EXECUTIVE SUMMARY

This Remedial Investigation Report (RI Report) satisfies reporting requirements under Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2) statewide health standard and documents environmental conditions at the Jefferson Plant located in West Elizabeth, Pennsylvania. In accordance with the Notice of Intent to Remediate (NIR) submitted to the Pennsylvania Department of Environmental Protection (PADEP) on February 25, 2003, Hercules Incorporated is seeking liability release under applicable Act 2 standards for site media (soil, groundwater, surface water, sediment, and indoor air).

This RI Report has been prepared in accordance with Title 25, PA Code, Chapter 250 regulations, and the *Act 2 Technical Guidance Manual* (PADEP, 2002). This report presents historical characterization data and evaluates potential exposure pathways identified in the site conceptual model. The RI Report findings are as follows:

- There are no surface or subsurface soil exceedances of applicable direct-contact Medium-Specific Concentrations (MSCs) for constituents of concern (COC) listed on the NIR. Therefore, the direct-contact exposure pathway with respect to soils is insignificant and does not require further evaluation.
- The soil-to-groundwater pathway for surface soils requires further evaluation for 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, ethylbenzene, and toluene. The soil-to-groundwater pathway for subsurface soils requires further evaluation for 1,2,4-TMB, 1,3,5-TMB, benzene, and naphthalene.
- Based on a comprehensive evaluation of site groundwater relative to Act 2 non-residential, used aquifer (total dissolved solids ≤ 2,500 milligrams per liter [mg/l]) MSCs, the following parameters are considered to be COC for groundwater:
 - Volatile organic compounds: 1,2,4-TMB, 1,3,5-TMB, 1,1-dichloroethene, 1,1-dichloroethane, cis-1,2-dichloroethene, acrolein, benzene, ethylbenzene, styrene, tetrachloroethene, trichloroethene, vinyl chloride, and o-xylene.
 - Semivolatile organic compounds: 1,4-dioxane, benzo(a)pyrene, benzo(g,h,i)perylene, bis(2-ethylhexyl)phthalate, dibenzo(a,h)anthracene, naphthalene, and pentachlorophenol.



- Inorganics: antimony, arsenic, barium, beryllium, cadmium, chromium, lead, nickel, thallium, and zinc.
- The direct-contact exposure pathway related to potable on-site groundwater is incomplete. Currently, there is no known on-site use of groundwater, and site groundwater discharges to the unnamed tributary which transects the site and the Monongahela River. Restrictive covenants at the Jefferson Plant will limit on-site groundwater usage within the groundwater release of liability area to monitoring and remediation purposes only.
- Based on surface water samples collected from the unnamed tributary to the Monongahela River, benzene and toluene exceeded Chapter 16 criteria. The direct-contact exposure pathway for surface water is complete.
- Based on sediment samples collected from the unnamed tributary to the Monongahela River, toluene, xylenes, benzo(a)pyrene, fluoranthene, naphthalene, phenanthrene, pyrene, arsenic, copper, nickel, and zinc exceeded U.S. Environmental Protection Agency (USEPA) ecological toxicity (Ecotox) criteria. The direct-contact exposure pathway for sediment is complete.
- Analytical results for indoor air sampling did not exceed Occupational Safety and Health Administration (OSHA) permissible exposure limits (PELs), therefore, no further evaluation is needed.
- Groundwater flow assessments conducted at the Under Creek Interceptor Trench (UCIT) and Lower Plant Interceptor Trench (LPIT) demonstrated that the trenches capture impacted groundwater and light non-aqueous phase liquids (LNAPL).
- An investigation of the storm sewer system between the 837 Tank Farm and Upper Plant Areas indicates that impacted groundwater and LNAPL are infiltrating into the storm sewer and are discharging to Jorgy's Pond.
- A fate and transport analysis completed for the RI indicates that the surface water concentration of COC will not theoretically exceed any of the four water quality-based criteria used by PENTOXSD in the Finished Products Warehouse Area (southeastern portion of the site). Additionally, model simulations indicate that the surface water concentrations of COC in the Lower Plant Area (eastern portion of the site) will not theoretically exceed any of the four water quality-based criteria used by PENTOXSD.



TABLE OF CONTENTS

			:	PAGE
LIST	OF TAE	BLES		;;;
LIST	OF FIG	URES		V
1.0	INTRO	ODUCT:	ION	1
2.0	CTTC 1	DESCOI	DTION AND MICTORY	
2.0	2.1	DDODE	PTION AND HISTORY	2
	2.2	STTE O	RTY DESCRIPTIONWNERSHIP/OPERATIONAL HISTORY	2
	2.3			
	2.5	2.3.1	GIC SETTING	3
٠			Physiography and Topography	
			Unconsolidated Deposits	
	2.4		GEOLOGIC SETTING	4
	2.7	2.4.1	Perched Groundwater Zone	4 _
		2.4.2	Shallow Unconsolidated Groundwater Zone	
			Deep Unconsolidated Groundwater Zone	
		2.4.4	Surface Water/Groundwater Relationship	0
	2.5		PTUAL SITE MODEL	
	2.5	2.5.1	Physical Conceptual Site Model	8
		2.0.1	1 Hydrout Conceptual Dite Woder	
3.0	PREV	IOUS IN	VESTIGATIONS AND REMEDIAL ACTIVITIES	12
	3.1		US Investigations	
		3.1.1	Pre-Consent Order Investigations	12
			Post-Consent Order and Agreement Investigations	
			Due Diligence Investigations	15
	3.2	ANNUA	L GROUNDWATER MONITORING	16
	3.3	WELL F	REPLACEMENT AND ABANDONMENT	16
	3.4		M REMEDIAL MEASURES	
			Interceptor Trenches	
			Jorgy's Pond	
		3.4.3	LNAPL Collection	10
			Facility Upgrades	
			Underground Storage Tank Closure	71
			ondo ground otorago raik crosuro	
4.0	SITE	CHARA	CTERIZATION	22
	4.1			
			Surface Soils	
		4.1.2	Subsurface Soil	23
	4.2		TWATER	25

. i



TABLE OF CONTENTS (CONTINUED)

