	***6.8 J****	Not Analyzed

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

Lead, dissolved screening levels are for lead and compounds.

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B04 / DW1	13B04 / DW1	13B05 / DW1	13B06 / DW1	13B07 / DW1
			Date Collected:	3/26/1997	3/27/1997	3/26/1997	3/27/1997	3/27/1997
			Depth (ft bgs):	31 - 33	31 - 33	24 - 26	24 - 26	24 - 26
			Lab ID:	D97-3689-19	D97-3771-20	D97-3689-23	D97-3771-11	D97-3771-24
			Comments:					
Parameter			**Units**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	200	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
1,1-Dichloroethane	2.4	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
1,1-Dichloroethene	7.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
2-Butanone	7100	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
2-Chloroethylvinyl ether	–		µg/L	Not Analyzed	5 U	5 U	5 U	5 U
2-Hexanone	47	RSL	µg/L	Not Analyzed	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone	2000	RSL	µg/L	Not Analyzed	100 U	100 U	100 U	100 U
Acetone	22000	RSL	µg/L	Not Analyzed	100 U	100 U	100 U	100 U
Benzene	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Bromodichloromethane	80	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Bromoform	80	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Bromomethane	8.7	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Carbon disulfide	1000	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Carbon tetrachloride	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Chlorobenzene	100	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Chloroethane	21000	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Chloroform	80	MCL	µg/L	Not Analyzed	***11.2***	5 U	5 U	5 U
cis-1,2-Dichloroethene	70	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Dibromochloromethane	80	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Ethylbenzene	700	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Methyl chloride	190	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Methylene chloride	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
m,p-Xylene	10000	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
o-Xylene	10000	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Styrene	100	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Tetrachloroethene	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Toluene	1000	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	100	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B04 / DW1	13B04 / DW1	13B05 / DW1	13B06 / DW1	13B07 / DW1
			Date Collected:	3/26/1997	3/27/1997	3/26/1997	3/27/1997	3/27/1997
			Depth (ft bgs):	31 - 33	31 - 33	24 - 26	24 - 26	24 - 26
			Lab ID:	D97-3689-19	D97-3771-20	D97-3689-23	D97-3771-11	D97-3771-24
			Comments:					
Parameter			**Units**					
trans-1,3-Dichloropropene	0.43	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Trichloroethene	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	5 U
Vinyl acetate	410	RSL	µg/L	Not Analyzed	50 U	50 U	50 U	50 U
Vinyl chloride	2.0	MCL	µg/L	Not Analyzed	2 U	2 U	2 U	2 U
Semivolatile Organic Compounds								
1,2,4-Trichlorobenzene	70	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,2-Dichlorobenzene	600	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,3-Dichlorobenzene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,4-Dichlorobenzene	75	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4,5-Trichlorophenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4,6-Trichlorophenol	6.1	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dichlorophenol	110	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dimethylphenol	730	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dinitrophenol	73	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dinitrotoluene	0.22	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,6-Dinitrotoluene	37	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Chloronaphthalene	2900	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Chlorophenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Methylnaphthalene	150	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Methylphenol	1800	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Nitroaniline	370	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
3-Nitroaniline	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Bromophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chloro-3-methylphenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chloroaniline	0.34	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chlorophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Methylphenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Nitroaniline	3.4	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Acenaphthene	2200	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Acenaphthylene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B04 / DW1	13B04 / DW1	13B05 / DW1	13B06 / DW1	13B07 / DW1
			Date Collected:	3/26/1997	3/27/1997	3/26/1997	3/27/1997	3/27/1997
			Depth (ft bgs):	31 - 33	31 - 33	24 - 26	24 - 26	24 - 26
			Lab ID:	D97-3689-19	D97-3771-20	D97-3689-23	D97-3771-11	D97-3771-24
			Comments:					
Parameter			**Units**					
Anthracene	11000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(a)anthracene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(a)pyrene	0.2	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(b)fluoranthene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(g,h,i)perylene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(k)fluoranthene	0.29	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzoic acid	150000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzyl alcohol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroethoxy)methane	110	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Butylbenzylphthalate	35	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Chrysene	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dibenzofuran	37	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Diethyl phthalate	29000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dimethyl phthalate	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Di-n-butylphthalate	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Di-n-octylphthalate	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Fluoranthene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Fluorene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorobenzene	1.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorobutadiene	0.86	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorocyclopentadiene	50	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachloroethane	4.8	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Isophorone	71	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Naphthalene	0.14	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Nitrobenzene	0.12	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
N-Nitrosodiphenylamine	14	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Pentachlorophenol	1.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Phenanthrene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B04 / DW1	13B04 / DW1	13B05 / DW1	13B06 / DW1	13B07 / DW1
			Date Collected:	3/26/1997	3/27/1997	3/26/1997	3/27/1997	3/27/1997
			Depth (ft bgs):	31 - 33	31 - 33	24 - 26	24 - 26	24 - 26
			Lab ID:	D97-3689-19	D97-3771-20	D97-3689-23	D97-3771-11	D97-3771-24
			Comments:					
Parameter			**Units**					
Phenol	11000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Pyrene	1100	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Petroleum Hydrocarbons								
TPH (extractable)	--		mg/L	Not Analyzed	***1.38 J****	***0.93***	***4.1 J****	***242 D***
TPH (volatile)	--		µg/L	Not Analyzed	50 U	50 U	***343***	***1570***
Filtered RCRA Metals								
Arsenic, Dissolved	0.01	MCL	mg/L	***0.115***	Not Analyzed	***0.137***	0.01 U	***0.0185***
Barium, Dissolved	2	MCL	mg/L	***0.0684 J****	Not Analyzed	***0.0571 J****	***0.123***	***0.062***
Cadmium, Dissolved	0.005	MCL	mg/L	***0.045 J****	Not Analyzed	***0.0216 J****	0.005 U	***0.0189***
Chromium, Dissolved	0.1	MCL	mg/L	***0.0778 J****	Not Analyzed	***0.0942 J****	***0.0029 J***	***0.0201***
Lead, Dissolved	0.015	MCL	mg/L	***0.0206 J****	Not Analyzed	***0.0223 J****	0.003 U	***0.0801***
Mercury, Dissolved	0.002	MCL	mg/L	0.0002 U	Not Analyzed	0.0002 U	0.0002 U	0.0002 U
Selenium, Dissolved	0.05	MCL	mg/L	***0.0855***	Not Analyzed	***0.0815***	0.01 U	***0.0637***
Silver, Dissolved	0.18	RSL	mg/L	***0.0241 J****	Not Analyzed	***0.0248 J****	0.02 U	0.02 U
Water Quality Parameters								
pH	--		SU	***3.9 J****	Not Analyzed	***4.1 J****	***8.2 J****	***6.3 J****

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

Lead, dissolved screening levels are for lead and compounds.

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethane

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B07A / DW1	13B08 / DW1	13B09 / DW1	13B11 / DW1	13B12 / DW1
			Date Collected:	4/22/1997	3/27/1997	3/27/1997	3/28/1997	4/22/1997
			Depth (ft bgs):	27 - 29	24 - 26	24 - 26	24 - 26	28 - 30
			Lab ID:	D97-4913-3	D97-3771-27	D97-3771-33	D97-3802-20	D97-4913-16
			Comments:					
Parameter			**Units**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	200	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
1,1,2-Trichloroethane	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
1,1-Dichloroethane	2.4	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
1,1-Dichloroethene	7.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
1,2-Dichloroethane	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
1,2-Dichloropropane	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
2-Butanone	7100	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
2-Chloroethylvinyl ether	--		µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
2-Hexanone	47	RSL	µg/L	Not Analyzed	50 U	50 U	50 U	Not Analyzed
4-Methyl-2-pentanone	2000	RSL	µg/L	Not Analyzed	100 U	100 U	100 U	Not Analyzed
Acetone	22000	RSL	µg/L	Not Analyzed	100 U	100 U	100 U	Not Analyzed
Benzene	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Bromodichloromethane	80	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Bromoform	80	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Bromomethane	8.7	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Carbon disulfide	1000	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Carbon tetrachloride	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Chlorobenzene	100	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Chloroethane	21000	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Chloroform	80	MCL	µg/L	Not Analyzed	***8.08***	5 U	5 U	Not Analyzed
cis-1,2-Dichloroethene	70	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
cis-1,3-Dichloropropene	0.43	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Dibromochloromethane	80	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Ethylbenzene	700	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Methyl chloride	190	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Methylene chloride	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
m,p-Xylene	10000	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
o-Xylene	10000	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Styrene	100	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Tetrachloroethene	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Toluene	1000	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
trans-1,2-Dichloroethene	100	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B07A / DW1	13B08 / DW1	13B09 / DW1	13B11 / DW1	13B12 / DW1
			Date Collected:	4/22/1997	3/27/1997	3/27/1997	3/28/1997	4/22/1997
			Depth (ft bgs):	27 - 29	24 - 26	24 - 26	24 - 26	28 - 30
			Lab ID:	D97-4913-3	D97-3771-27	D97-3771-33	D97-3802-20	D97-4913-16
			Comments:					
Parameter			**Units**					
trans-1,3-Dichloropropene	0.43	RSL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Trichloroethene	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	5 U	Not Analyzed
Vinyl acetate	410	RSL	µg/L	Not Analyzed	50 U	50 U	50 U	Not Analyzed
Vinyl chloride	2.0	MCL	µg/L	Not Analyzed	2 U	2 U	2 U	Not Analyzed
Semivolatile Organic Compounds								
1,2,4-Trichlorobenzene	70	MCL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
1,2-Dichlorobenzene	600	MCL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
1,3-Dichlorobenzene	--		µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
1,4-Dichlorobenzene	75	MCL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
2,4,5-Trichlorophenol	3700	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
2,4,6-Trichlorophenol	6.1	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
2,4-Dichlorophenol	110	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
2,4-Dimethylphenol	730	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
2,4-Dinitrophenol	73	RSL	µg/L	100 U	Not Analyzed	Not Analyzed	Not Analyzed	2000 DU
2,4-Dinitrotoluene	0.22	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
2,6-Dinitrotoluene	37	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
2-Chloronaphthalene	2900	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
2-Chlorophenol	180	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
2-Methylnaphthalene	150	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
2-Methylphenol	1800	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
2-Nitroaniline	370	RSL	µg/L	100 U	Not Analyzed	Not Analyzed	Not Analyzed	2000 DU
2-Nitrophenol	--		µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	40 U	Not Analyzed	Not Analyzed	Not Analyzed	800 DU
3-Nitroaniline	--		µg/L	100 U	Not Analyzed	Not Analyzed	Not Analyzed	2000 DU
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	100 U	Not Analyzed	Not Analyzed	Not Analyzed	2000 DU
4-Bromophenyl-phenyl ether	--		µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
4-Chloro-3-methylphenol	3700	RSL	µg/L	40 U	Not Analyzed	Not Analyzed	Not Analyzed	800 DU
4-Chloroaniline	0.34	RSL	µg/L	40 U	Not Analyzed	Not Analyzed	Not Analyzed	800 DU
4-Chlorophenyl-phenyl ether	--		µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
4-Methylphenol	180	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
4-Nitroaniline	3.4	RSL	µg/L	100 U	Not Analyzed	Not Analyzed	Not Analyzed	2000 DU
4-Nitrophenol	--		µg/L	100 U	Not Analyzed	Not Analyzed	Not Analyzed	2000 DU
Acenaphthene	2200	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Acenaphthylene	--		µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B07A / DW1	13B08 / DW1	13B09 / DW1	13B11 / DW1	13B12 / DW1
			Date Collected:	4/22/1997	3/27/1997	3/27/1997	3/28/1997	4/22/1997
			Depth (ft bgs):	27 - 29	24 - 26	24 - 26	24 - 26	28 - 30
			Lab ID:	D97-4913-3	D97-3771-27	D97-3771-33	D97-3802-20	D97-4913-16
			Comments:					
Parameter			**Units**					
Anthracene	11000	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Benzo(a)anthracene	0.029	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Benzo(a)pyrene	0.2	MCL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Benzo(b)fluoranthene	0.029	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Benzo(g,h,i)perylene	--		µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Benzo(k)fluoranthene	0.29	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Benzoic acid	150000	RSL	µg/L	100 U	Not Analyzed	Not Analyzed	Not Analyzed	2000 DU
Benzyl alcohol	3700	RSL	µg/L	40 U	Not Analyzed	Not Analyzed	Not Analyzed	800 DU
Bis(2-chloroethoxy)methane	110	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Butylbenzylphthalate	35	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Chrysene	2.9	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Dibenzofuran	37	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Diethyl phthalate	29000	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Dimethyl phthalate	--		µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Di-n-butylphthalate	3700	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Di-n-octylphthalate	--		µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Fluoranthene	1500	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Fluorene	1500	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Hexachlorobenzene	1.0	MCL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Hexachlorobutadiene	0.86	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Hexachlorocyclopentadiene	50	MCL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Hexachloroethane	4.8	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Isophorone	71	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Naphthalene	0.14	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Nitrobenzene	0.12	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
N-Nitrosodiphenylamine	14	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Pentachlorophenol	1.0	MCL	µg/L	100 U	Not Analyzed	Not Analyzed	Not Analyzed	2000 DU
Phenanthrene	--		µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B07A / DW1	13B08 / DW1	13B09 / DW1	13B11 / DW1	13B12 / DW1
			Date Collected:	4/22/1997	3/27/1997	3/27/1997	3/28/1997	4/22/1997
			Depth (ft bgs):	27 - 29	24 - 26	24 - 26	24 - 26	28 - 30
			Lab ID:	D97-4913-3	D97-3771-27	D97-3771-33	D97-3802-20	D97-4913-16
			Comments:					
Parameter			**Units**					
Phenol	11000	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Pyrene	1100	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	400 DU
Petroleum Hydrocarbons								
TPH (extractable)	--		mg/L	Not Analyzed	***13.9***	***336 D***	***19.7***	0.5 U
TPH (volatile)	--		µg/L	Not Analyzed	50 U	***2640 D***	***4960 D***	50 U
Filtered RCRA Metals								
Arsenic, Dissolved	0.01	MCL	mg/L	Not Analyzed	0.01 U	0.01 U	0.01 U U	Not Analyzed
Barium, Dissolved	2	MCL	mg/L	Not Analyzed	***0.0934***	***0.0889***	***0.0809***	Not Analyzed
Cadmium, Dissolved	0.005	MCL	mg/L	Not Analyzed	***0.0103***	***0.0529***	0.005 U	Not Analyzed
Chromium, Dissolved	0.1	MCL	mg/L	Not Analyzed	***0.0122***	***0.0419***	0.01 U	Not Analyzed
Lead, Dissolved	0.015	MCL	mg/L	Not Analyzed	***0.043***	***0.198***	0.003 U	Not Analyzed
Mercury, Dissolved	0.002	MCL	mg/L	Not Analyzed	0.0002 U	0.0002 U	0.0002 U	Not Analyzed
Selenium, Dissolved	0.05	MCL	mg/L	Not Analyzed	***0.0325***	***0.162***	0.01 U	Not Analyzed
Silver, Dissolved	0.18	RSL	mg/L	Not Analyzed	0.02 U	0.02 U	***0.0073 J***	Not Analyzed
Water Quality Parameters								
pH	--		SU	Not Analyzed	***6.1***	***5.9 J****	***6.5 J****	***6 J****

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

Lead, dissolved screening levels are for lead and compounds.

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethane

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B12 / DW1	13B13 / DW1	13B14 / DW1	13B15 / DW1	
			Date Collected:	4/22/1997	5/8/1997	5/8/1997	5/8/1997	
			Depth (ft bgs):	28 - 30	8 - 18.5	9 - 17.5	13 - 21	
			Lab ID:	D97-4913-16R2	D97-5706-2	D97-5706-3	D97-5706-4	
			Comments:	Reanalysis				
Parameter			**Units**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	200	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
2-Butanone	7100	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
2-Chloroethylvinyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
2-Hexanone	47	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	50	U
4-Methyl-2-pentanone	2000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	100	U
Acetone	22000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	100	U
Benzene	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Bromodichloromethane	80	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Bromoform	80	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Bromomethane	8.7	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Carbon disulfide	1000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Carbon tetrachloride	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Chlorobenzene	100	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Chloroethane	21000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Chloroform	80	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Dibromochloromethane	80	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Ethylbenzene	700	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Methyl chloride	190	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Methylene chloride	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
m,p-Xylene	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
o-Xylene	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Styrene	100	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Tetrachloroethene	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
Toluene	1000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	5	U

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B12 / DW1		13B13 / DW1		13B14 / DW1		13B15 / DW1	
			Date Collected:	4/22/1997		5/8/1997		5/8/1997		5/8/1997	
			Depth (ft bgs):	28 - 30		8 - 18.5		9 - 17.5		13 - 21	
			Lab ID:	D97-4913-16R2		D97-5706-2		D97-5706-3		D97-5706-4	
			Comments:	Reanalysis							
Parameter			**Units**								
trans-1,3-Dichloropropene	0.43	RSL	µg/L	Not Analyzed		Not Analyzed		Not Analyzed		5	U
Trichloroethene	5.0	MCL	µg/L	Not Analyzed		Not Analyzed		Not Analyzed		5	U
Vinyl acetate	410	RSL	µg/L	Not Analyzed		Not Analyzed		Not Analyzed		50	U
Vinyl chloride	2.0	MCL	µg/L	Not Analyzed		Not Analyzed		Not Analyzed		2	U
Semivolatile Organic Compounds											
1,2,4-Trichlorobenzene	70	MCL	µg/L	20	U	10	U	10.6	U	10.5	U
1,2-Dichlorobenzene	600	MCL	µg/L	20	U	10	U	10.6	U	10.5	U
1,3-Dichlorobenzene	--		µg/L	20	U	10	U	10.6	U	10.5	U
1,4-Dichlorobenzene	75	MCL	µg/L	20	U	10	U	10.6	U	10.5	U
2,4,5-Trichlorophenol	3700	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
2,4,6-Trichlorophenol	6.1	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
2,4-Dichlorophenol	110	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
2,4-Dimethylphenol	730	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
2,4-Dinitrophenol	73	RSL	µg/L	100	U	50	U	53	U	52.5	U
2,4-Dinitrotoluene	0.22	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
2,6-Dinitrotoluene	37	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
2-Chloronaphthalene	2900	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
2-Chlorophenol	180	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
2-Methylnaphthalene	150	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
2-Methylphenol	1800	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
2-Nitroaniline	370	RSL	µg/L	100	U	50	U	53	U	52.5	U
2-Nitrophenol	--		µg/L	20	U	10	U	10.6	U	10.5	U
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	40	U	20	U	21.2	U	21	U
3-Nitroaniline	--		µg/L	100	U	50	U	53	U	52.5	U
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	100	U	50	U	53	U	52.5	U
4-Bromophenyl-phenyl ether	--		µg/L	20	U	10	U	10.6	U	10.5	U
4-Chloro-3-methylphenol	3700	RSL	µg/L	40	U	10	U	10.6	U	10.5	U
4-Chloroaniline	0.34	RSL	µg/L	40	U	20	U	21.2	U	21	U
4-Chlorophenyl-phenyl ether	--		µg/L	20	U	10	U	10.6	U	10.5	U
4-Methylphenol	180	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
4-Nitroaniline	3.4	RSL	µg/L	100	U	20	U	21.2	U	21	U
4-Nitrophenol	--		µg/L	100	U	50	U	53	U	52.5	U
Acenaphthene	2200	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Acenaphthylene	--		µg/L	20	U	10	U	10.6	U	10.5	U

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B12 / DW1		13B13 / DW1		13B14 / DW1		13B15 / DW1	
			Date Collected:	4/22/1997		5/8/1997		5/8/1997		5/8/1997	
			Depth (ft bgs):	28 - 30		8 - 18.5		9 - 17.5		13 - 21	
			Lab ID:	D97-4913-16R2		D97-5706-2		D97-5706-3		D97-5706-4	
			Comments:	Reanalysis							
Parameter			**Units**								
Anthracene	11000	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Benzo(a)anthracene	0.029	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Benzo(a)pyrene	0.2	MCL	µg/L	***11.2***	***J***	10	U	10.6	U	10.5	U
Benzo(b)fluoranthene	0.029	RSL	µg/L	***13.2***	***J***	10	U	10.6	U	10.5	U
Benzo(g,h,i)perylene	--		µg/L	20	U	10	U	10.6	U	10.5	U
Benzo(k)fluoranthene	0.29	RSL	µg/L	***9.8***	***J***	10	U	10.6	U	10.5	U
Benzoic acid	150000	RSL	µg/L	100	U	10	U	10.6	U	10.5	U
Benzyl alcohol	3700	RSL	µg/L	40	U	20	U	21.2	U	21	U
Bis(2-chloroethoxy)methane	110	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	20	U	10	U	10.6	U	10.5	U
Butylbenzylphthalate	35	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Chrysene	2.9	RSL	µg/L	***10.4***	***J***	10	U	10.6	U	10.5	U
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Dibenzofuran	37	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Diethyl phthalate	29000	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Dimethyl phthalate	--		µg/L	20	U	10	U	10.6	U	10.5	U
Di-n-butylphthalate	3700	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Di-n-octylphthalate	--		µg/L	20	U	10	U	10.6	U	10.5	U
Fluoranthene	1500	RSL	µg/L	***17.6***	***J***	10	U	10.6	U	10.5	U
Fluorene	1500	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Hexachlorobenzene	1.0	MCL	µg/L	20	U	10	U	10.6	U	10.5	U
Hexachlorobutadiene	0.86	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Hexachlorocyclopentadiene	50	MCL	µg/L	20	U	10	U	10.6	U	10.5	U
Hexachloroethane	4.8	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Isophorone	71	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Naphthalene	0.14	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Nitrobenzene	0.12	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
N-Nitrosodiphenylamine	14	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Pentachlorophenol	1.0	MCL	µg/L	100	U	50	U	53	U	52.5	U
Phenanthrene	--		µg/L	***11***	***J***	10	U	10.6	U	10.5	U

Table 6-2
1997 Groundwater Results - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	13B12 / DW1		13B13 / DW1		13B14 / DW1		13B15 / DW1	
			Date Collected:	4/22/1997		5/8/1997		5/8/1997		5/8/1997	
			Depth (ft bgs):	28 - 30		8 - 18.5		9 - 17.5		13 - 21	
			Lab ID:	D97-4913-16R2		D97-5706-2		D97-5706-3		D97-5706-4	
			Comments:	Reanalysis							
Parameter			**Units**								
Phenol	11000	RSL	µg/L	20	U	10	U	10.6	U	10.5	U
Pyrene	1100	RSL	µg/L	***18.4***	***J***	10	U	10.6	U	10.5	U
Petroleum Hydrocarbons											
TPH (extractable)	--		mg/L	Not Analyzed		0.52	U	***0.6***		0.5	U
TPH (volatile)	--		µg/L	Not Analyzed		50	U	***51***		50	U
Filtered RCRA Metals											
Arsenic, Dissolved	0.01	MCL	mg/L	Not Analyzed		***0.0167***		***0.0646***		***0.138***	
Barium, Dissolved	2	MCL	mg/L	Not Analyzed		***0.0863***		***0.159***		***0.0364***	
Cadmium, Dissolved	0.005	MCL	mg/L	Not Analyzed		***0.0026***	***J***	0.005	U	0.005	U
Chromium, Dissolved	0.1	MCL	mg/L	Not Analyzed		0.01	U	0.01	U	***0.0154***	
Lead, Dissolved	0.015	MCL	mg/L	Not Analyzed		0.003	U	0.003	U	***0.0082***	
Mercury, Dissolved	0.002	MCL	mg/L	Not Analyzed		0.0002	U	0.0002	U	0.0002	U
Selenium, Dissolved	0.05	MCL	mg/L	Not Analyzed		0.01	U	0.01	U	***0.0277***	
Silver, Dissolved	0.18	RSL	mg/L	Not Analyzed		0.0036	JU*	0.0068	JU*	0.0188	JU*
Water Quality Parameters											
pH	--		SU	Not Analyzed		***6.2***	***J****	***6.2***	***J****	***4***	***J****

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

Lead, dissolved screening levels are for lead and compounds.

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethane

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 6-3
1998 Groundwater Results for Metals - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW5D / GW2		33MW5I / GW2		33MW5S / GW2		33MW5S / GW2D		33MW11D / GW2	
			Date Collected:	7/16/1998		7/17/1998		7/17/1998		7/17/1998		7/14/1998	
			Lab ID:	D98-4917-5		D98-4944-6		D98-4944-4		D98-4944-5		D98-4875-7	
			Comments:							Duplicate			
Parameter			**Units**										
Total RCRA Metals													
Arsenic	0.01	MCL	mg/L	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Barium	2	MCL	mg/L	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Cadmium	0.005	MCL	mg/L	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Chromium	0.1	MCL	mg/L	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Lead	0.015	MCL	mg/L	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Mercury	0.002	MCL	mg/L	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Selenium	0.05	MCL	mg/L	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Silver	0.18	RSL	mg/L	Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed		Not Analyzed	
Filtered RCRA Metals													
Arsenic, Dissolved	0.01	MCL	mg/L	***0.021***		***0.0148***		0.01	U	0.01	U	0.01	U
Barium, Dissolved	2	MCL	mg/L	***1.31***		***0.315***		***0.235***		***0.225***		***0.858***	
Cadmium, Dissolved	0.005	MCL	mg/L	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Chromium, Dissolved	0.1	MCL	mg/L	***0.0023***	***J***	***0.0026***	***J***	***0.0023***	***J***	***0.0025***	***J***	***0.0023***	***J***
Lead, Dissolved	0.015	MCL	mg/L	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Mercury, Dissolved	0.002	MCL	mg/L	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
Selenium, Dissolved	0.05	MCL	mg/L	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Silver, Dissolved	0.18	RSL	mg/L	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

Intermediate wells were screened directly over the semi-confining layer of the shallow saturated zone.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

Lead and lead, dissolved screening levels are for lead and compounds.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

Table 6-3
1998 Groundwater Results for Metals - SWMU 13

Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW11S / GW2	33MW12D / GW2	33MW12S / GW2	33MW13D / GW2	33MW13S / GW2
			Date Collected:	7/14/1998	7/16/1998	7/16/1998	7/17/1998	7/17/1998
			Lab ID:	D98-4875-6	D98-4917-6	D98-4917-7	D98-4944-3	D98-4944-2
			Comments:					
Parameter			**Units**					
Total RCRA Metals								
Arsenic	0.01	MCL	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Barium	2	MCL	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Cadmium	0.005	MCL	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Chromium	0.1	MCL	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Lead	0.015	MCL	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Mercury	0.002	MCL	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Selenium	0.05	MCL	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Silver	0.18	RSL	mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Filtered RCRA Metals								
Arsenic, Dissolved	0.01	MCL	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Barium, Dissolved	2	MCL	mg/L	***0.47***	***0.677***	***0.0837***	***0.61***	***0.047***
Cadmium, Dissolved	0.005	MCL	mg/L	0.005 U	***0.0013 J***	***0.0035 J***	0.005 U	0.005 U
Chromium, Dissolved	0.1	MCL	mg/L	***0.0029 J***	0.005 U	***0.0035 J***	0.005 U	***0.004 J***
Lead, Dissolved	0.015	MCL	mg/L	0.003 U	***0.0146***	***0.0026 J***	0.003 U	0.003 U
Mercury, Dissolved	0.002	MCL	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Selenium, Dissolved	0.05	MCL	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Silver, Dissolved	0.18	RSL	mg/L	***0.0024 J***	***0.0108***	***0.0046 J***	0.005 U	0.005 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

Intermediate wells were screened directly over the semi-confining layer of the shallow saturated zone.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

Lead and lead, dissolved screening levels are for lead and compounds.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

Table 6-4
2007 Groundwater Results for Metals - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW5D / GW4 9/26/2007 510-18739-2	33MW5I / GW4 10/4/2007 510-19035-14	33MW5S / GW4 10/4/2007 510-19035-12	33MW5S / GW4D 10/4/2007 510-19035-12 Duplicate	33MW11D / GW4 10/4/2007 510-19035-8
Parameter			**Units**					
Total RCRA Metals								
Arsenic	0.01	MCL	mg/L	***0.014***	***0.012***	***0.0092***	***0.0093***	***0.0019 J***
Barium	2	MCL	mg/L	***1.3***	***0.22***	***0.25***	***0.25***	***1.2 B***
Cadmium	0.005	MCL	mg/L	0.001 U	***0.000084 J***	***0.0003 J***	***0.00032 J***	***0.00049 J***
Chromium	0.1	MCL	mg/L	***0.0011***	0.001 U	***0.0013***	***0.00073 J***	***0.0022***
Lead	0.015	MCL	mg/L	***0.0024***	***0.0015***	***0.0023***	***0.0018***	***0.003***
Mercury	0.002	MCL	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Selenium	0.05	MCL	mg/L	***0.00061 J***	0.001 U	0.0017 B U*	0.0014 B U*	0.001 U
Silver	0.18	RSL	mg/L	0.00073 JB U*	0.001 U	0.001 U	0.001 U	0.001 U
Filtered RCRA Metals								
Arsenic, Dissolved	0.01	MCL	mg/L	***0.011***	***0.013***	***0.0085***	***0.0088***	***0.00092 J***
Barium, Dissolved	2	MCL	mg/L	***1.3***	***0.22***	***0.22***	***0.22***	***1.2***
Cadmium, Dissolved	0.005	MCL	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chromium, Dissolved	0.1	MCL	mg/L	0.001 U	***0.00021 J***	0.001 U	***0.00023 J***	***0.00028 J***
Lead, Dissolved	0.015	MCL	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Mercury, Dissolved	0.002	MCL	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Selenium, Dissolved	0.05	MCL	mg/L	***0.00047 J***	0.001 U	0.001 U	0.001 U	***0.0021***
Silver, Dissolved	0.18	RSL	mg/L	0.00066 JB U*	0.001 U	0.001 U	0.001 U	0.001 U

Notes:
Bold, italic = Compound was detected.
Description of data flags is provided on Table 1-1.
Shallow wells were screened in the shallow unconfined saturated zone.
Intermediate wells were screened directly over the semi-confining layer of the shallow saturated zone.
Deep wells were screened just above bedrock in the deep semi-confined saturated zone.
Lead and lead, dissolved screening levels are for lead and compounds.
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level
mg/L - milligrams per liter

Table 6-4
2007 Groundwater Results for Metals - SWMU 13
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW11S / GW4	33MW12D / GW4	33MW12S / GW4	33MW13D / GW4	33MW13S / GW4
			Date Collected:	9/27/2007	9/27/2007	9/27/2007	10/1/2007	10/2/2007
			Lab ID:	510-18739-3	510-18739-4	510-18739-5	510-18936-1	510-18936-9
			Comments:					
Parameter			**Units**					
Total RCRA Metals								
Arsenic	0.01	MCL	mg/L	***0.0095***	***0.0012 J***	0.002 U	***0.0018 J***	***0.0045***
Barium	2	MCL	mg/L	***0.51***	***1.5***	***0.039***	***0.72***	***0.038***
Cadmium	0.005	MCL	mg/L	0.001 U	***0.00029 J***	***0.00046 J***	***0.00042 J***	***0.00026 J***
Chromium	0.1	MCL	mg/L	0.001 U	0.001 U	0.001 U	***0.0049 B***	***0.0011 B***
Lead	0.015	MCL	mg/L	0.0005 U	***0.00069***	***0.0018***	***0.0033***	***0.0014***
Mercury	0.002	MCL	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Selenium	0.05	MCL	mg/L	***0.00036 J***	***0.00056 J***	***0.014***	0.001 U	***0.00032 J***
Silver	0.18	RSL	mg/L	0.00047 JB U*	0.00044 JB U*	0.00039 JB U*	0.001 U	0.001 U
Filtered RCRA Metals								
Arsenic, Dissolved	0.01	MCL	mg/L	***0.0083***	0.002 U	***0.00021 J***	***0.00028 J***	***0.0022***
Barium, Dissolved	2	MCL	mg/L	***0.53***	***0.66***	***0.031***	***0.63***	***0.035***
Cadmium, Dissolved	0.005	MCL	mg/L	0.001 U	0.001 U	***0.00056 J***	0.001 U	0.001 U
Chromium, Dissolved	0.1	MCL	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.00048 J U*
Lead, Dissolved	0.015	MCL	mg/L	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Mercury, Dissolved	0.002	MCL	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Selenium, Dissolved	0.05	MCL	mg/L	***0.00041 J***	***0.00038 J***	***0.01***	***0.00042 J***	***0.00046 J***
Silver, Dissolved	0.18	RSL	mg/L	0.00076 JB U*	0.00047 JB U*	0.00043 JB U*	0.001 U	0.001 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

Intermediate wells were screened directly over the semi-confining layer of the shallow saturated zone.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

Lead and lead, dissolved screening levels are for lead and compounds.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

Table 6-5
Summary of Groundwater Screening Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Volatile Organic Compounds				
1,1,1-Trichloroethane	5	2	0	MCL
1,1,2,2-Tetrachloroethane	5	0	0	RSL
1,1,2-Trichloroethane	5	1	1	MCL
1,1-Dichloroethane	5	1	1	RSL
1,1-Dichloroethene	5	3	3	MCL
1,2-Dichloroethane	5	0	0	MCL
1,2-Dichloropropane	5	0	0	MCL
2-Butanone	5	0	0	RSL
2-Chloroethylvinyl ether	5	0	--	NAp
2-Hexanone	5	0	0	RSL
4-Methyl-2-pentanone	5	0	0	RSL
Acetone	5	0	0	RSL
Benzene	5	0	0	MCL
Bromodichloromethane	5	0	0	MCL
Bromoform	5	0	0	MCL
Bromomethane	5	0	0	RSL
Carbon disulfide	5	0	0	RSL
Carbon tetrachloride	5	0	0	MCL
Chlorobenzene	5	0	0	MCL
Chloroethane	5	0	0	RSL
Chloroform	5	1	0	MCL
cis-1,2-Dichloroethene	5	5	4	MCL
cis-1,3-Dichloropropene	5	0	0	RSL
Dibromochloromethane	5	0	0	MCL
Ethylbenzene	5	1	0	MCL
Methyl chloride	5	0	0	RSL
Methylene chloride	5	0	0	MCL
m,p-Xylene	5	0	0	MCL
o-Xylene	5	0	0	MCL
Styrene	5	0	0	MCL
Tetrachloroethene	5	1	0	MCL
Toluene	5	0	0	MCL
trans-1,2-Dichloroethene	5	4	0	MCL
trans-1,3-Dichloropropene	5	0	0	RSL
Trichloroethene	5	4	4	MCL
Vinyl acetate	5	0	0	RSL
Vinyl chloride	5	5	5	MCL
Semivolatile Organic Compounds				
1,2,4-Trichlorobenzene	4	0	0	MCL
1,2-Dichlorobenzene	4	0	0	MCL
1,3-Dichlorobenzene	4	0	--	NAp
1,4-Dichlorobenzene	4	0	0	MCL
2,4,5-Trichlorophenol	4	0	0	RSL
2,4,6-Trichlorophenol	4	0	0	RSL
2,4-Dichlorophenol	4	0	0	RSL
2,4-Dimethylphenol	4	0	0	RSL
2,4-Dinitrophenol	4	0	0	RSL
2,4-Dinitrotoluene	4	0	0	RSL
2,6-Dinitrotoluene	4	0	0	RSL
2-Chloronaphthalene	4	0	0	RSL
2-Chlorophenol	4	0	0	RSL
2-Methylnaphthalene	4	0	0	RSL
2-Methylphenol	4	0	0	RSL
2-Nitroaniline	4	0	0	RSL

Table 6-5
Summary of Groundwater Screening Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Semivolatile Organic Compounds				
2-Nitrophenol	4	0	--	NAp
3,3'-Dichlorobenzidine	4	0	0	RSL
3-Nitroaniline	4	0	--	NAp
4,6-Dinitro-2-methylphenol	4	0	0	RSL
4-Bromophenyl-phenyl ether	4	0	--	NAp
4-Chloro-3-methylphenol	4	0	0	RSL
4-Chloroaniline	4	0	0	RSL
4-Chlorophenyl-phenyl ether	4	0	--	NAp
4-Methylphenol	4	0	0	RSL
4-Nitroaniline	4	0	0	RSL
4-Nitrophenol	4	0	--	NAp
Acenaphthene	4	0	0	RSL
Acenaphthylene	4	0	--	NAp
Anthracene	4	0	0	RSL
Benzo(a)anthracene	4	0	0	RSL
Benzo(a)pyrene	4	0	0	MCL
Benzo(b)fluoranthene	4	0	0	RSL
Benzo(g,h,i)perylene	4	0	--	NAp
Benzo(k)fluoranthene	4	0	0	RSL
Benzoic acid	4	0	0	RSL
Benzyl alcohol	4	0	0	RSL
Bis(2-chloroethoxy)methane	4	0	0	RSL
Bis(2-chloroethyl)ether	4	0	0	RSL
Bis(2-chloroisopropyl)ether	4	0	0	RSL
Bis(2-ethylhexyl)phthalate	4	0	0	MCL
Butylbenzylphthalate	4	0	0	RSL
Chrysene	4	0	0	RSL
Dibenzo(a,h)anthracene	4	0	0	RSL
Dibenzofuran	4	0	0	RSL
Diethyl phthalate	4	0	0	RSL
Dimethyl phthalate	4	0	--	NAp
Di-n-butylphthalate	4	0	0	RSL
Di-n-octylphthalate	4	0	--	NAp
Fluoranthene	4	0	0	RSL
Fluorene	4	0	0	RSL
Hexachlorobenzene	4	0	0	MCL
Hexachlorobutadiene	4	0	0	RSL
Hexachlorocyclopentadiene	4	0	0	MCL
Hexachloroethane	4	0	0	RSL
Indeno(1,2,3-cd)pyrene	4	0	0	RSL
Isophorone	4	0	0	RSL
Naphthalene	4	0	0	RSL
Nitrobenzene	4	0	0	RSL
N-Nitroso-di-n-propylamine	4	0	0	RSL
N-Nitrosodiphenylamine	4	0	0	RSL
Pentachlorophenol	4	0	0	MCL
Phenanthrene	4	0	--	NAp
Phenol	4	0	0	RSL
Pyrene	4	0	0	RSL
Petroleum Hydrocarbons				
TPH (extractable)	4	4	--	NAp
TPH (volatile)	4	4	--	NAp

Table 6-5
Summary of Groundwater Screening Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Filtered RCRA Metals				
Arsenic, Dissolved	8	1	1	MCL
Barium, Dissolved	8	8	0	MCL
Cadmium, Dissolved	8	1	0	MCL
Chromium, Dissolved	8	4	0	MCL
Lead, Dissolved	8	1	1	MCL
Mercury, Dissolved	8	1	0	MCL
Selenium, Dissolved	8	0	0	MCL
Silver, Dissolved	8	2	0	RSL
Water Quality Parameters				
pH	8	8	--	NAp

Notes:
Groundwater screening levels are as follows:
1. If a parameter has a MCL, data is screened using the MCL.
2. If a parameter does not have an MCL, data is screened using the USEPA tapwater RSL.

Samples, Duplicates, and Reanalyses are counted as 1 sample.
Exceedance is counted if any one of these exceeds the screening criteria.
NAp - Not applicable
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level

Table 6-6
1997-1998 Groundwater Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample:	17B01 / DW1	17B02 / DW1	17B02 / DW1D	17B03 / DW1	17B04A / DW1
			Date Collected:	3/28/1997	3/28/1997	3/28/1997	3/28/1997	4/21/1997
			Depth (ft bgs):	19 - 21	19 - 21	19 - 21	19 - 21	16 - 18
			Lab ID:	D97-3802-4	D97-3802-8	D97-3802-9	D97-3802-13	D97-4833-8
			Comments:			Duplicate		
Parameter			**Units**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	200	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
1,1,2-Trichloroethane	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
1,1-Dichloroethane	2.4	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
1,1-Dichloroethene	7.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	***13.8***
1,2-Dichloroethane	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
1,2-Dichloropropane	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
2-Butanone	7100	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
2-Chloroethylvinyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
2-Hexanone	47	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	50 U
4-Methyl-2-pentanone	2000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	100 U
Acetone	22000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	100 U
Benzene	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Bromodichloromethane	80	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Bromoform	80	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Bromomethane	8.7	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Carbon disulfide	1000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Carbon tetrachloride	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Chlorobenzene	100	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Chloroethane	21000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Chloroform	80	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
cis-1,2-Dichloroethene	70	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	***1360 D***
cis-1,3-Dichloropropene	0.43	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Dibromochloromethane	80	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Ethylbenzene	700	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Methyl chloride	190	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Methylene chloride	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
m,p-Xylene	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
o-Xylene	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Styrene	100	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Tetrachloroethene	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Toluene	1000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
trans-1,2-Dichloroethene	100	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	***9.6***

Table 6-6
1997-1998 Groundwater Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample:	17B01 / DW1	17B02 / DW1	17B02 / DW1D	17B03 / DW1	17B04A / DW1
			Date Collected:	3/28/1997	3/28/1997	3/28/1997	3/28/1997	4/21/1997
			Depth (ft bgs):	19 - 21	19 - 21	19 - 21	19 - 21	16 - 18
			Lab ID:	D97-3802-4	D97-3802-8	D97-3802-9	D97-3802-13	D97-4833-8
			Comments:			Duplicate		
Parameter			**Units**					
trans-1,3-Dichloropropene	0.43	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	5 U
Trichloroethene	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	***1870 D***
Vinyl acetate	410	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	50 U
Vinyl chloride	2.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	***173***
Semivolatile Organic Compounds								
1,2,4-Trichlorobenzene	70	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
1,2-Dichlorobenzene	600	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
1,3-Dichlorobenzene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
1,4-Dichlorobenzene	75	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
2,4,5-Trichlorophenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
2,4,6-Trichlorophenol	6.1	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
2,4-Dichlorophenol	110	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
2,4-Dimethylphenol	730	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
2,4-Dinitrophenol	73	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	51 U
2,4-Dinitrotoluene	0.22	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
2,6-Dinitrotoluene	37	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
2-Chloronaphthalene	2900	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
2-Chlorophenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
2-Methylnaphthalene	150	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
2-Methylphenol	1800	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
2-Nitroaniline	370	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	51 U
2-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	20.4 U
3-Nitroaniline	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	51 U
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	51 U
4-Bromophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
4-Chloro-3-methylphenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
4-Chloroaniline	0.34	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	20.4 U
4-Chlorophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
4-Methylphenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
4-Nitroaniline	3.4	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	20.4 U
4-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	51 U
Acenaphthene	2200	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Acenaphthylene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U

Table 6-6
1997-1998 Groundwater Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample:	17B01 / DW1	17B02 / DW1	17B02 / DW1D	17B03 / DW1	17B04A / DW1
			Date Collected:	3/28/1997	3/28/1997	3/28/1997	3/28/1997	4/21/1997
			Depth (ft bgs):	19 - 21	19 - 21	19 - 21	19 - 21	16 - 18
			Lab ID:	D97-3802-4	D97-3802-8	D97-3802-9	D97-3802-13	D97-4833-8
			Comments:			Duplicate		
Parameter			**Units**					
Anthracene	11000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Benzo(a)anthracene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Benzo(a)pyrene	0.2	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Benzo(b)fluoranthene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Benzo(g,h,i)perylene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Benzo(k)fluoranthene	0.29	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Benzoic acid	150000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Benzyl alcohol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	20.4 U
Bis(2-chloroethoxy)methane	110	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Butylbenzylphthalate	35	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Chrysene	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Dibenzofuran	37	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Diethyl phthalate	29000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Dimethyl phthalate	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Di-n-butylphthalate	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Di-n-octylphthalate	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Fluoranthene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Fluorene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Hexachlorobenzene	1.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Hexachlorobutadiene	0.86	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Hexachlorocyclopentadiene	50	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Hexachloroethane	4.8	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Isophorone	71	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Naphthalene	0.14	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Nitrobenzene	0.12	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
N-Nitrosodiphenylamine	14	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Pentachlorophenol	1.0	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	51 U
Phenanthrene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U

Table 6-6
1997-1998 Groundwater Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample:	17B01 / DW1	17B02 / DW1	17B02 / DW1D	17B03 / DW1	17B04A / DW1
			Date Collected:	3/28/1997	3/28/1997	3/28/1997	3/28/1997	4/21/1997
			Depth (ft bgs):	19 - 21	19 - 21	19 - 21	19 - 21	16 - 18
			Lab ID:	D97-3802-4	D97-3802-8	D97-3802-9	D97-3802-13	D97-4833-8
			Comments:			Duplicate		
Parameter			**Units**					
Phenol	11000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Pyrene	1100	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10.2 U
Petroleum Hydrocarbons								
TPH (extractable)	--		mg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	***1.72***
TPH (volatile)	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	***913 D***
Filtered RCRA Metals								
Arsenic, Dissolved	0.01	MCL	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	Not Analyzed
Barium, Dissolved	2	MCL	mg/L	***0.0375***	***0.0466***	***0.046***	***0.0594***	Not Analyzed
Cadmium, Dissolved	0.005	MCL	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	Not Analyzed
Chromium, Dissolved	0.1	MCL	mg/L	***0.0027 J***	0.01 U	***0.0026 J***	0.01 U	Not Analyzed
Lead, Dissolved	0.015	MCL	mg/L	0.003 U	0.003 U	0.003 U	0.003 U	Not Analyzed
Mercury, Dissolved	0.002	MCL	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	Not Analyzed
Selenium, Dissolved	0.05	MCL	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	Not Analyzed
Silver, Dissolved	0.18	RSL	mg/L	0.02 U	***0.0039 J***	***0.0044 J***	0.02 U	Not Analyzed
Water Quality Parameters								
pH	--		SU	***6.9 J****	***6.6 J****	***6.7 J****	***6.8 J****	Not Analyzed

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

Lead, dissolved screening levels are for lead and compounds.