		•	Th. com
			PAGE
		4.2.1 Volatile Organic Compounds	28
		4.2.2 Semivolatile Organic Compounds	
		4.2.3 Inorganics	
	4.3	SURFACE WATER AND SEDIMENT	30
	4.4	INDOOR AIR	33
	4.5	GROUNDWATER FLOW ASSESSMENTS	34
		4.5.1 Under Creek Interceptor Trench Assessment	
	·	4.5.2 Lower Plant Interceptor Trench Assessment	35
	4.6	STORM SEWER GROUNDWATER INFILTRATION INVESTIGATION	37
5.0	SOUR	CE AND IDENTIFICATION OF CONSTITUENTS OF CON	CERN39
6.0	POTE	NTIAL PATHWAY IDENTIFICATION AND EVALUATION	N41
	6.1	POTENTIAL PATHWAY IDENTIFICATION	41
		6.1.1 Potential Receptors and Exposure Pathways	
		6.1.2 Potential Future Exposure Pathways	43
	6.2	POTENTIAL PATHWAY EVALUATION	
		6.2.1 Soils (Direct Contact)	43
		6.2.2 Soils (Soil-to-Groundwater Pathway)	
		6.2.3 Groundwater	
	:	6.2.4 Surface Water and Sediment	45
		6.2.5 Indoor Air	
	6.3	FATE AND TRANSPORT ANALYSIS	
		6.3.1 Finished Products Warehouse Area	
		6.3.2 Lower Plant Area	50
7.0	CONC	CLUSIONS AND RECOMMENDATIONS	54
REFE	ERENCE	SS	
TAB	LES		;
FIGU	RES		
APPI	ENDIX A	A: BORING LOGS/WELL INSTALLATION DETAILS	:
APPI	ENDIX E	3: CULVERT INVESTIGATION LETTER REPORT	
APPI	ENDIX C	C: FIELD FORMS	
APPI	ENDIX I	D: LABORATORY ANALYTICAL REPORTS (ON COMPACT DISK)	_
		E: FATE AND TRANSPORT INPUT SUMMARIES AND OUTPUT SP	DEVLOREELO



LIST OF TABLES

TABLE NO.	TITLE
. 1	SUMMARY OF DEEP UNCONSOLIDATED AQUIFER SLUG TESTING RESULTS
2	WATER LEVEL ELEVATIONS
3	SUMMARY OF SURFACE SOIL ANALYTICAL RESULTS – ARCADIS GERAGHTY AND MILLER (2000)
4	SUMMARY OF SURFACE SOIL ANALYTICAL RESULTS – KU RESOURCES (2000)
5	SUMMARY OF SURFACE SOIL ANALYTICAL RESULTS – CUMMINGS/RITER (2004)
6 .	SUMMARY OF SUBSURFACE SOIL ANALYTICAL RESULTS – ARCADIS GERAGHTY AND MILLER (2000)
7	SUMMARY OF SUBSURFACE SOIL ANALYTICAL RESULTS – KU RESOURCES (2000)
8	SUMMARY OF SUBSURFACE SOIL ANALYTICAL RESULTS – CUMMINGS/RITER (2004)
9	SUMMARY OF RESULTS OF DETECTED CONSTITUENTS IN GROUNDWATER – ARCADIS GERAGHTY AND MILLER (2000)
10	SUMMARY OF RESULTS OF DETECTED CONSTITUENTS IN GROUNDWATER – KU RESOURCES (2000)
11	Summary of Groundwater Analytical Results – Cummings/Riter (2004)
12	SUMMARY OF SURFACE WATER ANALYTICAL RESULTS – CUMMINGS/RITER (2004)



LIST OF TABLES (CONTINUED)

TABLE NO.	TITLE
13	SUMMARY OF SEDIMENT ANALYTICAL RESULTS – CUMMINGS/RITER (2004)
14	Summary of Indoor Air Analytical Results – Cummings/Riter (2004)
15	SUMMARY OF WATER LEVELS AND DRAWDOWN VALUES – UNDER CREEK INTERCEPTOR TRENCH
16	SUMMARY OF WATER LEVELS AND DRAWDOWN VALUES – LOWER PLANT INTERCEPTOR TRENCH
17	SUMMARY OF CULVERT WATER ANALYTICAL RESULTS



LIST OF FIGURES

FIGURE NO.	TITLE
. 1	SITE LOCATION MAP
2	PLANT PROCESS AREAS
3	SITE PLAN
4	GEOLOGIC CROSS-SECTION A-A'
5	GEOLOGIC CROSS-SECTION B-B'
6	POTENTIOMETRIC SURFACE MAP, SHALLOW UNCONSOLIDATED GROUNDWATER ZONE – FEBRUARY 13, 2004
7	Potentiometric Surface Map, Shallow Unconsolidated Groundwater Zone – February 26, 2004
8	POTENTIOMETRIC SURFACE MAP, DEEP UNCONSOLIDATED GROUNDWATER ZONE – FEBRUARY 13, 2004
9	POTENTIOMETRIC SURFACE MAP, DEEP UNCONSOLIDATED GROUNDWATER ZONE – FEBRUARY 26, 2004
10	ARCADIS GERAGHTY AND MILLER SAMPLE LOCATIONS
ý 11	KU RESOURCES WELL SAMPLING AND SOIL BORING LOCATIONS
12	HYDRAULIC PROFILE SHOWING THE HORIZONTAL AND VERTICAL EXTENT OF THE LPIT AND UCIT TYPICAL VERTICAL PROFILES
13	CHMMINGS/RITER SOIL BORING LOCATIONS



LIST OF FIGURES (CONTINUED)

FIGURE NO.	TITLE
14	SUBSURFACE SOILS – MSC EXCEEDANCES, NOVEMBER/DECEMBER 2003
15	GROUNDWATER VOC EXCEEDANCES – PERCHED/SHALLOW UNCONSOLIDATED GROUNDWATER ZONE
16	GROUNDWATER SVOC EXCEEDANCES – PERCHED/SHALLOW UNCONSOLIDATED GROUNDWATER ZONE
17	GROUNDWATER DISSOLVED INORGANIC EXCEEDANCES – PERCHED/SHALLOW UNCONSOLIDATED GROUNDWATER ZONE
18	GROUNDWATER DISSOLVED INORGANIC EXCEEDANCES – DEEP UNCONSOLIDATED GROUNDWATER ZONE
19	SURFACE WATER ANALYTICAL RESULTS, DECEMBER 2003
20	SEDIMENT ANALYTICAL RESULTS – VOCs, DECEMBER 2003
21	SEDIMENT ANALYTICAL RESULTS – SVOCS, DECEMBER 2003
22	SEDIMENT ANALYTICAL RESULTS – INORGANICS, DECEMBER 2003
- 23	INDOOR AIR ANALYTICAL RESULTS
24	MAXIMUM DRAWDOWN (IN FEET) DURING THE UCIT FLOW ASSESSMENT – SHALLOW UNCONSOLIDATED GROUNDWATER ZONE
25	MAXIMUM DRAWDOWN (IN FEET) DURING THE LPIT FLOW ASSESSMENT – PERCHED GROUNDWATER ZONE
26	CULVERT WATER SAMPLING LOCATIONS, MARCH 2004



REPORT REMEDIAL INVESTIGATION HERCULES INCORPORATED JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

1.0 INTRODUCTION

Cummings/Riter Consultants, Inc. (Cummings/Riter) was retained by Hercules Incorporated to prepare this Remedial Investigation Report (RI Report) for the Jefferson Plant located in West Elizabeth, Pennsylvania (Figure 1). This report was prepared based upon the provisions of Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2) and the *Final Draft of the Act 2 Technical Guidance Manual* (TGM, Pennsylvania Department of Environmental Protection [PADEP], 2002) administered by the PADEP. The scope of information contained in this RI Report is based on the findings of historical investigations conducted at the facility.

This RI Report is structured as follows: Section 2.0 provides a site description, discusses the operational history of the Jefferson Plant, summarizes the geologic and hydrogeologic setting information, and provides a description of the site conceptual model. Section 3.0 summarizes previous investigations and remedial activities which describe the nature and extent of contamination. Section 4.0 evaluates environmental conditions with respect to soils, groundwater, surface water, sediment, and indoor air using applicable Act 2 statewide health standards and other appropriate standards. Groundwater flow assessments related to on-site groundwater interceptor trenches are also discussed in Section 4.0. Section 5.0 identifies potential sources of constituents of concern (COC) in soils, groundwater, surface water, sediment, and indoor air. Section 6.0 identifies and evaluates migration pathways, and includes a fate and transport analysis of COC in groundwater. Section 7.0 summarizes the RI Report findings.



2.0 SITE DESCRIPTION AND HISTORY

The following discussion of the site description and history has been modified from the description presented in the Description of Current Conditions (DOCC) and Work Plan (Management and Technical Resources, Inc. [MTR], 2003).

2.1 PROPERTY DESCRIPTION

The Jefferson Plant is located in the Borough of Jefferson, Pennsylvania, Allegheny County (Figure 1). The site is comprised of approximately 56 acres and is situated along the western bank of the Monongahela River directly adjacent to Lock and Dam No. 3. State Route 837 and the Norfolk Southern rail line bisect the Jefferson Plant. The majority of the site is developed with paved roadways, buildings, process equipment, and aboveground storage tanks (ASTs). Several businesses and residences lie to the north and northeast of the property. The plant has seven major production areas which include: Upper Plant, V-8 Area, Office, Finished Products Warehouse, C5 Plant, Lower Plant, and 837 Tank Farm (Figure 2).

2.2 SITE OWNERSHIP/OPERATIONAL HISTORY

Operations at the former Hercules Incorporated site began in 1954 when the Pennsylvania Industrial Chemical Company (PICCO) began production of hydrocarbon resin.

PICCO's operations were situated in the northeastern area of the Lower Plant. In 1973, Hercules Incorporated purchased PICCO's facilities, assets, and liabilities. In 1993, Hercules Incorporated formed a joint venture with Sanyo Chemical Company, Ltd. (Sanyo Chemical) located in Japan, which became Hercules Sanyo, Inc. (HSI). The HSI joint venture focused on specific manufacturing processes at the northeast end of the Lower Plant Area. Fourteen acres of industrial property, located to the south of the Lower Plant, were acquired by Hercules Incorporated in the early 1980s and subsequently developed into the C5 Plant. In 1981, Hercules Incorporated purchased property from the McKeesport Industrial Development Authority that ultimately became the Finished Products Warehouse. In 2001, Eastman Chemical Resins, Inc. (Eastman) purchased the site from Hercules Incorporated. Also, in 2001, the joint venture between

-2-



305/R2

Hercules Incorporated and Sanyo Chemical (Japan) ended, and Sanyo Chemical and Eastman became the sole owners of the former PICCO operations located in the Lower Plant Area (Figure 2).

Eastman currently manufactures hydrocarbon resins, intermediates, and co-products that are used in a variety of industries. Raw products consist primarily of petroleum-based hydrocarbon liquids. The raw products are polymerized into an intermediate product or resin solution that is ultimately used by industrial customers. The intermediates are shipped in bulk solid or liquid form via drums, tank car, and bags.

2.3 GEOLOGIC SETTING

2.3.1 Physiography and Topography

The Jefferson Plant is situated within the Pittsburgh Low Plateau Section of the Appalachian Plateaus Physiographic Province. The current land surface within the Pittsburgh Low Plateau Section resulted from the stream erosion of a prehistoric plain and is characterized by narrow, relatively shallow, incised valleys (Sevon, 2000). The Jefferson Plant is bordered by the Monongahela River to the southeast. The topography of the facility is sloping, with a change in elevation of approximately 30 feet from the northwest property boundary to the southeast property boundary. The ground surface slopes to the southeast toward the Monongahela River. Surface water features are present at the Jefferson Plant including Jorgy's Pond and an unnamed tributary to the Monongahela River (Figure 3).

2.3.2 Unconsolidated Deposits

The unconsolidated deposits at the site consist of fill material and Quaternary-age alluvial deposits. Fill material exists in some portions of the plant and is most prevalent in the western plant area (MTR, 2003). The fill material consists of varying amounts of sand, slag, brick fragments, and concrete. Based on review of historic topographic maps, it appears that up to 12 feet of fill has been placed in the western plant site areas (MTR, 2003). Fill material is also used for the non-paved roadways at the site.

Unconsolidated alluvial deposits exist beneath the plant area and generally display a fining upward sequence, attaining a maximum thickness of approximately 70 feet near



the Monongahela River. The thickness of the alluvial deposits decreases to the west (837 Tank Farm Area) as the topographic relief increases. The basal portion of the alluvium is comprised of sand and trace gravels with lenticular deposits of clay and silt. The basal portion ranges in thickness from 15 feet to 25 feet. Immediately above the basal portion layer, a silty sand/sandy silt is encountered over the majority of the site area. At some site locations (e.g., Lower Plant), the silty sand/sandy silt appears to be absent and is likely replaced by a clayey silt/silty clay. The clayey silt/silty clay appears to be limited to the site boundary along the Monongahela River and extends to the west to the approximate mid-Lower Plant, C5 Plant, and Finished Products Warehouse Areas. West of the mid Lower Plant, C5 Plant, and Finished Products Warehouse Areas, the clayey silt/silty clay is absent and a silty sand/sandy silt unit exists. The clayey silt/silty clay ranges in thickness from approximately 8 feet to 40 feet with the maximum thickness observed in the northeastern Lower Plant Area. The silty sand/sandy silt can range in thickness from approximately 20 feet to 40 feet. Figure 3 shows the locations of two cross-sections constructed for the site. The cross-sections (Figures 4 and 5) show the general stratigraphy of the unconsolidated and bedrock units encountered at the site.

2.3.3 Bedrock

Bedrock at the site includes the Casselman Formation of Pennsylvanian Age. The Casselman Formation is not exposed at the site, but underlies the alluvial deposits within the site area. The Casselman Formation is characterized primarily as interbedded sandstone and claystone. The Casselman Formation was encountered during drilling at depths ranging from approximately 58 feet to 77 feet below ground surface (bgs) during the 2003 to 2004 Cummings/Riter investigation at the site. The depth to the bedrock is the shallowest at the northwest portion of the site, and deepest to the southeast toward the Monongahela River.