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 6-6
1997-1998 Groundwater Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample:	17B04 / DW1	17B05 / DW1	17B06 / DW1	17B08 / DW1	17B09 / DW1
			Date Collected:	3/31/1997	3/31/1997	4/21/1997	4/21/1997	4/21/1997
			Depth (ft bgs):	19 - 21	19 - 21	11.5 - 12.5	13 - 15	16 - 18
			Lab ID:	D97-3877-4	D97-3877-9	D97-4833-2	D97-4833-3	D97-4833-9
			Comments:					
Parameter			**Units**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	200	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	***36.3***	***3.77 J***
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
1,1,2-Trichloroethane	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	***7.72***	5 U
1,1-Dichloroethane	2.4	RSL	µg/L	Not Analyzed	Not Analyzed	5 U	***23.9***	5 U
1,1-Dichloroethene	7.0	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	***108***	***7.91***
1,2-Dichloroethane	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
1,2-Dichloropropane	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
2-Butanone	7100	RSL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
2-Chloroethylvinyl ether	--		µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
2-Hexanone	47	RSL	µg/L	Not Analyzed	Not Analyzed	50 U	50 U	50 U
4-Methyl-2-pentanone	2000	RSL	µg/L	Not Analyzed	Not Analyzed	100 U	100 U	100 U
Acetone	22000	RSL	µg/L	Not Analyzed	Not Analyzed	100 U	100 U	100 U
Benzene	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Bromodichloromethane	80	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Bromoform	80	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Bromomethane	8.7	RSL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Carbon disulfide	1000	RSL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Carbon tetrachloride	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Chlorobenzene	100	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Chloroethane	21000	RSL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Chloroform	80	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	***7.7***	5 U
cis-1,2-Dichloroethene	70	MCL	µg/L	Not Analyzed	Not Analyzed	***535 D***	***5460 D***	***931 D***
cis-1,3-Dichloropropene	0.43	RSL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Dibromochloromethane	80	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Ethylbenzene	700	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Methyl chloride	190	RSL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Methylene chloride	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
m,p-Xylene	10000	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
o-Xylene	10000	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Styrene	100	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Tetrachloroethene	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	***4.99 J***	5 U
Toluene	1000	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
trans-1,2-Dichloroethene	100	MCL	µg/L	Not Analyzed	Not Analyzed	5 U	***76.2***	***6.75***

Table 6-6
1997-1998 Groundwater Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample:	17B04 / DW1	17B05 / DW1	17B06 / DW1	17B08 / DW1	17B09 / DW1
			Date Collected:	3/31/1997	3/31/1997	4/21/1997	4/21/1997	4/21/1997
			Depth (ft bgs):	19 - 21	19 - 21	11.5 - 12.5	13 - 15	16 - 18
			Lab ID:	D97-3877-4	D97-3877-9	D97-4833-2	D97-4833-3	D97-4833-9
			Comments:					
Parameter			**Units**					
trans-1,3-Dichloropropene	0.43	RSL	µg/L	Not Analyzed	Not Analyzed	5 U	5 U	5 U
Trichloroethene	5.0	MCL	µg/L	Not Analyzed	Not Analyzed	***1420 D***	***16500 D***	***1940 D***
Vinyl acetate	410	RSL	µg/L	Not Analyzed	Not Analyzed	50 U	50 U	50 U
Vinyl chloride	2.0	MCL	µg/L	Not Analyzed	Not Analyzed	***17***	***139***	***7.87***
Semivolatile Organic Compounds								
1,2,4-Trichlorobenzene	70	MCL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
1,2-Dichlorobenzene	600	MCL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
1,3-Dichlorobenzene	--		µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
1,4-Dichlorobenzene	75	MCL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
2,4,5-Trichlorophenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
2,4,6-Trichlorophenol	6.1	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
2,4-Dichlorophenol	110	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
2,4-Dimethylphenol	730	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
2,4-Dinitrophenol	73	RSL	µg/L	Not Analyzed	Not Analyzed	50 U	52.5 U	50 U
2,4-Dinitrotoluene	0.22	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
2,6-Dinitrotoluene	37	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
2-Chloronaphthalene	2900	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
2-Chlorophenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
2-Methylnaphthalene	150	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
2-Methylphenol	1800	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
2-Nitroaniline	370	RSL	µg/L	Not Analyzed	Not Analyzed	50 U	52.5 U	50 U
2-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	Not Analyzed	Not Analyzed	20 U	21 U	20 U
3-Nitroaniline	--		µg/L	Not Analyzed	Not Analyzed	50 U	52.5 U	50 U
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	50 U	52.5 U	50 U
4-Bromophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
4-Chloro-3-methylphenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
4-Chloroaniline	0.34	RSL	µg/L	Not Analyzed	Not Analyzed	20 U	21 U	20 U
4-Chlorophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
4-Methylphenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
4-Nitroaniline	3.4	RSL	µg/L	Not Analyzed	Not Analyzed	20 U	21 U	20 U
4-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	50 U	52.5 U	50 U
Acenaphthene	2200	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Acenaphthylene	--		µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U

Table 6-6
1997-1998 Groundwater Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample:	17B04 / DW1	17B05 / DW1	17B06 / DW1	17B08 / DW1	17B09 / DW1
			Date Collected:	3/31/1997	3/31/1997	4/21/1997	4/21/1997	4/21/1997
			Depth (ft bgs):	19 - 21	19 - 21	11.5 - 12.5	13 - 15	16 - 18
			Lab ID:	D97-3877-4	D97-3877-9	D97-4833-2	D97-4833-3	D97-4833-9
			Comments:					
Parameter			**Units**					
Anthracene	11000	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Benzo(a)anthracene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Benzo(a)pyrene	0.2	MCL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Benzo(b)fluoranthene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Benzo(g,h,i)perylene	--		µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Benzo(k)fluoranthene	0.29	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Benzoic acid	150000	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Benzyl alcohol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	20 U	21 U	20 U
Bis(2-chloroethoxy)methane	110	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Butylbenzylphthalate	35	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Chrysene	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Dibenzofuran	37	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Diethyl phthalate	29000	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Dimethyl phthalate	--		µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Di-n-butylphthalate	3700	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Di-n-octylphthalate	--		µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Fluoranthene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Fluorene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Hexachlorobenzene	1.0	MCL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Hexachlorobutadiene	0.86	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Hexachlorocyclopentadiene	50	MCL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Hexachloroethane	4.8	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Isophorone	71	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Naphthalene	0.14	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Nitrobenzene	0.12	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
N-Nitrosodiphenylamine	14	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Pentachlorophenol	1.0	MCL	µg/L	Not Analyzed	Not Analyzed	50 U	52.5 U	50 U
Phenanthrene	--		µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U

Table 6-6
1997-1998 Groundwater Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample:	17B04 / DW1	17B05 / DW1	17B06 / DW1	17B08 / DW1	17B09 / DW1
			Date Collected:	3/31/1997	3/31/1997	4/21/1997	4/21/1997	4/21/1997
			Depth (ft bgs):	19 - 21	19 - 21	11.5 - 12.5	13 - 15	16 - 18
			Lab ID:	D97-3877-4	D97-3877-9	D97-4833-2	D97-4833-3	D97-4833-9
			Comments:					
Parameter			**Units**					
Phenol	11000	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Pyrene	1100	RSL	µg/L	Not Analyzed	Not Analyzed	10 U	10.5 U	10 U
Petroleum Hydrocarbons								
TPH (extractable)	--		mg/L	Not Analyzed	Not Analyzed	***1.39***	***1.84***	***1.06***
TPH (volatile)	--		µg/L	Not Analyzed	Not Analyzed	***721***	***9990 D***	***925 D***
Filtered RCRA Metals								
Arsenic, Dissolved	0.01	MCL	mg/L	0.01 U	0.01 U	***0.01 J***	0.01 U	0.01 U
Barium, Dissolved	2	MCL	mg/L	***0.12***	***0.0726***	***0.133***	***0.0603***	***0.0268***
Cadmium, Dissolved	0.005	MCL	mg/L	0.005 U	0.005 U	***0.0036 J***	0.005 U	0.005 U
Chromium, Dissolved	0.1	MCL	mg/L	0.01 U	0.01 U	***0.0164***	***0.0022 J***	0.01 U
Lead, Dissolved	0.015	MCL	mg/L	0.003 U	0.003 U	***0.115***	0.003 U	0.003 U
Mercury, Dissolved	0.002	MCL	mg/L	***0.0005***	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Selenium, Dissolved	0.05	MCL	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Silver, Dissolved	0.18	RSL	mg/L	0.02 U	0.02 U	***0.0033 J***	0.02 U	0.02 U
Water Quality Parameters								
pH	--		SU	***6.8 J****	***6.8 J****	***6.7 J****	***6.6 J****	***6.6 J****

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

Lead, dissolved screening levels are for lead and compounds.

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 6-6
1997-1998 Groundwater Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample: / Date Collected: / Depth (ft bgs): / Lab ID: / Comments:	17B10 / DW1 / 5/14/1998 / 15 - 17 / D98-3694-3	
Parameter			**Units**		
Volatile Organic Compounds					
1,1,1-Trichloroethane	200	MCL	µg/L	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U
2-Butanone	7100	RSL	µg/L	5	U
2-Chloroethylvinyl ether	--		µg/L	5	U
2-Hexanone	47	RSL	µg/L	50	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U
Acetone	22000	RSL	µg/L	100	U
Benzene	5.0	MCL	µg/L	5	U
Bromodichloromethane	80	MCL	µg/L	5	U
Bromoform	80	MCL	µg/L	5	U
Bromomethane	8.7	RSL	µg/L	5	U
Carbon disulfide	1000	RSL	µg/L	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U
Chlorobenzene	100	MCL	µg/L	5	U
Chloroethane	21000	RSL	µg/L	5	U
Chloroform	80	MCL	µg/L	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	***23.1***	
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
Dibromochloromethane	80	MCL	µg/L	5	U
Ethylbenzene	700	MCL	µg/L	***2.97***	***J***
Methyl chloride	190	RSL	µg/L	5	U
Methylene chloride	5.0	MCL	µg/L	5	U
m,p-Xylene	10000	MCL	µg/L	5	U
o-Xylene	10000	MCL	µg/L	5	U
Styrene	100	MCL	µg/L	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U
Toluene	1000	MCL	µg/L	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	***8.72***	

Table 6-6
1997-1998 Groundwater Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample: / Date Collected: / Depth (ft bgs): / Lab ID: / Comments:	17B10 / DW1 / 5/14/1998 / 15 - 17 / D98-3694-3
Parameter			**Units**	
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5 U
Trichloroethene	5.0	MCL	µg/L	5 U
Vinyl acetate	410	RSL	µg/L	50 U
Vinyl chloride	2.0	MCL	µg/L	***7.58***
Semivolatile Organic Compounds				
1,2,4-Trichlorobenzene	70	MCL	µg/L	Not Analyzed
1,2-Dichlorobenzene	600	MCL	µg/L	Not Analyzed
1,3-Dichlorobenzene	--		µg/L	Not Analyzed
1,4-Dichlorobenzene	75	MCL	µg/L	Not Analyzed
2,4,5-Trichlorophenol	3700	RSL	µg/L	Not Analyzed
2,4,6-Trichlorophenol	6.1	RSL	µg/L	Not Analyzed
2,4-Dichlorophenol	110	RSL	µg/L	Not Analyzed
2,4-Dimethylphenol	730	RSL	µg/L	Not Analyzed
2,4-Dinitrophenol	73	RSL	µg/L	Not Analyzed
2,4-Dinitrotoluene	0.22	RSL	µg/L	Not Analyzed
2,6-Dinitrotoluene	37	RSL	µg/L	Not Analyzed
2-Chloronaphthalene	2900	RSL	µg/L	Not Analyzed
2-Chlorophenol	180	RSL	µg/L	Not Analyzed
2-Methylnaphthalene	150	RSL	µg/L	Not Analyzed
2-Methylphenol	1800	RSL	µg/L	Not Analyzed
2-Nitroaniline	370	RSL	µg/L	Not Analyzed
2-Nitrophenol	--		µg/L	Not Analyzed
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	Not Analyzed
3-Nitroaniline	--		µg/L	Not Analyzed
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	Not Analyzed
4-Bromophenyl-phenyl ether	--		µg/L	Not Analyzed
4-Chloro-3-methylphenol	3700	RSL	µg/L	Not Analyzed
4-Chloroaniline	0.34	RSL	µg/L	Not Analyzed
4-Chlorophenyl-phenyl ether	--		µg/L	Not Analyzed
4-Methylphenol	180	RSL	µg/L	Not Analyzed
4-Nitroaniline	3.4	RSL	µg/L	Not Analyzed
4-Nitrophenol	--		µg/L	Not Analyzed
Acenaphthene	2200	RSL	µg/L	Not Analyzed
Acenaphthylene	--		µg/L	Not Analyzed

Table 6-6
1997-1998 Groundwater Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample: / Date Collected: / Depth (ft bgs): / Lab ID: / Comments:	17B10 / DW1 / 5/14/1998 / 15 - 17 / D98-3694-3
Parameter			**Units**	
Anthracene	11000	RSL	µg/L	Not Analyzed
Benzo(a)anthracene	0.029	RSL	µg/L	Not Analyzed
Benzo(a)pyrene	0.2	MCL	µg/L	Not Analyzed
Benzo(b)fluoranthene	0.029	RSL	µg/L	Not Analyzed
Benzo(g,h,i)perylene	--		µg/L	Not Analyzed
Benzo(k)fluoranthene	0.29	RSL	µg/L	Not Analyzed
Benzoic acid	150000	RSL	µg/L	Not Analyzed
Benzyl alcohol	3700	RSL	µg/L	Not Analyzed
Bis(2-chloroethoxy)methane	110	RSL	µg/L	Not Analyzed
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	Not Analyzed
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	Not Analyzed
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	Not Analyzed
Butylbenzylphthalate	35	RSL	µg/L	Not Analyzed
Chrysene	2.9	RSL	µg/L	Not Analyzed
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	Not Analyzed
Dibenzofuran	37	RSL	µg/L	Not Analyzed
Diethyl phthalate	29000	RSL	µg/L	Not Analyzed
Dimethyl phthalate	--		µg/L	Not Analyzed
Di-n-butylphthalate	3700	RSL	µg/L	Not Analyzed
Di-n-octylphthalate	--		µg/L	Not Analyzed
Fluoranthene	1500	RSL	µg/L	Not Analyzed
Fluorene	1500	RSL	µg/L	Not Analyzed
Hexachlorobenzene	1.0	MCL	µg/L	Not Analyzed
Hexachlorobutadiene	0.86	RSL	µg/L	Not Analyzed
Hexachlorocyclopentadiene	50	MCL	µg/L	Not Analyzed
Hexachloroethane	4.8	RSL	µg/L	Not Analyzed
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	Not Analyzed
Isophorone	71	RSL	µg/L	Not Analyzed
Naphthalene	0.14	RSL	µg/L	Not Analyzed
Nitrobenzene	0.12	RSL	µg/L	Not Analyzed
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	Not Analyzed
N-Nitrosodiphenylamine	14	RSL	µg/L	Not Analyzed
Pentachlorophenol	1.0	MCL	µg/L	Not Analyzed
Phenanthrene	--		µg/L	Not Analyzed

Table 6-6
1997-1998 Groundwater Results - SWMU 17
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Levels		Sample: / Date Collected: / Depth (ft bgs): / Lab ID: / Comments:	17B10 / DW1 / 5/14/1998 / 15 - 17 / D98-3694-3
Parameter			**Units**	
Phenol	11000	RSL	µg/L	Not Analyzed
Pyrene	1100	RSL	µg/L	Not Analyzed
Petroleum Hydrocarbons				
TPH (extractable)	--		mg/L	Not Analyzed
TPH (volatile)	--		µg/L	Not Analyzed
Filtered RCRA Metals				
Arsenic, Dissolved	0.01	MCL	mg/L	Not Analyzed
Barium, Dissolved	2	MCL	mg/L	Not Analyzed
Cadmium, Dissolved	0.005	MCL	mg/L	Not Analyzed
Chromium, Dissolved	0.1	MCL	mg/L	Not Analyzed
Lead, Dissolved	0.015	MCL	mg/L	Not Analyzed
Mercury, Dissolved	0.002	MCL	mg/L	Not Analyzed
Selenium, Dissolved	0.05	MCL	mg/L	Not Analyzed
Silver, Dissolved	0.18	RSL	mg/L	Not Analyzed
Water Quality Parameters				
pH	--		SU	Not Analyzed

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

Lead, dissolved screening levels are for lead and compounds.

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 6-7
Summary of Groundwater Screening Results - SWMU 33
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Volatile Organic Compounds				
1,1,1-Trichloroethane	139	8	2	MCL
1,1,2,2-Tetrachloroethane	85	0	0	RSL
1,1,2-Trichloroethane	85	3	2	MCL
1,1-Dichloroethane	85	17	12	RSL
1,1-Dichloroethene	85	11	6	MCL
1,2-Dichloroethane	85	2	2	MCL
1,2-Dichloroethene	54	5	1	RSL
cis-1,2-Dichloroethene	85	28	16	MCL
trans-1,2-Dichloroethene	85	11	2	MCL
1,2-Dichloropropane	71	0	0	MCL
2-Butanone	71	0	0	RSL
2-Chloroethylvinyl ether	44	0	--	NAp
2-Hexanone	71	0	0	RSL
4-Methyl-2-pentanone	71	0	0	RSL
Acetone	71	0	0	RSL
Benzene	107	5	1	MCL
Bromodichloromethane	71	0	0	MCL
Bromoform	71	0	0	MCL
Bromomethane	71	0	0	RSL
Carbon disulfide	71	0	0	RSL
Carbon tetrachloride	85	0	0	MCL
Chlorobenzene	85	0	0	MCL
Chloroethane	85	0	0	RSL
Chloroform	85	2	0	MCL
cis-1,3-Dichloropropene	71	0	0	RSL
Dibromochloromethane	71	0	0	MCL
Ethylbenzene	107	3	0	MCL
Methyl chloride	85	0	0	RSL
Methylene chloride	85	1	1	MCL
Styrene	71	0	0	MCL
Tetrachloroethene	85	2	2	MCL
Toluene	107	3	0	MCL
trans-1,3-Dichloropropene	71	0	0	RSL
Trichloroethene	139	51	48	MCL
Vinyl acetate	71	0	0	RSL
Vinyl chloride	139	28	25	MCL
m,p-Xylene	58	0	0	MCL
o-Xylene	58	0	0	MCL
Xylenes, total	63	3	0	MCL
Semivolatile Organic Compounds				
1,2,4-Trichlorobenzene	4	0	0	MCL
1,2-Dichlorobenzene	4	0	0	MCL
1,3-Dichlorobenzene	4	0	--	NAp
1,4-Dichlorobenzene	4	0	0	MCL
2,4,5-Trichlorophenol	4	0	0	RSL
2,4,6-Trichlorophenol	4	0	0	RSL
2,4-Dichlorophenol	4	0	0	RSL
2,4-Dimethylphenol	4	0	0	RSL
2,4-Dinitrophenol	4	0	0	RSL
2,4-Dinitrotoluene	4	0	0	RSL
2,6-Dinitrotoluene	4	0	0	RSL
2-Chloronaphthalene	4	0	0	RSL
2-Chlorophenol	4	0	0	RSL
2-Methylnaphthalene	4	0	0	RSL

Table 6-7
Summary of Groundwater Screening Results - SWMU 33
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Semivolatile Organic Compounds				
2-Methylphenol	4	0	0	RSL
2-Nitroaniline	4	0	0	RSL
2-Nitrophenol	4	0	--	NAp
3,3'-Dichlorobenzidine	4	0	0	RSL
3-Nitroaniline	4	0	--	NAp
4,6-Dinitro-2-methylphenol	4	0	0	RSL
4-Bromophenyl-phenyl ether	4	0	--	NAp
4-Chloro-3-methylphenol	4	0	0	RSL
4-Chloroaniline	4	1	1	RSL
4-Chlorophenyl-phenyl ether	4	0	--	NAp
4-Methylphenol	4	1	0	RSL
4-Nitroaniline	4	0	0	RSL
4-Nitrophenol	4	0	--	NAp
Acenaphthene	4	0	0	RSL
Acenaphthylene	4	0	--	NAp
Anthracene	4	0	0	RSL
Benzo(a)anthracene	4	0	0	RSL
Benzo(a)pyrene	4	0	0	MCL
Benzo(b)fluoranthene	4	0	0	RSL
Benzo(g,h,i)perylene	4	0	--	NAp
Benzo(k)fluoranthene	4	0	0	RSL
Benzoic acid	4	0	0	RSL
Benzyl alcohol	4	0	0	RSL
Bis(2-chloroethoxy)methane	4	0	0	RSL
Bis(2-chloroethyl)ether	4	0	0	RSL
Bis(2-chloroisopropyl)ether	4	0	0	RSL
Bis(2-ethylhexyl)phthalate	4	0	0	MCL
Butylbenzylphthalate	4	0	0	RSL
Chrysene	4	0	0	RSL
Dibenzo(a,h)anthracene	4	0	0	RSL
Dibenzofuran	4	0	0	RSL
Diethyl phthalate	4	0	0	RSL
Dimethyl phthalate	4	0	--	NAp
Di-n-butylphthalate	4	0	0	RSL
Di-n-octylphthalate	4	0	--	NAp
Fluoranthene	4	0	0	RSL
Fluorene	4	0	0	RSL
Hexachlorobenzene	4	0	0	MCL
Hexachlorobutadiene	4	0	0	RSL
Hexachlorocyclopentadiene	4	0	0	MCL
Hexachloroethane	4	0	0	RSL
Indeno(1,2,3-cd)pyrene	4	0	0	RSL
Isophorone	4	0	0	RSL
Naphthalene	4	1	1	RSL
Nitrobenzene	4	0	0	RSL
N-Nitroso-di-n-propylamine	4	0	0	RSL
N-Nitrosodiphenylamine	4	0	0	RSL
Pentachlorophenol	4	0	0	MCL
Phenanthrene	4	0	--	NAp
Phenol	4	0	0	RSL
Pyrene	4	0	0	RSL

Table 6-7
Summary of Groundwater Screening Results - SWMU 33
Groundwater Screening Report
AK Steel Kansas City Facility

Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exceedances	
Petroleum Hydrocarbons				
TPH (extractable)	4	4	--	NAp
TPH (volatile)	3	1	--	NAp

Notes:
Groundwater screening levels are as follows:
1. If a parameter has a MCL, data is screened using the MCL.
2. If a parameter does not have an MCL, data is screened using the USEPA tapwater RSL.

Samples, Duplicates, and Reanalyses are counted as 1 sample.
Exceedance is counted if any one of these exceeds the screening criteria.
NAp - Not applicable
RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater
MCL - Safe Drinking Water Act Maximum Contaminant Level

Table 6-8
1997-1998 Groundwater Field Screening Results - SWMU 33
Groundwater Screening Report
AK Steel Kansas City Facility

Sample Location		Date	Sample Depth	Laboratory						Vinyl				Xylenes
Point	Designator	Sampled	From - To	Number	Comments	Units	1,1,1-TCA	1,2-DCE	TCE	Chloride	Benzene	EB	Toluene	(total)
				Groundwater Screening Level			200 MCL	330 RSL	5 MCL	2 MCL	5 MCL	700 MCL	1000 MCL	10000 MCL
33B03	DW1	4/8/1997	16 - 18	9OF60		ug/L	5 U	5 U	***1707***	2 U	NA	NA	NA	NA
33B04	DW1	4/7/1997	13 - 15	1OF60		ug/L	5 U	5 U	***28.2***	2 U	NA	NA	NA	NA
33B05	DW1	4/7/1997	17 - 19	2OF60		ug/L	10 U	10 U	***3839***	4 U	NA	NA	NA	NA
33B06	DW1	4/7/1997	24 - 26	3OF60		ug/L	10 U	10 U	***1609***	4 U	NA	NA	NA	NA
33B07	DW1	4/7/1997	24 - 26	4OF60		ug/L	25 U	25 U	***2917***	10 U	NA	NA	NA	NA
33B08	DW1	4/7/1997	26 - 28	5OF60		ug/L	25 U	25 U	***2239***	10 U	NA	NA	NA	NA
33B09	DW1	4/7/1997	26 - 28	6OF60		ug/L	25 U	25 U	***2513***	10 U	NA	NA	NA	NA
33B10	DW1	4/8/1997	22 - 24	7OF60		ug/L	10 U	10 U	10 U	4 U	NA	NA	NA	NA
33B10-R	DW1	4/8/1997	22 - 24	8OF60	Reanalysis	ug/L	5 U	5 U	***26.3***	2 U	NA	NA	NA	NA
33B11	DW1	4/8/1997	20 - 22	10OF60		ug/L	5 U	5 U	***127***	2 U	NA	NA	NA	NA
33B12	DW1	4/8/1997	18 - 20	11OF60		ug/L	5 U	5 U	***48***	***22.7***	NA	NA	NA	NA
33B12	DW1	4/8/1997	18 - 20	1OF27		ug/L	NA	NA	NA	NA	5 U	***60.3***	***28***	***174***
33B13	DW1	4/8/1997	20 - 22	13OF60		ug/L	10 U	10 U	***1010***	4 U	NA	NA	NA	NA
33B13	DW1	4/8/1997	20 - 22	3OF27		ug/L	NA	NA	NA	NA	5 U	5 U	5 U	***15***
33B14	DW1	4/8/1997	18 - 20	12OF60		ug/L	10 U	10 U	***2723***	4 U	NA	NA	NA	NA
33B14	DW1	4/8/1997	18 - 20	2OF27		ug/L	NA	NA	NA	NA	5 U	5 U	5 U	15 U
33B15	DW1	4/8/1997	18 - 20	14OF60		ug/L	10 U	10 U	***1388***	***89.5***	NA	NA	NA	NA
33B15	DW1	4/9/1997	18 - 20	4OF27		ug/L	NA	NA	NA	NA	5 U	5 U	5 U	15 U
33B16	DW1	4/9/1997	18 - 20	15OF60		ug/L	***47.4***	10 U	***1699***	4 U	NA	NA	NA	NA
33B16	DW1	4/9/1997	18 - 20	5OF27		ug/L	NA	NA	NA	NA	5 U	5 U	5 U	15 U
33B17	DW1	4/9/1997	18 - 20	16OF60		ug/L	5 U	5 U	***31.9***	2 U	NA	NA	NA	NA
33B17	DW1	4/9/1997	18 - 20	6OF27		ug/L	NA	NA	NA	NA	5 U	5 U	5 U	15 U
33B19	DW1	4/9/1997	20 - 22	17OF60		ug/L	***206***	10 U	***1946***	4 U	NA	NA	NA	NA
33B19	DW1	4/9/1997	20 - 22	7OF27		ug/L	NA	NA	NA	NA	5 U	5 U	5 U	15 U
33B20	DW1	4/9/1997	16 - 18	18OF60		ug/L	5 U	5 U	***788***	2 U	NA	NA	NA	NA
33B20	DW1	4/9/1997	16 - 18	8OF27		ug/L	NA	NA	NA	NA	5 U	5 U	5 U	15 U
33B20-R	DW1	4/9/1997	16 - 18	19OF60	Reanalysis	ug/L	5 U	5 U	***903***	2 U	NA	NA	NA	NA
33B20-R	DW1	4/9/1997	16 - 18	9OF27	Reanalysis	ug/L	NA	NA	NA	NA	5 U	5 U	5 U	15 U
33B21	DW1	4/11/1997	18 - 20	10OF27		ug/L	NA	NA	NA	NA	4 U	4 U	4 U	12 U
33B21	DW1	4/11/1997	18 - 20	20OF60		ug/L	4 U	4 U	4 U	4 U	NA	NA	NA	NA
33B21	DW1D	4/11/1997	18 - 20	11OF27	Duplicate	ug/L	NA	NA	NA	NA	4 U	4 U	4 U	12 U
33B21	DW1D	4/11/1997	18 - 20	21OF60	Duplicate	ug/L	4 U	4 U	4 U	4 U	NA	NA	NA	NA
33B22	DW1	4/11/1997	18 - 20	12OF27		ug/L	NA	NA	NA	NA	2 U	2 U	2 U	6 U
33B22	DW1	4/11/1997	18 - 20	22OF60		ug/L	2 U	2 U	2 U	2 U	NA	NA	NA	NA
33B22A	DW1	4/18/1997	25 - 25.5	59OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B22A-R	DW1	4/18/1997	25 - 25.5	60OF60	Reanalysis	ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B23	DW1	4/11/1997	18 - 20	13OF27		ug/L	NA	NA	NA	NA	2 U	2 U	2 U	6 U

Table 6-8
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Sample Location		Date	Sample Depth	Laboratory						Vinyl				Xylenes
Point	Designator	Sampled	From - To	Number	Comments	Units	1,1,1-TCA	1,2-DCE	TCE	Chloride	Benzene	EB	Toluene	(total)
					Groundwater Screening Level		200 MCL	330 RSL	5 MCL	2 MCL	5 MCL	700 MCL	1000 MCL	10000 MCL
33B23	DW1	4/11/1997	18 - 20	23OF60		ug/L	2 U	2 U	2 U	2 U	NA	NA	NA	NA
33B24	DW1	4/11/1997	22 - 24	14OF27		ug/L	NA	NA	NA	NA	2 U	2 U	2 U	6 U
33B24	DW1	4/11/1997	22 - 24	24OF60		ug/L	2 U	2 U	2 U	2 U	NA	NA	NA	NA
33B25	DW1	4/11/1997	22 - 24	15OF27		ug/L	NA	NA	NA	NA	2 U	2 U	2 U	6 U
33B25	DW1	4/11/1997	22 - 24	25OF60		ug/L	2 U	2 U	***3.5***	2 U	NA	NA	NA	NA
33B25	DW1D	4/11/1997	22 - 24	16OF27	Duplicate	ug/L	NA	NA	NA	NA	2 U	2 U	2 U	6 U
33B25	DW1D	4/11/1997	22 - 24	26OF60	Duplicate	ug/L	2 U	2 U	***7.9***	2 U	NA	NA	NA	NA
33B26	DW1	4/11/1997	20 - 22	17OF27		ug/L	NA	NA	NA	NA	2 U	2 U	2 U	6 U
33B26	DW1	4/11/1997	20 - 22	27OF60		ug/L	2 U	2 U	***7.6***	2 U	NA	NA	NA	NA
33B27	DW1	4/11/1997	20 - 22	18OF27		ug/L	NA	NA	NA	NA	2 U	2 U	2 U	6 U
33B27	DW1	4/11/1997	20 - 22	28OF60		ug/L	2 U	2 U	2 U	2 U	NA	NA	NA	NA
33B28	DW1	4/11/1997	20 - 22	19OF27		ug/L	NA	NA	NA	NA	2 U	2 U	2 U	6 U
33B28	DW1	4/11/1997	20 - 22	29OF60		ug/L	2 U	2 U	***5.6***	2 U	NA	NA	NA	NA
33B29	DW1	4/11/1997	18 - 20	20OF27		ug/L	NA	NA	NA	NA	2 U	2 U	2 U	6 U
33B29	DW1	4/11/1997	18 - 20	30OF60		ug/L	***14.9***	2 U	***598***	2 U	NA	NA	NA	NA
33B29-R	DW1	4/11/1997	18 - 20	21OF27	Reanalysis	ug/L	NA	NA	NA	NA	4 U	4 U	4 U	12 U
33B29-R	DW1	4/11/1997	18 - 20	31OF60	Reanalysis	ug/L	***16***	4 U	***918***	4 U	NA	NA	NA	NA
33B30	DW1	4/14/1997	18 - 20	32OF60		ug/L	10 U	10 U	***1894***	4 U	NA	NA	NA	NA
33B31	DW1	4/14/1997	18 - 20	33OF60		ug/L	10 U	10 U	***69.5***	4 U	NA	NA	NA	NA
33B32	DW1	4/14/1997	18 - 20	22OF27		ug/L	NA	NA	NA	NA	10 U	10 U	10 U	30 U
33B32	DW1	4/14/1997	18 - 20	34OF60		ug/L	***190***	***43.7***	***689***	***160***	NA	NA	NA	NA
33B33	DW1	4/14/1997	18 - 20	23OF27		ug/L	NA	NA	NA	NA	5 U	5 U	5 U	15 U
33B33	DW1	4/14/1997	18 - 20	38OF60		ug/L	5 U	5 U	***10***	2 U	NA	NA	NA	NA
33B34	DW1	4/14/1997	16 - 18	35OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B34-R	DW1	4/14/1997	16 - 18	36OF60	Reanalysis	ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B35	DW1	4/14/1997	18 - 20	37OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B36	DW1	4/14/1997	18 - 20	39OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B37	DW1	4/15/1997	21 - 23	40OF60		ug/L	25 U	25 U	***1282***	10 U	NA	NA	NA	NA
33B38	DW1	4/15/1997	18 - 20	24OF27		ug/L	NA	NA	NA	NA	5 U	5 U	5 U	15 U
33B38	DW1	4/15/1997	18 - 20	41OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B38	DW1D	4/15/1997	18 - 20	43OF60	Duplicate	ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B38-R	DW1	4/15/1997	18 - 20	42OF60	Reanalysis	ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B39	DW1	4/15/1997	24 - 26	25OF27		ug/L	NA	NA	NA	NA	5 U	5 U	5 U	15 U
33B39	DW1	4/15/1997	24 - 26	44OF60		ug/L	***223***	***45.9***	***646***	2 U	NA	NA	NA	NA
33B40	DW1	4/15/1997	27 - 29	26OF27		ug/L	NA	NA	NA	NA	5 U	5 U	5 U	15 U
33B40	DW1	4/15/1997	27 - 29	45OF60		ug/L	***111***	***30.5***	***357***	2 U	NA	NA	NA	NA
33B40	DW1D	4/15/1997	27 - 29	27OF27	Duplicate	ug/L	NA	NA	NA	NA	5 U	5 U	5 U	15 U

Table 6-8
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Sample Location		Date	Sample Depth	Laboratory						Vinyl				Xylenes
Point	Designator	Sampled	From - To	Number	Comments	Units	1,1,1-TCA	1,2-DCE	TCE	Chloride	Benzene	EB	Toluene	(total)
					Groundwater Screening Level		200 MCL	330 RSL	5 MCL	2 MCL	5 MCL	700 MCL	1000 MCL	10000 MCL
33B40-R	DW1	4/15/1997	27 - 29	46OF60	Reanalysis	ug/L	***97.6***	***13.9***	***359***	2 U	NA	NA	NA	NA
33B41	DW1	4/16/1997	18 - 20	47OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B42	DW1	4/16/1997	13 - 15	48OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B43	DW1	4/17/1997	13 - 15	53OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B44	DW1	4/17/1997	18 - 20	51OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B44-R	DW1	4/17/1997	18 - 20	52OF60	Reanalysis	ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B45	DW1	4/17/1997	18 - 20	54OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B46	DW1	4/17/1997	18 - 20	56OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B47	DW1	4/17/1997	8 - 10	57OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B51	DW1	4/18/1997	18 - 20	58OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA
33B52	DW1	5/14/1998	13 - 17	1OF20		ug/L	2 U	2 U	2 U	2 U	NA	NA	NA	NA
33B53	DW1	5/14/1998	13 - 17	2OF20		ug/L	2 U	2 U	2 U	2 U	NA	NA	NA	NA
33B54	DW1	5/14/1998	13 - 17	3OF20		ug/L	2 U	2 U	2 U	2 U	NA	NA	NA	NA
33B55	DW1	5/14/1998	13 - 17	4OF20		ug/L	2 U	***3.1***	2 U	***2.4***	NA	NA	NA	NA
33B55	DW1	5/14/1998	33 - 37	9OF20		ug/L	2 U	2 U	2 U	2 U	NA	NA	NA	NA
33B55	DW1	5/14/1998	64 - 68	8OF20		ug/L	2 U	2 U	2 U	2 U	NA	NA	NA	NA
33B55	DW1D	5/14/1998	64 - 68	10OF20	Duplicate	ug/L	2 U	2 U	2 U	2 U	NA	NA	NA	NA
33MH01	DW1	4/16/1997	0 - 0	49OF60		ug/L	5 U	5 U	***105***	2 U	NA	NA	NA	NA
33MH01-R	DW1	4/16/1997	0 - 0	50OF60	Reanalysis	ug/L	5 U	5 U	***107***	2 U	NA	NA	NA	NA
33MW6D	DW1	4/17/1997	12 - 20	55OF60		ug/L	5 U	5 U	5 U	2 U	NA	NA	NA	NA

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

NA = Not Analyzed

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

1,1,1-TCA = 1,1,1-Trichloroethane

1,2-DCE = 1,2-Dichloroethene

TCE = Trichloroethene

EB = Ethylbenzene

µg/L - micrograms per liter

Table 6-9
1997-1998 Groundwater Direct-Push Sample Results - SWMU 33
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	Groundwater Screening Level		Sample:	33B22A / DW1	33B22A / DW1D	33B41 / DW1	33B45 / DW1	33B46 / DW1
			Date Collected:	4/18/1997	4/18/1997	4/16/1997	4/17/1997	4/17/1997
			Depth (ft bgs):	25 - 25.5	25 - 25.5	18 - 20	18 - 20	18 - 20
			Lab ID:	D97-4807-1	D97-4807-2	D97-4731-3	D97-4731-6	D97-4731-5
			Comments:		Duplicate			
Parameter			**Units**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	200	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
1,1,2-Trichloroethane	5	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
1,1-Dichloroethane	2.4	RSL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
1,1-Dichloroethene	7	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
1,2-Dichloroethane	5	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
1,2-Dichloropropane	5	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
2-Butanone	7100	RSL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
2-Chloroethylvinyl ether	--		µg/L	5 U	5 U	5 U	Not Analyzed	5 U
2-Hexanone	47	RSL	µg/L	50 U	50 U	50 U	Not Analyzed	50 U
4-Methyl-2-pentanone	2000	RSL	µg/L	100 U	100 U	100 U	Not Analyzed	100 U
Acetone	22000	RSL	µg/L	100 U	100 U	100 U	Not Analyzed	100 U
Benzene	5	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Bromodichloromethane	80	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Bromoform	80	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Bromomethane	8.7	RSL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Carbon disulfide	1000	RSL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Carbon tetrachloride	5	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Chlorobenzene	100	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Chloroethane	21000	RSL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Chloroform	80	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
cis-1,2-Dichloroethene	70	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Dibromochloromethane	80	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Ethylbenzene	700	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Methyl chloride	190	RSL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Methylene chloride	5	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
m,p-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
o-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Styrene	100	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Tetrachloroethene	5	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Toluene	1000	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
trans-1,2-Dichloroethene	100	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U