2.4 HYDROGEOLOGIC SETTING

Groundwater is characterized by three distinct hydrogeologic zones at the site which are defined as the perched, unconsolidated shallow, and unconsolidated deep groundwater zones. These three zones are associated with either the fill or the unconsolidated Quaternary alluvium deposits that underlie the site. Each of these hydrogeologic zones is discussed separately in the following subsections.



2.4.1 Perched Groundwater Zone

Perched groundwater exists at some site areas and is dependent on the location and thickness of the fill. Perched groundwater likely exists as a result of the development of localized lower hydraulic conductivity (K) layers found above the shallow water table surface (MTR, 2003). The lower (K) layers have the ability to impede the downward vertical migration of infiltrating groundwater resulting in a perched groundwater zone.

Perched groundwater has been extensively investigated in the Lower Plant due to the presence of light non-aqueous phase liquids (LNAPL) in that area. The perched groundwater zone can be attributed to the presence of a clayey silt/silty clay layer and/or the presence of fill material placed in this area. Perched groundwater also exists in the Upper Plant Area and has been observed as seepage along the northern banks of Jorgy's Pond. The perched groundwater zone in the Upper Plant Area has formed from the placement of fill material over the existing ground surface. The fill in the Upper Plant Area consists primarily of gravel, slag, and sand, which creates a layer of relative high K value. The former ground surface (which now underlies the fill) in the Upper Plant Area is characterized by a silty clay layer, which is less conducive to groundwater infiltration.

The depth to perched groundwater can be relatively shallow, particularly in the western portion of the Upper Plant Area. Water was observed as shallow as two feet in some of the borings in this area during the site characterization in November and December 2003. Groundwater flow is toward the Monongahela River and generally follows topography in the perched groundwater zone. Perched groundwater (where present) is also believed to discharge to Jorgy's Pond and the unnamed tributary to the Monongahela River.

2.4.2 Shallow Unconsolidated Groundwater Zone

Groundwater is present in the unconsolidated silty sand/sandy silt or clayey silt/silty sand associated with the deposition of the Quaternary alluvium. The depth to these deposits varies throughout the site depending on the thickness of the overlying fill material. The shallow groundwater is laterally consistent over the site area and forms the water table surface. Groundwater flow in the shallow zone is toward the Monongahela River. The unnamed tributary to the Monongahela River also acts as a localized discharge point for shallow groundwater. Several wells monitoring the shallow unconsolidated groundwater



zone located in the Upper Plant and Lower Plant Areas also contain LNAPL. Potentiometric surface maps depicting groundwater flow in the shallow unconsolidated groundwater zone during two monitoring events are included as Figures 6 and 7.

The average horizontal hydraulic gradient in the shallow unconsolidated groundwater zone was 0.017 foot per foot (ft/ft) (southwestern portion of the site) and 0.018 ft/ft (eastern portion of the site) using water level data measured on February 26, 2004. Monitoring Wells E-1 and E-14 were used to calculate the average horizontal hydraulic gradient for the southwestern portion of the site and Monitoring Wells E-51 and W-7 were used for the eastern portion of the site. Based on an average K value of 0.56 foot/day and an assumed porosity of 0.25, the average linear groundwater velocity in the shallow unconsolidated groundwater zone is estimated to be approximately 0.04 feet/day (MTR, 2003).

2.4.3 Deep Unconsolidated Groundwater Zone

The deep unconsolidated groundwater zone is characterized by sand with trace gravels, which are encountered at a depth of approximately 50 feet bgs. These basal sand and trace gravels occur just above the unconsolidated deposits/bedrock interface. The shallow and deep unconsolidated groundwater zones are hydraulically connected. The deep unconsolidated groundwater zone has an overall average K value of 8.56 feet/day (or 3.02 x 10⁻³ centimeters per second [cm/sec]) based on slug testing (rising head and falling head) performed in the five new deep groundwater monitoring wells (E-59, E-60, E-61, E-62, and E-63) installed by Cummings/Riter in February 2004. Table 1 provides a summary of the K values for the deep unconsolidated groundwater zone wells tested during this investigation.

The new deep groundwater monitoring wells are spatially distributed across the site; therefore, the average K value is believed to be representative of deep groundwater zone conditions at the site. Potentiometric surface maps depicting groundwater flow in the deep unconsolidated groundwater zone during two monitoring events are included as Figures 8 and 9. Lithologic boring logs and well installation details of the newly installed deep unconsolidated groundwater zone wells have been provided in Appendix A.

- 6 -



305/R2

The deep unconsolidated groundwater zone has a horizontal hydraulic gradient of 0.018 ft/ft using water level data from February 26, 2004 at Monitoring Wells E-3AD and E-17D. The average K value of 8.56 feet/day for the deep unconsolidated groundwater zone was determined by the slug tests (both falling head and rising head) conducted at the five new deep groundwater monitoring wells (E-59, E-60, E-61, E-62, and E-63) installed by Cummings/Riter. The assumed porosity of the deep groundwater zone deposits is estimated to be 0.25, which is similar to the porosity of that of the shallow unconsolidated deposits. The average linear groundwater velocity in the deep unconsolidated zone is estimated to be approximately 0.62 feet/day.

Vertical hydraulic gradients were assessed between the shallow and deeper intervals of the alluvial aquifer at five well pairs (E-8/E-9, E-13/E-14, E-17/E-18, E-24/E-46, and E-40/E-47) using the February 26, 2004 data. The comparison of the water levels in the well pairs indicates that a downward vertical hydraulic gradient exists between the shallow and deep unconsolidated groundwater zones on the dates that the levels were recorded. Table 2 presents a summary of the water level elevations measured during this investigation.

2.4.4 Surface Water/Groundwater Relationship

The Monongahela River, and to a lesser extent, the unnamed tributary to the Monongahela River, influence groundwater flow patterns by providing a discharge point for site groundwater. Shallow groundwater flow is generally from northeast to southwest toward the Monongahela River.

The unnamed tributary flows through the 837 Tank Farm Area and into a 36-inch culvert at its intersection with State Route 837. The culvert diverts surface water beneath the Upper Plant Area until it discharges into Jorgy's Pond (Figure 2). A second culvert also runs from the 837 Tank Farm Area to Jorgy's Pond. The second culvert is 24-inches in diameter and is located northwest of the unnamed tributary culvert. The second culvert diverts surface runoff water from two catch basins located on either side of State Route 837 to Jorgy's Pond. The location of these storm water culverts are provided on Figure 3. Both of the culverts are believed to act as a localized discharge point for perched groundwater.



A videotape inspection of the two culverts conducted by Cummings/Riter in November 2003 found several locations where groundwater was observed to be seeping into each culvert. A letter report (Cummings/Riter, 2004) was prepared containing a detailed description of the inspection findings. A copy of the letter report is included as Appendix B. Water samples were collected from the 36-inch culvert at various points along its length. The analytical results from these samples indicate that impacted groundwater may infiltrate into the storm sewer system. Findings of the culvert water sampling are further discussed in Section 4.6.

From Jorgy's Pond to the C5 Plant and Lower Plant Areas, the unnamed tributary flows southeast through a culvert beneath the railroad to a discharge point located in the northern portion of the C5 Plant Area (Figure 2). The unnamed tributary then flows to its discharge point at the Monongahela River. An impermeable synthetic liner was installed beneath the exposed portion of the unnamed tributary in the C5 Plant and Lower Plant Areas as part of the Under Creek Interceptor Trench (UCIT) installation. The liner is designed to minimize hydraulic communication between groundwater and surface water in the C5 Plant and Lower Plant Areas by directing groundwater that typically discharges to the unnamed tributary into a collection system for treatment. During non-pumping conditions, groundwater flow in the area of the UCIT is directed from west to east toward the Monongahela River. Under pumping conditions, groundwater in the vicinity of the UCIT is captured and transferred to the on-site treatment system.

In the Lower Plant Area (Figure 2), groundwater discharge from the perched groundwater zone to the Monongahela River is influenced by the Lower Plant Interceptor Trench (LPIT). The LPIT was constructed to prevent the discharge of perched groundwater and LNAPL to the Monongahela River. Perched groundwater and LNAPL that collects in the LPIT is removed for treatment at the on-site treatment plant.

2.5 CONCEPTUAL SITE MODEL

This section, along with the information provided in Section 2.4 constitutes the conceptual site model which provides the information necessary to conduct the fate and transport analysis (Section 6.3). The following discussion updates the conceptual site model presented in the DOCC and Work Plan (MTR, 2003).



The conceptual site model was developed to describe mechanisms influencing the migration and fate of constituents released to soil and ultimately groundwater. The following sections describe the conceptual site model.

2.5.1 Physical Conceptual Site Model

Impacts noted in site groundwater emanated from a series of undefined and unrelated releases over the life of the plant. It is believed that the number, magnitude, and frequency of releases at the plant have decreased over time due to efforts to continually upgrade operational areas and the focus placed on materials management. Therefore, the following description is more applicable to the early operational period of the plant than the current day plant.

The source of constituents of interest (primarily aromatic VOCs) potentially occurred from past material handling practices, accidental releases, leaks, etc. During initial operations at the plant, there were fewer paved roadways, concrete floors, and secondary containment structures than are now present at the site. In the absence of containment structures, a release likely migrated onto the ground surface. Once released to the ground surface, the mass (i.e., either product or dissolved aqueous phase constituents in water) entered the unsaturated zone and migrated vertically under the influence of gravity and/or driven by infiltrating precipitation. As the constituents migrated through the unsaturated zone, a percentage of the mass was adsorbed onto the sediments or held by capillary forces. The resultant effect is the presence of constituents in unsaturated soils.

The dissolved aqueous phase likely reached groundwater before the product, since vertical migration of the dissolved aqueous phase was less impeded than the product. Once the dissolved aqueous phase encountered groundwater (perched or shallow), mixing occurred. Once entrained in groundwater, dissolved aqueous phase migration was controlled by the advective flow of groundwater. Though flow direction was influenced by the advective flow of groundwater, the constituent velocity was less than that of groundwater due to contaminant retardation (primarily, adsorption). Horizontally, the groundwater and the dissolved aqueous phase would migrate until intercepted at a hydraulic boundary (i.e., surface water bodies) where groundwater discharges.



Detected concentrations of dissolved phase constituents in groundwater samples collected from monitoring wells represent groundwater quality at that specific location in the aquifer or perched groundwater. Vertically, a downward hydraulic gradient has been observed and would promote the vertical migration of dissolved phase constituents to the deeper aquifer. However, the absence of constituents in the deep groundwater zone suggests that the vertical hydraulic conductivity of the unconsolidated deposits and natural attenuation factors have been effective in minimizing the vertical migration of dissolved phase constituents from the perched and/or shallow unconsolidated groundwater zones to the deep unconsolidated groundwater zone.

Vertical migration of product through the unsaturated zone is believed to be slower than the dissolved aqueous phase and can be attributed to the product viscosity and overcoming physical dynamics such as interstitial tensions and capillary forces. Product will migrate to groundwater when a sufficient mass exists to overcome forces impeding the vertical movement. Since the product has a specific gravity less than water, the product will form a layer on top of the water table when contacted. Since the product is immiscible, a separate phase distinct from groundwater forms and is referred to in this report as LNAPL. LNAPL, when encountered in monitoring wells, is usually detected as a measurable layer. Vertical migration of LNAPL through the saturated zone is not possible since the specific gravity of LNAPL is less than that of water and (under the forces of buoyancy) will float. Horizontal LNAPL migration is influenced by the groundwater flow direction, and the ability to spread is a function of a continual input from a source. Similar to groundwater, LNAPL will migrate with groundwater until encountering a discharge boundary. LNAPL seeps formerly noted along the surface water bodies can be attributed to migrating LNAPL. However, operation of the LPIT and UCIT is effective in intercepting and containing LNAPL, thereby preventing LNAPL from migrating to surface water.

LNAPL entrained within the unsaturated soils and groundwater can act as a continuing source of dissolved phase constituents to groundwater since complete LNAPL drainage is not possible due to it being entrained within porous media. When contacted by water, the resultant residual LNAPL promotes dissolution near the constituent solubility level.



305/R2

LNAPL has been observed in perched and shallow unconsolidated zone monitoring wells in the 837 Tank Farm (one well), Upper Plant (three wells), C5 Plant (one well), and Lower Plant (three wells) Areas (Figures 6 and 7).

With regard to the dissolved phase chlorinated volatile organic compounds (VOCs) observed near the Finished Products Warehouse (Figure 2), it is postulated that former tenants of the warehouse may have improperly disposed of or accidentally released chlorinated VOC-impacted liquids on the ground within and near the warehouse. This theory is based on the groundwater analytical results in wells in the vicinity of the Finished Products Warehouse. The same physical forces responsible for the vertical migration of the dissolved aqueous phase aromatic VOCs described above are responsible for transporting the dissolved aqueous phase chlorinated VOCs to groundwater, where the constituents are introduced, mixed, and subsequently transported via advective groundwater flow to groundwater discharge boundaries.

As discussed above, the surface water bodies act as discharge boundaries for groundwater. The installation of the UCIT and LPIT has effectively intercepted groundwater (and associated LNAPL) flow prior to reaching the surface water bodies. In particular, the impermeable synthetic liner placed within the unnamed tributary stream channel acts as a physical barrier for the discharge of groundwater to surface water. Since groundwater is pumped from the trenches, a gradient is induced in the area that directs groundwater and LNAPL toward a hydraulic low (cone of depression). The collected water is then treated on site and discharged to the local publicly owned treatment works (POTW). The presence of the UCIT and LPIT has significantly reduced LNAPL discharges observed in the surface water bodies.