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	Groundwater Screening Level		Sample:	33B22A / DW1	33B22A / DW1D	33B41 / DW1	33B45 / DW1	33B46 / DW1
			Date Collected:	4/18/1997	4/18/1997	4/16/1997	4/17/1997	4/17/1997
			Depth (ft bgs):	25 - 25.5	25 - 25.5	18 - 20	18 - 20	18 - 20
			Lab ID:	D97-4807-1	D97-4807-2	D97-4731-3	D97-4731-6	D97-4731-5
			Comments:		Duplicate			
Parameter			**Units**					
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Trichloroethene	5	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	5 U
Vinyl acetate	410	RSL	µg/L	50 U	50 U	50 U	Not Analyzed	50 U
Vinyl chloride	2	MCL	µg/L	2 U	2 U	2 U	Not Analyzed	2 U
Semivolatile Organic Compounds								
1,2,4-Trichlorobenzene	70	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
1,2-Dichlorobenzene	600	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
1,3-Dichlorobenzene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
1,4-Dichlorobenzene	75	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
2,4,5-Trichlorophenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
2,4,6-Trichlorophenol	6.1	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
2,4-Dichlorophenol	110	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
2,4-Dimethylphenol	730	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
2,4-Dinitrophenol	73	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	50 UR	770 DUR
2,4-Dinitrotoluene	0.22	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
2,6-Dinitrotoluene	37	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
2-Chloronaphthalene	2900	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
2-Chlorophenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
2-Methylnaphthalene	150	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
2-Methylphenol	1800	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
2-Nitroaniline	370	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	50 UR	770 DUR
2-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	20 UR	308 DUR
3-Nitroaniline	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	50 UR	770 DUR
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	50 UR	770 DUR
4-Bromophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
4-Chloro-3-methylphenol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
4-Chloroaniline	0.34	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	20 UR	308 DUR
4-Chlorophenyl-phenyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
4-Methylphenol	180	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
4-Nitroaniline	3.4	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	20 UR	308 DUR
4-Nitrophenol	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	50 UR	770 DUR
Acenaphthene	2200	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Acenaphthylene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR

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1997-1998 Groundwater Direct-Push Sample Results - SWMU 33
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	Groundwater Screening Level		Sample:	33B22A / DW1	33B22A / DW1D	33B41 / DW1	33B45 / DW1	33B46 / DW1
			Date Collected:	4/18/1997	4/18/1997	4/16/1997	4/17/1997	4/17/1997
			Depth (ft bgs):	25 - 25.5	25 - 25.5	18 - 20	18 - 20	18 - 20
			Lab ID:	D97-4807-1	D97-4807-2	D97-4731-3	D97-4731-6	D97-4731-5
			Comments:		Duplicate			
Parameter			**Units**					
Anthracene	11000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Benzo(a)anthracene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Benzo(a)pyrene	0.2	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Benzo(b)fluoranthene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Benzo(g,h,i)perylene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Benzo(k)fluoranthene	0.29	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Benzoic acid	150000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Benzyl alcohol	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	20 UR	308 DUR
Bis(2-chloroethoxy)methane	110	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Bis(2-ethylhexyl)phthalate	6	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Butylbenzylphthalate	35	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Chrysene	2.9	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Dibenzofuran	37	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Diethyl phthalate	29000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Dimethyl phthalate	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Di-n-butylphthalate	3700	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Di-n-octylphthalate	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Fluoranthene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Fluorene	1500	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Hexachlorobenzene	1	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Hexachlorobutadiene	0.86	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Hexachlorocyclopentadiene	50	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Hexachloroethane	4.8	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Isophorone	71	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Naphthalene	0.14	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Nitrobenzene	0.12	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
N-Nitrosodiphenylamine	14	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Pentachlorophenol	1	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	50 UR	770 DUR
Phenanthrene	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR

Table 6-9
1997-1998 Groundwater Direct-Push Sample Results - SWMU 33
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33B22A / DW1	33B22A / DW1D	33B41 / DW1	33B45 / DW1	33B46 / DW1
			Date Collected:	4/18/1997	4/18/1997	4/16/1997	4/17/1997	4/17/1997
			Depth (ft bgs):	25 - 25.5	25 - 25.5	18 - 20	18 - 20	18 - 20
			Lab ID:	D97-4807-1	D97-4807-2	D97-4731-3	D97-4731-6	D97-4731-5
			Comments:		Duplicate			
Parameter			**Units**					
Phenol	11000	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Pyrene	1100	RSL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 UR	154 DUR
Petroleum Hydrocarbons								
TPH (extractable)	--		mg/L	Not Analyzed	Not Analyzed	Not Analyzed	***2.18 J****	***3.59***
TPH (volatile)	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	50 U	***660***

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 6-9
1997-1998 Groundwater Direct-Push Sample Results - SWMU 33
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33B47 / DW1	33B51 / DW1	33B54 / DW1	33B55 / DW1	33MW6D / DW1
			Date Collected:	4/17/1997	4/18/1997	5/14/1998	5/14/1998	4/17/1997
			Depth (ft bgs):	8 - 10	18 - 20	13 - 17	13 - 17	12 - 20
			Lab ID:	D97-4731-4	D97-4807-3	D98-3694-1	D98-3694-2	D97-4731-2
			Comments:					
Parameter			**Units**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	200	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	2.4	RSL	µg/L	5 U	***19.9***	5 U	5 U	5 U
1,1-Dichloroethene	7	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
2-Butanone	7100	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
2-Chloroethylvinyl ether	--		µg/L	5 U	5 U	5 U	5 U	5 U
2-Hexanone	47	RSL	µg/L	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone	2000	RSL	µg/L	100 U	100 U	100 U	100 U	100 U
Acetone	22000	RSL	µg/L	100 U	100 U	100 U	100 U	100 U
Benzene	5	MCL	µg/L	5 U	***17.8***	5 U	5 U	5 U
Bromodichloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Bromoform	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Bromomethane	8.7	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	1000	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	100	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Chloroethane	21000	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Chloroform	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	70	MCL	µg/L	5 U	***5.74***	5 U	5 U	5 U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	700	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Methyl chloride	190	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Methylene chloride	5	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
m,p-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
o-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Styrene	100	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Toluene	1000	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	100	MCL	µg/L	5 U	5 U	5 U	5 U	5 U

Table 6-9
1997-1998 Groundwater Direct-Push Sample Results - SWMU 33
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33B47 / DW1	33B51 / DW1	33B54 / DW1	33B55 / DW1	33MW6D / DW1
			Date Collected:	4/17/1997	4/18/1997	5/14/1998	5/14/1998	4/17/1997
			Depth (ft bgs):	8 - 10	18 - 20	13 - 17	13 - 17	12 - 20
			Lab ID:	D97-4731-4	D97-4807-3	D98-3694-1	D98-3694-2	D97-4731-2
			Comments:					
Parameter			**Units**					
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Vinyl acetate	410	RSL	µg/L	50 U	50 U	50 U	50 U	50 U
Vinyl chloride	2	MCL	µg/L	2 U	***248***	2 U	2 U	***60.9***
Semivolatile Organic Compounds								
1,2,4-Trichlorobenzene	70	MCL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,2-Dichlorobenzene	600	MCL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,3-Dichlorobenzene	--		µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,4-Dichlorobenzene	75	MCL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4,5-Trichlorophenol	3700	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4,6-Trichlorophenol	6.1	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dichlorophenol	110	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dimethylphenol	730	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dinitrophenol	73	RSL	µg/L	50 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dinitrotoluene	0.22	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,6-Dinitrotoluene	37	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Chloronaphthalene	2900	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Chlorophenol	180	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Methylnaphthalene	150	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Methylphenol	1800	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Nitroaniline	370	RSL	µg/L	50 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Nitrophenol	--		µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	20 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
3-Nitroaniline	--		µg/L	50 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	50 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Bromophenyl-phenyl ether	--		µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chloro-3-methylphenol	3700	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chloroaniline	0.34	RSL	µg/L	***4.1 J***	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chlorophenyl-phenyl ether	--		µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Methylphenol	180	RSL	µg/L	***2.8 J***	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Nitroaniline	3.4	RSL	µg/L	20 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Nitrophenol	--		µg/L	50 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Acenaphthene	2200	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Acenaphthylene	--		µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Table 6-9
1997-1998 Groundwater Direct-Push Sample Results - SWMU 33
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Depth (ft bgs): / Lab ID: / Comments:	33B47 / DW1 4/17/1997 8 - 10 D97-4731-4	33B51 / DW1 4/18/1997 18 - 20 D97-4807-3	33B54 / DW1 5/14/1998 13 - 17 D98-3694-1	33B55 / DW1 5/14/1998 13 - 17 D98-3694-2	33MW6D / DW1 4/17/1997 12 - 20 D97-4731-2
Parameter			**Units**					
Anthracene	11000	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(a)anthracene	0.029	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(a)pyrene	0.2	MCL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(b)fluoranthene	0.029	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(g,h,i)perylene	--		µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(k)fluoranthene	0.29	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzoic acid	150000	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzyl alcohol	3700	RSL	µg/L	20 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroethoxy)methane	110	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-ethylhexyl)phthalate	6	MCL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Butylbenzylphthalate	35	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Chrysene	2.9	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dibenzofuran	37	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Diethyl phthalate	29000	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dimethyl phthalate	--		µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Di-n-butylphthalate	3700	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Di-n-octylphthalate	--		µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Fluoranthene	1500	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Fluorene	1500	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorobenzene	1	MCL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorobutadiene	0.86	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorocyclopentadiene	50	MCL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachloroethane	4.8	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Isophorone	71	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Naphthalene	0.14	RSL	µg/L	2.9 J	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Nitrobenzene	0.12	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
N-Nitrosodiphenylamine	14	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Pentachlorophenol	1	MCL	µg/L	50 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Phenanthrene	--		µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Table 6-9
1997-1998 Groundwater Direct-Push Sample Results - SWMU 33
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Depth (ft bgs): / Lab ID: / Comments:	33B47 / DW1 4/17/1997 8 - 10 D97-4731-4	33B51 / DW1 4/18/1997 18 - 20 D97-4807-3	33B54 / DW1 5/14/1998 13 - 17 D98-3694-1	33B55 / DW1 5/14/1998 13 - 17 D98-3694-2	33MW6D / DW1 4/17/1997 12 - 20 D97-4731-2
Parameter			**Units**					
Phenol	11000	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Pyrene	1100	RSL	µg/L	10 UR	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Petroleum Hydrocarbons								
TPH (extractable)	--		mg/L	***10***	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
TPH (volatile)	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Notes:

Bold, italic = Compound was detected.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

Description of data flags is provided on Table 1-1.

Direct-push groundwater samples were collected from depth where water was first encountered.

ft bgs = feet below ground surface

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

mg/L - milligrams per liter

µg/L - micrograms per liter

Table 6-10
33MW2 Groundwater Results for VOCs - Intermediate Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW2 / GW1 5/12/1997 D97-5825-11		33MW2 / GW2 7/17/1998 D98-4944-8		33MW2 / GW3 2/2/2001 604136275		33MW2 / GW4 10/5/2007 510-19072-3	
Parameter			**Units**								
Volatile Organic Compounds											
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	5	U D	50	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	5	U D	50	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	***2.7***	***J***	5	U D	50	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	***20.2***		***31***	***D***	***11***	***J***
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	***90.8***		***34***	***D***	***5.1***	***J***
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U D	50	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	Not Analyzed		50	U
2-Butanone	7100	RSL	µg/L	5	U	5	U	Not Analyzed		250	U
2-Chloroethylvinyl ether	–		µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	50	U	Not Analyzed		250	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U	Not Analyzed		250	U
Acetone	22000	RSL	µg/L	100	U	100	U	Not Analyzed		250	U
Benzene	5.0	MCL	µg/L	5	U	5	U	5	U D	10	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		50	U
Bromoform	80	MCL	µg/L	5	U	5	U	Not Analyzed		50	U
Bromomethane	8.7	RSL	µg/L	5	U	5	U	Not Analyzed		50	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	Not Analyzed		50	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	5	U D	50	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	5	U D	50	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	5	U D	50	U
Chloroform	80	MCL	µg/L	5	U	5	U	5	U D	50	U
cis-1,2-Dichloroethene	70	MCL	µg/L	***963***	***D***	***3100***	***D***	***2800***	***D***	***630***	
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		50	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		50	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U	5	U D	50	U
Methyl chloride	190	RSL	µg/L	5	U	5	U	5	U D	50	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	5	U D	50	U
Styrene	100	MCL	µg/L	5	U	5	U	Not Analyzed		50	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	5	U D	50	U
Toluene	1000	MCL	µg/L	5	U	5	U	5	U D	50	U
trans-1,2-Dichloroethene	100	MCL	µg/L	***14.1***		***15.7***		***180***	***D***	50	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		50	U
Trichloroethene	5.0	MCL	µg/L	***21***		***5230***	***D***	***150***	***D***	***270***	

Table 6-10
33MW2 Groundwater Results for VOCs - Intermediate Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW2 / GW1 5/12/1997 D97-5825-11	33MW2 / GW2 7/17/1998 D98-4944-8	33MW2 / GW3 2/2/2001 604136275	33MW2 / GW4 10/5/2007 510-19072-3
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50 U	50 U	Not Analyzed	250 U
Vinyl chloride	2.0	MCL	µg/L	***1880 D***	***583 D***	***370 D***	***1500***
m,p-Xylenes	10000	MCL	µg/L	5 U	5 U	6.5 U	Not Analyzed
o-Xylenes	10000	MCL	µg/L	5 U	5 U	5.5 U	Not Analyzed
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	150 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Intermediate wells were screened directly over the semi-confining layer of the shallow saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-11
33MW2S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW2S / GW1 5/12/1997 D97-5825-12		33MW2S / GW2 7/17/1998 D98-4944-9		33MW2S / GW3 2/2/2001 604136259		33MW2S / GW4 10/5/2007 510-19072-2	
Parameter			**Units**								
Volatile Organic Compounds											
1,1,1-Trichloroethane	200	MCL	µg/L	***50.8***		***75***	***J****	500	U D	50	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U J*	500	U D	50	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	***80.7***		***42.4***	***J****	500	U D	50	U
1,1-Dichloroethane	2.4	RSL	µg/L	***103***		***126***	***J****	500	U D	50	U
1,1-Dichloroethene	7.0	MCL	µg/L	***369***	***DJ***	2500	DU J*	500	U D	***11***	***J***
1,2-Dichloroethane	5.0	MCL	µg/L	***18.6***		***15.1***	***J****	500	U D	50	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U J*	Not Analyzed		50	U
2-Butanone	7100	RSL	µg/L	5	U	5	U J*	Not Analyzed		250	U
2-Chloroethylvinyl ether	–		µg/L	5	U	5	U J*	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	50	U J*	Not Analyzed		250	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U J*	Not Analyzed		250	U
Acetone	22000	RSL	µg/L	100	U	100	U J*	Not Analyzed		250	U
Benzene	5.0	MCL	µg/L	5	U	***2.02***	***J***	500	U D	10	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U J*	Not Analyzed		50	U
Bromoform	80	MCL	µg/L	5	U	5	U J*	Not Analyzed		50	U
Bromomethane	8.7	RSL	µg/L	5	U	5	U J*	Not Analyzed		50	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U J*	Not Analyzed		50	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U J*	500	U D	50	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U J*	500	U D	50	U
Chloroethane	21000	RSL	µg/L	5	U	5	U J*	500	U D	50	U
Chloroform	80	MCL	µg/L	***57.5***		***42.7***	***J****	500	U D	50	U
cis-1,2-Dichloroethene	70	MCL	µg/L	***8400***	***D***	***58700***	***D J****	***62000***	***D***	***1800***	
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U J*	Not Analyzed		50	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U J*	Not Analyzed		50	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U J*	500	U D	50	U
Methyl chloride	190	RSL	µg/L	5	U	5	U J*	500	U D	50	U
Methylene chloride	5.0	MCL	µg/L	5	U	***5.93***	***J****	500	U D	50	U
Styrene	100	MCL	µg/L	5	U	5	U J*	Not Analyzed		50	U
Tetrachloroethene	5.0	MCL	µg/L	***10.1***		***23.1***	***J****	500	U D	50	U
Toluene	1000	MCL	µg/L	***15.4***		***14.8***	***J****	500	U D	50	U
trans-1,2-Dichloroethene	100	MCL	µg/L	***106***		2500	DU J*	500	U D	50	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U J*	Not Analyzed		50	U
Trichloroethene	5.0	MCL	µg/L	***132000***	***D***	***67700***	***D J****	***52000***	***D***	***1100***	

Table 6-11
33MW2S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW2S / GW1 5/12/1997 D97-5825-12	33MW2S / GW2 7/17/1998 D98-4944-9	33MW2S / GW3 2/2/2001 604136259	33MW2S / GW4 10/5/2007 510-19072-2
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50 U	50 U J*	Not Analyzed	250 U
Vinyl chloride	2.0	MCL	µg/L	***64.4***	***1100 D J****	500 U D	***150***
m,p-Xylenes	10000	MCL	µg/L	5 U	5 U	650 U D	Not Analyzed
o-Xylenes	10000	MCL	µg/L	5 U	5 U	550 U D	Not Analyzed
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	150 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-12
33MW3 Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW3 / GW1 5/12/1997 D97-5825-9		33MW3 / GW1D 5/12/1997 D97-5825-10 Duplicate		33MW3 / GW2 7/17/1998 D98-4944-7		33MW3 / GW3 2/2/2001 604136242		33MW3 / GW4 10/4/2007 510-19035-11	
Parameter			Units										
Volatile Organic Compounds													
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	5	U	1	U	10	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	5	U	1	U	10	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U	1	U	10	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U	5	U	1	U	***1.8***	***J***
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U	***2.42***	***J***	1	U	***8.8***	***J***
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U	1	U	10	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		10	U
2-Butanone	7100	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		50	U
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U	5	U	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	50	U	50	U	Not Analyzed		50	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U	100	U	Not Analyzed		50	U
Acetone	22000	RSL	µg/L	100	U	100	U	100	U	Not Analyzed		50	U
Benzene	5.0	MCL	µg/L	5	U	5	U	5	U	1	U	2	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		10	U
Bromoform	80	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		10	U
Bromomethane	8.7	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		10	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		10	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	5	U	1	U	10	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	5	U	1	U	10	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	5	U	1	U	10	U
Chloroform	80	MCL	µg/L	5	U	5	U	5	U	1	U	10	U
cis-1,2-Dichloroethene	70	MCL	µg/L	***21.9***		***19.1***		***326***	***D***	***130***	***D***	***940***	
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		10	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		10	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U	5	U	1	U	10	U
Methyl chloride	190	RSL	µg/L	5	U	5	U	5	U	1	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	5	U	1	U	10	U
Styrene	100	MCL	µg/L	5	U	5	U	5	U	Not Analyzed		10	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	5	U	1	U	10	U
Toluene	1000	MCL	µg/L	5	U	5	U	5	U	1	U	10	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	5	U	***3.8***		***3.5***	***J***
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U	Not Analyzed		10	U
Trichloroethene	5.0	MCL	µg/L	***32.1***		***26.3***		***35.1***		***31***		***480***	

Table 6-12
33MW3 Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW3 / GW1	33MW3 / GW1D	33MW3 / GW2	33MW3 / GW3	33MW3 / GW4
			Date Collected:	5/12/1997	5/12/1997	7/17/1998	2/2/2001	10/4/2007
			Lab ID:	D97-5825-9	D97-5825-10	D98-4944-7	604136242	510-19035-11
			Comments:		Duplicate			
Parameter			**Units**					
Vinyl acetate	410	RSL	µg/L	50 U	50 U	50 U	Not Analyzed	50 U
Vinyl chloride	2.0	MCL	µg/L	***19.1***	***17.6***	***148***	***32***	***60***
m,p-Xylenes	10000	MCL	µg/L	5 U	5 U	5 U	1.3 U	Not Analyzed
o-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	1.1 U	Not Analyzed
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	30 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-13
33MW4 Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW4 / GW1 5/12/1997 D97-5825-1		33MW4 / GW2 7/16/1998 D98-4917-2		33MW4 / GW3 2/2/2001 604136234		33MW4 / GW4 9/26/2007 510-18739-1	
Parameter			**Units**								
Volatile Organic Compounds											
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	1	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	1	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U	1	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
2-Butanone	7100	RSL	µg/L	5	U	5	U	Not Analyzed		10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	50	U	Not Analyzed		10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U	Not Analyzed		10	U
Acetone	22000	RSL	µg/L	100	U	100	U	Not Analyzed		10	U
Benzene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Bromoform	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	HU J-
Bromomethane	8.7	RSL	µg/L	5	U	5	U	Not Analyzed		10	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	1	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	1	U	10	U
Chloroform	80	MCL	µg/L	5	U	5	U	1	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U	1	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U	1	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	5	U	1	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U	1	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	1	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U

Table 6-13
33MW4 Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW4 / GW1 5/12/1997 D97-5825-1	33MW4 / GW2 7/16/1998 D98-4917-2	33MW4 / GW3 2/2/2001 604136234	33MW4 / GW4 9/26/2007 510-18739-1
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50 U	50 U	Not Analyzed	5 U
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U	1 U	2 U
m,p-Xylenes	10000	MCL	µg/L	5 U	5 U	1.3 U	Not Analyzed
o-Xylene	10000	MCL	µg/L	5 U	5 U	1.1 U	Not Analyzed
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-14
33MW4S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW4S / GW1 5/12/1997 D97-5825-2		33MW4S / GW2 7/15/1998 D98-4890-3		33MW4S / GW3 2/2/2001 604136218		33MW4S / GW4 10/1/2007 510-18936-5	
Parameter			**Units**								
Volatile Organic Compounds											
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	1	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	1	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U	1	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
2-Butanone	7100	RSL	µg/L	5	U	5	U	Not Analyzed		10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	50	U	Not Analyzed		10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U	Not Analyzed		10	U
Acetone	22000	RSL	µg/L	100	U	100	U	Not Analyzed		10	U
Benzene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Bromoform	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Bromomethane	8.7	RSL	µg/L	5	U	5	U	Not Analyzed		10	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	1	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	1	U	10	U
Chloroform	80	MCL	µg/L	5	U	5	U	1	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U	1	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U	1	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	5	U	1	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U	1	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	1	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U

Table 6-14
33MW4S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW4S / GW1 5/12/1997 D97-5825-2	33MW4S / GW2 7/15/1998 D98-4890-3	33MW4S / GW3 2/2/2001 604136218	33MW4S / GW4 10/1/2007 510-18936-5
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50 U	50 U	Not Analyzed	5 U
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U	1 U	2 U
m,p-Xylenes	10000	MCL	µg/L	5 U	5 U	1.3 U	Not Analyzed
o-Xylene	10000	MCL	µg/L	5 U	5 U	1.1 U	Not Analyzed
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-15
33MW5D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW5D / GW1 5/30/1997 D97-6645-1		33MW5D / GW2 7/16/1998 D98-4917-5		33MW5D / GW4 9/26/2007 510-18739-2	
Parameter			**Units**						
Volatile Organic Compounds									
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	5	U
2-Butanone	7100	RSL	µg/L	5	U	5	U	10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U	Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	50	U	10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U	10	U
Acetone	22000	RSL	µg/L	100	U	100	U	10	U
Benzene	5.0	MCL	µg/L	5	U	5	U	***0.3***	***J***
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	5	U
Bromoform	80	MCL	µg/L	5	U	5	U	5	HU J-
Bromomethane	8.7	RSL	µg/L	5	U	5	U	10	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	10	U
Chloroform	80	MCL	µg/L	5	U	5	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U	***0.61***	***J***
Methyl chloride	190	RSL	µg/L	5	U	5	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U	5	U

Table 6-15
33MW5D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW5D / GW1 5/30/1997 D97-6645-1		33MW5D / GW2 7/16/1998 D98-4917-5		33MW5D / GW4 9/26/2007 510-18739-2	
Parameter			**Units**						
Vinyl acetate	410	RSL	µg/L	50	U	50	U	5	U
Vinyl chloride	2.0	MCL	µg/L	2	U	2	U	2	U
m,p-Xylenes	10000	MCL	µg/L	5	U	5	U	Not Analyzed	
o-Xylene	10000	MCL	µg/L	5	U	5	U	Not Analyzed	
Xylenes, Total	10000	MCL	µg/L	Not Analyzed		Not Analyzed		***0.81***	***J***

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-16
33MW5I Groundwater Results for VOCs - Intermediate Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW5I / GW2 7/17/1998 D98-4944-6		33MW5I / GW4 10/4/2007 510-19035-14	
Parameter			**Units**				
Volatile Organic Compounds							
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	25	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	25	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	25	U
1,1-Dichloroethane	2.4	RSL	µg/L	***5.49***		25	U
1,1-Dichloroethene	7.0	MCL	µg/L	***10.5***		25	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	25	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	25	U
2-Butanone	7100	RSL	µg/L	5	U	130	U
2-Chloroethylvinyl ether	--		µg/L	5	U	Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	130	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	130	U
Acetone	22000	RSL	µg/L	100	U	130	U
Benzene	5.0	MCL	µg/L	5	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	25	U
Bromoform	80	MCL	µg/L	5	U	25	U
Bromomethane	8.7	RSL	µg/L	5	U	25	U
Carbon disulfide	1000	RSL	µg/L	5	U	25	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	25	U
Chlorobenzene	100	MCL	µg/L	5	U	25	U
Chloroethane	21000	RSL	µg/L	5	U	25	U
Chloroform	80	MCL	µg/L	5	U	25	U
cis-1,2-Dichloroethene	70	MCL	µg/L	***1150***	***D***	***560***	
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	25	U
Dibromochloromethane	80	MCL	µg/L	5	U	25	U
Ethylbenzene	700	MCL	µg/L	5	U	25	U
Methyl chloride	190	RSL	µg/L	5	U	25	U
Methylene chloride	5.0	MCL	µg/L	5	U	25	U
Styrene	100	MCL	µg/L	5	U	25	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	25	U
Toluene	1000	MCL	µg/L	5	U	25	U
trans-1,2-Dichloroethene	100	MCL	µg/L	***6.19***		***3.7***	***J***
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	25	U
Trichloroethene	5.0	MCL	µg/L	***806***	***D***	***77***	

Table 6-16
33MW5I Groundwater Results for VOCs - Intermediate Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW5I / GW2 7/17/1998 D98-4944-6		33MW5I / GW4 10/4/2007 510-19035-14	
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50	U	130	U
Vinyl chloride	2.0	MCL	µg/L	***12.4***		***66***	
m,p-Xylenes	10000	MCL	µg/L	5	U	Not Analyzed	
o-Xylene	10000	MCL	µg/L	5	U	Not Analyzed	
Xylenes, Total	10000	MCL	µg/L	Not Analyzed		75	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Intermediate wells were screened directly over the semi-confining layer of the shallow saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-17
33MW5S Groundwater Results for VOCs and SVOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW5S / GW1 5/12/1997 D97-5825-13	33MW5S / GW2 7/17/1998 D98-4944-4	33MW5S / GW2D 7/17/1998 D98-4944-5 Duplicate	33MW5S / GW4 10/4/2007 510-19035-12	33MW5S / GW4D 10/4/2007 510-19035-12 Duplicate
Parameter			**Units**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	200	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	0.067	0.067	µg/L	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	2.4	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	7.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
2-Butanone	7100	RSL	µg/L	5 U	5 U	5 U	25 U	25 U
2-Chloroethylvinyl ether	--		µg/L	5 U	5 U	5 U	Not Analyzed	Not Analyzed
2-Hexanone	47	RSL	µg/L	50 U	50 U	50 U	25 U	25 U
4-Methyl-2-pentanone	2000	RSL	µg/L	100 U	100 U	100 U	25 U	25 U
Acetone	22000	RSL	µg/L	100 U	100 U	100 U	25 U	25 U
Benzene	5.0	MCL	µg/L	5 U	5 U	5 U	***0.26 J***	***0.27 J***
Bromodichloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Bromoform	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Bromomethane	8.7	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	1000	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	100	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Chloroethane	21000	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Chloroform	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	70	MCL	µg/L	***403 D***	***386 D***	***350 D***	***53***	***55***
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	80	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	700	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Methyl chloride	190	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Methylene chloride	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Styrene	100	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5.0	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
Toluene	1000	MCL	µg/L	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	100	MCL	µg/L	5 U	5 U	***2.96 J***	5 U	***0.51 J***
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5.0	MCL	µg/L	***279***	***19.2***	***19.6***	***2.4 J***	***3.2 J***

Table 6-17
33MW5S Groundwater Results for VOCs and SVOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW5S / GW1 5/12/1997 D97-5825-13	33MW5S / GW2 7/17/1998 D98-4944-4	33MW5S / GW2D 7/17/1998 D98-4944-5 Duplicate	33MW5S / GW4 10/4/2007 510-19035-12	33MW5S / GW4D 10/4/2007 510-19035-12 Duplicate
Parameter			**Units**					
Vinyl acetate	410	RSL	µg/L	50 U	50 U	50 U	25 U	25 U
Vinyl chloride	2.0	MCL	µg/L	***30.6***	***26.6***	***24.3***	***4.1 J***	***4.2 J***
m,p-Xylenes	10000	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	Not Analyzed
o-Xylene	10000	MCL	µg/L	5 U	5 U	5 U	Not Analyzed	Not Analyzed
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	15 U	15 U
Semivolatile Organic Compounds								
1,2,4-Trichlorobenzene	70	MCL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,2-Dichlorobenzene	600	MCL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,3-Dichlorobenzene	--		µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
1,4-Dichlorobenzene	75	MCL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4,5-Trichlorophenol	3700	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4,6-Trichlorophenol	6.1	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dichlorophenol	110	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dimethylphenol	730	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dinitrophenol	73	RSL	µg/L	50 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,4-Dinitrotoluene	0.22	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2,6-Dinitrotoluene	37	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Chloronaphthalene	2900	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Chlorophenol	180	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Methylnaphthalene	150	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Methylphenol	1800	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Nitroaniline	370	RSL	µg/L	50 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Nitrophenol	--		µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
3,3'-Dichlorobenzidine	0.15	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
3-Nitroaniline	--		µg/L	50 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4,6-Dinitro-2-methylphenol	2.9	RSL	µg/L	50 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Bromophenyl-phenyl ether	--		µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chloro-3-methylphenol	3700	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chloroaniline	0.34	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Chlorophenyl-phenyl ether	--		µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Methylphenol	180	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Nitroaniline	3.4	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
4-Nitrophenol	--		µg/L	50 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Acenaphthene	2200	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Acenaphthylene	--		µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Table 6-17
33MW5S Groundwater Results for VOCs and SVOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW5S / GW1 5/12/1997 D97-5825-13	33MW5S / GW2 7/17/1998 D98-4944-4	33MW5S / GW2D 7/17/1998 D98-4944-5 Duplicate	33MW5S / GW4 10/4/2007 510-19035-12	33MW5S / GW4D 10/4/2007 510-19035-12 Duplicate
Parameter			**Units**					
Anthracene	11000	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(a)anthracene	0.029	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(a)pyrene	0.2	MCL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(b)fluoranthene	0.029	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(g,h,i)perylene	--		µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzo(k)fluoranthene	0.29	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzoic acid	150000	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Benzyl alcohol	3700	RSL	µg/L	20 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroethoxy)methane	110	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroethyl)ether	0.012	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-chloroisopropyl)ether	0.32	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Bis(2-ethylhexyl)phthalate	6.0	MCL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Butylbenzylphthalate	35	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Chrysene	2.9	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dibenzo(a,h)anthracene	0.0029	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dibenzofuran	37	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Diethyl phthalate	29000	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Dimethyl phthalate	--		µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Di-n-butylphthalate	3700	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Di-n-octylphthalate	--		µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Fluoranthene	1500	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Fluorene	1500	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorobenzene	1.0	MCL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorobutadiene	0.86	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachlorocyclopentadiene	50	MCL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Hexachloroethane	4.8	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Indeno(1,2,3-cd)pyrene	0.029	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Isophorone	71	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Naphthalene	0.14	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Nitrobenzene	0.12	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
N-Nitroso-di-n-propylamine	0.0096	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
N-Nitrosodiphenylamine	14	RSL	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Pentachlorophenol	1.0	MCL	µg/L	50 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Phenanthrene	--		µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Table 6-17
33MW5S Groundwater Results for VOCs and SVOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW5S / GW1 5/12/1997 D97-5825-13	33MW5S / GW2 7/17/1998 D98-4944-4	33MW5S / GW2D 7/17/1998 D98-4944-5 Duplicate	33MW5S / GW4 10/4/2007 510-19035-12	33MW5S / GW4D 10/4/2007 510-19035-12 Duplicate
Parameter			**Units**					
Phenol	--	11000	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Pyrene	--	1100	µg/L	10 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
Petroleum Hydrocarbons								
TPH (extractable)	--		mg/L	***1.21***	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
TPH (volatile)	--		µg/L	50 U	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

mg/L - milligrams per liter

Table 6-18
33MW6D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW6D / GW1		33MW6D / GW2		33MW6D / GW3		33MW6D / GW4	
			Date Collected:	5/30/1997		7/15/1998		2/2/2001		10/1/2007	
			Lab ID:	D97-6645-2		D98-4890-2		604136200		510-18936-2	
			Comments:								
Parameter			**Units**								
Volatile Organic Compounds											
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	1	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	1	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U	1	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
2-Butanone	7100	RSL	µg/L	5	U	5	U	Not Analyzed		10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	50	U	Not Analyzed		10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U	Not Analyzed		10	U
Acetone	22000	RSL	µg/L	100	U	100	U	Not Analyzed		10	U
Benzene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Bromoform	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Bromomethane	8.7	RSL	µg/L	5	U	5	U	Not Analyzed		10	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	1	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	1	U	10	U
Chloroform	80	MCL	µg/L	5	U	5	U	1	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U	1	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U	1	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	5	U	1	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U	1	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	1	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U

Table 6-18
33MW6D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW6D / GW1 5/30/1997 D97-6645-2	33MW6D / GW2 7/15/1998 D98-4890-2	33MW6D / GW3 2/2/2001 604136200	33MW6D / GW4 10/1/2007 510-18936-2
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50 U	50 U	Not Analyzed	5 U
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U	1 U	2 U
m,p-Xylenes	10000	MCL	µg/L	5 U	5 U	1.3 U	Not Analyzed
o-Xylene	10000	MCL	µg/L	5 U	5 U	1.1 U	Not Analyzed
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-19
33MW7D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW7D / GW1 5/12/1997 D97-5825-7		33MW7D / GW2 7/16/1998 D98-4917-4		33MW7D / GW3 2/2/2001 604136226		33MW7D / GW4 10/1/2007 510-18936-3	
Parameter			**Units**								
Volatile Organic Compounds											
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	1	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	1	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U	1	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
2-Butanone	7100	RSL	µg/L	5	U	5	U	Not Analyzed		10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	50	U	Not Analyzed		10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U	Not Analyzed		10	U
Acetone	22000	RSL	µg/L	100	U	100	U	Not Analyzed		10	U
Benzene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Bromoform	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Bromomethane	8.7	RSL	µg/L	5	U	5	U	Not Analyzed		10	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	1	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	1	U	10	U
Chloroform	80	MCL	µg/L	5	U	5	U	1	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U	1	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U	1	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	5	U	1	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U	1	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	1	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U

Table 6-19
33MW7D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW7D / GW1	33MW7D / GW2	33MW7D / GW3	33MW7D / GW4
			Date Collected:	5/12/1997	7/16/1998	2/2/2001	10/1/2007
			Lab ID:	D97-5825-7	D98-4917-4	604136226	510-18936-3
			Comments:				
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50 U	50 U	Not Analyzed	5 U
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U	1 U	2 U
m,p-Xylene	10000	MCL	µg/L	5 U	5 U	1.3 U	Not Analyzed
o-Xylene	10000	MCL	µg/L	5 U	5 U	1.1 U	Not Analyzed
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-20
33MW7S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW7S / GW1 5/12/1997 D97-5825-8		33MW7S / GW2 7/16/1998 D98-4917-3		33MW7S / GW3 2/2/2001 604136283		33MW7S / GW4 10/1/2007 510-18936-4	
Parameter			**Units**								
Volatile Organic Compounds											
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	1	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	1	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U	1	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
2-Butanone	7100	RSL	µg/L	5	U	5	U	Not Analyzed		10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	50	U	Not Analyzed		10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U	Not Analyzed		10	U
Acetone	22000	RSL	µg/L	100	U	100	U	Not Analyzed		10	U
Benzene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Bromoform	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Bromomethane	8.7	RSL	µg/L	5	U	5	U	Not Analyzed		10	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	1	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	1	U	10	U
Chloroform	80	MCL	µg/L	5	U	5	U	1	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U	1	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U	1	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	5	U	1	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U	Not Analyzed		5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U	1	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	1	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U	1	U	5	U

Table 6-20
33MW7S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW7S / GW1	33MW7S / GW2	33MW7S / GW3	33MW7S / GW4
			Date Collected:	5/12/1997	7/16/1998	2/2/2001	10/1/2007
			Lab ID:	D97-5825-8	D98-4917-3	604136283	510-18936-4
			Comments:				
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50 U	50 U	Not Analyzed	5 U
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U	1 U	2 U
m,p-Xylenes	10000	MCL	µg/L	5 U	5 U	1.3 U	Not Analyzed
o-Xylene	10000	MCL	µg/L	5 U	5 U	1.1 U	Not Analyzed
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	10 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-21
33MW8S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW8S / GW1 5/12/1997 D97-5825-3		33MW8S / GW2 7/16/1998 D98-4917-8		33MW8S / GW4 10/4/2007 510-19035-10	
Parameter			**Units**						
Volatile Organic Compounds									
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	***4.63***	***J***	***4.4***	***J***
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	***3.14***	***J***	***1.7***	***J***
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	5	U
2-Butanone	7100	RSL	µg/L	5	U	5	U	25	U
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U	Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	50	U	25	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U	25	U
Acetone	22000	RSL	µg/L	100	U	100	U	25	U
Benzene	5.0	MCL	µg/L	5	U	5	U	1	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	5	U
Bromoform	80	MCL	µg/L	5	U	5	U	5	U
Bromomethane	8.7	RSL	µg/L	5	U	5	U	5	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	5	U
Chloroform	80	MCL	µg/L	5	U	5	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	***10.5***		***12.2***		***33***	
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	5	U	5	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	5	U
Trichloroethene	5.0	MCL	µg/L	***26***		***51.7***		***130***	

Table 6-21
33MW8S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW8S / GW1 5/12/1997 D97-5825-3		33MW8S / GW2 7/16/1998 D98-4917-8		33MW8S / GW4 10/4/2007 510-19035-10	
Parameter			**Units**						
Vinyl acetate	410	RSL	µg/L	50	U	50	U	25	U
Vinyl chloride	2.0	MCL	µg/L	2	U	2	U	***0.89***	***J***
m,p-Xylenes	10000	MCL	µg/L	5	U	5	U	Not Analyzed	
o-Xylene	10000	MCL	µg/L	5	U	5	U	Not Analyzed	
Xylenes, Total	10000	MCL	µg/L	Not Analyzed		Not Analyzed		15	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-22
33MW9S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW9S / GW1 5/12/1997 D97-5825-4		33MW9S / GW2 7/14/1998 D98-4875-10		33MW9S / GW4 10/4/2007 510-19035-9	
Parameter			**Units**						
Volatile Organic Compounds									
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U J*	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U J*	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U J*	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U J*	***1.3***	***J***
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U J*	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U J*	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U J*	5	U
2-Butanone	7100	RSL	µg/L	5	U	5	U J*	25	U
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U J*	Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	50	U J*	25	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	100	U J*	25	U
Acetone	22000	RSL	µg/L	100	U	100	U J*	25	U
Benzene	5.0	MCL	µg/L	5	U	5	U J*	1	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U J*	5	U
Bromoform	80	MCL	µg/L	5	U	5	U J*	5	U
Bromomethane	8.7	RSL	µg/L	5	U	5	U J*	5	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U J*	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U J*	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U J*	5	U
Chloroethane	21000	RSL	µg/L	5	U	5	U J*	5	U
Chloroform	80	MCL	µg/L	5	U	5	U J*	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	***7.15***	***J****	***1.9***	***J***
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U J*	5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U J*	5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U J*	5	U
Methyl chloride	190	RSL	µg/L	5	U	5	U J*	5	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U J*	5	U
Styrene	100	MCL	µg/L	5	U	5	U J*	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U J*	5	U
Toluene	1000	MCL	µg/L	5	U	5	U J*	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U J*	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U J*	5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U J*	***1.4***	***J***

Table 6-22
33MW9S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW9S / GW1 5/12/1997 D97-5825-4	33MW9S / GW2 7/14/1998 D98-4875-10	33MW9S / GW4 10/4/2007 510-19035-9
Parameter			**Units**			
Vinyl acetate	410	RSL	µg/L	50 U	50 U J*	25 U
Vinyl chloride	2.0	MCL	µg/L	2 U	2 U J*	5 U
m,p-Xylenes	10000	MCL	µg/L	5 U	5 U J*	Not Analyzed
o-Xylene	10000	MCL	µg/L	5 U	5 U J*	Not Analyzed
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	Not Analyzed	15 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-23
33MW10D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW10D / GW2 7/14/1998 D98-4875-5		33MW10D / GW2A 9/21/1998 366821		33MW10D / GW3 2/1/2001 604136135		33MW10D / GW3D 2/1/2001 604136184 Duplicate	
Parameter			**Units**								
Volatile Organic Compounds											
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U	1	U	1	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U	1	U	1	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U	1	U	1	U
1,1-Dichloroethane	2.4	RSL	µg/L	***4.32***	***J***	***2.9***	***J***	***1.5***		***1.6***	
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	***2.2***	***J***	1	U	1	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U	1	U	1	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
2-Butanone	7100	RSL	µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
2-Chloroethylvinyl ether	--		µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	5	U	Not Analyzed		Not Analyzed	
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	5	U	Not Analyzed		Not Analyzed	
Acetone	22000	RSL	µg/L	100	U	5	U	Not Analyzed		Not Analyzed	
Benzene	5.0	MCL	µg/L	5	U	5	U	1	U	1	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
Bromoform	80	MCL	µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
Bromomethane	8.7	RSL	µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
Carbon disulfide	1000	RSL	µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U	1	U	1	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U	1	U	1	U
Chloroethane	21000	RSL	µg/L	5	U	5	U	1	U	1	U
Chloroform	80	MCL	µg/L	5	U	5	U	1	U	1	U
cis-1,2-Dichloroethene	70	MCL	µg/L	***74.4***		***63***		***14***		***14***	
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
Dibromochloromethane	80	MCL	µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
Ethylbenzene	700	MCL	µg/L	5	U	5	U	1	U	1	U
Methyl chloride	190	RSL	µg/L	5	U	5	U	1	U	1	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U	1	U	1	U
Styrene	100	MCL	µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U	1	U	1	U
Toluene	1000	MCL	µg/L	5	U	5	U	1	U	1	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U	***1.1***		***1***	
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U	Not Analyzed		Not Analyzed	
Trichloroethene	5.0	MCL	µg/L	5	U	5	U	1	U	1	U

Table 6-23
33MW10D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW10D / GW2 7/14/1998 D98-4875-5	33MW10D / GW2A 9/21/1998 366821	33MW10D / GW3 2/1/2001 604136135	33MW10D / GW3D 2/1/2001 604136184 Duplicate
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50 U	5 U	Not Analyzed	Not Analyzed
Vinyl chloride	2.0	MCL	µg/L	***9.05***	***4.1***	***22***	***22***
m,p-Xylenes	10000	MCL	µg/L	5 U	5 U	1.3 U	1.3 U
o-Xylene	10000	MCL	µg/L	5 U	5 U	1.1 U	1.1 U
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-23
33MW10D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW10D / GW3QA	33MW10D / GW4	33MW10D / GW4D	33MW10D / GW4QA
			Date Collected:	2/1/2001	10/3/2007	10/3/2007	10/3/2007
			Lab ID:	01020184	510-19035-4	510-19035-5	07100530
			Comments:	QA Lab Split		Duplicate	QA Lab Split
Parameter			**Units**				
Volatile Organic Compounds							
1,1,1-Trichloroethane	200	MCL	µg/L	1 U	5 U	5 U	1 U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	1 U	5 U	5 U	1 U
1,1,2-Trichloroethane	5.0	MCL	µg/L	1 U	5 U	5 U	1 U
1,1-Dichloroethane	2.4	RSL	µg/L	***1.2***	5 U	5 U	1 U
1,1-Dichloroethene	7.0	MCL	µg/L	1 U	5 U	5 U	1 U
1,2-Dichloroethane	5.0	MCL	µg/L	1 U	5 U	5 U	1 U
1,2-Dichloropropane	5.0	MCL	µg/L	Not Analyzed	5 U	5 U	1 U
2-Butanone	7100	RSL	µg/L	Not Analyzed	10 U	10 U	25 U
2-Chloroethylvinyl ether	--		µg/L	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
2-Hexanone	47	RSL	µg/L	Not Analyzed	10 U	10 U	25 U
4-Methyl-2-pentanone	2000	RSL	µg/L	Not Analyzed	10 U	10 U	25 U
Acetone	22000	RSL	µg/L	Not Analyzed	10 U	10 U	25 U
Benzene	5.0	MCL	µg/L	1 U	5 U	5 U	1 U
Bromodichloromethane	80	MCL	µg/L	Not Analyzed	5 U	5 U	1 U
Bromoform	80	MCL	µg/L	Not Analyzed	5 U	5 U	1 U
Bromomethane	8.7	RSL	µg/L	Not Analyzed	10 U	10 U	1 U
Carbon disulfide	1000	RSL	µg/L	Not Analyzed	5 U	5 U	1 U
Carbon tetrachloride	5.0	MCL	µg/L	1 U	5 U	5 U	1 U
Chlorobenzene	100	MCL	µg/L	1 U	5 U	5 U	1 U
Chloroethane	21000	RSL	µg/L	5 U	10 U	10 U	1 U
Chloroform	80	MCL	µg/L	1 U	5 U	5 U	1 U
cis-1,2-Dichloroethene	70	MCL	µg/L	***11.3***	5 U	5 U	1 U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	Not Analyzed	5 U	5 U	1 U
Dibromochloromethane	80	MCL	µg/L	Not Analyzed	5 U	5 U	1 U
Ethylbenzene	700	MCL	µg/L	1 U	5 U	5 U	1 U
Methyl chloride	190	RSL	µg/L	5 U	10 U	10 U	1 U
Methylene chloride	5.0	MCL	µg/L	1 U	5 U	5 U	1 U
Styrene	100	MCL	µg/L	Not Analyzed	5 U	5 U	1 U
Tetrachloroethene	5.0	MCL	µg/L	1 U	5 U	5 U	1 U
Toluene	1000	MCL	µg/L	1 U	5 U	5 U	1 U
trans-1,2-Dichloroethene	100	MCL	µg/L	1 U	5 U	5 U	1 U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	Not Analyzed	5 U	5 U	1 U
Trichloroethene	5.0	MCL	µg/L	1 U	5 U	5 U	1 U

Table 6-23
33MW10D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW10D / GW3QA	33MW10D / GW4	33MW10D / GW4D	33MW10D / GW4QA
			Date Collected:	2/1/2001	10/3/2007	10/3/2007	10/3/2007
			Lab ID:	01020184	510-19035-4	510-19035-5	07100530
			Comments:	QA Lab Split		Duplicate	QA Lab Split
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	Not Analyzed	5 U	5 U	25 U
Vinyl chloride	2.0	MCL	µg/L	***16.4***	2 U	***0.88 J***	***0.8 J***
m,p-Xylenes	10000	MCL	µg/L	1 U	Not Analyzed	Not Analyzed	Not Analyzed
o-Xylene	10000	MCL	µg/L	1 U	Not Analyzed	Not Analyzed	Not Analyzed
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	10 U	10 U	3 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-24
33MW10S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW10S / GW2		33MW10S / GW3		33MW10S / GW4		33MW10S / GW4QA	
			Date Collected:	7/14/1998		2/1/2001		10/3/2007		10/3/2007	
			Lab ID:	D98-4875-4		604136127		510-19035-3		07100529	
			Comments:							QA Lab Split	
Parameter			**Units**								
Volatile Organic Compounds											
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	1	U	5	U	1	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	1	U	5	U	1	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	1	U	5	U	1	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	1	U	5	U	1	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	1	U	5	U	1	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	1	U	5	U	1	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	Not Analyzed		5	U	1	U
2-Butanone	7100	RSL	µg/L	5	U	Not Analyzed		10	U	25	U
2-Chloroethylvinyl ether	--		µg/L	5	U	Not Analyzed		Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	Not Analyzed		10	U	25	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	Not Analyzed		10	U	25	U
Acetone	22000	RSL	µg/L	100	U	Not Analyzed		10	U	25	U
Benzene	5.0	MCL	µg/L	5	U	1	U	5	U	1	U
Bromodichloromethane	80	MCL	µg/L	5	U	Not Analyzed		5	U	1	U
Bromoform	80	MCL	µg/L	5	U	Not Analyzed		5	U	1	U
Bromomethane	8.7	RSL	µg/L	5	U	Not Analyzed		10	U	1	U
Carbon disulfide	1000	RSL	µg/L	5	U	Not Analyzed		5	U	1	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	1	U	5	U	1	U
Chlorobenzene	100	MCL	µg/L	5	U	1	U	5	U	1	U
Chloroethane	21000	RSL	µg/L	5	U	1	U	10	U	1	U
Chloroform	80	MCL	µg/L	5	U	1	U	5	U	1	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	1	U	5	U	1	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	Not Analyzed		5	U	1	U
Dibromochloromethane	80	MCL	µg/L	5	U	Not Analyzed		5	U	1	U
Ethylbenzene	700	MCL	µg/L	5	U	1	U	5	U	1	U
Methyl chloride	190	RSL	µg/L	5	U	1	U	10	U	1	U
Methylene chloride	5.0	MCL	µg/L	5	U	1	U	5	U	1	U
Styrene	100	MCL	µg/L	5	U	Not Analyzed		5	U	1	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	1	U	5	U	1	U
Toluene	1000	MCL	µg/L	5	U	1	U	5	U	1	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	1	U	5	U	1	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	Not Analyzed		5	U	1	U
Trichloroethene	5.0	MCL	µg/L	5	U	1	U	5	U	1	U

Table 6-24
33MW10S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW10S / GW2	33MW10S / GW3	33MW10S / GW4	33MW10S / GW4QA
			Date Collected:	7/14/1998	2/1/2001	10/3/2007	10/3/2007
			Lab ID:	D98-4875-4	604136127	510-19035-3	07100529
			Comments:				QA Lab Split
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50 U	Not Analyzed	5 U	25 U
Vinyl chloride	2.0	MCL	µg/L	2 U	1 U	2 U	1 U
m,p-Xylenes	10000	MCL	µg/L	5 U	1.3 U	Not Analyzed	Not Analyzed
o-Xylene	10000	MCL	µg/L	5 U	1.1 U	Not Analyzed	Not Analyzed
Xylenes, Total	10000	MCL	µg/L	Not Analyzed	Not Analyzed	10 U	3 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-25
33MW11D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW11D / GW2 7/14/1998 D98-4875-7		33MW11D / GW3 2/1/2001 604136119		33MW11D / GW4 10/4/2007 510-19035-8	
Parameter			**Units**						
Volatile Organic Compounds									
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	1	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	1	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	1	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	***2.92***	***J***	***1.8***		5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	1	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	1	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	Not Analyzed		5	U
2-Butanone	7100	RSL	µg/L	5	U	Not Analyzed		25	U
2-Chloroethylvinyl ether	--		µg/L	5	U	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	Not Analyzed		25	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	Not Analyzed		25	U
Acetone	22000	RSL	µg/L	100	U	Not Analyzed		25	U
Benzene	5.0	MCL	µg/L	5	U	1	U	1	U
Bromodichloromethane	80	MCL	µg/L	5	U	Not Analyzed		5	U
Bromoform	80	MCL	µg/L	5	U	Not Analyzed		5	U
Bromomethane	8.7	RSL	µg/L	5	U	Not Analyzed		5	U
Carbon disulfide	1000	RSL	µg/L	5	U	Not Analyzed		5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	1	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	1	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	1	U	5	U
Chloroform	80	MCL	µg/L	5	U	1	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	1	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	Not Analyzed		5	U
Dibromochloromethane	80	MCL	µg/L	5	U	Not Analyzed		5	U
Ethylbenzene	700	MCL	µg/L	5	U	1	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	1	U	5	U
Methylene chloride	5.0	MCL	µg/L	5	U	1	U	5	U
Styrene	100	MCL	µg/L	5	U	Not Analyzed		5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	1	U	5	U
Toluene	1000	MCL	µg/L	5	U	1	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	1	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	Not Analyzed		5	U
Trichloroethene	5.0	MCL	µg/L	5	U	1	U	5	U

Table 6-25
33MW11D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW11D / GW2		33MW11D / GW3		33MW11D / GW4	
			Date Collected:	7/14/1998		2/1/2001		10/4/2007	
			Lab ID:	D98-4875-7		604136119		510-19035-8	
			Comments:						
Parameter			**Units**						
Vinyl acetate	410	RSL	µg/L	50	U	Not Analyzed		25	U
Vinyl chloride	2.0	MCL	µg/L	2	U	1	U	5	U
m,p-Xylenes	10000	MCL	µg/L	5	U	1.3	U	Not Analyzed	
o-Xylene	10000	MCL	µg/L	5	U	1.1	U	Not Analyzed	
Xylenes, Total	10000	MCL	µg/L	Not Analyzed		2.4	U	15	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-26
33MW11S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW11S / GW2 7/14/1998 D98-4875-6		33MW11S / GW3 2/1/2001 604136101		33MW11S / GW4 9/27/2007 510-18739-3	
Parameter			**Units**						
Volatile Organic Compounds									
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	1	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	1	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	1	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	1	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	1	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	1	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	Not Analyzed		5	U
2-Butanone	7100	RSL	µg/L	5	U	Not Analyzed		10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	Not Analyzed		10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	Not Analyzed		10	U
Acetone	22000	RSL	µg/L	100	U	Not Analyzed		10	U
Benzene	5.0	MCL	µg/L	5	U	1	U	***0.46***	***J***
Bromodichloromethane	80	MCL	µg/L	5	U	Not Analyzed		5	U
Bromoform	80	MCL	µg/L	5	U	Not Analyzed		5	U
Bromomethane	8.7	RSL	µg/L	5	U	Not Analyzed		10	U
Carbon disulfide	1000	RSL	µg/L	5	U	Not Analyzed		5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	1	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	1	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	1	U	10	U
Chloroform	80	MCL	µg/L	5	U	1	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	1	U	***2.3***	***J***
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	Not Analyzed		5	U
Dibromochloromethane	80	MCL	µg/L	5	U	Not Analyzed		5	U
Ethylbenzene	700	MCL	µg/L	5	U	1	U	***0.65***	***J***
Methyl chloride	190	RSL	µg/L	5	U	1	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	1	U	5	U
Styrene	100	MCL	µg/L	5	U	Not Analyzed		5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	1	U	5	U
Toluene	1000	MCL	µg/L	5	U	1	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	1	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	Not Analyzed		5	U
Trichloroethene	5.0	MCL	µg/L	5	U	1	U	***1.8***	***J***

Table 6-26
33MW11S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW11S / GW2		33MW11S / GW3		33MW11S / GW4	
			Date Collected:	7/14/1998		2/1/2001		9/27/2007	
			Lab ID:	D98-4875-6		604136101		510-18739-3	
			Comments:						
Parameter			**Units**						
Vinyl acetate	410	RSL	µg/L	50	U	Not Analyzed		5	U
Vinyl chloride	2.0	MCL	µg/L	2	U	1	U	2	U
m,p-Xylene	10000	MCL	µg/L	5	U	1.3	U	Not Analyzed	
o-Xylene	10000	MCL	µg/L	5	U	1.1	U	Not Analyzed	
Xylenes, Total	10000	MCL	µg/L	Not Analyzed		Not Analyzed		***0.86***	***J***

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-27
33MW12D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW12D / GW2 7/16/1998 D98-4917-6		33MW12D / GW4 9/27/2007 510-18739-4	
Parameter			**Units**				
Volatile Organic Compounds							
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	***0.59***	***J***
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U
2-Butanone	7100	RSL	µg/L	5	U	10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	10	U
Acetone	22000	RSL	µg/L	100	U	10	U
Benzene	5.0	MCL	µg/L	5	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U
Bromoform	80	MCL	µg/L	5	U	5	U
Bromomethane	8.7	RSL	µg/L	5	U	10	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	10	U
Chloroform	80	MCL	µg/L	5	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U

Table 6-27
33MW12D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW12D / GW2 7/16/1998 D98-4917-6		33MW12D / GW4 9/27/2007 510-18739-4	
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50	U	5	U
Vinyl chloride	2.0	MCL	µg/L	2	U	2	U
m,p-Xylenes	10000	MCL	µg/L	5	U	Not Analyzed	
o-Xylene	10000	MCL	µg/L	5	U	Not Analyzed	
Xylenes, Total	10000	MCL	µg/L	Not Analyzed		10	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-28
33MW12S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW12S / GW2 7/16/1998 D98-4917-7		33MW12S / GW4 9/27/2007 510-18739-5	
Parameter			**Units**				
Volatile Organic Compounds							
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U
2-Butanone	7100	RSL	µg/L	5	U	10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	10	U
Acetone	22000	RSL	µg/L	100	U	10	U
Benzene	5.0	MCL	µg/L	5	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U
Bromoform	80	MCL	µg/L	5	U	5	U
Bromomethane	8.7	RSL	µg/L	5	U	10	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	10	U
Chloroform	80	MCL	µg/L	5	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U

Table 6-28
33MW12S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW12S / GW2		33MW12S / GW4	
			Date Collected:	7/16/1998		9/27/2007	
			Lab ID:	D98-4917-7		510-18739-5	
			Comments:				
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50	U	5	U
Vinyl chloride	2.0	MCL	µg/L	2	U	2	U
m,p-Xylenes	10000	MCL	µg/L	5	U	Not Analyzed	
o-Xylene	10000	MCL	µg/L	5	U	Not Analyzed	
Xylenes, Total	10000	MCL	µg/L	Not Analyzed		10	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-29
33MW13D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW13D / GW2 7/17/1998 D98-4944-3		33MW13D / GW3 2/1/2001 604136093		33MW13D / GW4 10/1/2007 510-18936-1	
Parameter			**Units**						
Volatile Organic Compounds									
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	1	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	1	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	1	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	1	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	1	U J*	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	1	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	Not Analyzed		5	U
2-Butanone	7100	RSL	µg/L	5	U	Not Analyzed		10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	Not Analyzed		10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	Not Analyzed		10	U
Acetone	22000	RSL	µg/L	100	U	Not Analyzed		10	U
Benzene	5.0	MCL	µg/L	5	U	1	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	Not Analyzed		5	U
Bromoform	80	MCL	µg/L	5	U	Not Analyzed		5	U
Bromomethane	8.7	RSL	µg/L	5	U	Not Analyzed		10	U
Carbon disulfide	1000	RSL	µg/L	5	U	Not Analyzed		5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	1	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	1	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	1	U	10	U
Chloroform	80	MCL	µg/L	5	U	1	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	1	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	Not Analyzed		5	U
Dibromochloromethane	80	MCL	µg/L	5	U	Not Analyzed		5	U
Ethylbenzene	700	MCL	µg/L	5	U	1	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	1	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	1	U	5	U
Styrene	100	MCL	µg/L	5	U	Not Analyzed		5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	1	U	5	U
Toluene	1000	MCL	µg/L	5	U	1	U J*	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	1	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	Not Analyzed		5	U
Trichloroethene	5.0	MCL	µg/L	5	U	1	U	5	U

Table 6-29
33MW13D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW13D / GW2 7/17/1998 D98-4944-3		33MW13D / GW3 2/1/2001 604136093		33MW13D / GW4 10/1/2007 510-18936-1	
Parameter			**Units**						
Vinyl acetate	410	RSL	µg/L	50	U	Not Analyzed		5	U
Vinyl chloride	2.0	MCL	µg/L	2	U	1	U	2	U
m,p-Xylenes	10000	MCL	µg/L	5	U	1.3	U	Not Analyzed	
o-Xylene	10000	MCL	µg/L	5	U	1.1	U	Not Analyzed	
Xylenes, Total	10000	MCL	µg/L	Not Analyzed		Not Analyzed		10	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-30
33MW13S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW13S / GW2 7/17/1998 D98-4944-2		33MW13S / GW3 2/1/2001 604136051		33MW13S / GW4 10/2/2007 510-18936-9	
Parameter			**Units**						
Volatile Organic Compounds									
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	1	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	1	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	1	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	1	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	1	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	1	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	Not Analyzed		5	U
2-Butanone	7100	RSL	µg/L	5	U	Not Analyzed		10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	Not Analyzed		Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	Not Analyzed		10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	Not Analyzed		10	U
Acetone	22000	RSL	µg/L	100	U	Not Analyzed		10	U
Benzene	5.0	MCL	µg/L	5	U	1	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	Not Analyzed		5	U
Bromoform	80	MCL	µg/L	5	U	Not Analyzed		5	U
Bromomethane	8.7	RSL	µg/L	5	U	Not Analyzed		10	U
Carbon disulfide	1000	RSL	µg/L	5	U	Not Analyzed		5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	1	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	1	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	1	U	10	U
Chloroform	80	MCL	µg/L	5	U	1	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	***1.4***		5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	Not Analyzed		5	U
Dibromochloromethane	80	MCL	µg/L	5	U	Not Analyzed		5	U
Ethylbenzene	700	MCL	µg/L	5	U	1	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	1	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	1	U	5	U
Styrene	100	MCL	µg/L	5	U	Not Analyzed		5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	1	U	5	U
Toluene	1000	MCL	µg/L	5	U	1	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	1	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	Not Analyzed		5	U
Trichloroethene	5.0	MCL	µg/L	3.79	J U*	1	U	5	U

Table 6-30
33MW13S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW13S / GW2 7/17/1998 D98-4944-2		33MW13S / GW3 2/1/2001 604136051		33MW13S / GW4 10/2/2007 510-18936-9	
Parameter			**Units**						
Vinyl acetate	410	RSL	µg/L	50	U	Not Analyzed		5	U
Vinyl chloride	2.0	MCL	µg/L	2	U	1	U	***0.73***	***J***
m,p-Xylenes	10000	MCL	µg/L	5	U	1.3	U	Not Analyzed	
o-Xylene	10000	MCL	µg/L	5	U	1.1	U	Not Analyzed	
Xylenes, Total	10000	MCL	µg/L	Not Analyzed		Not Analyzed		10	U

Notes:

Bold, italic = Compound was detected.

Exceedances are shaded with color correlated to highest exceedance.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-31
33MW14D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW14D / GW2		33MW14D / GW4	
			Date Collected:	7/14/1998		10/3/2007	
			Lab ID:	D98-4875-1		510-19035-7	
			Comments:				
Parameter			**Units**				
Volatile Organic Compounds							
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U
2-Butanone	7100	RSL	µg/L	5	U	10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	10	U
Acetone	22000	RSL	µg/L	100	U	10	U
Benzene	5.0	MCL	µg/L	5	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U
Bromoform	80	MCL	µg/L	5	U	5	U
Bromomethane	8.7	RSL	µg/L	5	U	10	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	10	U
Chloroform	80	MCL	µg/L	5	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U

Table 6-31
33MW14D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW14D / GW2 7/14/1998 D98-4875-1		33MW14D / GW4 10/3/2007 510-19035-7	
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50	U	5	U
Vinyl chloride	2.0	MCL	µg/L	2	U	2	U
m,p-Xylenes	10000	MCL	µg/L	5	U	Not Analyzed	
o-Xylene	10000	MCL	µg/L	5	U	Not Analyzed	
Xylenes, Total	10000	MCL	µg/L	Not Analyzed		10	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-32
33MW14S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW14S / GW2 7/14/1998 D98-4875-2		33MW14S / GW4 10/3/2007 510-19035-6	
Parameter			**Units**				
Volatile Organic Compounds							
1,1,1-Trichloroethane	200	MCL	µg/L	5	U	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U	5	U
2-Butanone	7100	RSL	µg/L	5	U	10	U
2-Chloroethylvinyl ether	--		µg/L	5	U	Not Analyzed	
2-Hexanone	47	RSL	µg/L	50	U	10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	100	U	10	U
Acetone	22000	RSL	µg/L	100	U	10	U
Benzene	5.0	MCL	µg/L	5	U	5	U
Bromodichloromethane	80	MCL	µg/L	5	U	5	U
Bromoform	80	MCL	µg/L	5	U	5	U
Bromomethane	8.7	RSL	µg/L	5	U	10	U
Carbon disulfide	1000	RSL	µg/L	5	U	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U	5	U
Chlorobenzene	100	MCL	µg/L	5	U	5	U
Chloroethane	21000	RSL	µg/L	5	U	10	U
Chloroform	80	MCL	µg/L	5	U	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U
Dibromochloromethane	80	MCL	µg/L	5	U	5	U
Ethylbenzene	700	MCL	µg/L	5	U	5	U
Methyl chloride	190	RSL	µg/L	5	U	10	U
Methylene chloride	5.0	MCL	µg/L	5	U	5	U
Styrene	100	MCL	µg/L	5	U	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U	5	U
Toluene	1000	MCL	µg/L	5	U	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U	5	U
Trichloroethene	5.0	MCL	µg/L	5	U	5	U

Table 6-32
33MW14S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW14S / GW2 7/14/1998 D98-4875-2		33MW14S / GW4 10/3/2007 510-19035-6	
Parameter			**Units**				
Vinyl acetate	410	RSL	µg/L	50	U	5	U
Vinyl chloride	2.0	MCL	µg/L	2	U	2	U
m,p-Xylenes	10000	MCL	µg/L	5	U	Not Analyzed	
o-Xylene	10000	MCL	µg/L	5	U	Not Analyzed	
Xylenes, Total	10000	MCL	µg/L	Not Analyzed		10	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-33
33MW15D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW15D / GW4 / 10/2/2007 / 510-18936-6	
Parameter			**Units**		
Volatile Organic Compounds					
1,1,1-Trichloroethane	200	MCL	µg/L	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U
2-Butanone	7100	RSL	µg/L	10	U
2-Chloroethylvinyl ether	--		µg/L	Not Analyzed	
2-Hexanone	47	RSL	µg/L	10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	10	U
Acetone	22000	RSL	µg/L	10	U
Benzene	5.0	MCL	µg/L	5	U
Bromodichloromethane	80	MCL	µg/L	5	U
Bromoform	80	MCL	µg/L	5	U
Bromomethane	8.7	RSL	µg/L	10	U
Carbon disulfide	1000	RSL	µg/L	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U
Chlorobenzene	100	MCL	µg/L	5	U
Chloroethane	21000	RSL	µg/L	10	U
Chloroform	80	MCL	µg/L	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
Dibromochloromethane	80	MCL	µg/L	5	U
Ethylbenzene	700	MCL	µg/L	5	U
Methyl chloride	190	RSL	µg/L	10	U
Methylene Chloride	5.0	MCL	µg/L	5	U
Styrene	100	MCL	µg/L	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U
Toluene	1000	MCL	µg/L	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
Trichloroethene	5.0	MCL	µg/L	5	U

Table 6-33
33MW15D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW15D / GW4
			Date Collected:	10/2/2007
			Lab ID:	510-18936-6
			Comments:	
Parameter			**Units**	
Vinyl acetate	410	RSL	µg/L	5 U
Vinyl chloride	2.0	MCL	µg/L	2 U
Xylenes, Total	10000	MCL	µg/L	10 U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-34
33MW15S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW15S / GW4 10/2/2007 510-18936-7	
Parameter			**Units**		
Volatile Organic Compounds					
1,1,1-Trichloroethane	200	MCL	µg/L	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U
2-Butanone	7100	RSL	µg/L	10	U
2-Chloroethylvinyl ether	--		µg/L	Not Analyzed	
2-Hexanone	47	RSL	µg/L	10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	10	U
Acetone	22000	RSL	µg/L	10	U
Benzene	5.0	MCL	µg/L	5	U
Bromodichloromethane	80	MCL	µg/L	5	U
Bromoform	80	MCL	µg/L	5	U
Bromomethane	8.7	RSL	µg/L	10	U
Carbon disulfide	1000	RSL	µg/L	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U
Chlorobenzene	100	MCL	µg/L	5	U
Chloroethane	21000	RSL	µg/L	10	U
Chloroform	80	MCL	µg/L	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
Dibromochloromethane	80	MCL	µg/L	5	U
Ethylbenzene	700	MCL	µg/L	5	U
Methyl chloride	190	RSL	µg/L	10	U
Methylene Chloride	5.0	MCL	µg/L	5	U
Styrene	100	MCL	µg/L	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U
Toluene	1000	MCL	µg/L	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
Trichloroethene	5.0	MCL	µg/L	5	U

Table 6-34
33MW15S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW15S / GW4 / 10/2/2007 / 510-18936-7	
Parameter			**Units**		
Vinyl acetate	410	RSL	µg/L	5	U
Vinyl chloride	2.0	MCL	µg/L	2	U
Xylenes, Total	10000	MCL	µg/L	10	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/ L - micrograms per liter

Table 6-35
33MW16D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW16D / GW4 10/3/2007 510-19035-2	
Parameter			**Units**		
Volatile Organic Compounds					
1,1,1-Trichloroethane	200	MCL	µg/L	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U
2-Butanone	7100	RSL	µg/L	10	U
2-Chloroethylvinyl ether	--		µg/L	Not Analyzed	
2-Hexanone	47	RSL	µg/L	10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	10	U
Acetone	22000	RSL	µg/L	10	U
Benzene	5.0	MCL	µg/L	5	U
Bromodichloromethane	80	MCL	µg/L	5	U
Bromoform	80	MCL	µg/L	5	U
Bromomethane	8.7	RSL	µg/L	10	U
Carbon disulfide	1000	RSL	µg/L	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U
Chlorobenzene	100	MCL	µg/L	5	U
Chloroethane	21000	RSL	µg/L	10	U
Chloroform	80	MCL	µg/L	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
Dibromochloromethane	80	MCL	µg/L	5	U
Ethylbenzene	700	MCL	µg/L	5	U
Methyl chloride	190	RSL	µg/L	10	U
Methylene Chloride	5.0	MCL	µg/L	5	U
Styrene	100	MCL	µg/L	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U
Toluene	1000	MCL	µg/L	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
Trichloroethene	5.0	MCL	µg/L	5	U

Table 6-35
33MW16D Groundwater Results for VOCs - Deep Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample:	33MW16D / GW4	
			Date Collected:	10/3/2007	
			Lab ID:	510-19035-2	
			Comments:		
Parameter			**Units**		
Vinyl acetate	410	RSL	µg/L	5	U
Vinyl chloride	2.0	MCL	µg/L	2	U
Xylenes, Total	10000	MCL	µg/L	10	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Deep wells were screened just above bedrock in the deep semi-confined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

Table 6-36
33MW16S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW16S / GW4 / 10/2/2007 / 510-18936-8	
Parameter			**Units**		
Volatile Organic Compounds					
1,1,1-Trichloroethane	200	MCL	µg/L	5	U
1,1,2,2-Tetrachloroethane	0.067	RSL	µg/L	5	U
1,1,2-Trichloroethane	5.0	MCL	µg/L	5	U
1,1-Dichloroethane	2.4	RSL	µg/L	5	U
1,1-Dichloroethene	7.0	MCL	µg/L	5	U
1,2-Dichloroethane	5.0	MCL	µg/L	5	U
1,2-Dichloropropane	5.0	MCL	µg/L	5	U
2-Butanone	7100	RSL	µg/L	10	U
2-Chloroethylvinyl ether	--		µg/L	Not Analyzed	
2-Hexanone	47	RSL	µg/L	10	U
4-Methyl-2-pentanone	2000	RSL	µg/L	10	U
Acetone	22000	RSL	µg/L	10	U
Benzene	5.0	MCL	µg/L	5	U
Bromodichloromethane	80	MCL	µg/L	5	U
Bromoform	80	MCL	µg/L	5	U
Bromomethane	8.7	RSL	µg/L	10	U
Carbon disulfide	1000	RSL	µg/L	5	U
Carbon tetrachloride	5.0	MCL	µg/L	5	U
Chlorobenzene	100	MCL	µg/L	5	U
Chloroethane	21000	RSL	µg/L	10	U
Chloroform	80	MCL	µg/L	5	U
cis-1,2-Dichloroethene	70	MCL	µg/L	5	U
cis-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
Dibromochloromethane	80	MCL	µg/L	5	U
Ethylbenzene	700	MCL	µg/L	5	U
Methyl chloride	190	RSL	µg/L	10	U
Methylene Chloride	5.0	MCL	µg/L	5	U
Styrene	100	MCL	µg/L	5	U
Tetrachloroethene	5.0	MCL	µg/L	5	U
Toluene	1000	MCL	µg/L	5	U
trans-1,2-Dichloroethene	100	MCL	µg/L	5	U
trans-1,3-Dichloropropene	0.43	RSL	µg/L	5	U
Trichloroethene	5.0	MCL	µg/L	5	U

Table 6-36
33MW16S Groundwater Results for VOCs - Shallow Well
Groundwater Screening Report
AK Steel Kansas City Facility

	Groundwater Screening Level		Sample: / Date Collected: / Lab ID: / Comments:	33MW16S / GW4 10/2/2007 510-18936-8	
Vinyl acetate	410	RSL	µg/L	5	U
Vinyl chloride	2.0	MCL	µg/L	2	U
Xylenes, Total	10000	MCL	µg/L	10	U

Notes:

Bold, italic = Compound was detected.

Description of data flags is provided on Table 1-1.

Shallow wells were screened in the shallow unconfined saturated zone.

cis- and trans-1,3-dicholoropropene screening levels are for 1,3-dichloropropene (isomer not specified).

m,p-Xylene and o-Xylene MCL is for Xylenes (mixture).

MCL for Bromodichloromethane, bromoform, chloroform, and dibromochloromethane is for total trihalomethanes.

RSL - Regional Screening Level Summary Table (USEPA, May 2010) for tapwater

MCL - Safe Drinking Water Act Maximum Contaminant Level

µg/L - micrograms per liter

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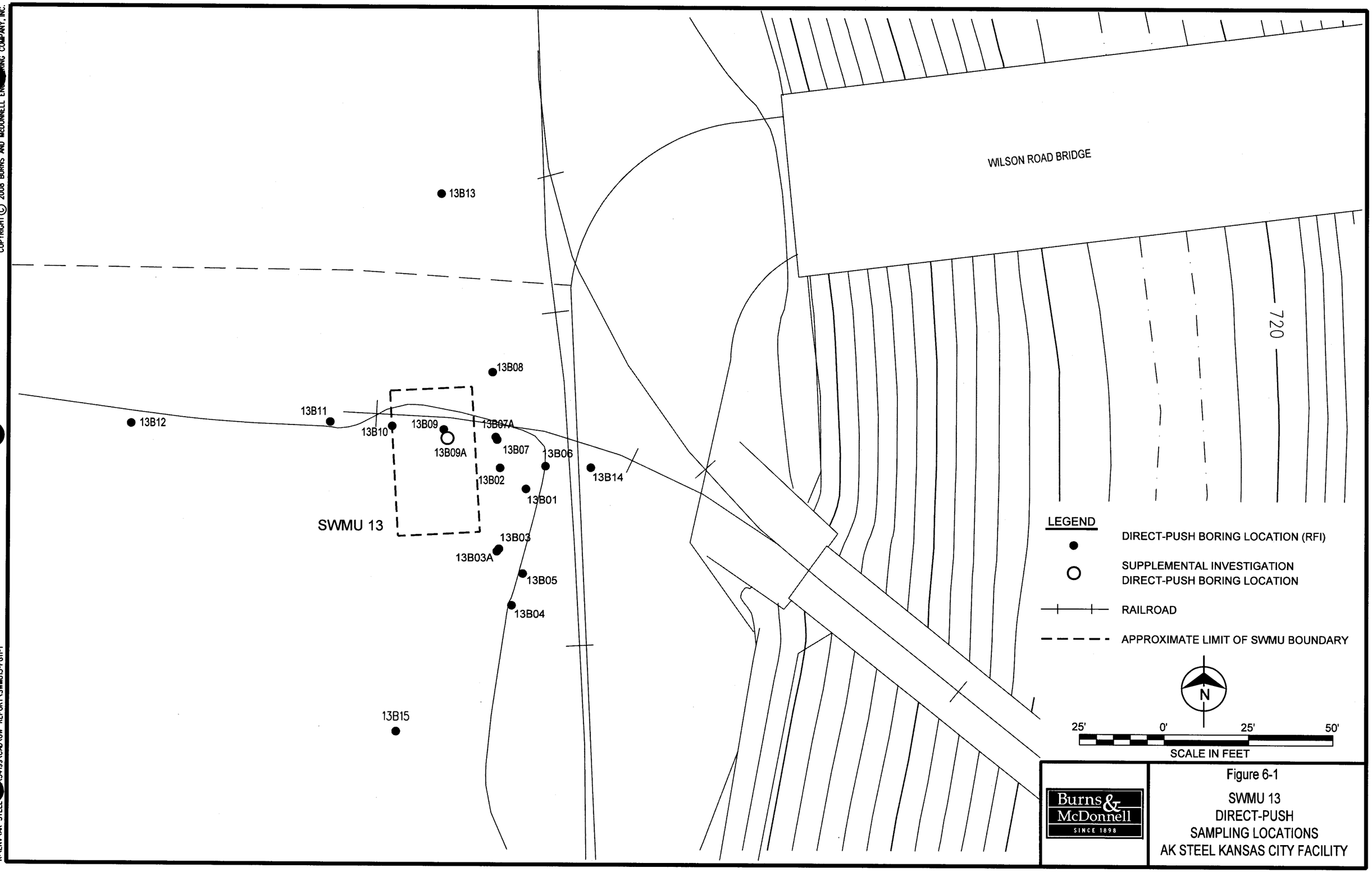

Figure 6-1

SWMU 13
DIRECT-PUSH
SAMPLING LOCATIONS
AK STEEL KANSAS CITY FACILITY

AK-SITE.DGN(SITE) 01-17-63
AK-CONTOUR.DGN(CONTOUR) 01-13-9,11-63
AK-ALLSWMU.DGN(SWMU) 01-62-63
K:\ENV\AK STEEL\54199\CAD\GW REPORT\SWMU13-FG11-1

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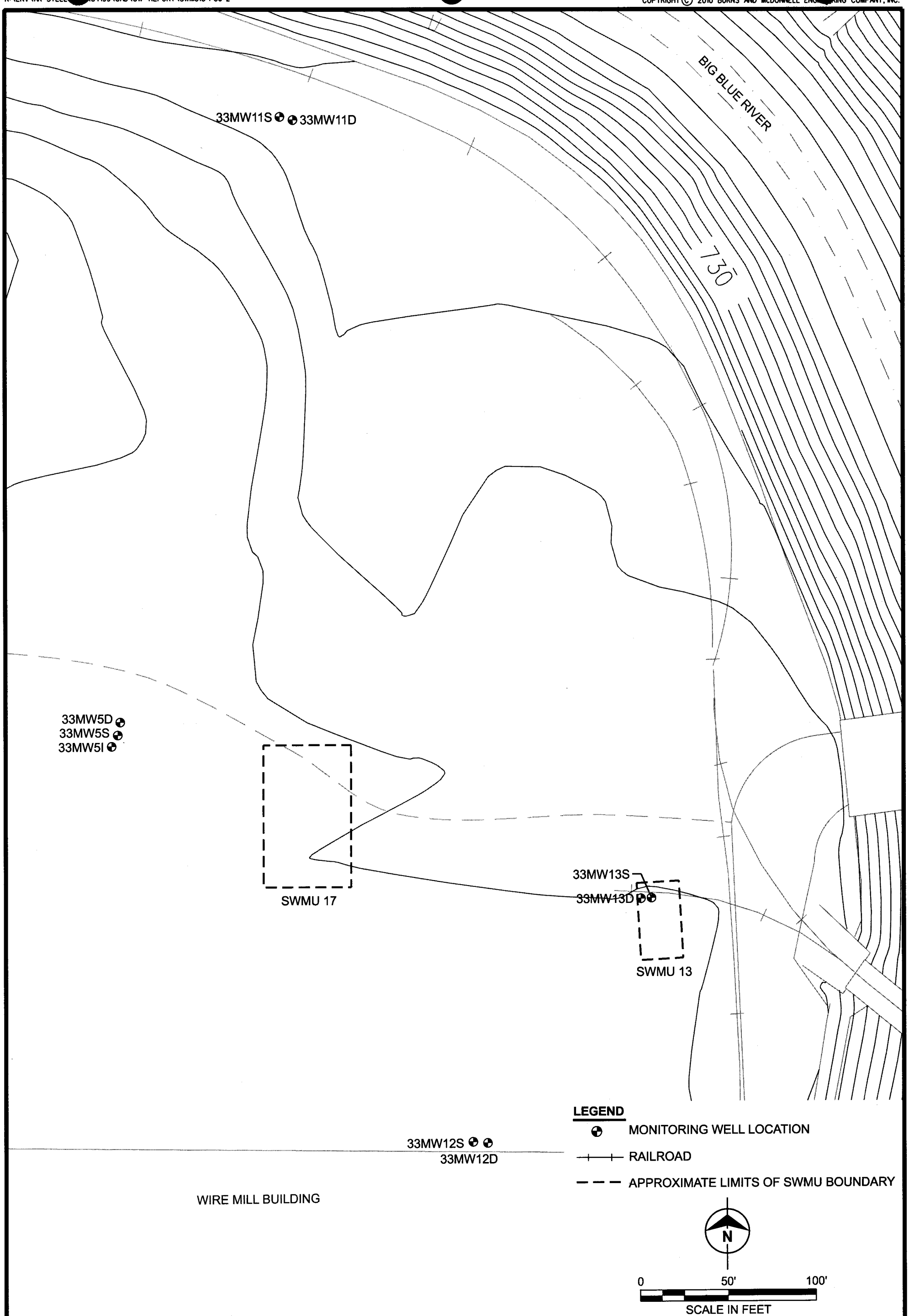

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Figure 6-2
SWMU 13
MONITORING WELL
SAMPLING LOCATIONS
AK STEEL
KANSAS CITY FACILITY

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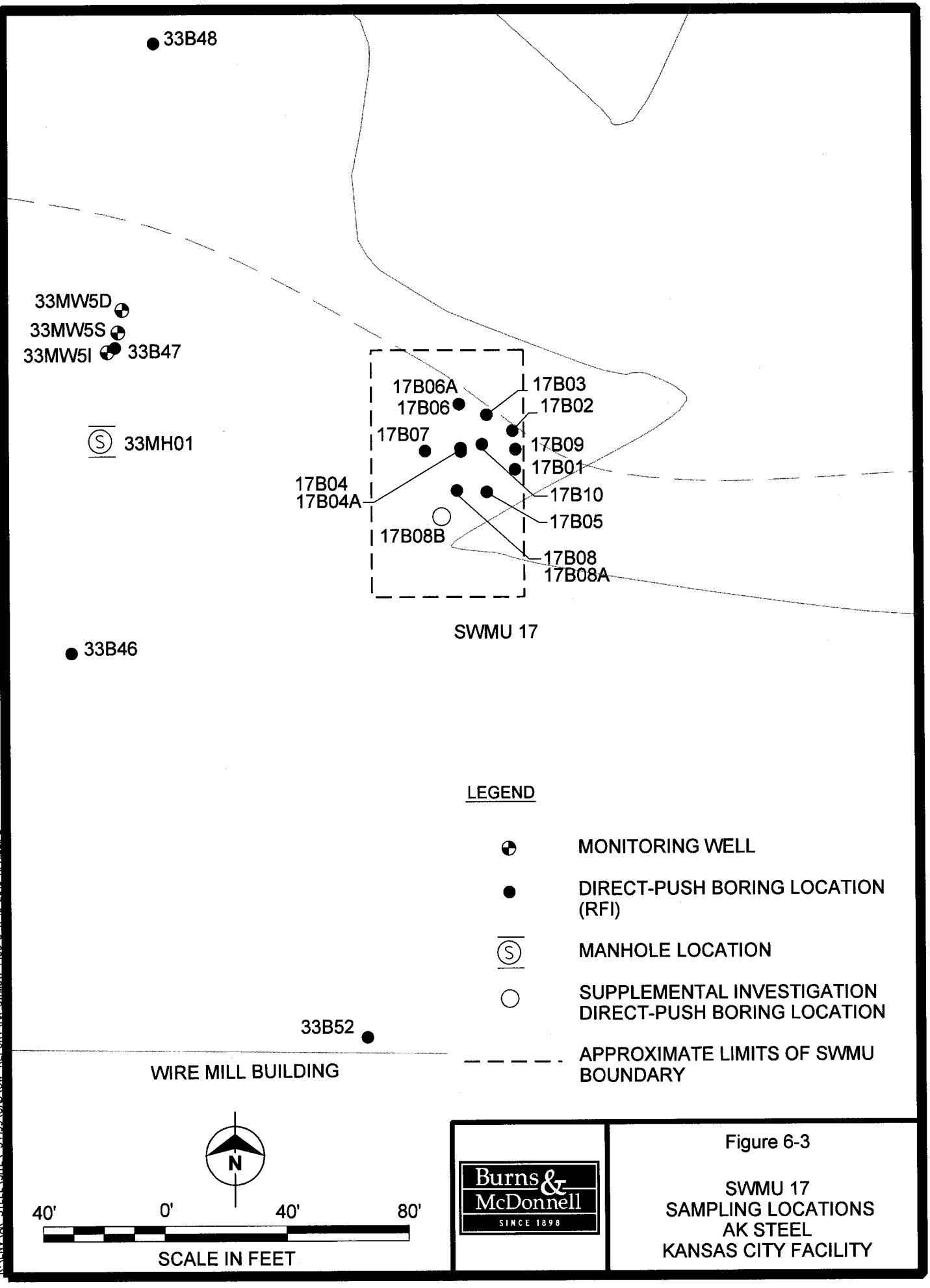