305/R2

3.0 PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIVITIES

The following discussion of the previous investigation and remedial activities has been modified from the description presented in the DOCC and Work Plan (MTR, 2003).

3.1 Previous Investigations

The following subsections present investigations conducted prior to and after Hercules Incorporated entered into the Consent Order Agreement (COA) at the Jefferson Plant with the PADEP in November 1989. The pre-COA investigations were performed by Roy F. Weston, Inc. (Weston). Post-1989 COA investigations were performed by several consulting firms including GAI Consultants, Inc. (GAI), ARCADIS Geraghty/Miller, Inc. (ARCADIS), and KU Resources, Inc. (KU).

3.1.1 Pre-Consent Order Investigations

Weston initiated the first subsurface investigations at the site in 1982. The 1982 investigation was performed to define the groundwater table surface, determine direction of groundwater flow, define the thickness and areal extent of LNAPL, and recommend strategies for eliminating seeps to the Monongahela River and removal of LNAPL. A total of 20 wells were installed with 17 wells located in the Lower Plant Area and 3 wells located in the V-8 Area.

In 1983 and 1984, Weston expanded the 1982 investigation and installed four large diameter (three, 12-inch and one, 6-inch) recovery wells and excavated five test pits. Three of the recovery wells were located in the Lower Plant Area and one well was located in the V-8 Area. The test pits were excavated to determine soil conditions in an area of the plant inaccessible to drilling. The wells were installed and pumped to evaluate alternate technologies for the interception and recovery of LNAPL.

Weston also provided construction design for the LPIT to collect LNAPL and mitigate seepage to the Monongahela River. The LPIT was initiated in 1988 and was completed 1989. The LPIT is discussed in later paragraphs.



3.1.2 Post-Consent Order and Agreement Investigations

GAI was retained to perform phased investigations in accordance with the COA. The phased investigations were conducted at the site to gain a better understanding of groundwater conditions. Numerous investigative activities were performed over an approximate five-year period by GAI. The investigations performed and results of the investigations were provided in three separate reports:

- Final Report, Phase I Ground Water Evaluation, Jefferson Plant, West Elizabeth, PA (GAI, 1991);
- Phase II Assessment Report, Jefferson Plant, West Elizabeth, PA (GAI, June 1993); and
- Phase II Addendum Assessment of Conditions, Jefferson Plant, West Elizabeth, PA (GAI, October 1996).

An overview of the GAI phased investigations is as follows:

1990 Phase I Groundwater Investigation: Several groundwater investigations were completed by GAI in 1990. During the 1990 investigations, 18, two-inch inside diameter (I.D.) piezometers (E-1 through E-18) were installed in the shallow unconsolidated aquifer, 14 staff gauges (X-1 through X-14) were established along the unnamed tributary, measurement of groundwater and LNAPL levels were made at 30 monitoring well locations, and falling head slug tests were also performed at 30 monitoring well locations to obtain K values. The piezometer and staff locations are provided on Figure 3. Groundwater samples collected during 1990 were analyzed for constituents identified in the COA, which included benzene, toluene, xylenes, total organic carbon (TOC), total organic halogens (TOX), phenols, iron, sodium, manganese, sulfate and chloride, pH, and specific conductance. Ethylbenzene and styrene were also included as part of the groundwater analytical program though these constituents were not identified as COC in the COA. LNAPL samples were collected from wells containing measurable product and were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), TOX, flash point, and heating value.

1992 Phase II Investigation: Phase II investigations were initiated in 1992 by GAI and involved installing six additional wells (E-23 through E-28) and replacing one existing well (W-21A1). Wells E-19 through E-21 were installed by Environmental and Resources



Management in November and December 1991 as part of investigations in the Lower Plant Area and unrelated to investigations performed by GAI. Figure 3 shows the locations of the wells. Rising head slug tests were performed on each of the newly installed wells (E-19 through E-28 and W-21A).

Quarterly groundwater sampling and measurements of groundwater, surface water levels, and LNAPL thickness were initiated in July 1992. Initially, groundwater was sampled in 26 wells and 1 manhole, surface water and sediment sampled at 2 locations (X-2 and X-14), and product sampled in 4 wells. By the fourth quarterly event (April 1993), groundwater was sampled at 30 shallow wells, 6 deep wells, and 1 manhole. Surface water and sediment samples were also collected. The number and location of surface water and sediment samples remained constant during the first and second quarterly events; however, two background sediment samples were collected during the third quarterly event (January 1993). After the second quarterly event, product samples were not collected. The groundwater and surface water samples were analyzed for BTEX, styrene, TOC, TOX, and phenol. The sediment samples were analyzed for total petroleum hydrocarbons (PHC). The results of the findings were provided to the PADEP in 1993 (GAI, 1993).

1993 to 1996 Investigations: Numerous activities were conducted from 1993 to 1996 to further assess site groundwater quality and flow conditions. The groundwater assessment activities included the following:

- Continuation of the groundwater sampling and analytical program on a quarterly basis from July 1992 to April 1993;
- Continuation of water level and LNAPL thickness measurements on a quarterly basis from July 1993 to April 1996;
- Annual groundwater sampling of monitoring wells from October 1993 to October 1995;
- Sampling of select wells in October 1994;
- Sampling surface water at the unnamed tributary upstream and downstream locations quarterly from July 1992 to April 1993, and annually from October 1993 to October 1995; and
- Analyzing groundwater and surface water samples for BTEX, styrene, total phenolics, TOC, and TOX.



Additional borings were drilled to investigate the top of clay and/or facilitate placement of monitoring wells to further define groundwater impacts. The borings and wells drilled over the three-year period included 18 new wells (E-29 though E-33 and E-35 through E-47), 2 replacement wells (E-3A replacing E-3 and E-34 replacing W-17), and 5 soil borings (GAI-1 through GAI-5). Figure 3 shows the location of the monitoring wells. Rising head slug tests were also performed on 13 wells (E-30 through E-33, E-35, and E-37 through E-44).

An underground storage tank (UST) was identified immediately east of the Finished Products Warehouse (Figure 2). Four borings (GAI-2 through GAI-5) were advanced to investigate soil quality near the perimeter of the UST. Soil samples from borings GAI-2 through GAI-5 were composited for laboratory analysis of VOCs, PHC, and TOX. Two shallow groundwater monitoring wells (E-40 and E-41) and three deep wells (E-45 through E-47) were also installed to investigate groundwater quality downgradient at the UST. Well locations are included on Figure 3. Groundwater samples were collected from a total of 10 wells to assess groundwater quality in the vicinity of the UST. Three wells (E-24, E-40, and E-41) are shallow and located hydraulically downgradient from the UST and one well (E-29) is located north of the UST within close proximity to the Finished Products Warehouse.