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Figure 6-3

SWMU 17
SAMPLING LOCATIONS
AK STEEL
KANSAS CITY FACILITY

K:\ENV\AK STEEL\SITE\ 54199\CAD\GW REPORT\AK-SWMU17-FIG6-3-11-19-2010-RPHILLIPS
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AKCON-B.DGN() OTI=62-63
AK-ALLSWMU.DGN() OTI=5,62-63

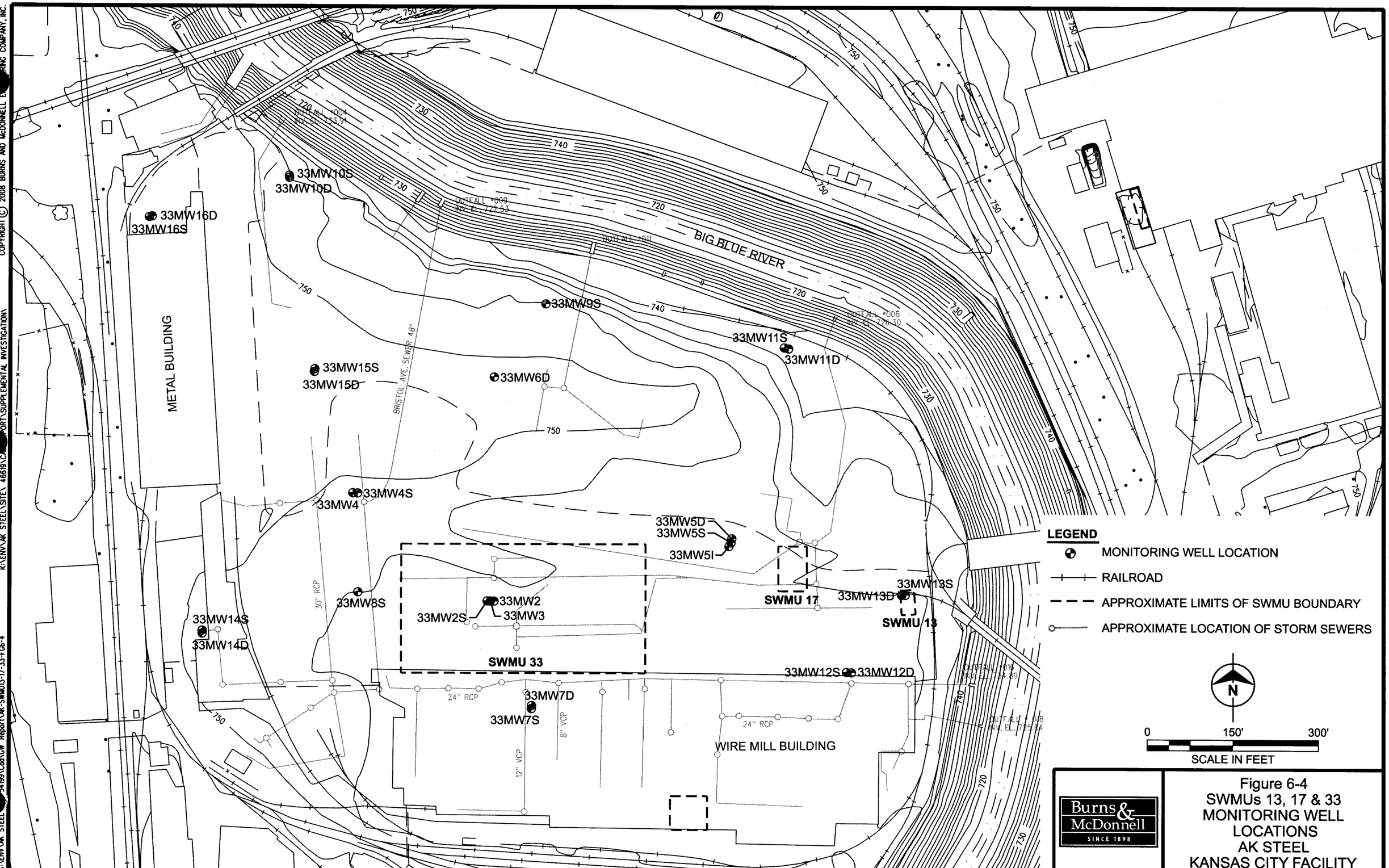

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Figure 6-4
SWMUs 13, 17 & 33
MONITORING WELL
LOCATIONS
AK STEEL
KANSAS CITY FACILITY

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AK-17X11-2008.DGN() 01f-61
AK-ALLSWMU.DGN() 01f-5,62-63
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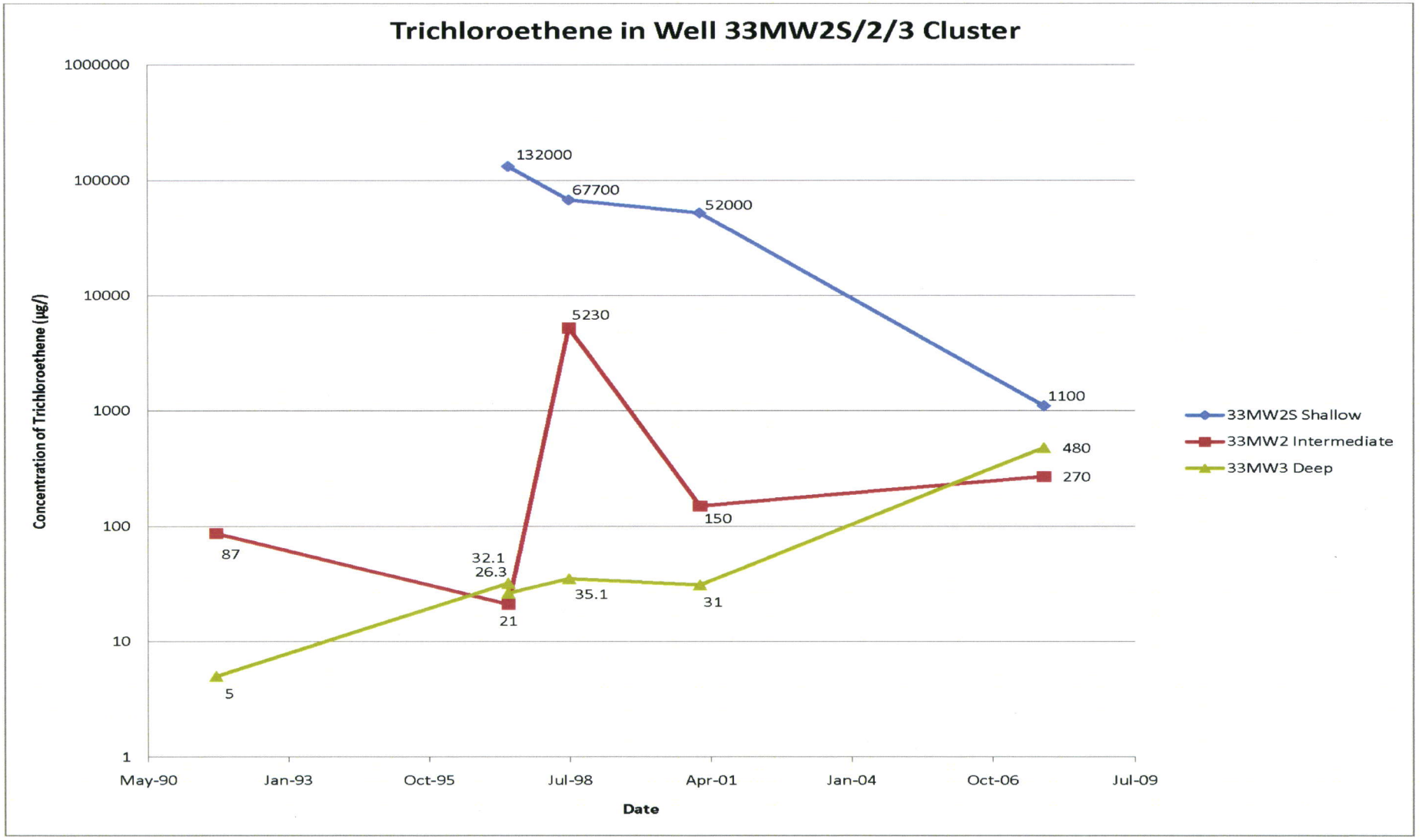
COPYRIGHT [illegible]0 BURNS & McDONNELL ENGINEERING COMPANY, INC.



Notes:

Monitoring Well 33MW2S was installed in 1997 during the RFI.

Monitoring Welles 33MW2 and 33MW3 were installed in 1991 during a Phase II investigation. Data from this event should be considered screening-level data.

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Figure 6-5

TRICHLOROETHENE IN WELL CLUSTER 33MW2S/2/3
AK STEEL KANSAS CITY FACILITY

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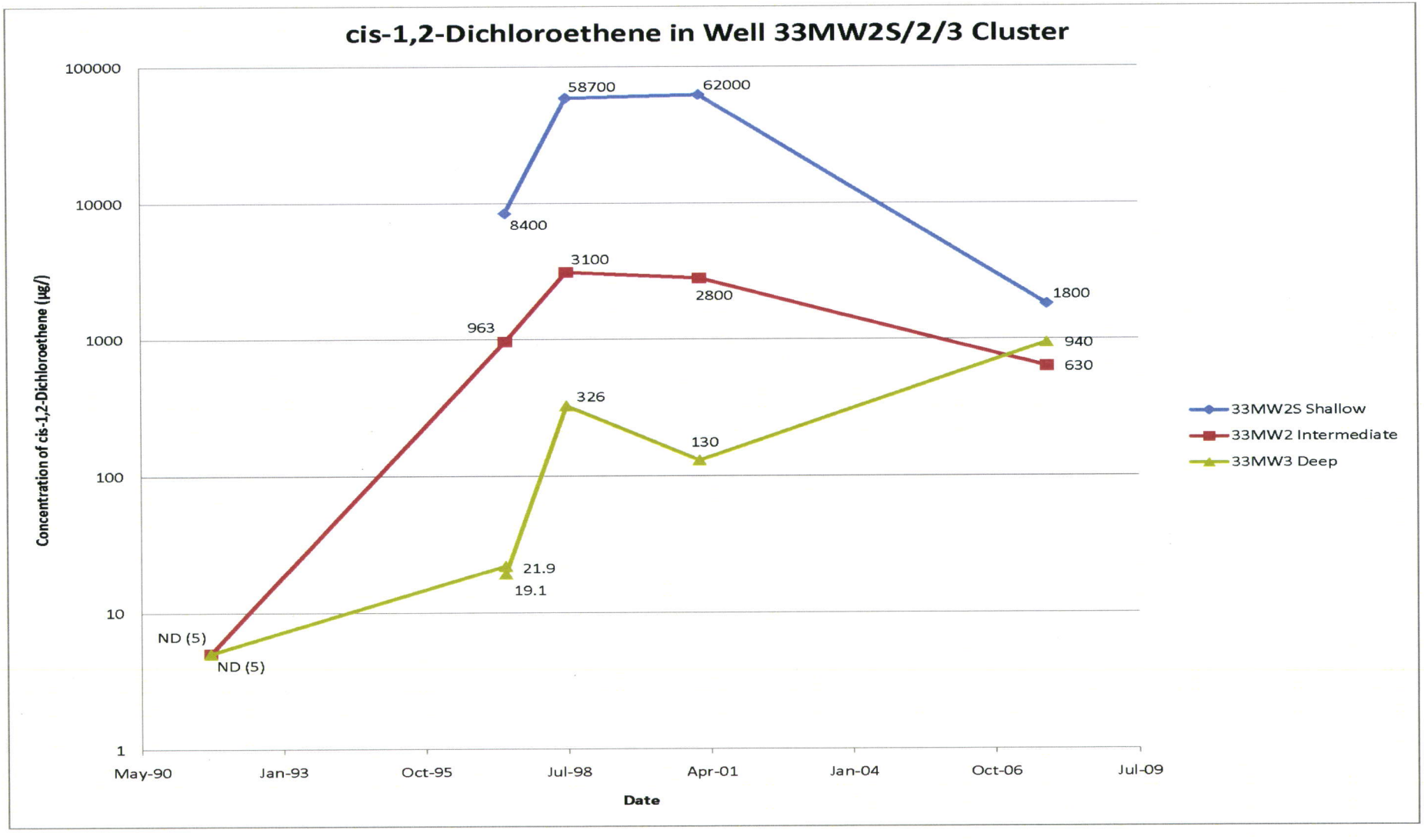

Notes:

Monitoring Well 33MW2S was installed in 1997 during the RFI.

Monitoring Welles 33MW2 and 33MW3 were installed in 1991 during a Phase II investigation. Data from this event should be considered screening-level data.

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Figure 6-6

cis-1,2-DICHLOROETHENE IN WELL CLUSTER 33MW2S/2/3

AK STEEL KANSAS CITY FACILITY

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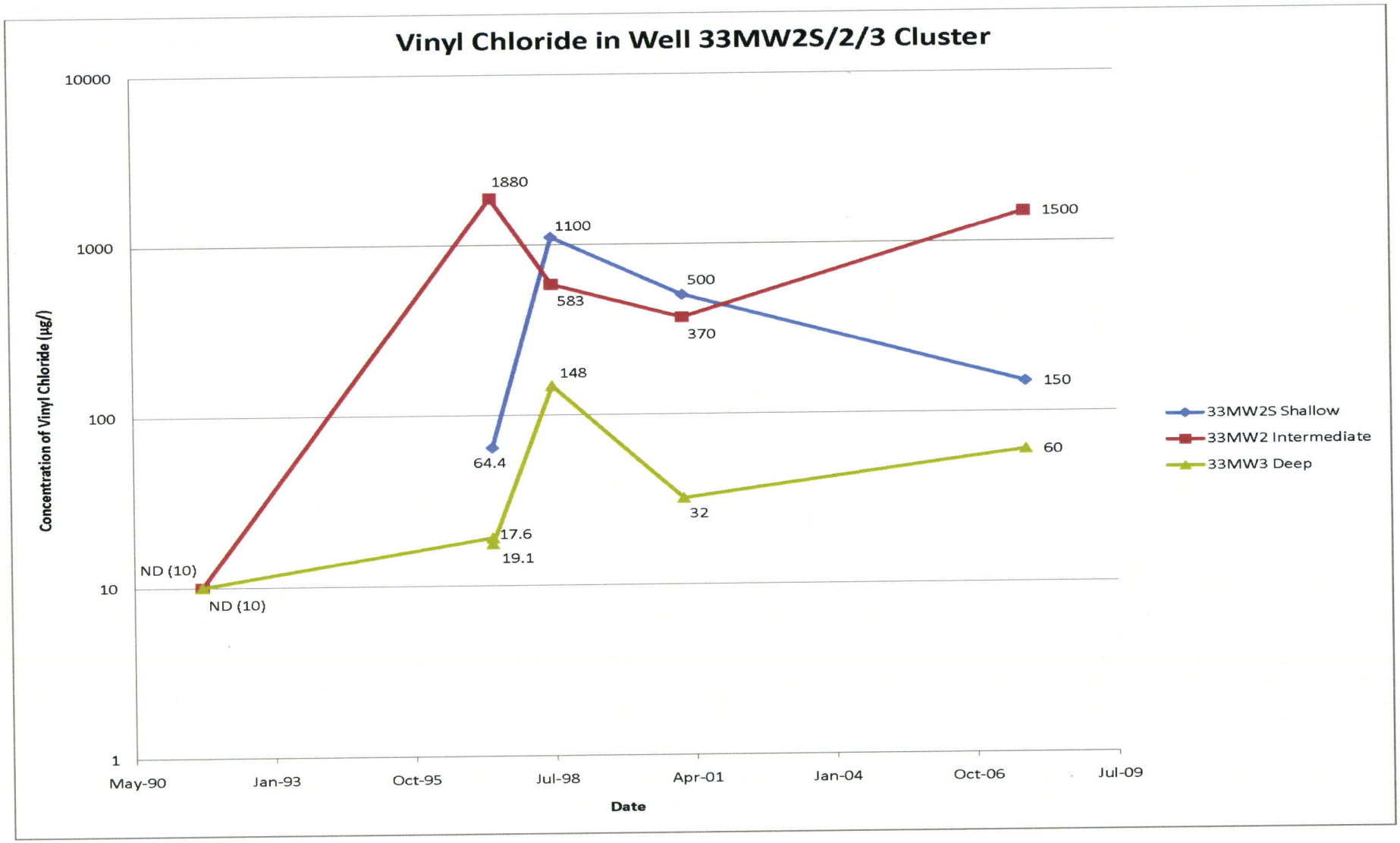

Notes:

Monitoring Well 33MW2S was installed in 1997 during the RFI.

Monitoring Welles 33MW2 and 33MW3 were installed in 1991 during a Phase II investigation. Data from this event should be considered screening-level data.

Burns & McDonnell
SINCE 1898

Figure 6-7

VINYL CHLORIDE IN WELL CLUSTER 33MW2S/2/3
AK STEEL KANSAS CITY FACILITY

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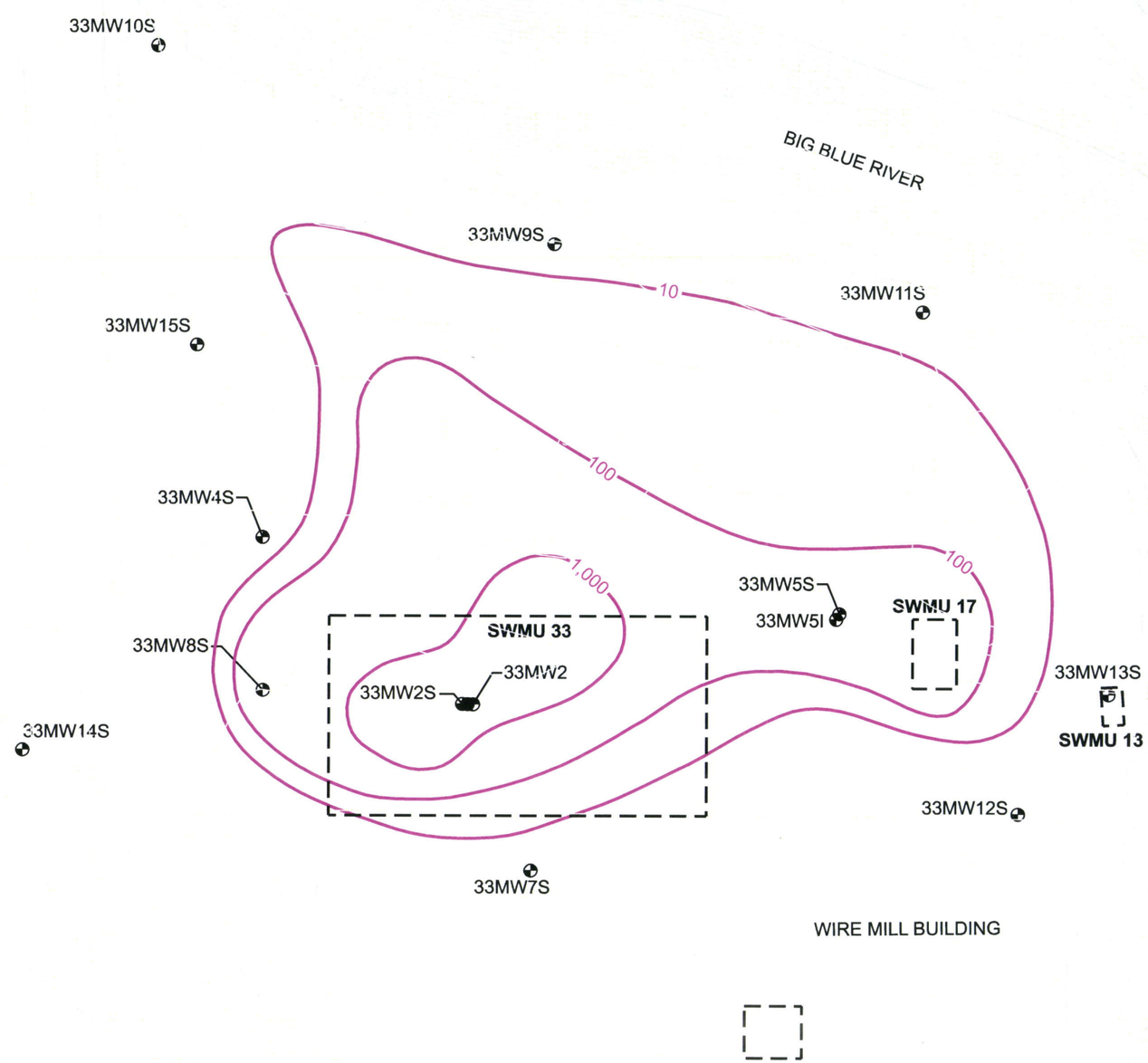

LEGEND

- MONITORING WELL LOCATION
- RAILROAD
- APPROXIMATE LIMITS OF SWMU BOUNDARY

NOTES:

1. SHALLOW WELLS ARE SCREENED IN THE SHALLOW UNCONFINED SATURATED ZONE.
2. SHALLOW WELLS INCLUDE: 33MW2S, 33MW4S, 33MW5S, 33MW7S, 33MW8S, 33MW9S, 33MW10S, 33MW11S, 33MW12S, 33MW13S, 33MW14S, 33MW15S, AND 33MW16S.
3. MONITORING WELLS 33MW2 AND 33MW5I ARE INTERMEDIATE DEPTH WELLS SCREENED DIRECTLY ABOVE THE SEMI-CONFINING LAYER IN THE SHALLOW SATURATED ZONE. THESE WELLS ARE NOT USED IN CONTOURING SHALLOW GROUNDWATER DATA.
4. ISOCONCENTRATION CONTOURS ARE REPORTED IN MICROGRAMS PER LITER (ug/L)
5. CONTOURS GENERATED CONSIDERING HISTORICAL WELL AND DIRECT-PUSH DATA THAT CONSISTED OF A GREATER DENSITY OF SAMPLING POINTS. CONTOURS ARE INTERPOLATED BETWEEN DATA POINTS AND MAY NOT REPRESENT ACTUAL CONCENTRATIONS AT LOCATIONS SHOWN.
6. DETECTED CHLORINATED VOCs IN SHALLOW GROUNDWATER INCLUDE: 1,1-DICHLOROETHENE, 1,1-DICHLOROETHANE CIS-1,2-DICHLOROETHENE, TRANS-1,2-DICHLOROETHENE, TRICHLOROETHENE, AND VINYL CHLORIDE.

0 150' 300'
SCALE IN FEET

N

Burns & McDonnell
SINCE 1898

Figure 6-8

SWMU 33
SHALLOW GROUNDWATER
CONCEPTUAL SITE MODEL
FOR CHLORINATED VOCs
AK STEEL
KANSAS CITY FACILITY

K:\ENV\AK STEEL\Site\54199\Cad\GW Report\AK SUPP INVEST SWMU33-SHGW-VOC-FIG 6-8\ERPNALK\PSTEELR.SWMU 46619\CAD\REPORT\SUPPLEMENTAL INVESTIGATION\
AKSITE.DGN\ 01/13-63
AK-CON-B.DGN\ 01/13-63
AK-TXT-2008.DGN\ 01-61
AK-ALLSWMU.DGN\ 01/-5,62-63

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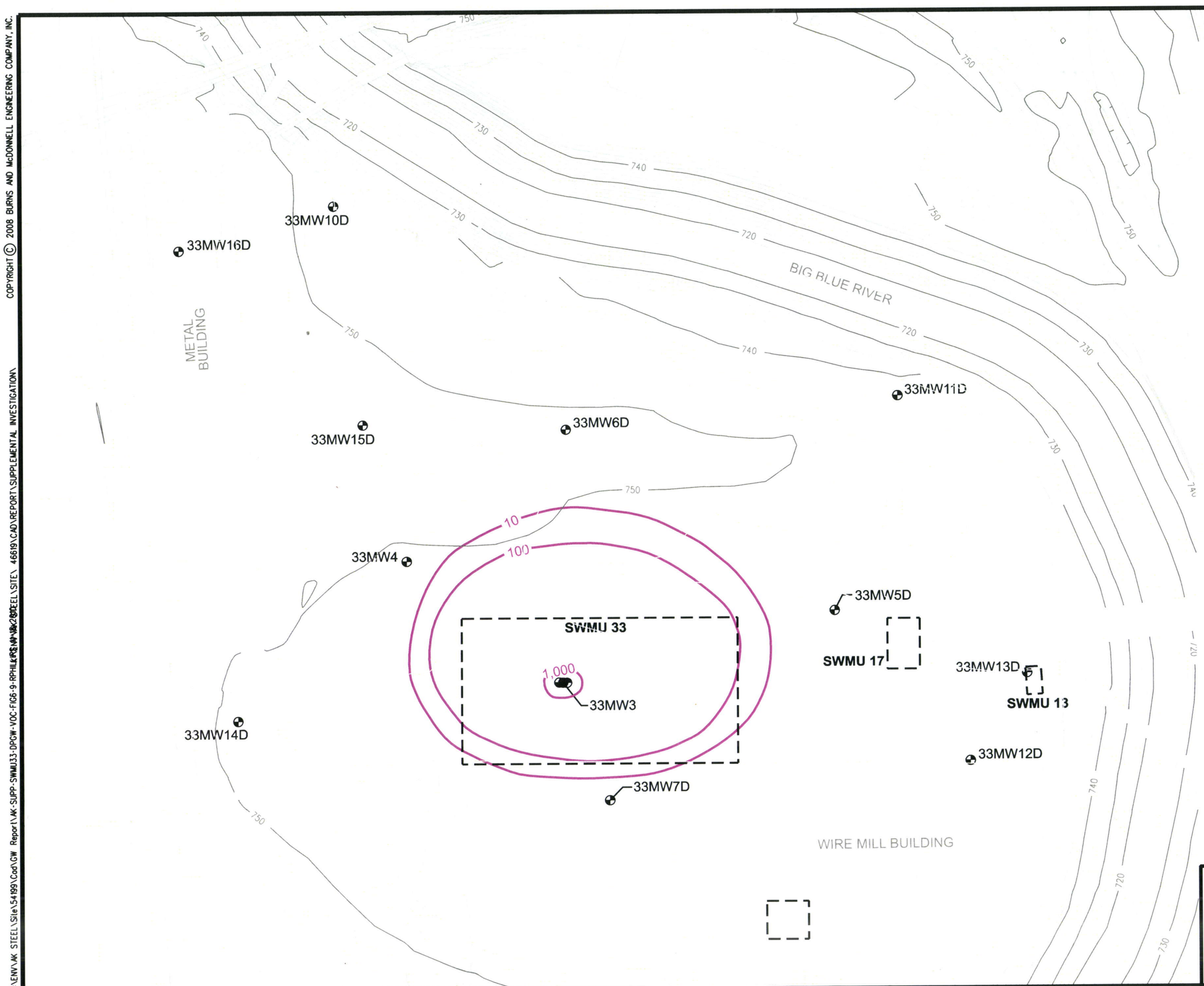

LEGEND

- MONITORING WELL LOCATION
- RAILROAD
- APPROXIMATE LIMITS OF SWMU BOUNDARY

NOTES:

1. DEEP WELLS ARE SCREENED JUST ABOVE BEDROCK IN THE DEEP SEMI-CONFINED SATURATED ZONE.
2. DEEP WELLS INCLUDE: 33MW3, 33MW4, 33MW5D, 33MW6D, 33MW7D, 33MW10D, 33MW11D, 33MW12D, 33MW13D, 33MW14D, 33MW15D AND 33MW16D.
3. ISOCONCENTRATION CONTOURS ARE PRESENTED IN MICROGRAMS PER LITER (ug/L).
4. DETECTED CHLORINATED VOCs IN DEEP GROUNDWATER INCLUDE: 1,1-DICHLOROETHANE, 1,1-DICHLOROETHENE, CIS-1,2-DICHLOROETHENE, TRANS-1,2-DICHLOROETHENE, TRICHLOROETHENE, AND VINYL CHLORIDE.
5. CONTOURS GENERATED CONSIDERING HISTORICAL WELL AND DIRECT-PUSH DATA THAT CONSISTED OF A GREATER DENSITY OF SAMPLING POINTS. CONTOURS ARE INTERPOLATED BETWEEN DATA POINTS AND MAY NOT REPRESENT ACTUAL CONCENTRATIONS AT LOCATIONS SHOWN.

N

0 150' 300'

SCALE IN FEET

Burns & McDonnell
SINCE 1898

Figure 6-9

SWMU 33
DEEP GROUNDWATER
CONCEPTUAL SITE MODEL
FOR CHLORINATED VOCs
AK STEEL
KANSAS CITY FACILITY

K:\ENV\AK STEEL\Site\54199\Cad\GW Report\AK-SUPP-SWMU33-DPGW-VOC-FIG6-9-RPHILKRS(AK-BK2)STEEL\SITE\ 46619\CAD\REPORT\SUPPLEMENTAL INVESTIGATION\
AKSITE.DGN 0/1-3,63
AKCON_B.DGN 0/1-62,63
AK-STEEL.DGN 0/1-61
AK-ALLSWMU.DGN 0/1-5,62-63

EXHIBIT 6-1

GROUNDWATER CONTOUR MAPS
SWMUS ASSOCIATED WITH NAIL MILLDEGREASER VOC PLUME
(SWMU 13, 17, AND 33)

RFI REPORT FIGURES

Figure 2-18 – SWMU 33 Shallow Groundwater Contour Map, May 29, 1997
Figure 2-19 – SWMU 33 Deep Groundwater Contour Map, May 29, 1997
Figure 2-20 – SWMU 33 Shallow Groundwater Contour Map, July 6, 1998
Figure 2-21 – SWMU 33 Deep Groundwater Contour Map, July 6, 1998
Figure 2-22, SWMU 33 Shallow Groundwater Contour Map, Jan. 18, 1999
Figure 2-23, SWMU 33 Deep Groundwater Contour Map, Jan. 18, 1999
Figure 2-24, SWMU 33 Shallow Groundwater Contour Map, Mar. 11, 1999
Figure 2-25, SWMU 33 Deep Groundwater Contour Map, Mar. 11, 1999

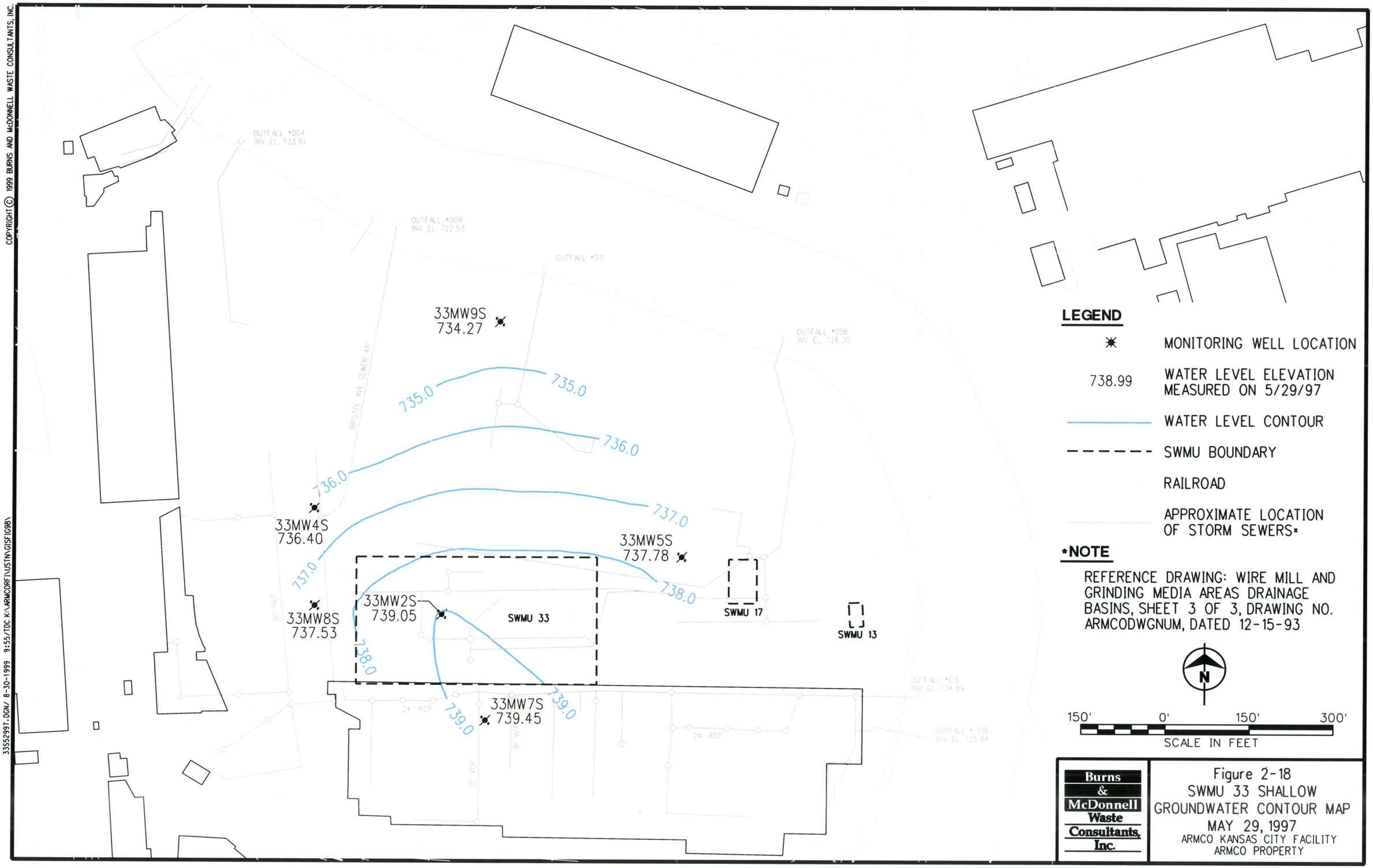

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Figure 2-18
SWMU 33 SHALLOW GROUNDWATER CONTOUR MAP
MAY 29, 1997
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

COPYRIGHT © 1999 BURNS AND McDONNELL WASTE CONSULTANTS, INC.

K:\ARMCORF\USTN\GISFIG98\STORMSWR.DGN(STOR...R) OFF=NONE
K:\ARMCORF\USTN.SUP\FIG17X11.DGN(BDR) OFF=...-62
K:\ARMCORF\USTN\INTRMEAS\SITE.DGN() OFF=1-8,42,62-63
K:\ARMCORF\USTN.SUP\SWMU0001.DGN() OFF=3,54
33S52997.DGN/ 8-30-1999 9:55/TDC K:\ARMCORF\USTN\GISFIG98\

COPYRIGHT © 1999 BURNS AND McDONNELL WASTE CONSULTANTS, INC.

K:\ARMCORF1\USTN\GISF1G98\STORMSWR.DGN(STORM) OFF=NONE
K:\ARMCORF1\USTN.SUP\FIG17X11.DGN(BDR) OFF=1-62
K:\ARMCORF1\USTN\INTRMEAS\SITE.DGN() OFF=1-8,14,62-63
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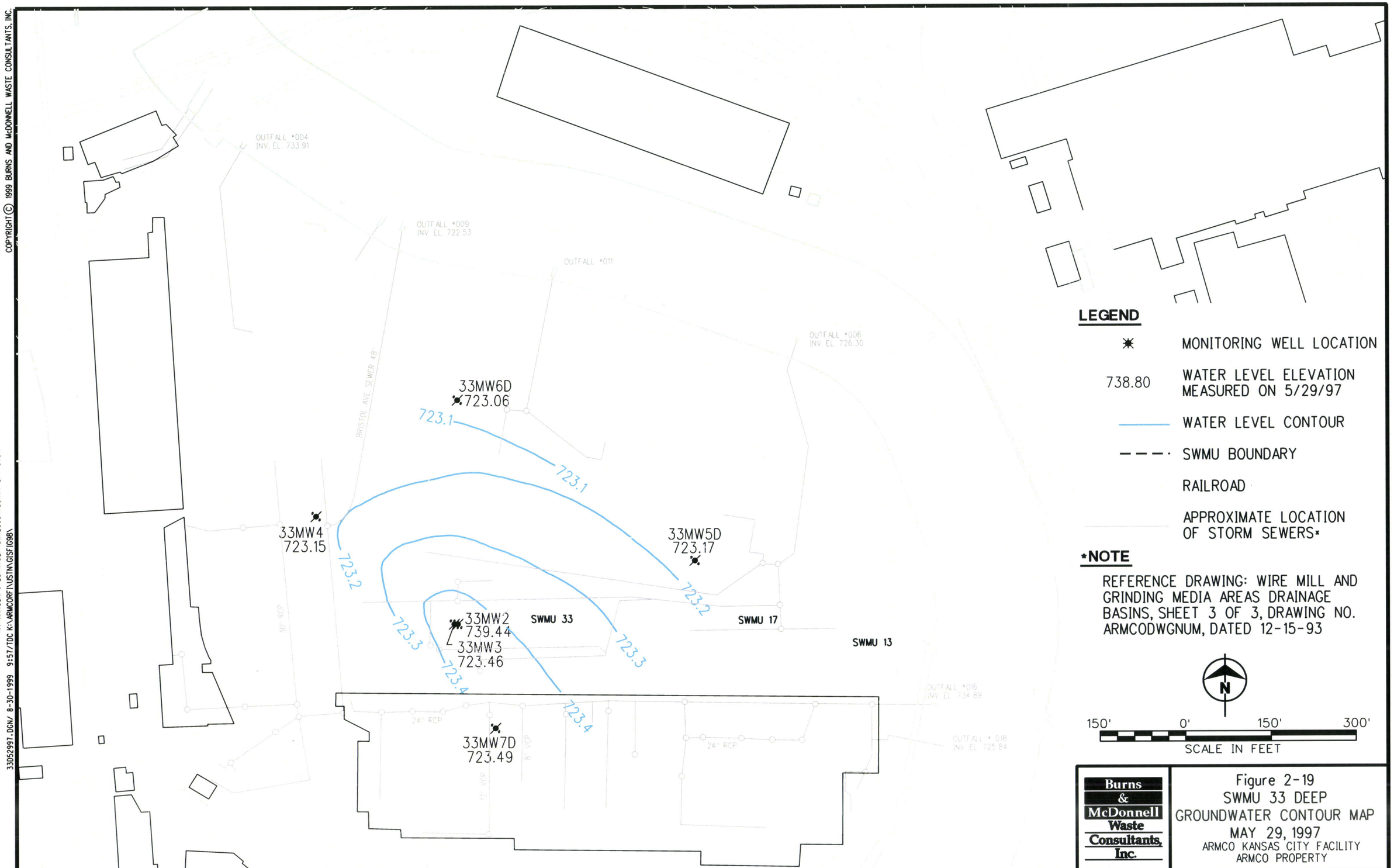
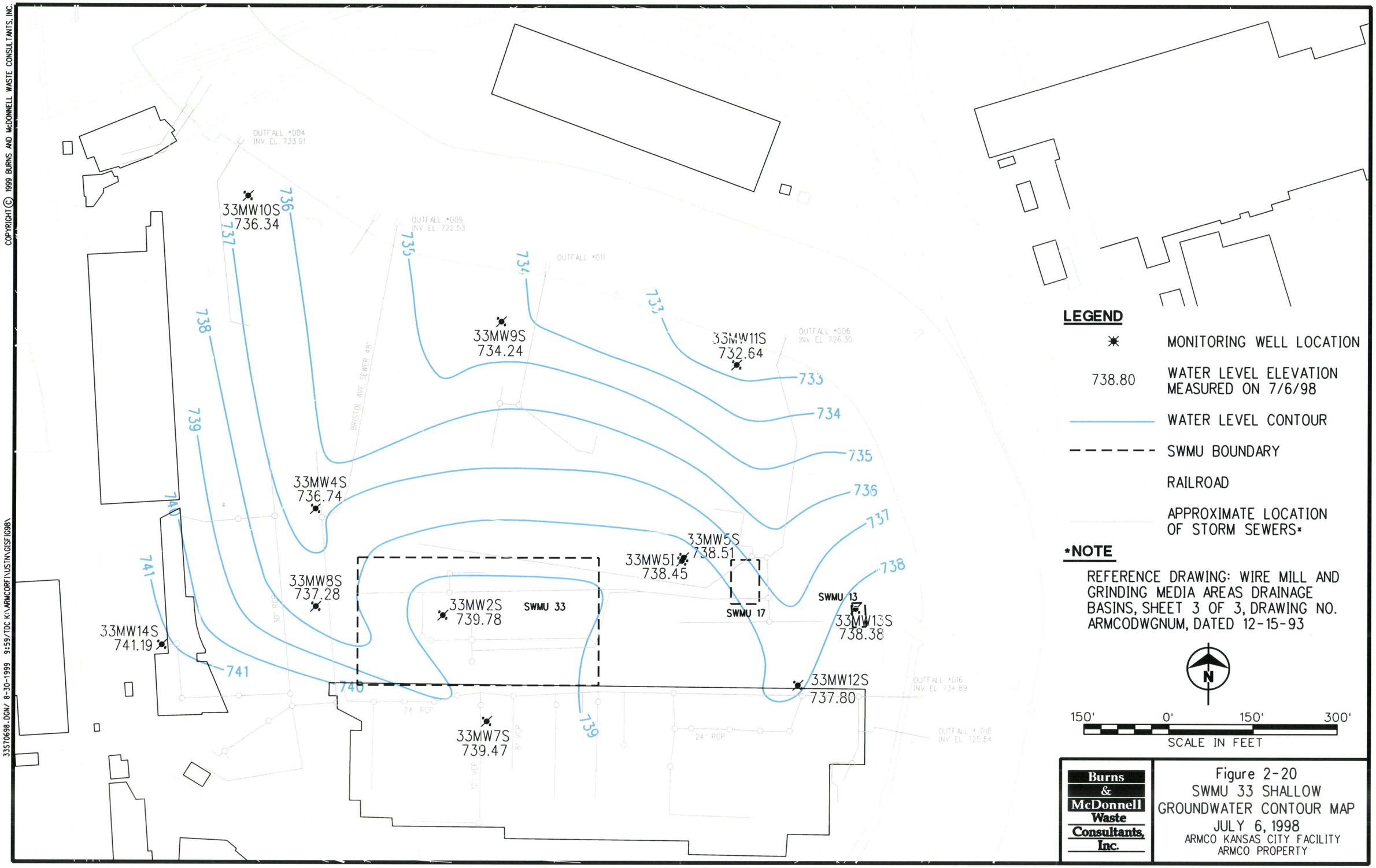


Figure 2-19
SWMU 33 DEEP
GROUNDWATER CONTOUR MAP
MAY 29, 1997
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY



Burns & McDonnell Waste Consultants, Inc.

Figure 2-20
SWMU 33 SHALLOW GROUNDWATER CONTOUR MAP
JULY 6, 1998
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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K:\ARMCORF\USTN.SUP\FIG17X11.DGN(BDR) OFF=[illegible]62
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K:\ARMCORF\USTN.SUP\SWMU0001.DGN() OFF=3.54
K:\ARMCORF\USTN\GISFIG98\STORMSWR.DGN(STORM SEWER) OFF=NONE
33S70698.DGN/ 8-30-1999 9:59/TDC K:\ARMCORF\USTN\GISFIG98\

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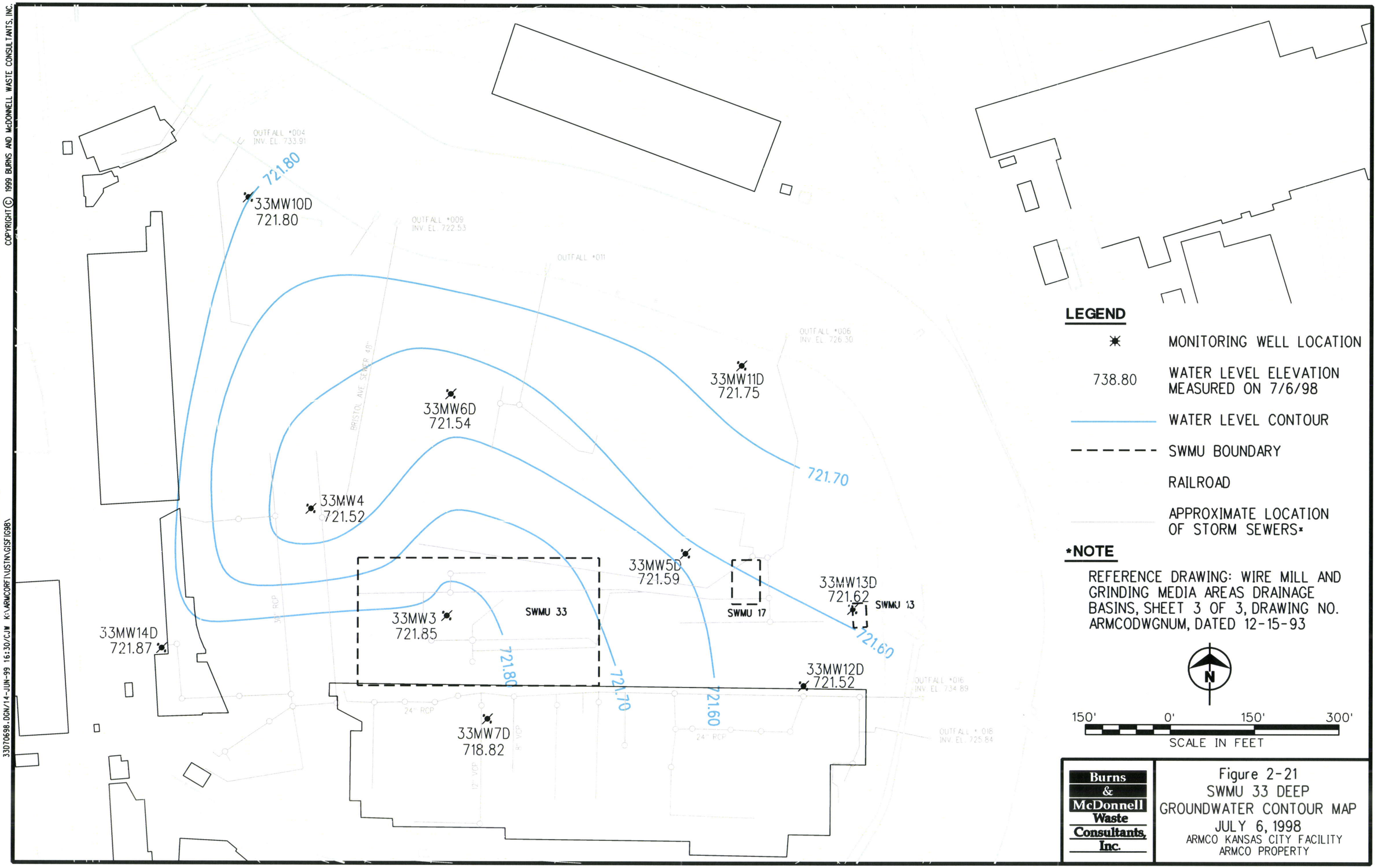
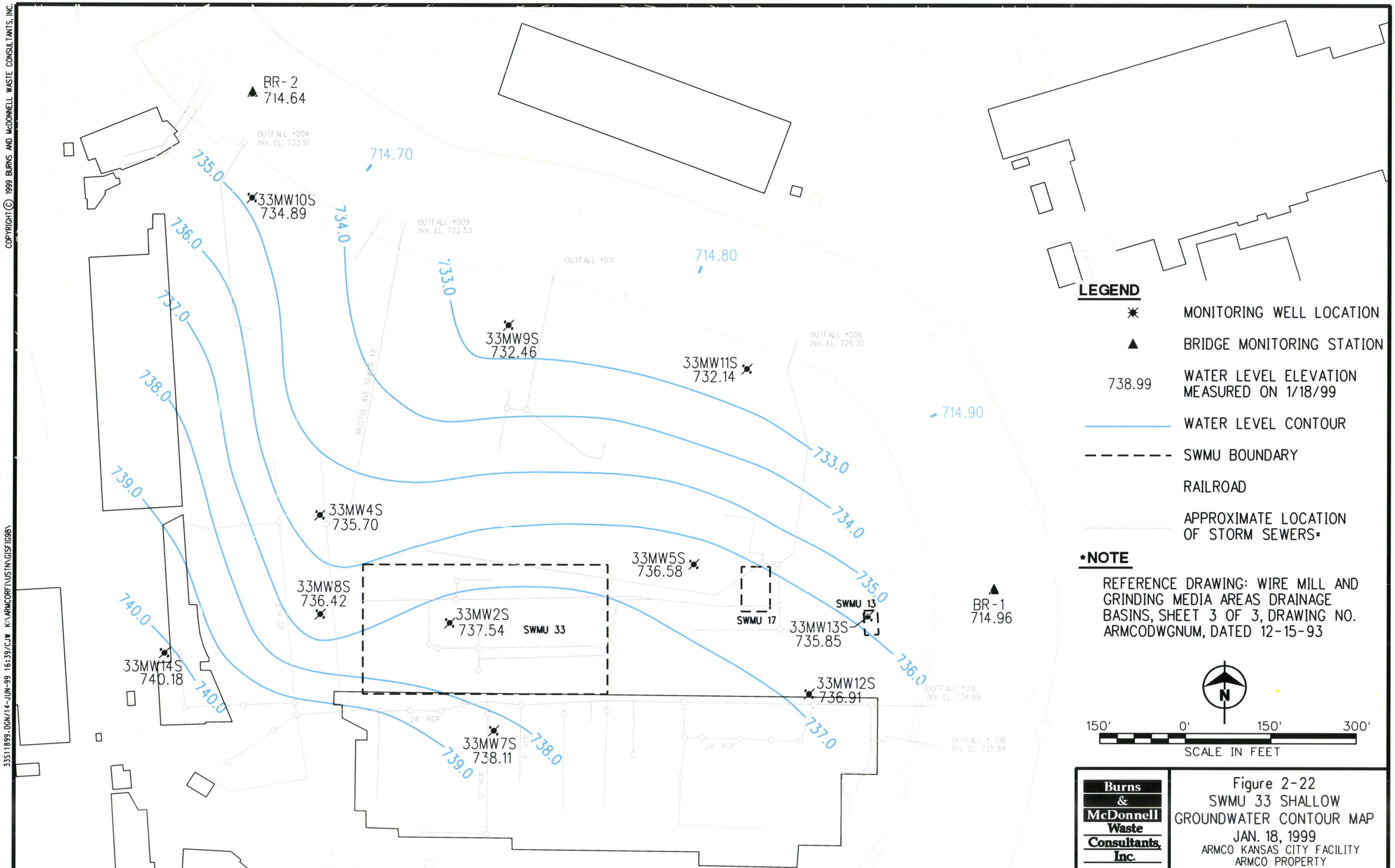


Figure 2-21
SWMU 33 DEEP
GROUNDWATER CONTOUR MAP
JULY 6, 1998
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

k:\armcorfi\ustn\gisfig98\stormsw.dgn
k:\armcorfi\ustn.sup\fig17x11.dgn
k:\armcorfi\ustn\intrmeds\site.dgn
k:\armcorfi\ustn.sup\swmu0001.dgn
33070698.DGN/14-JUN-99 16:30/CJW K:\ARMCORFI\USTN\GISFIG98\



Burns & McDonnell Waste Consultants, Inc.

Figure 2-22
SWMU 33 SHALLOW GROUNDWATER CONTOUR MAP
JAN. 18, 1999
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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k:\armcorfi\ustn.sup\fig17x11.dgn
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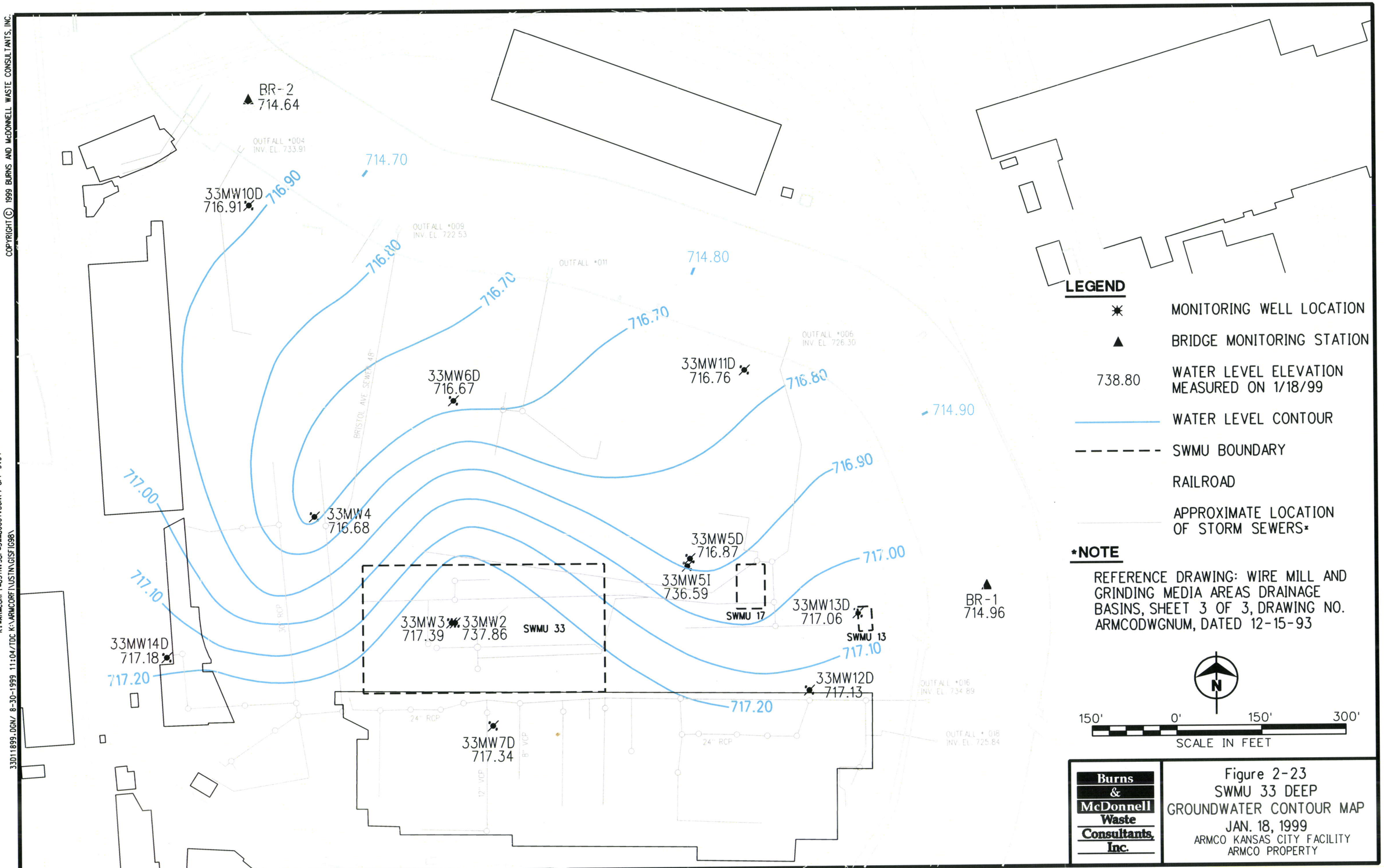
k:\armcorfi\ustn.sup\swmu0001.dgn
k:\armcorfi\ustn\gisfig98\stormswr.dgn
33S11899.DGN/14-JUN-99 16:39/CJW K:\ARMCORFI\USTN\GISFIG98\



Burns & McDonnell Waste Consultants, Inc.

Figure 2-23
SWMU 33 DEEP
GROUNDWATER CONTOUR MAP
JAN. 18, 1999
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

COPYRIGHT © 1999 BURNS AND McDONNELL WASTE CONSULTANTS, INC.

K:\ARMCORF\USTN\GISFIG98\STORMSWR.DGN(STORM) OFF=NONE
K:\ARMCORF\USTN\SUP\FIG17X11.DGN(BDR) OFF=1,62
K:\ARMCORF\USTN\INTRMEAS\SITE.DGN() OFF=1-8,42,62-63
K:\ARMCORF\USTN\SUP\SWMU0001.DGN() OFF=3,54
33D11899.DGN/ 8-30-1999 11:04/TDC K:\ARMCORF\USTN\GISFIG98\

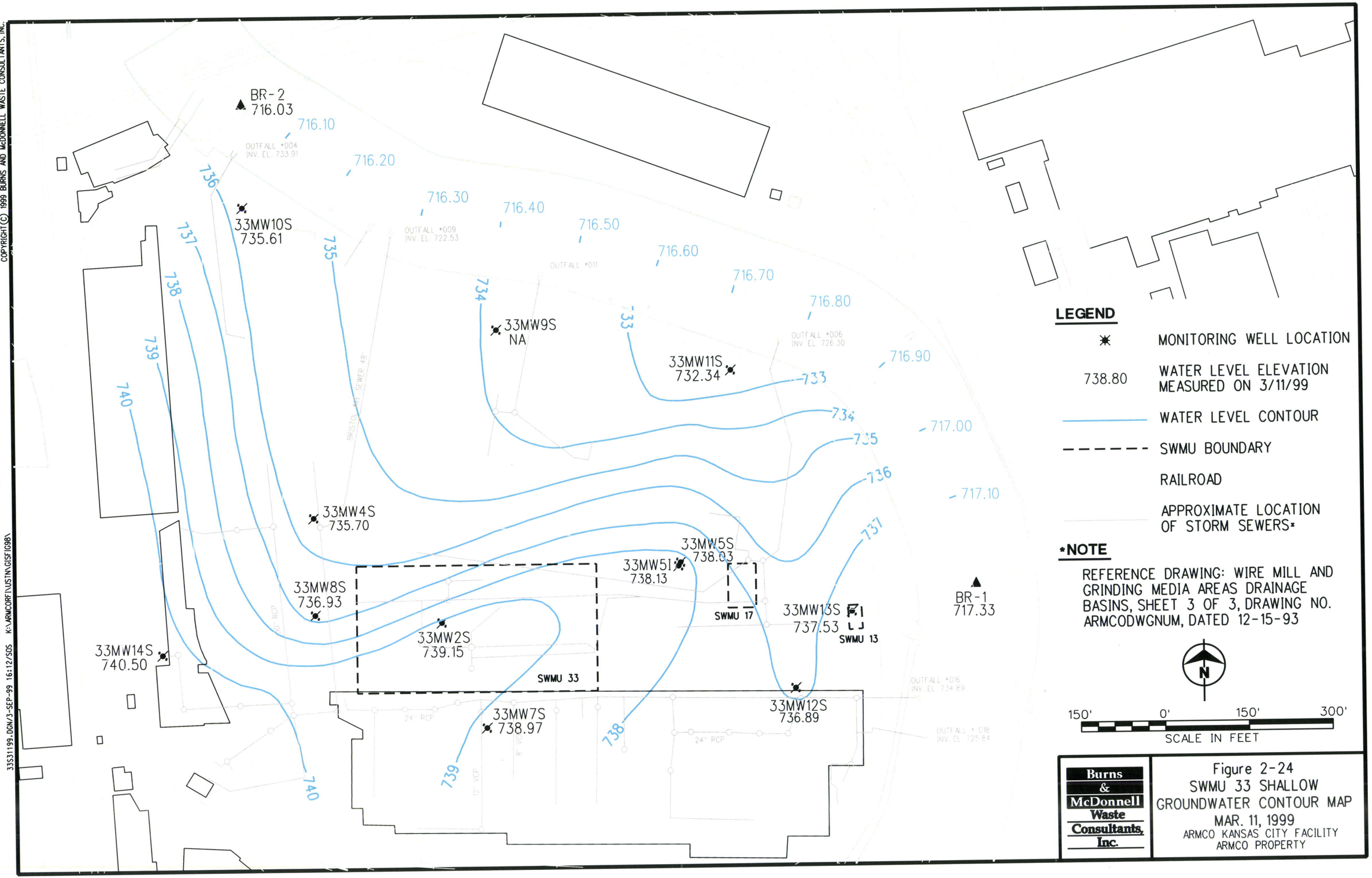


Figure 2-24
SWMU 33 SHALLOW GROUNDWATER CONTOUR MAP
MAR. 11, 1999
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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k:\armcorfi\ustn.sup\fig17x11.dgn
k:\armcorfi\ustn\intrmeas\site.dgn
k:\armcorfi\ustn.sup\swmu0001.dgn
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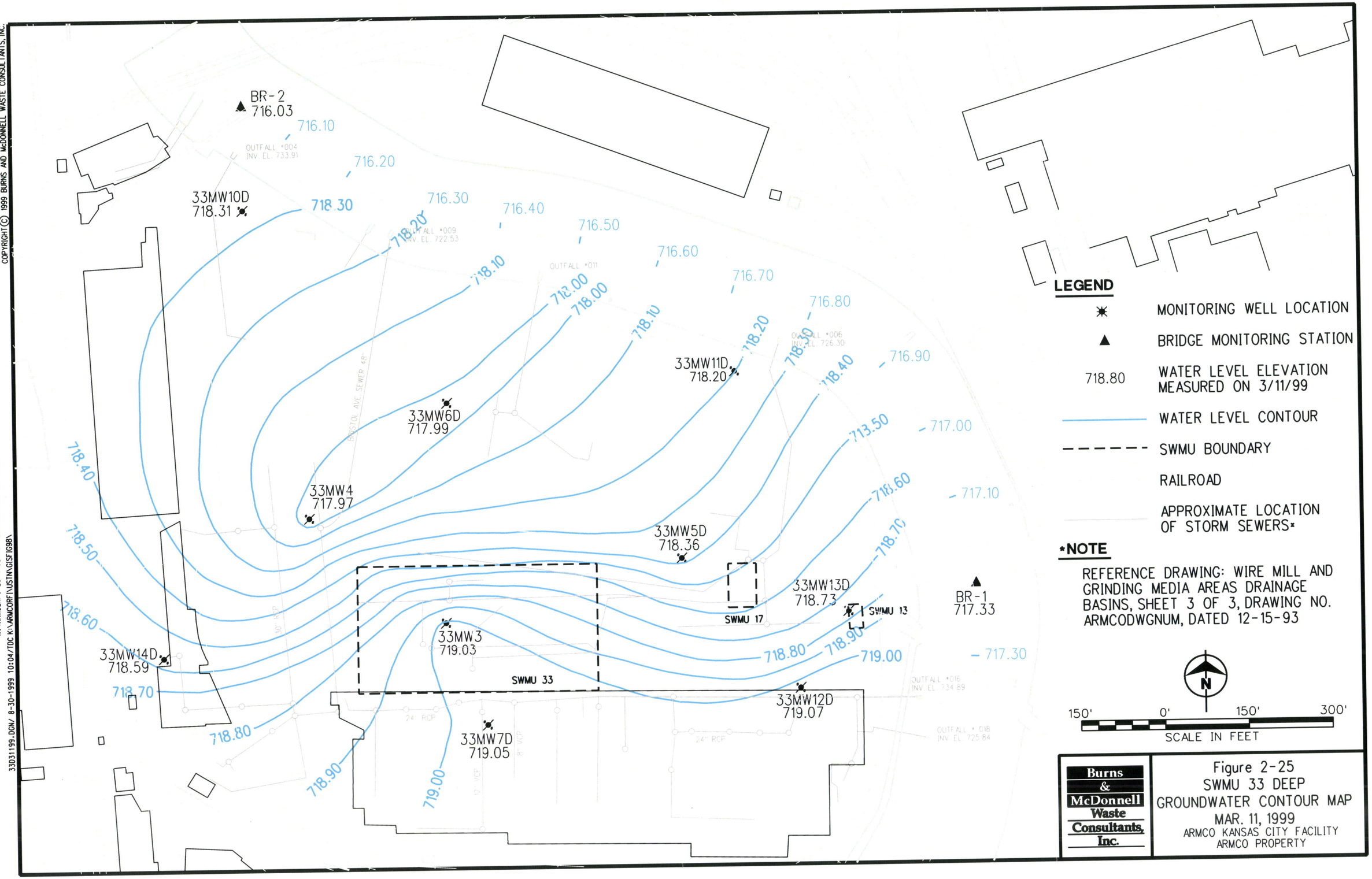
33S31199.DGN/3-SEP-99 16:12/SOS K:\ARMCORFI\USTN\GISFIG98\



Burns & McDonnell Waste Consultants, Inc.

Figure 2-25
SWMU 33 DEEP
GROUNDWATER CONTOUR MAP
MAR. 11, 1999
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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K:\ARMCORF\USTN\GISFIG98\STORMSWR.DGN(STOR) OFF=NONE
K:\ARMCORF\USTN\SUP\FIG17X11.DGN(BDR) OFF=-62
K:\ARMCORF\USTN\INTRMEAS\SITE.DGN() OFF=1-8,42,62-63
K:\ARMCORF\USTN\SUP\SWMU0001.DGN() OFF=3,54
33D31199.DGN/ 8-30-1999 10:04/TDC K:\ARMCORF\USTN\GISFIG98\

EXHIBIT 6-2

GROUNDWATER CONTOUR MAPS
SWMUS ASSOCIATED WITH NAIL MILLDEGREASER VOC PLUME
(SWMU 13, 17, AND 33)

2001 SAMPLING EVENT FIGURES

Figure 2 – SWMU 33 Deep Groundwater Contour Map, Feb. 1, 2001
Figure 3 – SWMU 33 Shallow Groundwater Contour Map, Feb. 1, 2001

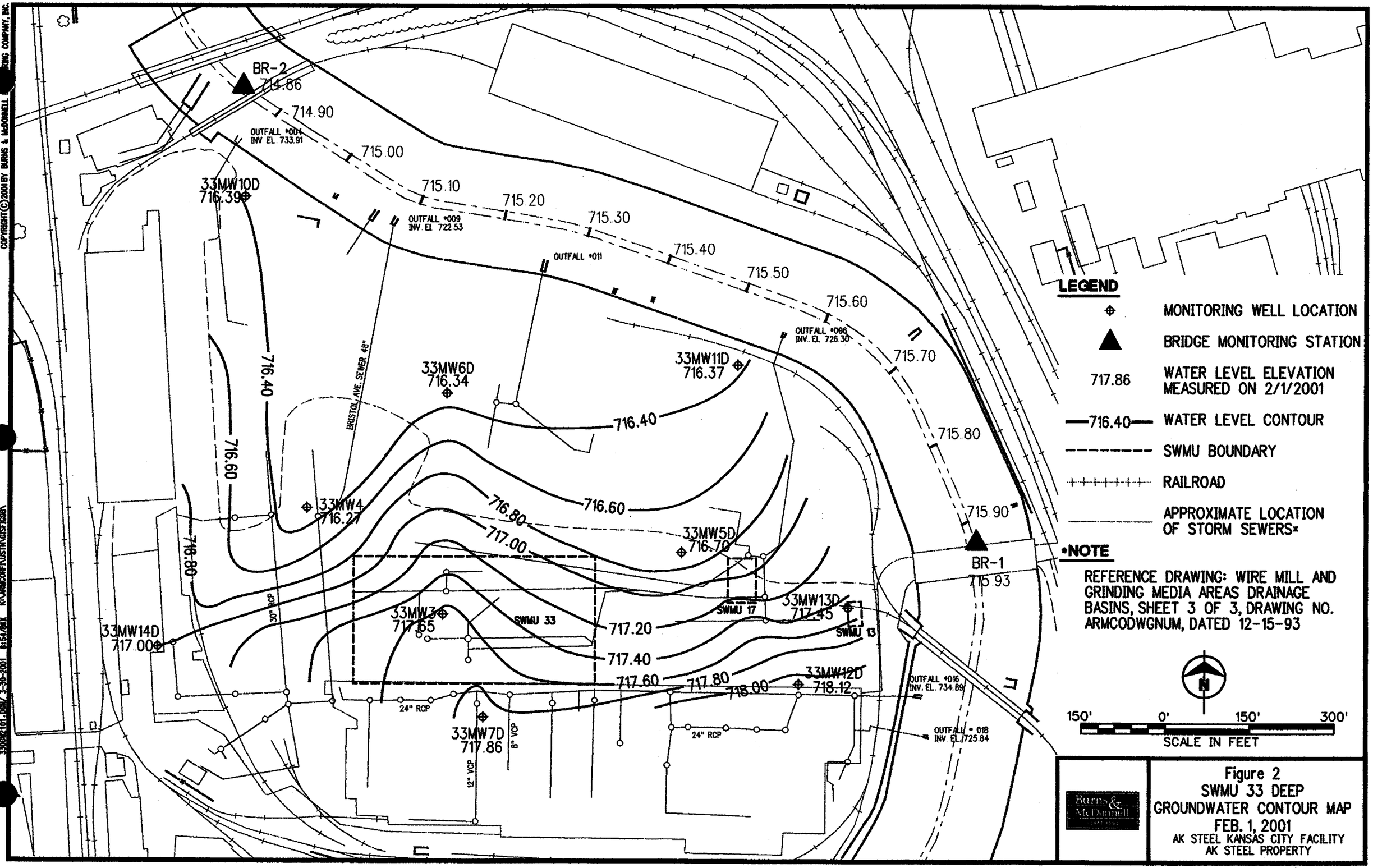

Figure 2
SWMU 33 DEEP
GROUNDWATER CONTOUR MAP
FEB. 1, 2001
AK STEEL KANSAS CITY FACILITY
AK STEEL PROPERTY

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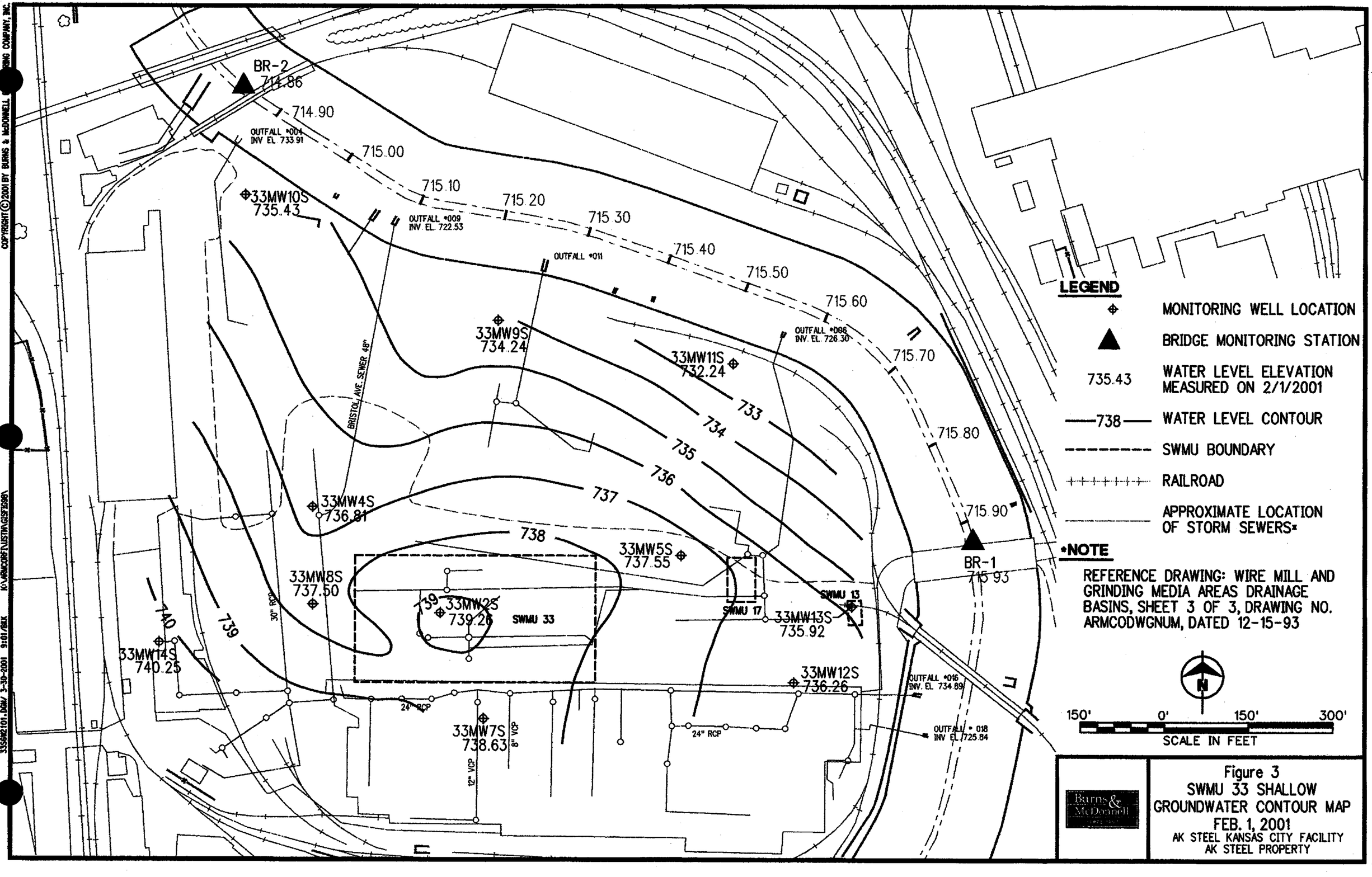

Figure 3
SWMU 33 SHALLOW GROUNDWATER CONTOUR MAP
FEB. 1, 2001
AK STEEL KANSAS CITY FACILITY
AK STEEL PROPERTY

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EXHIBIT 6-3

GROUNDWATER CONTOUR MAPS
SWMUS ASSOCIATED WITH NAIL MILLDEGREASER VOC PLUME
(SWMU 13, 17, AND 33)

SUPPLEMENTAL INVESTIGATION REPORT FIGURES

Figure 13-2 – SWMU 33 Shallow Groundwater Contour Map, Sept. 24, 2007
Figure 13-3 – SWMU 33 Deep Groundwater Contour Map, Sept. 24, 2007

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AK-46619-SUPP INVEST-SWMU33-SHGW-SEPT07-FG13-2.DGN / 2-15-2008 9:12 / K:\ENV\AK STEEL\SITE\ 46619\CAD\REPORT\SUPPLEMENTAL INVESTIGATION\
AKSITE.DGN(1 0)(-3,63
AKSQN.DGN(1 0)(-3,62-63
AK-TITLE-2008.DGN(1 0)(-61
AK-ALLSWMU.DGN(1 0)(-5,62-63

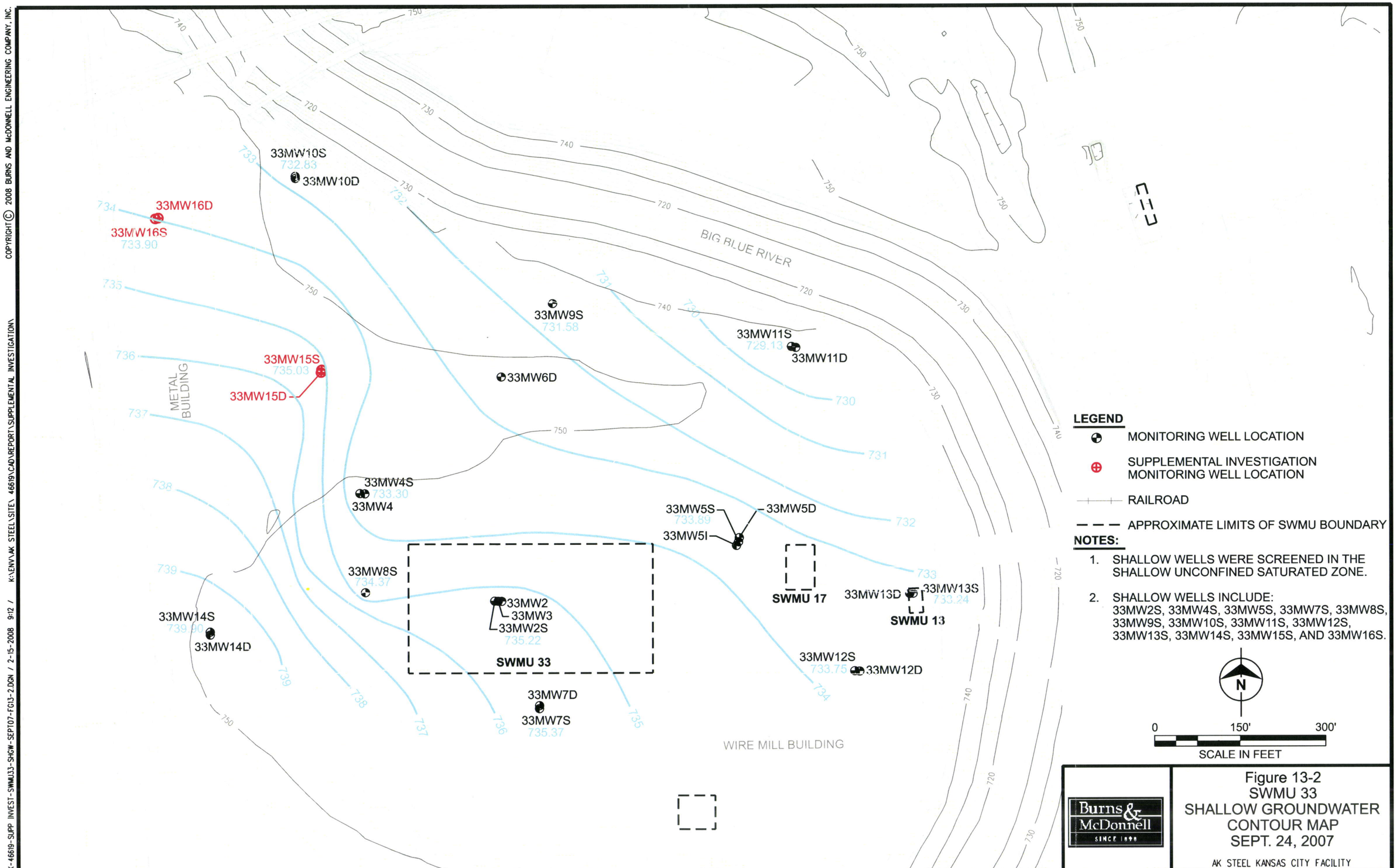

Figure 13-2
SWMU 33
SHALLOW GROUNDWATER
CONTOUR MAP
SEPT. 24, 2007

AK STEEL KANSAS CITY FACILITY

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AK-46619-SUPP INVEST-SWMU33-DPGW-SEPT07-FG13-3.DGN / 2-13-2008 9:12 / K:\ENV\AK STEEL\SITE\ 46619\CAD\REPORT\SUPPLEMENTAL INVESTIGATION\
AKSITE.DGN\ 0\(1-3,63
AKSITE.DGN\ 0\(1-2,62-63
AK-17X11-2008.DGN\ 0\(1-61
AK-ALLSWMU.DGN\ 0\(1-5,62-63

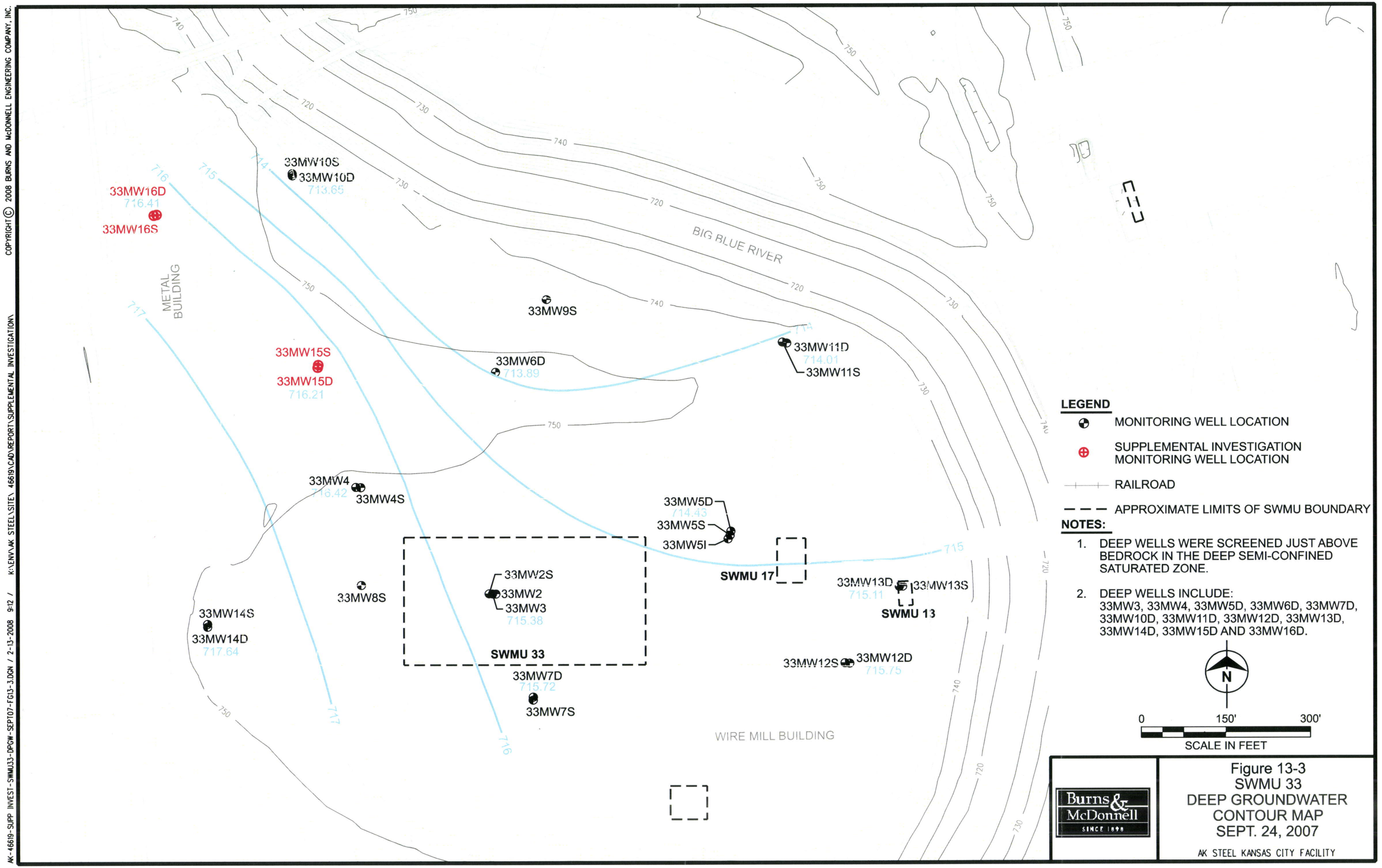

Figure 13-3
SWMU 33
DEEP GROUNDWATER
CONTOUR MAP
SEPT. 24, 2007

AK STEEL KANSAS CITY FACILITY

EXHIBIT 6-4

RFI REPORT FIGURES FOR
SWMU 13 – Pickle Liquor Tank2

Figure 15-4 – SWMU 13 Dissolved Metals and pH Groundwater Results
Figure 15-5 – SWMU 13 Total VOC and Total SVOC Groundwater Results

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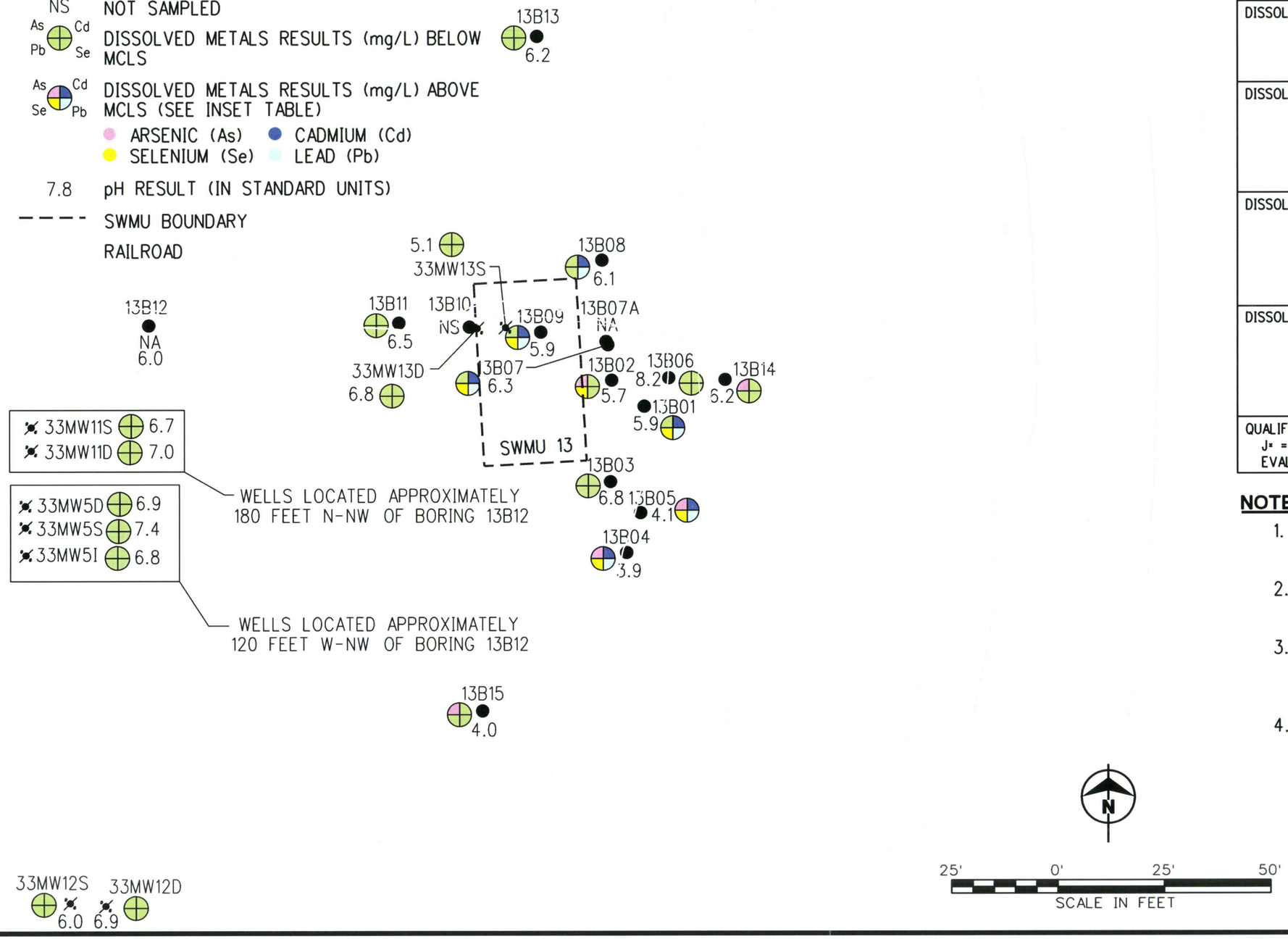
LEGEND

- RFI MONITORING WELL LOCATION
- DIRECT-PUSH BORING LOCATION
- NA — METALS NOT ANALYZED
- NS — NOT SAMPLED
- As Cd Pb Se — DISSOLVED METALS RESULTS (mg/L) BELOW MCLS
- As Cd Se Pb — DISSOLVED METALS RESULTS (mg/L) ABOVE MCLS (SEE INSET TABLE)
  - ARSENIC (As)
  - CADMIUM (Cd)
  - SELENIUM (Se)
  - LEAD (Pb)
- 7.8 — pH RESULT (IN STANDARD UNITS)
- SWMU BOUNDARY
- RAILROAD



DISSOLVED METALS GROUNDWATER DETECTIONS ABOVE MCLs			
PARAMETER	MCL (mg/L)	SAMPLE	SAMPLE RESULT (mg/L)
DISSOLVED ARSENIC	0.05	13B02/DW1	0.0937
		13B04/DW1	0.115
		13B05/DW1	0.137
		13B14/DW1	0.0646
		13B15/DW1	0.138
DISSOLVED CADMIUM	0.005	13B01/DW1	0.0538
		13B01/DW1D	0.0543
		13B04/DW1	0.045 J*
		13B05/DW1	0.0216 J*
		13B07/DW1	0.0189
		13B08/DW1	00.0103
		13B09/DW1	0.0529
DISSOLVED LEAD	0.015	13B01/DW1	0.177
		13B01/DW1D	0.189
		13B04/DW1	0.0206 J*
		13B05/DW1	0.0223 J*
		13B07/DW1	0.0801
		13B08/DW1	0.043
		13B09/DW1	0.198
DISSOLVED SELENIUM	0.05	13B01/DW1	0.168
		13B01/DW1D	0.187
		13B02/DW1	0.06
		13B04/DW1	0.0855
		13B05/DW1	0.0815
		13B07/DW1	0.0637
		13B09/DW1	0.162

QUALIFIER NOTES:
J* = QUALIFIED AS ESTIMATED DURING QC EVALUATION.