3.1.3 Due Diligence Investigations

In 2000, two due diligence investigations were performed in anticipation of Hercules Incorporated selling the plant to Eastman. KU performed a due diligence investigation in the former PICCO resins plant formerly operated jointly as HSI. ARCADIS performed investigations in the remaining plant areas.

2000 ARCADIS Investigation: The ARCADIS investigations were conducted in October and November 2000. The investigations focused on assessing groundwater, soil, surface water, and sediment quality. A total of 46 soil samples were collected from 28 soil boring locations (SB-F1 through SB-F28). A total of 38 groundwater samples were collected from 15 existing monitoring wells (W-1A, W-2A, W-15, E-4, E-24, E-27, E-29, E-33, E-34, E-35, E-37, E-38, E-43, E-46, and MW-3), 6 newly installed wells (MW-F1 through MW-F5, and MWD-F1), and 17 newly installed temporary wells



305/R2

(SB-F7 through SB-F19 and SB-F21 through SB-F23) (Figure 10). A total of five surface water/sediment samples (SD-F1/SW-F1 through SD-F5/SW-F5) and one composite sediment sample were collected from the unnamed tributary (Figure 10).

Each of the soil samples collected was analyzed for select VOCs, semivolatile organic compounds (SVOCs), inorganics (metals), pesticides/herbicides, and polychlorinated biphenyls (PCBs). Groundwater and surface water samples were analyzed for the same select list of parameters as the soil. Sediment samples were analyzed for VOCs, SVOCs, and metals. One composite sediment sample was collected and analyzed for pesticides/herbicides and dioxins/furans.

2000 KU Investigations: The KU investigations were focused to the Lower Plant Area on property formerly owned by HSI and commonly referred to as the PICCO resins plant. The KU investigations were performed in October and November 2000. The KU investigations focused on assessing soil and groundwater quality on the former HSI property. A total of 10 soil borings (B1 through B10) were drilled and 9 soil samples collected, while groundwater samples were obtained from 8 monitoring wells and manholes (E-31, W-2A, E-37, E-39A, E-28D, MH-3, MH-4, and MH-5). Figure 11 shows the boring and monitoring well locations completed during the KU investigation.

3.2 ANNUAL GROUNDWATER MONITORING

In accordance with the COA, Eastman monitors groundwater on an annual basis. The annual groundwater monitoring program consists of measuring groundwater and LNAPL levels in site wells and measuring surface water levels at various staff gauges established on the unnamed tributary and the Monongahela River. In addition, organic vapor measurements are also made at each well location upon opening the well cap.

3.3 WELL REPLACEMENT AND ABANDONMENT

In December 2001, the 17 temporary wells (Figure 10) installed by ARCADIS were either converted to permanent monitoring wells (11 wells) or abandoned (6 wells). The temporary wells were converted to permanent wells by removing or overdrilling the temporary well casing to facilitate placement of a two-inch I.D. polyvinyl chloride (PVC) monitoring well using 4¼-inch I.D. hollow-stem augers. Each well was completed by



placing a sand pack around the well screen to a height of approximately two feet above the screen followed by an approximate two-foot bentonite seal and cement grout to ground surface. A protective casing was also installed around each well. The new permanent wells were also surveyed to aid in the determination of groundwater elevations.

3.4 Interim Remedial Measures

Hercules Incorporated has undertaken numerous remedial projects in an effort to mitigate discharges to the Monongahela River and the unnamed tributary, and to minimize the potential for future accidental releases to the environment. The following subsections provide an overview of the remedial projects completed by Hercules Incorporated/Eastman.

3.4.1 Interceptor Trenches

As previously discussed, two interceptor trenches, the LPIT and the UCIT, were installed to mitigate discharges to the Monongahela River and the unnamed tributary. Figure 3 shows the location of the LPIT and UCIT, and Figure 12 shows a cross-sectional view of the LPIT and UCIT relative to the unnamed tributary and the Monongahela River. Each is discussed in the following paragraphs.

Under Creek Interceptor Trench: The UCIT represented the preferred remedial alternative to mitigate discharges to the unnamed tributary in the northwestern Lower Plant Area and northern C5 Plant Area (Figure 2). The UCIT extends from the culvert outlet from Jorgy's Pond to Second Street (Figure 3). The UCIT was installed in 1995 and has an approximate length of 550 feet.

The design of the UCIT includes a barrier and appurtenances installed that provide a means to recover groundwater and LNAPL prior to reaching the unnamed tributary to the Monongahela River. The UCIT was constructed within the unnamed tributary stream channel and involved placing two, six-inch I.D. high-density polyethylene (HDPE) pipes within sub-grade material and covering with a 60-mil HDPE liner. The purpose of the HDPE liner is to provide an impermeable barrier between discharging groundwater and surface water. Fill material was placed over the HDPE to restore the stream bottom.



Four manholes (MH-A through MH-D) were installed and connected with HDPE piping. Water from the UCIT is pumped to the waste water treatment plant which is located to the east of the trench. Groundwater withdrawal from the UCIT is controlled automatically by using a float switch on the evacuation pump in Manhole A. Hydraulic control between surface water and groundwater is not required for the UCIT. Figure 12 provides the construction details of the UCIT.

Lower Plant Interceptor Trench: Investigations in the 1980s were performed to identify the extent of groundwater impacts and gather data to evaluate remedial technologies to mitigate LNAPL seeps to the Monongahela River in the Lower Plant Area. Based on the evaluation of existing data and site hydrogeologic conditions, an interceptor trench was selected as the preferred remedial technology to mitigate discharges to the Monongahela River. The COA specifically identified installation of the LPIT.

The LPIT was installed in the eastern limits of the Lower Plant Area along the western bank of the Monongahela River (Figure 3). Installation of the LPIT was initiated in 1988 and began operating in 1990 (GAI, 1996). The original LPIT length was 575 feet, which was extended approximately 55 feet in 1997. The trench is approximately 630 feet long and attains an approximate maximum depth of 25 feet at Manhole MH-3 (Figure 12). Design groundwater flow to the trench was estimated at 15 to 50 gpm. Five, four-foot I.D. manholes interconnected with a six-inch I.D. HDPE perforated pipe (MTR, 2003) are installed within the trench (Figure 12). Of the five manholes, one manhole (MH-3) serves as the collection point while the remaining manholes act as observation points (Weston, 1986). Pumps were installed in each manhole. A water treatment system consisting of a pre-engineered building, oil/water separator, one carbon adsorption system containing two carbon beds, and one oil decanter was also installed to treat groundwater and LNAPL collected from the LPIT. The treated effluent is either reused or discharged to the local POTW.