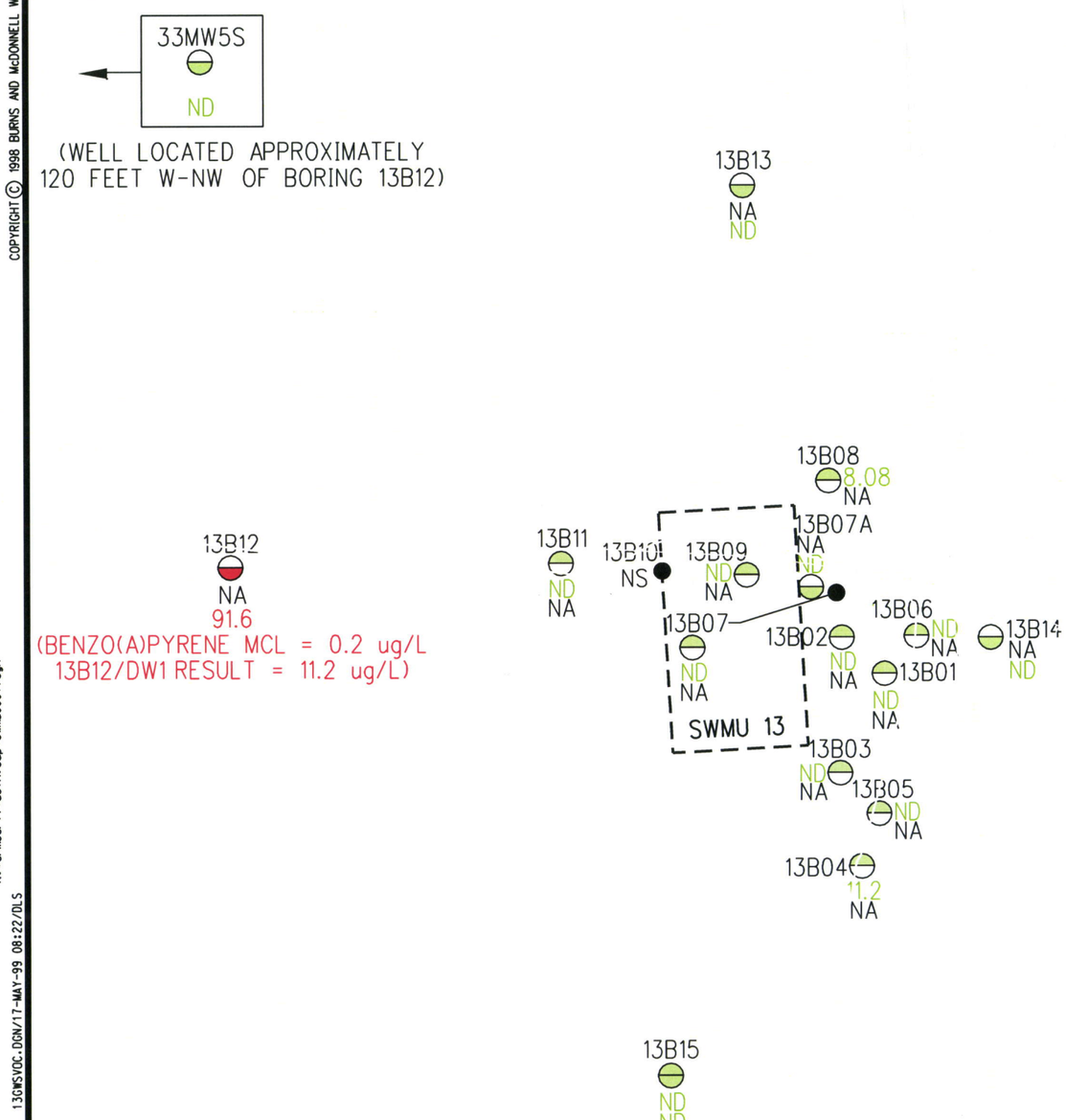
NOTES:

1. DIRECT-PUSH GROUNDWATER SAMPLES COLLECTED DURING RFI PHASE 1 (1997).
2. MONITORING WELL GROUNDWATER SAMPLES COLLECTED DURING RFI PHASE 2 (1998).
3. SEE SWMU 13 RESULTS TABLES FOR ADDITIONAL DIRECT-PUSH SAMPLE INFORMATION.
4. SEE SWMU 33 RESULTS TABLES FOR ADDITIONAL MONITORING WELL SAMPLE INFORMATION.

Burns & McDonnell Waste Consultants, Inc.

Figure 15-4
SWMU 13 DISSOLVED METALS AND pH GROUNDWATER RESULTS
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

13GWMET.DGN/24-AUG-99 10:04/DLS



LEGEND

- ● DIRECT-PUSH BORING LOCATION
- 10.0 OR ⊖ TOTAL VOC RESULTS (ug/L) - ALL DETECTIONS BELOW MCLs (TOP VALUE)
- 10.0 OR ⊖ TOTAL SVOC RESULTS (ug/L) - ALL DETECTIONS BELOW MCLs (BOTTOM VALUE)
- 10.0 OR ⊖ TOTAL SVOC RESULTS (ug/L) - ONE OR MORE DETECTIONS ABOVE MCLs (BOTTOM VALUE); COMPOUND, MCL, AND SAMPLE RESULT PROVIDED
- NA NOT ANALYZED
- ND NOT DETECTED
- NS SOIL NOT SAMPLED
- - - - SWMU BOUNDARY
- RAILROAD

NOTES:

1. DIRECT-PUSH GROUNDWATER SAMPLES COLLECTED DURING RFI PHASE 1 (1997).
2. BORING 13B10 WAS SAMPLED FOR SOIL ONLY.
3. SEE SWMU 13 RESULTS TABLES FOR ADDITIONAL SAMPLE INFORMATION.

N

25' 0' 25' 50'

SCALE IN FEET

Burns & McDonnell Waste Consultants, Inc.

Figure 15-5
SWMU 13 TOTAL VOC AND TOTAL SVOC GROUNDWATER RESULTS
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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k:\armcorfi\ustn.sup\site.dgn
k:\res\global\stdbdr\ustn\civil\2d\wcibdr10.dgn
k:\armcorfi\ustn.sup\swmu0001.dgn

13GWSVOC.DGN/17-MAY-99 08:22/DLS

EXHIBIT 6-5

RFI REPORT FIGURES FOR
SWMU 17 – Wire Mill Rinsewater Neutralization Tank

Figure 16-3 – SWMU 17 pH and Dissolved Lead Groundwater Results

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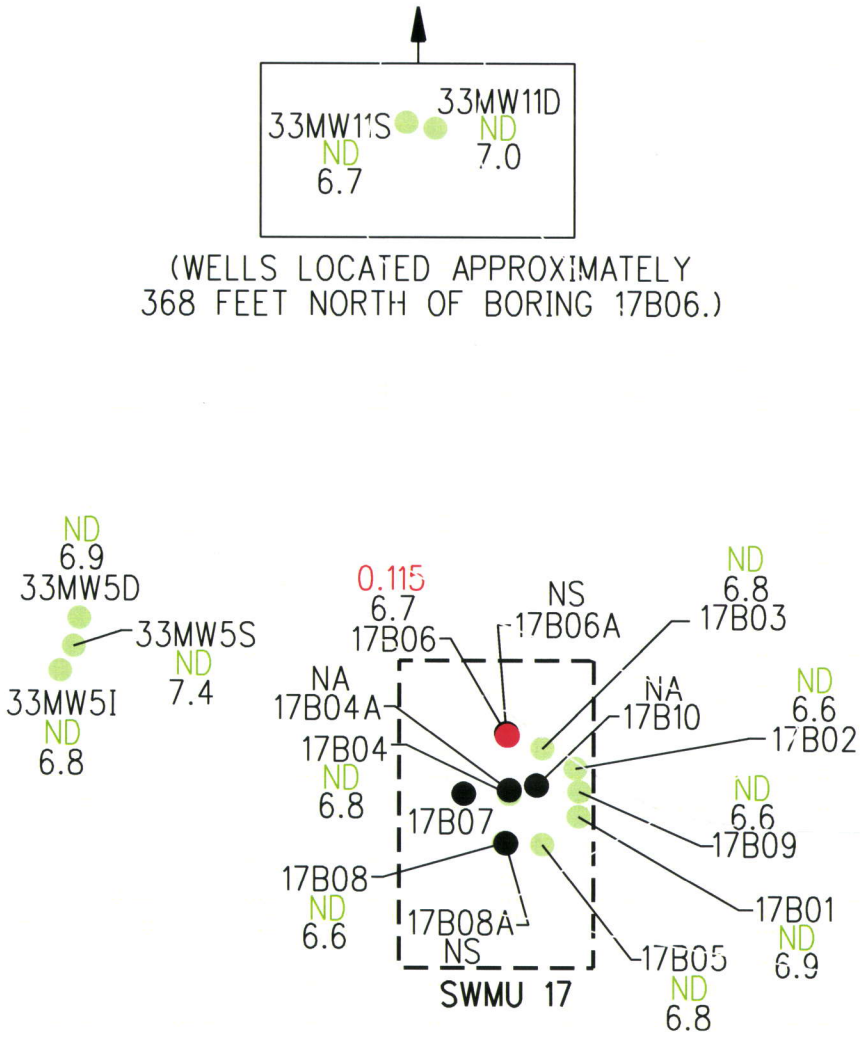
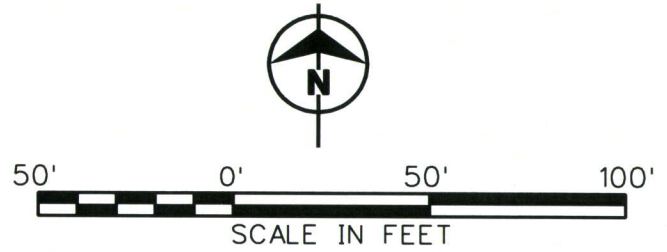


LEGEND

- ● DIRECT-PUSH BORING LOCATION
- NA NOT ANALYZED
- NS NOT SAMPLED
- ND NOT DETECTED
- 0.010 OR ● DISSOLVED LEAD RESULTS (mg/L) BELOW MCL (0.015 mg/L); TOP VALUE
- 0.035 OR ● DISSOLVED LEAD RESULTS (mg/L) ABOVE MCL (0.015 mg/L); TOP VALUE
- 6.6 pH RESULT (IN STANDARD UNITS); BOTTOM VALUE
- — — — SWMU BOUNDARY

NOTE:

1. DIRECT-PUSH REFUSAL WAS ENCOUNTERED AT BORING 17B07.



Burns & McDonnell Waste Consultants, Inc.

Figure 16-3

SWMU 17 pH AND DISSOLVED LEAD GROUNDWATER RESULTS

ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

EXHIBIT 6-6

RFI REPORT FIGURES FOR
SWMU 33 – Nail Mill Degreasing Area

Figure 22-3 – SWMU 33 Phase 1 Total VOC Results Shallow Groundwater
Figure 22-4 – SWMU 33 Phase 1 Total VOC Results Deep Groundwater
Figure 22-5 – SWMU 33 Phase 2 Total VOC Results Shallow Groundwater
Figure 22-6 – SWMU 33 Phase 2 Total VOC Results Deep Groundwater

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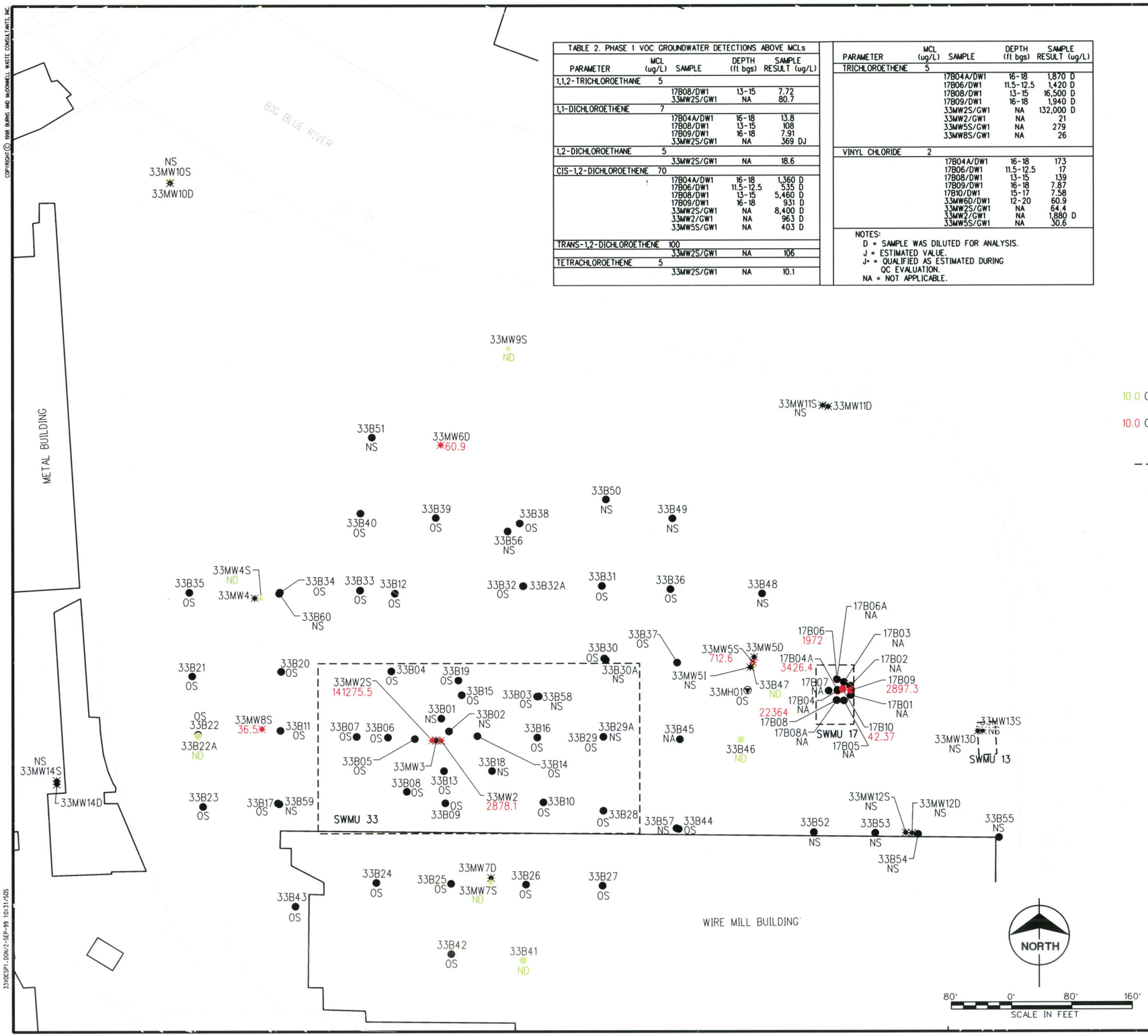

TABLE 2. PHASE 1 VOC GROUNDWATER DETECTIONS ABOVE MCLs

PARAMETER	MCL (ug/L)	SAMPLE	DEPTH (ft bgs)	SAMPLE RESULT (ug/L)
1,1,2-TRICHLOROETHANE	5			
		17B08/DW1	13-15	7.72
		33MW2S/GW1	NA	80.7
1,1-DICHLOROETHENE	7			
		17B04A/DW1	16-18	13.8
		17B08/DW1	13-15	108
		17B09/DW1	16-18	7.91
		33MW2S/GW1	NA	369 DJ
1,2-DICHLOROETHANE	5			
		33MW2S/GW1	NA	18.6
CIS-1,2-DICHLOROETHENE	70			
		17B04A/DW1	16-18	1,360 D
		17B06/DW1	11.5-12.5	535 D
		17B08/DW1	13-15	5,460 D
		17B09/DW1	16-18	931 D
		33MW2S/GW1	NA	8,400 D
		33MW2/GW1	NA	963 D
		33MW5S/GW1	NA	403 D
TRANS-1,2-DICHLOROETHENE	100			
		33MW2S/GW1	NA	106
TETRACHLOROETHENE	5			
		33MW2S/GW1	NA	10.1
TRICHLOROETHENE	5			
		17B04A/DW1	16-18	1,870 D
		17B06/DW1	11.5-12.5	1,420 D
		17B08/DW1	13-15	16,500 D
		17B09/DW1	16-18	1,940 D
		33MW2S/GW1	NA	132,000 D
		33MW2/GW1	NA	21
		33MW5S/GW1	NA	279
		33MW8S/GW1	NA	26
VINYL CHLORIDE	2			
		17B04A/DW1	16-18	173
		17B06/DW1	11.5-12.5	17
		17B08/DW1	13-15	139
		17B09/DW1	16-18	7.87
		17B10/DW1	15-17	7.58
		33MW6D/DW1	12-20	60.9
		33MW2S/GW1	NA	64.4
		33MW2/GW1	NA	1,880 D
		33MW5S/GW1	NA	30.6

NOTES:
D = SAMPLE WAS DILUTED FOR ANALYSIS.
J = ESTIMATED VALUE.
J* = QUALIFIED AS ESTIMATED DURING QC EVALUATION.
NA = NOT APPLICABLE.

TABLE 1. DIRECT-PUSH BORINGS

BORING	DEPTH (ft bgs)	RFI PHASE SAMPLED
33B22A	22-22.5	1
33B41	18-20	1
33B46	18-20	1
33B47	8-10	1
33B51	18-20	1
33B54	13-17	2
33B55	13-17	2
33MW6D	12-20	1
17B04A	16-18	1
17B06	11.5-12.5	1
17B08	13-15	1
17B09	16-18	1

LEGEND

- ✳ MONITORING WELL LOCATION
- ● DIRECT-PUSH BORING LOCATION
- MANHOLE LOCATION
- ND NOT DETECTED
- NA NOT ANALYZED
- NS SHALLOW GROUNDWATER NOT SAMPLED
- OS ON-SITE VOC SCREENING DATA IS ONLY AVAILABLE FOR THE GROUNDWATER SAMPLE COLLECTED AT THIS LOCATION (SEE APPENDIX)
- 10.0 OR ● TOTAL VOC RESULTS (ug/L) - ALL DETECTIONS BELOW MCLs
- 10.0 OR ● TOTAL VOC RESULTS (ug/L) - ONE OR MORE DETECTIONS ABOVE MCLs (SEE INSET TABLE 2)
- – – – SWMU BOUNDARY
- RAILROAD

NOTES:

1. MONITORING WELL SAMPLES COLLECTED DURING RFI PHASE 1 IN MAY 1997.
2. DIRECT-PUSH GROUNDWATER SAMPLES COLLECTED DURING RFI PHASE 1 (1997). (SEE INSET TABLE 1).
3. MONITORING WELLS 33MW51, 33MW10S, 33MW10D, 33MW11S, 33MW11D, 33MW12S, 33MW12D, 33MW13S, 33MW13D, 33MW14S, AND 33MW14D WERE INSTALLED DURING RFI PHASE 2 (1998).
4. BORINGS 33B51 THROUGH 33B60 WERE ADVANCED DURING RFI PHASE 2 (1998).
5. MONITORING WELLS 33MW2 AND 33MW51 ARE INTERMEDIATE DEPTH MONITORING WELLS SCREENED DIRECTLY ABOVE THE SEMI-CONFINING LAYER IN THE SHALLOW GROUNDWATER. THESE WELLS NOT USED ON CONTOURING SHALLOW GROUNDWATER DATA.
6. DIRECT-PUSH REFUSAL WAS ENCOUNTERED AT BORINGS 33B48, 33B49, AND 33B50.
7. BORINGS 33B57, 33B58, 33B59, AND 33B60 WERE ADVANCED FOR COLLECTION OF GEOPHYSICAL INFORMATION ONLY.

Burns & McDonnell Waste Consultants, Inc.

Figure 22-3
SWMU 33 PHASE 1
TOTAL VOC RESULTS
SHALLOW GROUNDWATER
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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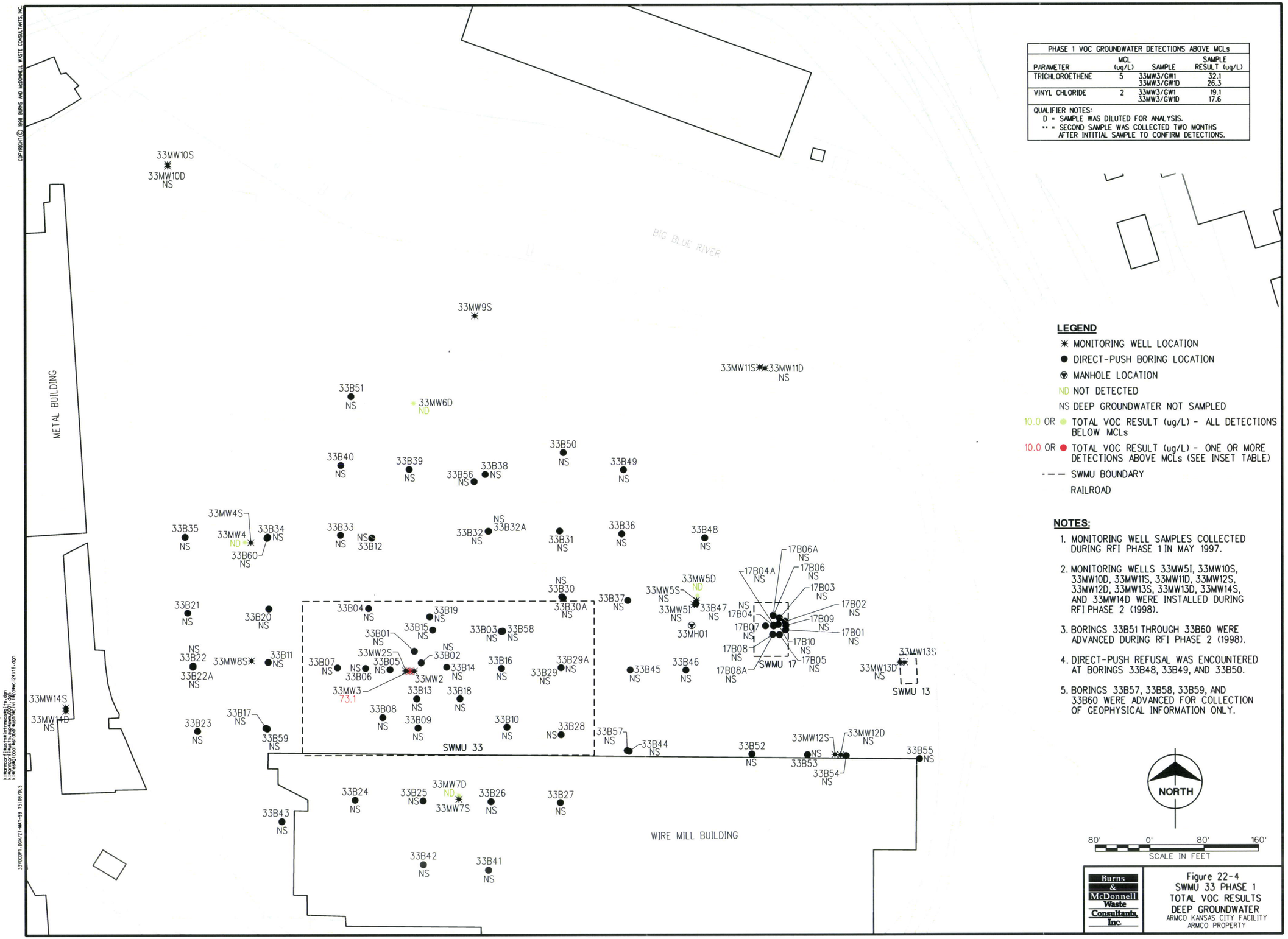
PHASE 1 VOC GROUNDWATER DETECTIONS ABOVE MCLs			
PARAMETER	MCL (ug/L)	SAMPLE	SAMPLE RESULT (ug/L)
TRICHLOROETHENE	5	33MW3/GW1	32.1
		33MW3/GW1D	26.3
VINYL CHLORIDE	2	33MW3/GW1	19.1
		33MW3/GW1D	17.6

QUALIFIER NOTES:
D = SAMPLE WAS DILUTED FOR ANALYSIS.
** = SECOND SAMPLE WAS COLLECTED TWO MONTHS AFTER INTITIAL SAMPLE TO CONFIRM DETECTIONS.



LEGEND

- ✳ MONITORING WELL LOCATION
- ● DIRECT-PUSH BORING LOCATION
- MANHOLE LOCATION
- ND NOT DETECTED
- NS DEEP GROUNDWATER NOT SAMPLED
- 10.0 OR ● TOTAL VOC RESULT (ug/L) - ALL DETECTIONS BELOW MCLs
- 10.0 OR ● TOTAL VOC RESULT (ug/L) - ONE OR MORE DETECTIONS ABOVE MCLs (SEE INSET TABLE)
- - - SWMU BOUNDARY
- RAILROAD

NOTES:

1. MONITORING WELL SAMPLES COLLECTED DURING RFI PHASE 1 IN MAY 1997.
2. MONITORING WELLS 33MW5I, 33MW10S, 33MW10D, 33MW11S, 33MW11D, 33MW12S, 33MW12D, 33MW13S, 33MW13D, 33MW14S, AND 33MW14D WERE INSTALLED DURING RFI PHASE 2 (1998).
3. BORINGS 33B51 THROUGH 33B60 WERE ADVANCED DURING RFI PHASE 2 (1998).
4. DIRECT-PUSH REFUSAL WAS ENCOUNTERED AT BORINGS 33B48, 33B49, AND 33B50.
5. BORINGS 33B57, 33B58, 33B59, AND 33B60 WERE ADVANCED FOR COLLECTION OF GEOPHYSICAL INFORMATION ONLY.

Burns & McDonnell Waste Consultants, Inc.

Figure 22-4
SWMU 33 PHASE 1
TOTAL VOC RESULTS
DEEP GROUNDWATER
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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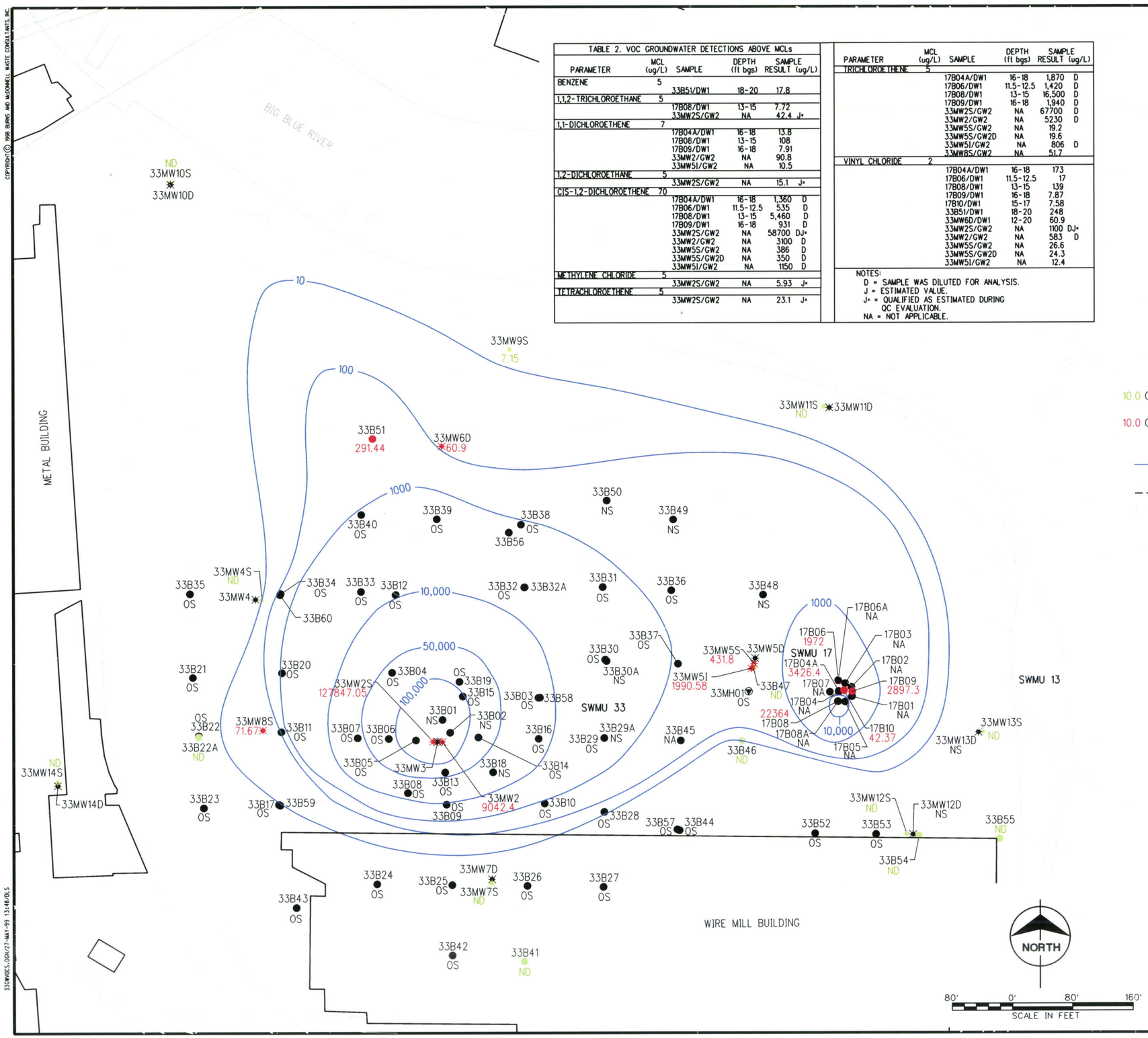

TABLE 2. VOC GROUNDWATER DETECTIONS ABOVE MCLs					
PARAMETER	MCL (ug/L)	SAMPLE	DEPTH (ft bgs)	SAMPLE RESULT (ug/L)	
BENZENE	5				
		33B51/DW1	18-20	17.8	
1,1,2-TRICHLOROETHANE	5				
		17B08/DW1	13-15	7.72	
		33MW2S/GW2	NA	42.4	J*
1,1-DICHLOROETHENE	7				
		17B04A/DW1	16-18	13.8	
		17B08/DW1	13-15	108	
		17B09/DW1	16-18	7.91	
		33MW2/GW2	NA	90.8	
		33MW5I/GW2	NA	10.5	
1,2-DICHLOROETHANE	5				
		33MW2S/GW2	NA	15.1	J*
CIS-1,2-DICHLOROETHENE	70				
		17B04A/DW1	16-18	1,360	D
		17B06/DW1	11.5-12.5	535	D
		17B08/DW1	13-15	5,460	D
		17B09/DW1	16-18	931	D
		33MW2S/GW2	NA	58700	DJ*
		33MW2/GW2	NA	3100	D
		33MW5S/GW2	NA	386	D
		33MW5S/GW2D	NA	350	D
		33MW5I/GW2	NA	1150	D
METHYLENE CHLORIDE	5				
		33MW2S/GW2	NA	5.93	J*
TETRACHLOROETHENE	5				
		33MW2S/GW2	NA	23.1	J*
TRICHLOROETHENE	5				
		17B04A/DW1	16-18	1,870	D
		17B06/DW1	11.5-12.5	1,420	D
		17B08/DW1	13-15	16,500	D
		17B09/DW1	16-18	1,940	D
		33MW2S/GW2	NA	67700	D
		33MW2/GW2	NA	5230	D
		33MW5S/GW2	NA	19.2	
		33MW5S/GW2D	NA	19.6	
		33MW5I/GW2	NA	806	D
		33MW8S/GW2	NA	51.7	
VINYL CHLORIDE	2				
		17B04A/DW1	16-18	173	
		17B06/DW1	11.5-12.5	17	
		17B08/DW1	13-15	139	
		17B09/DW1	16-18	7.87	
		17B10/DW1	15-17	7.58	
		33B51/DW1	18-20	248	
		33MW6D/DW1	12-20	60.9	
		33MW2S/GW2	NA	1100	DJ*
		33MW2/GW2	NA	583	D
		33MW5S/GW2	NA	26.6	
		33MW5S/GW2D	NA	24.3	
		33MW5I/GW2	NA	12.4	

NOTES:
D = SAMPLE WAS DILUTED FOR ANALYSIS.
J = ESTIMATED VALUE.
J* = QUALIFIED AS ESTIMATED DURING QC EVALUATION.
NA = NOT APPLICABLE.

TABLE 1. DIRECT-PUSH BORINGS		
BORING	DEPTH (ft bgs)	RFI PHASE SAMPLED
33B22A	22-22.5	1
33B41	18-20	1
33B46	18-20	1
33B47	8-10	1
33B51	18-20	1
33B54	13-17	2
33B55	13-17	2
33MW6D	12-20	1
17B04A	16-18	1
17B06	11.5-12.5	1
17B08	13-15	1
17B09	16-18	1

LEGEND

- MONITORING WELL LOCATION
- DIRECT-PUSH BORING LOCATION
- MANHOLE LOCATION
- ND NOT DETECTED
- NA NOT ANALYZED
- NS SHALLOW GROUNDWATER NOT SAMPLED
- OS ON-SITE VOC SCREENING DATA IS ONLY AVAILABLE FOR THE GROUNDWATER SAMPLE COLLECTED AT THIS LOCATION (SEE APPENDIX)
- 10.0 OR TOTAL VOC RESULTS (ug/L) - ALL DETECTIONS BELOW MCLs
- 10.0 OR TOTAL VOC RESULTS (ug/L) - ONE OR MORE DETECTIONS ABOVE MCLs (SEE INSET TABLE 2)
- ISOCONCENTRATION CONTOUR SHALLOW GROUNDWATER (ug/L)
- SWMU BOUNDARY
- RAILROAD

NOTES:

1. MONITORING WELL SAMPLES COLLECTED DURING RFI PHASE 2 IN JULY 1998.
2. DIRECT-PUSH GROUNDWATER SAMPLES COLLECTED DURING RFI PHASES 1 AND 2 (1997 AND 1998). (SEE INSET TABLE 1).
3. CONTOURS GENERATED BASED ON MONITORING WELL AND DIRECT-PUSH GROUNDWATER DATA AND TAKE INTO ACCOUNT GROUNDWATER FLOW DIRECTION BASED ON WATER-LEVEL ELEVATIONS FOR THAT TIME PERIOD. CONTOURS ARE INTERPOLATED BETWEEN DATA POINTS AND MAY NOT REPRESENT ACTUAL CONCENTRATIONS AT THE LOCATIONS SHOWN.
4. BORINGS 33B57, 33B58, 33B59, AND 33B60 WERE ADVANCED FOR COLLECTION OF GEOPHYSICAL INFORMATION ONLY.
5. MONITORING WELLS 33MW2 AND 33MW5I ARE INTERMEDIATE DEPTH MONITORING WELLS SCREENED DIRECTLY ABOVE THE SEMI-CONFINING LAYER IN THE SHALLOW GROUNDWATER. THESE WELLS NOT USED ON CONTOURING SHALLOW GROUNDWATER DATA.
6. DIRECT-PUSH REFUSAL WAS ENCOUNTERED AT BORINGS 33B48, 33B49, AND 33B50.

Burns & McDonnell Waste Consultants, Inc.

Figure 22-5
SWMU 33 PHASE 2
TOTAL VOC RESULTS
SHALLOW GROUNDWATER
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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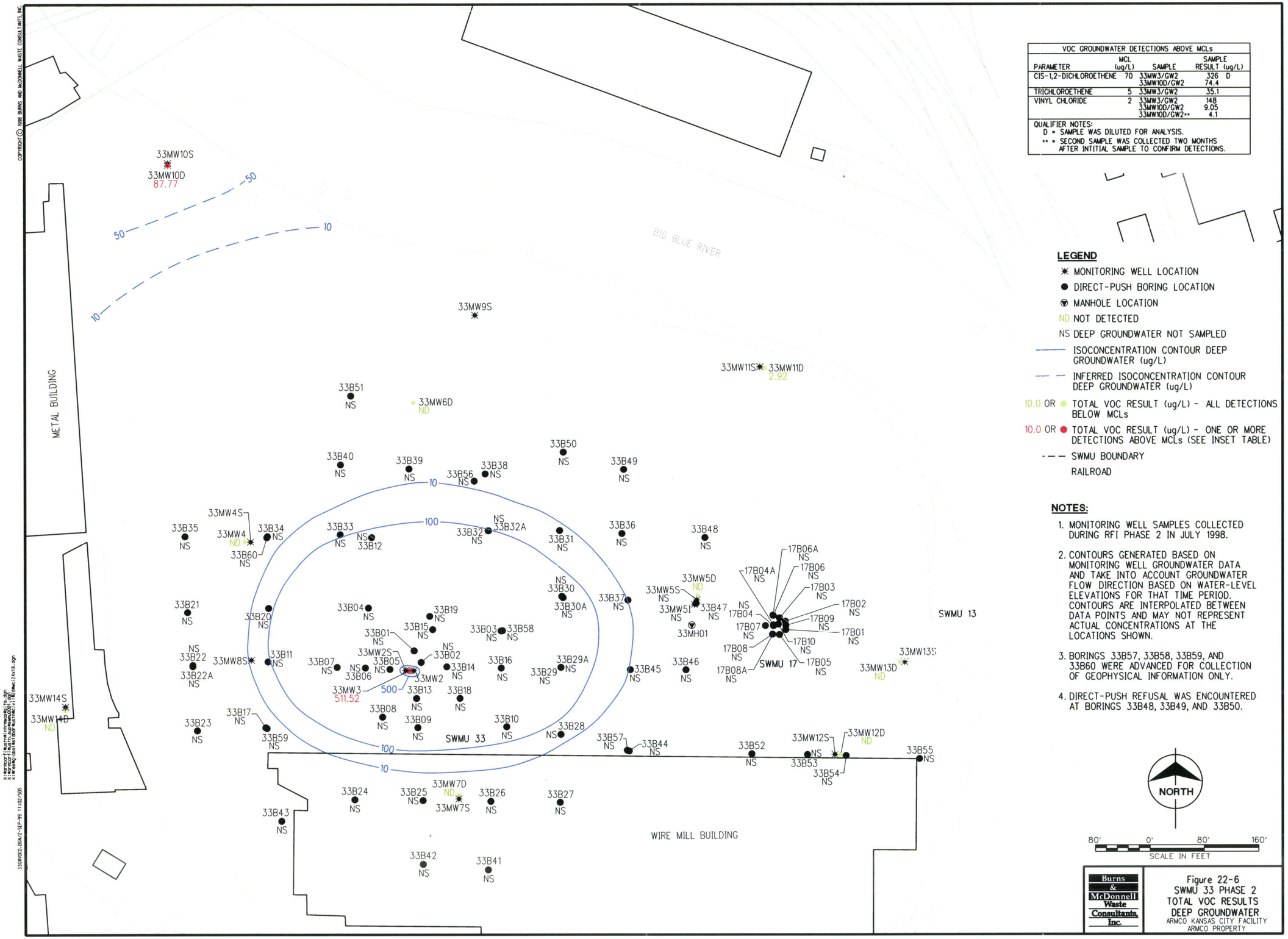

VOC GROUNDWATER DETECTIONS ABOVE MCLs			
PARAMETER	MCL (ug/L)	SAMPLE	SAMPLE RESULT (ug/L)
CIS-1,2-DICHLOROETHENE	70	33MW3/GW2	326 D
		33MW10D/GW2	74.4
TRICHLOROETHENE	5	33MW3/GW2	35.1
VINYL CHLORIDE	2	33MW3/GW2	148
		33MW10D/GW2	9.05
		33MW10D/GW2**	4.1

QUALIFIER NOTES:
D = SAMPLE WAS DILUTED FOR ANALYSIS.
** = SECOND SAMPLE WAS COLLECTED TWO MONTHS AFTER INTITIAL SAMPLE TO CONFIRM DETECTIONS.

LEGEND

- ✳ MONITORING WELL LOCATION
- ● DIRECT-PUSH BORING LOCATION
- MANHOLE LOCATION
- ND NOT DETECTED
- NS DEEP GROUNDWATER NOT SAMPLED
- ISOCONCENTRATION CONTOUR DEEP GROUNDWATER (ug/L)
- INFERRED ISOCONCENTRATION CONTOUR DEEP GROUNDWATER (ug/L)
- 10.0 OR ● TOTAL VOC RESULT (ug/L) - ALL DETECTIONS BELOW MCLs
- 10.0 OR ● TOTAL VOC RESULT (ug/L) - ONE OR MORE DETECTIONS ABOVE MCLs (SEE INSET TABLE)
- SWMU BOUNDARY
- RAILROAD

NOTES:

1. MONITORING WELL SAMPLES COLLECTED DURING RFI PHASE 2 IN JULY 1998.
2. CONTOURS GENERATED BASED ON MONITORING WELL GROUNDWATER DATA AND TAKE INTO ACCOUNT GROUNDWATER FLOW DIRECTION BASED ON WATER-LEVEL ELEVATIONS FOR THAT TIME PERIOD. CONTOURS ARE INTERPOLATED BETWEEN DATA POINTS AND MAY NOT REPRESENT ACTUAL CONCENTRATIONS AT THE LOCATIONS SHOWN.
3. BORINGS 33B57, 33B58, 33B59, AND 33B60 WERE ADVANCED FOR COLLECTION OF GEOPHYSICAL INFORMATION ONLY.
4. DIRECT-PUSH REFUSAL WAS ENCOUNTERED AT BORINGS 33B48, 33B49, AND 33B50.

Burns & McDonnell Waste Consultants, Inc.

Figure 22-6
SWMU 33 PHASE 2
TOTAL VOC RESULTS
DEEP GROUNDWATER
ARMCO KANSAS CITY FACILITY
ARMCO PROPERTY

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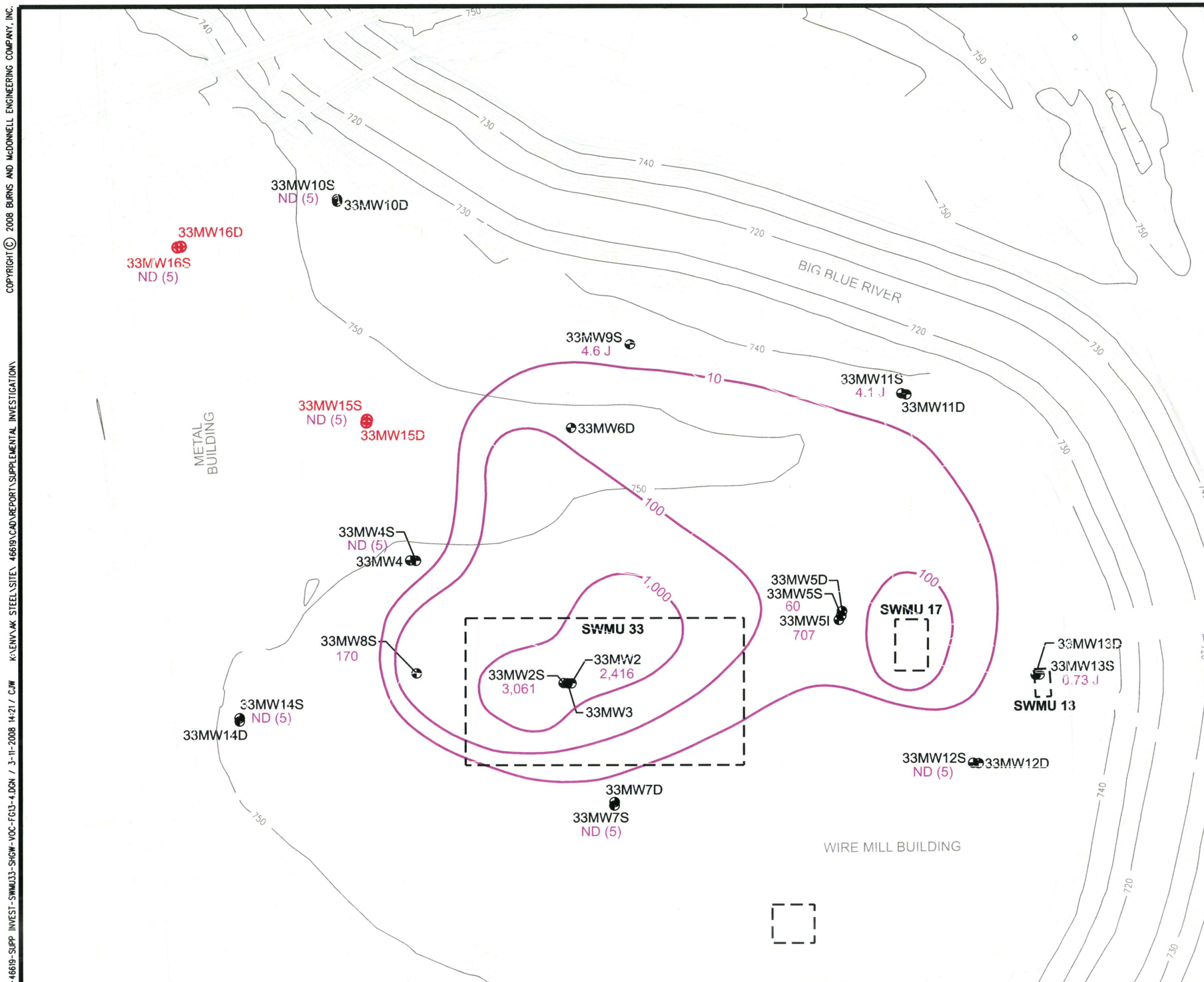

LEGEND

- MONITORING WELL LOCATION
- SUPPLEMENTAL INVESTIGATION MONITORING WELL LOCATION
- RAILROAD
- APPROXIMATE LIMITS OF SWMU BOUNDARY
- J ESTIMATED VALUE
- ND NOT DETECTED. VALUE IN PARENTHESES IS THE REPORTING LIMIT.

NOTES:

1. SHALLOW WELLS ARE SCREENED IN THE SHALLOW UNCONFINED SATURATED ZONE.
2. SHALLOW WELLS INCLUDE: 33MW2S, 33MW4S, 33MW5S, 33MW7S, 33MW8S, 33MW9S, 33MW10S, 33MW11S, 33MW12S, 33MW13S, 33MW14S, 33MW15S, AND 33MW16S.
3. MONITORING WELLS 33MW2 AND 33MW5I ARE INTERMEDIATE DEPTH WELLS SCREENED DIRECTLY ABOVE THE SEMI-CONFINING LAYER IN THE SHALLOW SATURATED ZONE. THESE WELLS ARE NOT USED IN CONTOURING SHALLOW GROUNDWATER DATA.
4. THE RESULTS AND ISOCONCENTRATION CONTOURS ARE REPORTED IN MICROGRAMS PER LITER (ug/L)
5. THE REPORTING LIMIT IS 5 ug/L. RESULTS LESS THAN 5 ug/L ARE REPORTED AS ESTIMATED (J FLAG).
6. CONTOURS GENERATED CONSIDERING HISTORICAL WELL AND DIRECT-PUSH DATA THAT CONSISTED OF A GREATER DENSITY OF SAMPLING POINTS. CONTOURS ARE INTERPOLATED BETWEEN DATA POINTS AND MAY NOT REPRESENT ACTUAL CONCENTRATIONS AT LOCATIONS SHOWN.
7. DETECTED CHLORINATED VOCs IN SHALLOW GROUNDWATER INCLUDE: 1,1-DICHLOROETHENE, 1,1-DICHLOROETHANE CIS-1,2-DICHLOROETHENE, TRANS-1,2-DICHLOROETHENE, TRICHLOROETHENE, AND VINYL CHLORIDE.

0 150' 300'
SCALE IN FEET

N

Burns & McDonnell SINCE 1898

Figure 13-4
SWMU 33
TOTAL CHLORINATED VOC RESULTS
SHALLOW GROUNDWATER

AK STEEL KANSAS CITY FACILITY

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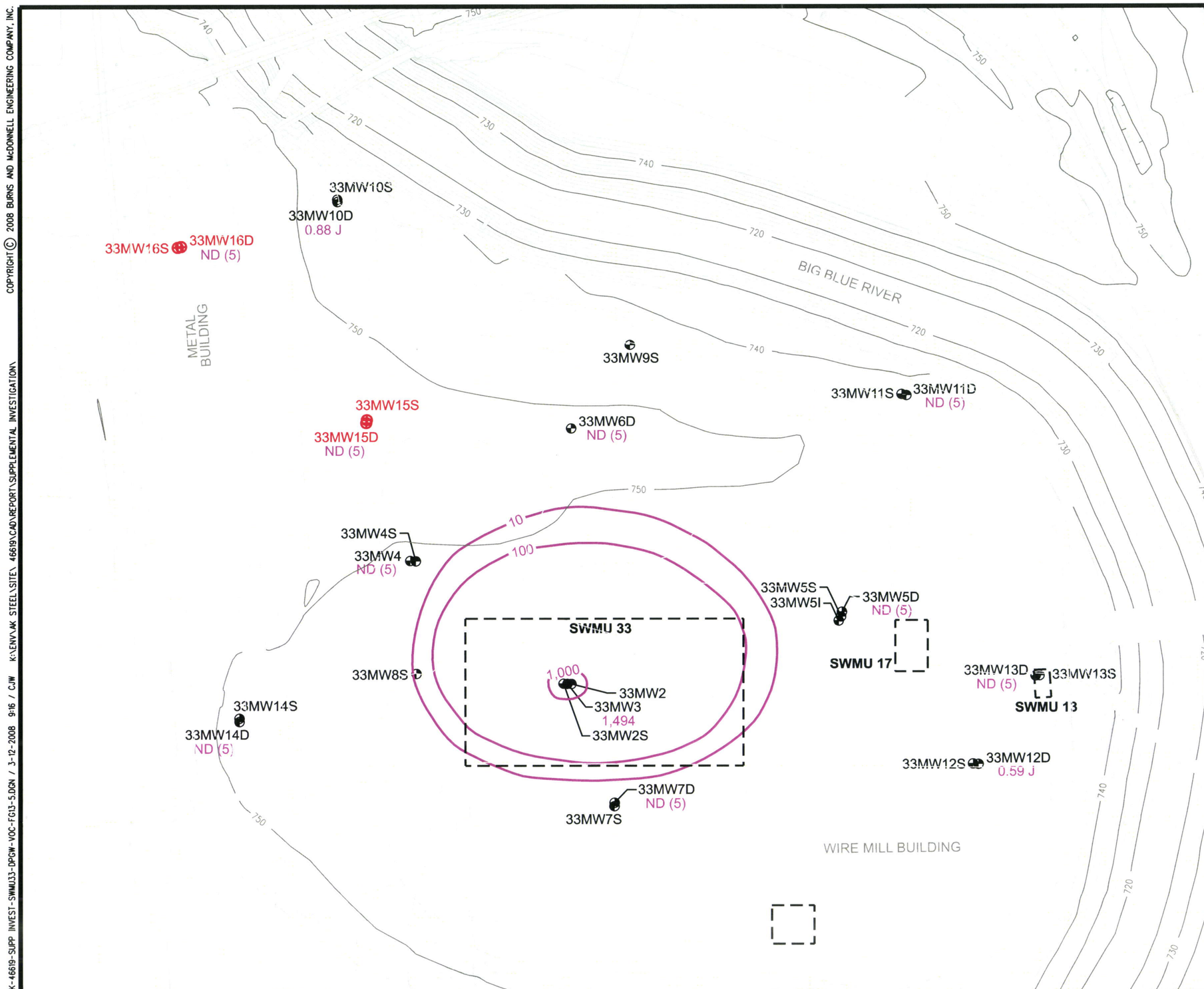

LEGEND

- MONITORING WELL LOCATION
- SUPPLEMENTAL INVESTIGATION MONITORING WELL LOCATION
- RAILROAD
- APPROXIMATE LIMITS OF SWMU BOUNDARY
- J ESTIMATED VALUE
- ND NOT DETECTED. VALUE IN PARENTHESES IS THE REPORTING LIMIT.

NOTES:

1. DEEP WELLS ARE SCREENED JUST ABOVE BEDROCK IN THE DEEP SEMI-CONFINED SATURATED ZONE.
2. DEEP WELLS INCLUDE: 33MW3, 33MW4, 33MW5D, 33MW6D, 33MW7D, 33MW10D, 33MW11D, 33MW12D, 33MW13D, 33MW14D, 33MW15D AND 33MW16D.
3. RESULTS AND ISOCONCENTRATION CONTOURS ARE PRESENTED IN MICROGRAMS PER LITER (ug/L).
4. THE REPORTING LIMIT IS 5 ug/L. RESULTS LESS THAN 5 ug/L ARE REPORTED AS ESTIMATED (J FLAG).
5. DETECTED CHLORINATED VOCs IN DEEP GROUNDWATER INCLUDE: 1,1-DICHLOROETHANE, 1,1-DICHLOROETHENE, CIS-1,2-DICHLOROETHENE, TRANS-1,2-DICHLOROETHENE, TRICHLOROETHENE, AND VINYL CHLORIDE.
6. CONTOURS GENERATED CONSIDERING HISTORICAL WELL AND DIRECT-PUSH DATA THAT CONSISTED OF A GREATER DENSITY OF SAMPLING POINTS. CONTOURS ARE INTERPOLATED BETWEEN DATA POINTS AND MAY NOT REPRESENT ACTUAL CONCENTRATIONS AT LOCATIONS SHOWN.

N

0 150' 300'
SCALE IN FEET

Burns & McDonnell
SINCE 1898

Figure 13-5
SWMU 33
TOTAL CHLORINATED VOC RESULTS
DEEP GROUNDWATER

AK STEEL KANSAS CITY FACILITY

EXHIBIT 6-7

SUPPLEMENTAL INVESTIGATION REPORT FIGURES FOR
SWMU 33 – Nail Mill Degreasing Area

Figure 13-4 – SWMU 33 Total Chlorinated VOC Results Shallow Groundwater
Figure 13-5 – SWMU 33 Total Chlorinated VOC Results Deep Groundwater

SECTION 7.0
SUMMARY AND CONCLUSIONS

7.0 SUMMARY AND CONCLUSIONS

The purpose of this *Groundwater Screening Report* is to compare groundwater analytical data obtained during the RFI and Supplemental Investigations to applicable screening criteria in order to form the basis for further decisions regarding the Facility. The information provided in this *Groundwater Screening Report* will be used to determine the need for further evaluation of human health risk and/or the need to conduct interim or corrective measures for groundwater at the Facility.

7.1 SUMMARY

Groundwater samples were collected from 11 SWMUs and AOCs during the course of investigations at the Facility. For the remaining SWMUs and AOCs, the soil data did not indicate the potential for groundwater contamination, and, as agreed to by USEPA and MDNR, groundwater samples were not collected per data collection plans in the approved project work plans. Only SWMUs and AOCs that had analytical groundwater samples collected were discussed in this report and are presented as follows:

SWMUs and AOCs with Groundwater Results		
SWMU/AOC	**Description**	**Summary**
SWMUs/AOCs on Property East of I-435		
SWMU 22	Mill Ponds	Direct-push groundwater samples and piezometers monitoring data
SWMU 2	Old Blue River "W" Landfill	Direct-push groundwater samples
SWMU 4	1987 Waste Pile	Direct-push groundwater samples
SWMU 5	Plant Rubble Landfill	Direct-push groundwater samples and historical monitoring well data for adjacent RCRA Landfill
SWMU 12	AMOCO Landfarm	Monitoring well groundwater samples
SWMUs/AOCs South of 24 Highway		
SWMU 3	South of Bar Fab Landfill	Direct-push groundwater samples
Abandoned Fuel Oil Storage Tank		
AOC 1	Abandoned Fuel Oil Storage Tank	Monitoring well groundwater samples
SWMUs/AOCs at the Former Tank Farm		
SWMU 24	Waste Hydraulic Lubricating Oil Storage Tanks	Direct-push groundwater samples
SWMUs Associated with the Nail Mill Degreaser VOC Plume		
SWMU 13	Pickle Liquor Tank	Direct-push groundwater samples and monitoring well data associated with SWMU 33 Nail Mill Degreaser VOC plume
SWMU 17	Wire Mill Rinsewater Neutralization Tank	Direct-push groundwater samples and monitoring well data associated with SWMU 33 Nail Mill Degreaser VOC plume
SWMU 33	Nail Mill Degreasing Area	Direct-push groundwater samples and monitoring well data

Groundwater analytical data obtained during the RFI and Supplemental Investigations were compared to applicable screening criteria. The screening criteria include the following:

- Tapwater screening values from the May 2010 USEPA RSL Table; and
- SDWA MCLs, when available.

During data screening, the following conventions were used:

- MCLs were the used as the groundwater screening criteria for constituents that had MCLs.
- USEPA tapwater RSLs were used as the groundwater screening criteria for constituents that did not have MCLs.
- Reporting limits of non-detect results are not included in the screening.
- At SWMUs/AOCs with permanent monitoring wells and/or piezometers, upgradient or background wells were evaluated for the presence of target constituents to determine if detections were likely due to previous activities at the SWMU/AOC or due to potential upgradient source(s).
- Greater significance was assigned to detections of target constituents in more than one sampling event or in more than one sample per event.

A summary of the groundwater screening results for each area is presented on Table 7-1. Consistent (i.e., repeated across different sampling events or in multiple samples from the same event) exceedances of screening levels were noted in the following areas:

- SWMU 2 – Groundwater samples were collected from direct-push borings. Samples from five of the borings exhibited concentrations of VOCs (i.e., 1,1-DCA, benzene, ethylbenzene, methylene chloride, and/or xylenes) that exceeded the groundwater screening levels. In addition, lead exceeded the groundwater screening levels in samples collected from eight borings.
- SWMU 13 – Groundwater samples for metals analysis were collected from direct-push borings and monitoring wells. Concentrations of arsenic exceeded the groundwater screening MCL in samples from seven direct-push borings and Monitoring Wells 33MW5I and 33MW5D. No exceedances were noted in samples collected from Monitoring Well Cluster 33MW13S/13D, which was placed inside the SWMU boundaries.

- SWMU 17 – Groundwater samples were collected from direct-push borings. Samples from five borings exhibited concentrations of chlorinated VOCs (i.e., 1,1-dichloroethene, cis-1,2-DCE, TCE, and vinyl chloride) that exceeded the groundwater screening levels.

- SWMU 33 – Groundwater samples were collected from direct-push borings and a monitoring well network. A chlorinated VOC plume with TCE and associated degradation products is present at SWMU 33. TCE, cis-1,2-DCE, and vinyl chloride were detected in concentrations that exceeded MCLs in samples from Monitoring Wells 33MW2S/2/3, 33MW5S/5I, and 33MW8S.

7.2 CONCLUSIONS

A summary of the recommendations for groundwater at each SWMU or AOC is presented on Table 7-2. Additional groundwater actions were recommended in areas where constituents in groundwater exhibited consistent, repetitive exceedances of screening criteria over time. A summary is provided in the following paragraphs:

- **No Further Action for Groundwater** – Results for groundwater samples collected from SWMU 3, SWMU 5, SWMU 12, SWMU 22, SWMU 24, and AOC 1 indicate that no further action for groundwater is needed at these locations.

- **Additional Monitoring -** The following locations will require some form of additional monitoring to monitor plume behavior over time and/or determine the need to conduct remedial action:
  - **SWMU 2, Old Blue River "W" Landfill:** Installation of monitoring well network with groundwater monitoring for VOCs and lead.
  - **SWMU 4, 1987 Waste Pile:** Installation of a monitoring well that can be incorporated within the network planned at SWMU 2 and groundwater monitoring for lead.
  - **SWMU 13, Pickle Liquor Tank:** Additional groundwater monitoring for arsenic using SWMU 33 monitoring well network.
  - **SWMU 17, Wire Mill Rinsewater Neutralization Tank:** Installation of a monitoring well cluster and groundwater monitoring for VOCs to track analyte trends over time..
  - **SWMU 33, Nail Mill Degreasing Area:** Abandonment and replacement of Monitoring Well 33MW3 (deep) with a properly cased well to prevent vertical migration of contamination. Periodic groundwater monitoring for VOCs to monitor analyte trends over time. The data from several rounds can then be used to determine if there is need for additional activities

beyond currently planned soil source remedial measures in the immediate vicinity of the former degreaser pit.

* * * * *

Table 7-1
Groundwater Screening Summary
Groundwater Screening Report
AK Steel Kansas City Facility

SWMU / AOC	Analytes	Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exeedances	Comments
SWMUs/AOCs on Property East of I-435						
SWMU 22 Mill Ponds	VOCs	All VOCs	10	--	--	
	SVOCs	2,4-Dimethylphenol	10	1	--	
		bis(2-ethylhexyl)phthalate	10	2	2	Common lab cross-contaminant
	RCRA Metals	Chromium, Selenium, and Silver (Dissolved)	10	--	--	
		Cadmium and Mercury (Dissolved)	10	1	--	
		Barium (Dissolved)	10	10	--	
		Lead (Dissolved)	14	7	--	
		Arsenic (Dissolved)	24	15	15	Arsenic was not detected in samples collected in the most recent sampling event.
SWMU 2 Old Blue River "W" Landfill	VOCs	1,1-Dichloroethane	14	2	1	Data is from direct-push groundwater sampling locations. Exceedances appear localized and in close proximity to the landfill.
		1,1-Dichloroethene	14	1	--	
		Acetone	14	2	--	
		Benzene	14	3	2	
		Carbon Disulfide	14	2	--	
		Ethylbenzene	14	6	2	
		Methylene Chloride	14	2	2	
		m,p-Xylene	10	3	1	
		o-Xylene	10	3	--	
		Toluene	14	5	--	
		trans-1,2-Dichloroethene	14	1	--	
	SVOCs	2,4-Dimethylphenol	1	1	--	
		Isophorone	1	1	--	
	Metals	Cadmium, Dissolved	13	--	--	
		Lead, Dissolved	22	13	8	
SWMU 4 1987 Waste Pile	VOCs	All VOCs	1	--	--	
	SVOCs	2,4-Dimethylphenol	3	1	--	
		2-Methylphenol	3	1	--	
		4-Methylphenol	3	1	--	
		Phenol	3	1	--	
	TPH	TPH-extractable	3	1	--	
	Metals	Cadmium, Dissolved	3	1	--	

Table 7-1
Groundwater Screening Summary
Groundwater Screening Report
AK Steel Kansas City Facility

SWMU / AOC	Analytes	Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exeedances	Comments
SWMU 4 1987 Waste Pile (continued)		Lead, Dissolved	16	4	3	Exceedances are localized to an area south of the levee road and north of a former railroad bed.
SWMU 5 Plant Rubble Landfill	Metals	Cadmium, Dissolved	6	--	--	
		Lead, Dissolved	6	--	--	
SWMU 12 AMOCO Landfarm	VOCs	Carbon Disulfide	8	1	--	
	SVOCs	bis(2-ethylhexyl)phthalate	8	2	1	Common lab cross-contaminant
	TPH	TPH-extractable	6	4	--	
	Metals	Cadmium, Dissolved	2	--	--	
		Chromium, Hexavalent	6	--	--	
		Chromium, Total	8	--	--	
		Chromium, Trivalent	6	--	--	
		Lead, Dissolved	8	--	--	
SWMUs/AOCs South of 24 Highway						
SWMU 3 South of Bar Fab Landfill	Metals	Cadmium, Dissolved	7	1	--	
		Lead, Dissolved	7	4	--	
AOC 1 Abandoned Fuel Oil Storage Tanks						
AOC 1 Abandoned Fuel Oil Storage Tank	VOCs	Acetone	7	1	--	
	PAHs	Naphthalene	7	1	1	Estimated value below the lab reporting limit.
	TPH	TPH-extractable	7	7	--	
		TPH-volatile	7	2	--	
SWMUs/AOCs at the Former Tank Farm						
SWMU 24 Waste Hydraulic Lubricating Oil Storage Tanks	RCRA Metals	Arsenic, Selenium, Silver (Total)	1	--	--	Sample is of water seeping into bottom of trench. Detections likely related to particulate matter in the sample.
		Barium, Chromium, Mercury (Total)	1	1	--	
		Cadmium and Lead (Total)	1	1	1	
		Arsenic, Dissolved	1	1	1	Perched groundwater sample
		Barium, Dissolved	1	1	--	
		Cadmium, Chromium, Lead, Mercury, Selenium, and Silver (Dissolved)	1	--	--	
	pH	pH	1	1	--	
	PAHs	All PAHs	2	--	--	
	TPH	TPH-extractable	2	2	--	
		TPH-volatile	2	1	--	

Table 7-1
Groundwater Screening Summary
Groundwater Screening Report
AK Steel Kansas City Facility

SWMU / AOC	Analytes	Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exeedances	Comments
SWMU 24 Waste Hydraulic Lubricating Oil Storage Tanks	VOCs	1,1,1-Trichloroethane	12	1	--	MCL exceedances were associated with a perched groundwater sample, and a sample that the laboratory reanalyzed due to suspected cross-contamination. VOCs were not detected in the reanalyzed sample.
		1,1,2-Trichloroethane	12	1	--	
		1,1-Dichloroethane	12	3	3	
		1,2-Dichloroethane	12	1	--	
		1,2-Dichloropropane	12	1	--	
		4-Methyl-2-pentanone	12	2	--	
		Acetone	12	2	--	
		Benzene	12	1	--	
		Carbon Disulfide	12	2	--	
		Carbon Tetrachloride	12	1	--	
		Chloroform	12	1	--	
		cis-1,2-Dichloroethene	12	1	1	
		Ethylbenzene	12	2	--	
		m,p-Xylene	10	2	--	
		o-Xylene	10	2	--	
		Methylene Chloride	12	1	--	
		Toluene	12	2	--	
		trans-1,2-Dichloroethene	12	2	--	
		Trichloroethene	12	3	--	
		Vinyl acetate	12	1	--	
		Vinyl chloride	12	1	1	
SWMUs Associated with Nail Mill Degreaser VOC Plume						
SWMU 13 Pickle Liquor Tanks	VOCs	Chloroform	11	2	--	
	SVOCs	Benzo(a)pyrene	5	1	1	SVOCs were limited to PAHs detected in a sample from 1 location.
		Benzo(b)fluoranthene	5	1	1	
		Benzo(k)fluoranthene	5	1	1	
		Chrysene	5	1	1	
		Fluoranthene	5	1	--	
		Phenanthrene	5	1	--	
		Pyrene	5	1	--	
	TPH	TPH-extractable	14	11	--	
		TPH-volatile	14	8	--	

Table 7-1
Groundwater Screening Summary
Groundwater Screening Report
AK Steel Kansas City Facility

SWMU / AOC	Analytes	Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exeedances	Comments
SWMU 13 Pickle Liquor Tanks	RCRA Metals	Arsenic, Total	9	8	2	Total metals samples are from monitoring wells for one event.
		Barium, Total	9	9	--	
		Cadmium, Total	9	7	--	
		Chromium and Selenium (Total)	9	5	--	
		Lead, Total	9	8	--	
		Mercury and Silver (Total)	9	--	--	
		Arsenic, Dissolved	31	14	11	Dissolved metals samples are from direct-push borings and monitoring wells. Well Cluster 33MW13S/13D was placed in this SWMU. None of the filtered metals results from this well for the 1998 and 2007 events exceeded screening levels.
		Barium, Dissolved	31	31	--	
		Cadmium and Lead, Dissolved	31	10	6	
		Chromium, Dissolved	31	19	--	
		Mercury, Dissolved	31	--	--	
		Selenium, Dissolved	31	15	6	
		Silver, Dissolved	31	7	--	
	pH	pH	14	14	--	
SWMU 17 Wire Mill Rinsewater Neutralization Tank	VOCs	1,1,1-Trichloroethane	5	2	--	
		1,1,2-Trichloroethane	5	1	1	
		1,1-Dichloroethane	5	1	1	
		1,1-Dichloroethene	5	3	3	
		Chloroform	5	1	--	
		cis-1,2-Dichloroethene	5	5	4	
		Ethylbenzene	5	1	--	
		Tetrachloroethene	5	1	--	
		trans-1,2-Dichloroethene	5	4	--	
		Trichloroethene	5	4	4	
		Vinyl chloride	5	5	5	
	SVOCs	All SVOCs	4	--	--	
	TPH	TPH-extractable	4	4	--	
		TPH-volatile	4	4	--	
	RCRA Metals	Arsenic and Lead, Dissolved	8	1	1	Exceedances were isolated to one location.
		Barium, Dissolved	8	8	--	
		Cadmium and Mercury (Dissolved)	8	1	--	
		Chromium, Dissolved	8	4	--	
		Selenium, Dissolved	8	--	--	
		Silver, Dissolved	8	2	--	
	pH	pH	8	8	--	

Table 7-1
Groundwater Screening Summary
Groundwater Screening Report
AK Steel Kansas City Facility

SWMU / AOC	Analytes	Parameter	Number of Samples	Number of Detections	Number of Groundwater Screening Level Exeedances	Comments
SWMU 33 Nail Mill Degreasing Area	VOCs	1,1,1-Trichloroethane	139	8	2	Exceedances of TCE, cis-1,2-DCE, and vinyl chloride were noted in samples collected from multiple events from Monitoring Wells 33MW2S/2/3. 33MW5S/5I, and 33MW8S.
		1,1,2-Trichloroethane	85	3	2	
		1,1-Dichloroethane	85	17	12	
		1,1-Dichloroethene	85	11	6	
		1,2-Dichloroethane	85	2	2	
		1,2-Dichloroethene	54	5	1	
		cis-1,2-Dichloroethene	85	28	16	
		trans-1,2-Dichloroethene	85	11	2	
		Benzene	107	5	1	
		Chloroform	85	2	--	
		Ethylbenzene	107	3	--	
		Methylene Chloride	85	1	1	
		Tetrachloroethene	85	2	2	
		Toluene	107	3	--	
		Trichloroethene	139	51	48	
		Vinyl chloride	139	28	25	
		Xylenes, Total	63	3	--	
	SVOCs	4-Chloroaniline	4	1	1	
		4-Methylphenol	4	1	--	
		Naphthalene	4	1	1	
	TPH	TPH-extractable	4	4	--	
		TPH-volatile	3	1	--	

AOC - Area of Concern
PAH - Polynuclear Aromatic Hydrocarbon
SVOC - Semivolatile Organic Compound
SWMU - Solid Waste Management Unit
VOC - Volatile Organic Compounds
RCRA Metals - Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver
EPA Tapwater RSL - Regional Screening Level Summary Table (May 2010)
SDWA MCL - Safe Drinking Water Act Maximum Contaminant Level
TPH - Total Petroleum Hydrocarbon. No EPA screening level is available for TPH.
cis-1,2-DCE - cis-1,2-Dichloroethene
TCE - Trichloroethene

Table 7-2
Recommendation Summary
Groundwater Screening Report
AK Steel Kansas City Facility

SWMU/AOC	Groundwater Summary	Recommended Action
SWMUs/AOCs on Property East of I-435		
SWMU 22 – Mill Ponds	The Mill Ponds are currently owned by Blue Summit LLC. VOCs were not detected in groundwater samples. BEHP, a common laboratory cross-contaminant, is the only SVOC detected in excess of MCLs, and it was only detected in samples from two locations. Arsenic was detected in 15 RFI groundwater samples at concentration in excess of the MCL; however, arsenic was not detected in samples collected in 2003 from piezometers placed around the perimeter of SWMU 22.	No additional monitoring activities or corrective measures for groundwater are needed for SWMU 22.
SWMU 2 – Old Blue River "W" Landfill	Benzene, ethylbenzene, methylene chloride, and lead have been detected above MCLs in direct-push groundwater samples from multiple events (1997, 1998, and 2007) at concentrations in excess of MCLs.	Installation of a groundwater monitoring network around SWMU 2 is recommended. While the exceedances appear to be localized and in close proximity to the landfill, the network will provide information regarding constituent trends over time and groundwater flow direction. The data from several rounds of groundwater monitoring events can then be used to determine the need for any additional activities.
SWMU 4 – 1987 Waste Pile	Filtered lead was detected at concentrations greater than the MCL in a localized area south of the levee road and north of a former railroad bed.	It is anticipated that any additional groundwater monitoring needs for SWMU 4 will be addressed as part of an overall groundwater monitoring network that was recommended for the adjacent SWMU 2, and the data collected from this recommended network can then be used to determine the need for any additional activities.
SWMU 5 – Plant Rubble Landfill	Dissolved cadmium and lead were not detected in groundwater samples associated with SWMU 5.	No additional monitoring activities or corrective measures for groundwater are needed for SWMU 5.
SWMU 12 – AMOCO Landfill	BEHP was the only constituent that exhibited a concentration in excess of screening levels. BEHP was only detected in one event in samples from two locations. Due to a lack of detections of other constituents and other phthalates, the BEHP detections are likely laboratory contamination. In addition, Observation Well OWA-5 is placed in a downgradient location at the exit point of a groundwater trough, and target compounds were not detected in groundwater samples collected in 1994 or 1996.	Based on the data screening, no additional groundwater monitoring activities or groundwater corrective measures are needed for SWMU 12.
SWMUs/AOCs South of 24 Highway		
SWMU 3 – South of Bar Fab Landfill	Dissolved cadmium and lead were detected at concentrations below MCLs in groundwater samples associated with SWMU 3. Occurrence of groundwater is sporadic in this area.	No additional monitoring activities or corrective measures for groundwater are needed for SWMU 3.

Table 7-2
Recommendation Summary
Groundwater Screening Report
AK Steel Kansas City Facility

SWMU/AOC	Groundwater Summary	Recommended Action
AOC 1 – Abandoned Fuel Oil Storage Tank		
AOC 1 – Abandoned Fuel Oil Storage Tank	VOCs and SVOCs were largely not detected in the groundwater samples from seven monitoring wells at AOC 1. Acetone and vinyl acetate were detected in concentrations less than groundwater screening levels in a sample collected from one well. Naphthalene was the only SVOC detected, and it was detected in one sample below the laboratory reporting limit at an estimated concentration. The naphthalene detection exceeded the USEPA tapwater RSL (a MCL is not available for naphthalene).	A groundwater remediation system previously operated in this area in 1991; however, operations were ceased due to lack of petroleum hydrocarbons in the recovery wells (Remcor, 1991). Based on the data screening, no additional groundwater monitoring activities or groundwater corrective measures are needed for AOC 1.
SWMUs/AOCs at the Former Tank Farm		
SWMU 24 – Waste Hydraulic Lubricating Oil Storage Tanks	Of the course of investigations, groundwater samples have been collected and analyzed for VOCs, PAHs, TPH, total RCRA metals, and filtered RCRA metals. VOCs were sporadically detected. The one sample with detections above MCLs was collected from perched groundwater (Boring 24B04) encountered at a shallow depth (2.5 feet bgs) above the saturated zone. No other occurrences of perched groundwater were noted during sampling events in 1997, 1998, and 2007. At SWMU 24, the saturated zone was typically encountered between 24 to 40 feet bgs. VOCs were either not-detected or detected in concentrations below MCLs in groundwater samples collected from the saturated zone.	No additional monitoring activities or corrective measures for groundwater are needed for SWMU 24.
SWMUs Associated with the Nail Mill Degreaser VOC Plume		
SWMU 13 – Pickle Liquor Tank	Metals were the primary analytes detected within SWMU 13. Results for dissolved arsenic, cadmium, lead, and selenium exceeded MCLs for various groundwater samples collected from direct-push borings. However, it was noted that metals concentrations were lower in groundwater samples collected from Monitoring Well Cluster 33MW13S/13D, which was placed inside the boundary of SWMU 13, as compared to samples from the direct-push borings. Groundwater samples from the 33MW13S/13D cluster and wells in the surrounding area were collected using low-flow sampling techniques in 2007, and arsenic (total and dissolved) was the only metal that exhibited concentrations in excess of screening criteria. Arsenic is known to be present in the alluvium associated with the Blue River Valley.	While the arsenic exceedances appear to be localized, additional monitoring will provide information regarding analyte trends over time. The data from several rounds of groundwater monitoring events can then be used to determine if there is need for any additional activities.

Table 7-2
Recommendation Summary
Groundwater Screening Report
AK Steel Kansas City Facility

SWMU/AOC	Groundwater Summary	Recommended Action
SWMU 17 – Wire Mill Rinsewater Neutralization Tank	Groundwater samples were collected from direct-push borings. Elevated concentrations of chlorinated VOCs were noted at SWMU 17. Based upon its history as an acid rinsewater area, VOCs were not expected in this area and the source of these VOCs is unclear. Review of known sewers in the area (See Figure 6-4) indicates that there may be a preferential pathway for groundwater from the SWMU 33 to migrate to SWMU 17.	Installation of a monitoring well cluster at SWMU 17 and groundwater monitoring is recommended to track analyte trends over time. Wells present in the area that are associated with the SWMU 33 monitoring network provide monitoring for the extent of contamination. The data from several rounds of groundwater monitoring events can then be used to determine the need for any additional activities.
SWMU 33 – Nail Mill Degreasing Area	Chlorinated VOCs were detected throughout the SWMU 33 area. TCE and related degradation products of cis-1,2-DCE and vinyl chloride were the primary VOCs detected. The highest concentrations were located around the SWMU 33 former degreasing pit near Monitoring Wells 33MW2S, 33MW2, 33MW3, and decrease radially outward from this location. Nearest the former degreaser, VOCs appeared to have migrated from the shallow saturated zone to the deep saturated zone, and Monitoring Well MW-3 (deep) may be acting as a vertical migration pathway (See Section 6.5.2 and Figures 6-5 through 6-7). Conceptual site models for the shallow and deep water bearing units that are based on all of the information collected to date are presented on Figures 6-8 and 6-9.	Based on the well log and monitoring well construction diagram for Monitoring Well 33MW3, this well was installed through the upper water bearing aquifer and the low permeability confining zone and screened in the lower semi-confined water bearing unit without casing off the contaminated upper water bearing unit. Monitoring Well 33MW3 should be abandoned in accordance with Missouri requirements, and the well should be replaced with a properly cased well that will prevent vertical migration of contamination. While data collected periodically from 1997 through 2007 do not indicate that the plume is migrating off-site, periodic groundwater monitoring for VOCs is recommended in this area to monitor analyte trends over time. The data from several rounds of groundwater monitoring events can then be used to determine if there is need for any additional activities beyond currently planned soil source remedial measures for the area in the immediate vicinity of the former degreaser pit.

Notes:
AOC – Area of Concern
BEHP – bis(2-ethylhexyl)phthalate
bgs – below ground surface
cis-1,2-DCE – cis-1,2-Dichloroethene
SDWA MCL - Safe Drinking Water Act Maximum Contaminant Level
USEPA Tapwater RSL - Regional Screening Level Summary Table (May 2010)
PAH – Polynuclear Aromatic Hydrocarbon
RCRA Metals – Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver
RFI – RCRA Facility Investigation
SWMU – Solid Waste Management Unit
TCE – Trichloroethene
TPH – Total Petroleum Hydrocarbon
VOC – Volatile Organic Compound

SECTION 8.0
REFERENCES

8.0 REFERENCES

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APPENDICES
(Submitted on CD)

LIST OF APPENDICES
(Appendices are presented on CD)

APPENDIX A - Section 2.0, Environmental Setting
RCRA Facility Investigation Report Armco Kansas City Facility Report (BMWCI, 1999)

APPENDIX B - SWMU 22 Additional Information
USEPA Letter Regarding Clean Landfill in Missouri, April 15, 2010
MDNR Letter to City of Kansas City, Missouri Regarding Proposed Clean Fill Landfill, April 27, 2010
Board of Rezoning Conditional Use Permit, May 18, 2010
Cleanup Completion Report, Compass Big Blue Site Investigation (Old GST Steel Mill), Kansas City, Missouri (CBB, 2003a)

APPENDIX C RCRA Landfill Groundwater Data and Groundwater Contour Maps

APPENDIX D SWMU 12 Additional Information
AMOCO Sludge Landfarm, Armco Site (WCC, 1980)
Armco Landfarm, Results of Groundwater Samples (AMOCO, 1994)

APPENDIX E SWMU 3 Additional Information
Site Investigation, Former Waste Disposal Area, South of Bar Fabrication Building (Remcor, 1988)

APPENDIX F AOC 1 Additional Information
Site Investigation Oil Storage Tank Area (Remcor, 1989)
Groundwater Remediation at Kansas Southern Fuel Oil Tank, Armco Kansas City Works (Remcor, 1991)

APPENDIX G SWMU 33 Additional Information
Idled Facilities Environmental Investigation, Kansas City Works (Remcor 1990)
Armco Soil Vapor Survey (Terracon, 1991)
Nail Mill Phase II Investigation Report (Terracon, 1991)
Groundwater Monitoring Report, February 2001 Sampling Event (BMcD, 2001)