The trench is operated on a regular basis with the goal of preventing the flow of groundwater and LNAPL from the site to the Monongahela River. The amount of water pumped from the LPIT is dependent on the river level since a hydraulic connection exists between groundwater and surface water. Pumping from the LPIT is controlled primarily by automatic float switches which help maintain a constant water level in the LPIT.



3.4.2 Jorgy's Pond

Jorgy's Pond is characterized as an open area of the unnamed tributary located in the Upper Plant Area (Figure 3). Groundwater and light PHC seeps are visible on the northern banks of Jorgy's Pond. To minimize the impacts of discharges to surface water in Jorgy's Pond, Hercules Incorporated installed a gooseneck structure that permits the flow of water while slowing the passage of LNAPL or sheens downstream. LNAPL and sheens that accumulated on the water surface were manually removed in the past.

The current discharge configuration has been effective in minimizing the discharge of LNAPL and sheens to downstream sections of the unnamed tributary and ultimately the Monongahela River. Currently, a remedial alternative for Jorgy's Pond is being designed to further minimize the discharge of LNAPL to the unnamed tributary to the Monongahela River.

3.4.3 LNAPL Collection

Since 1994, Hercules Incorporated and Eastman have removed LNAPL from select site monitoring wells. The wells currently targeted for LNAPL removal are based on LNAPL observations made in site monitoring wells in December 2001. With the exception of W-7, and where multi-year data exist, the general trend indicates a decrease in LNAPL recovered over time for Wells W-2A, E-6, E-25, and E-36. The current LNAPL removal program involves removing LNAPL from eight wells (W-7, W-18A, E-6, E-26, E-30, E-33, E-36 and E-43). LNAPL was not observed in Wells W-7, E-33, and E-43 during the Cummings/Riter site investigation. LNAPL is also removed indirectly through operation of the UCIT and LPIT systems. However, no measurements of the quantity of LNAPL removed by pumping from the trenches have been obtained historically during operation of these systems.

3.4.4 Facility Upgrades

305/R2

Since 1988, Hercules Incorporated and Eastman have undertaken numerous activities to upgrade the facility infrastructure minimizing the release of constituents to the environment and to be in compliance with various federal, state, and local regulations. The major facility upgrades occurred in the late 1980s, mid 1990s, and late 1990s, and are currently ongoing.



During the late 1980s, a systematic program was started to identify areas of potential inadequacies followed by developing solutions to address the inadequacies and ultimately correcting the inadequacies identified. Internal assessments prepared by Hercules Incorporated in the late 1980s identified eight separate areas that required upgrades. These areas included groundwater contamination, spill containment, storage tanks, waste water treatment plant, air emissions, tank foundations, storm water control, and waste water pretreatment plant upgrade. The projects implemented and completed are numerous and the details associated with the projects are beyond the scope of this report. However, examples of some of the work completed during the 1980s include the following:

- Upgrading and installing concrete dike walls;
- Upgrading and installing new spill containments areas;
- Installing earthen dikes along the unnamed tributary and Monongahela River;
- Waste water treatment plant instrumentation and filter cake process upgrades;
- Installation of concrete foundations at various tank locations;
- Installation of concrete floors in process areas; and
- Installation of sumps and pumps in process areas.

From the mid-1990s to the present, Hercules Incorporated and Eastman implemented a three-phase spill containment program that identified various plant areas requiring upgrades or the addition of structures that would minimize potential releases to the environment. In concept, the spill containment program was similar to the program implemented in the late 1980s in that structures would be installed at various plant locations to minimize the potential for release to the environment. Examples of some of the projects include the installation of curbing, sumps, roofs (to divert rain water), the sealing or upgrading of spill containment structures, the addition of secondary containment structures, and placement of drip pans. The spill containment program addressed numerous site areas.

In 2001, Eastman completed a tank prioritization model that established an inspection schedule for large ASTs over a 10-year period ending in 2011. As part of this program,



305/R2

Eastman is also upgrading its ASTs. The upgrades include repair of the tank shell if necessary, inspection of the concrete floor and replacement or repairs if necessary, and installation of leak detection (MTR, 2003).

3.4.5 Underground Storage Tank Closure

A UST was discovered in the early 1990s during the Phase II activities near the Finished Products Warehouse (Figure 2). The UST was not related to Hercules Incorporated's operations, but rather to a former property owner prior the Hercules Incorporated ownership. The UST is approximately 32 feet long, 8 feet in diameter, and has approximately 12,000 gallons of capacity (GAI, 1996). The top of the UST is believed to be approximately 10 feet bgs (GAI, 1996). A 2-foot wide manhole opening extends approximately 2 feet above ground surface along with an 8-inch vent pipe and inlet pipe. Approximately 1,300 gallons of sludge were estimated to remain in the bottom of the UST (GAI, 1996). Due to the UST's close proximity to the Finished Products Warehouse, an in-place closure was performed. The UST in-place closure was performed in June 2002 under PADEP's Reference Document No. 02-19323. Closure consisted of removing the sludge and debris, filling with concrete, and welding pipe orifices. Approximately 2,000 gallons of sludge was removed. The sludge was characterized as non-hazardous, and transported to Waste Management, Inc.'s American Landfill located in Waynesburg, Ohio on July 19, 2002 for solidification and disposal.



4.0 SITE CHARACTERIZATION

As part of the RI Report, soil and groundwater analytical data collected during the due diligence investigations by ARCADIS and KU in 2000 and by Cummings/Riter in November 2003 through March 2004 were compared to applicable Act 2 standards. Criteria for characterization of soils and groundwater are the PADEP Act 2 statewide health, non-residential, medium-specific concentration (MSC) standards. Soil criteria used in this comparison were the statewide health, direct-contact MSCs for non-residential properties (surface and subsurface categories) and the soil-to-groundwater MSCs (the higher of the generic values or 100 times the groundwater MSC) for non-residential, used aquifers, with total dissolved solids (TDS) \leq 2,500 milligrams per liter (mg/l).

Groundwater results were compared to non-residential, used aquifer MSCs (TDS ≤ 2,500 mg/l). Surface water results were compared to the most stringent of the three criteria set by Pennsylvania Code, Title 25, Chapter 16 (PA Code, 2000). Sediment results were compared to the analytical results from the background sediment sample location. The background sediment sample location represents the farthest upstream sample location on site and is representative of background. Sediment sample analytical results were also compared to the U.S. Environmental Protection Agency (USEPA) Ecological Toxicity (Ecotox) Threshold Benchmark values in Superfund ecological risk assessments (USEPA, 1996).

Field forms including well development forms, well purging forms, sample collection reports, and chain-of-custody forms for samples collected by Cummings/Riter are presented in Appendix C. Additionally, laboratory analytical data reports (on compact disk) and data validation summary forms are presented in Appendix D

4.1 Soils

The following subsections provide a summary of site characterization soil results as compared to applicable Act 2 MSCs.



4.1.1 Surface Soils

Two surface soil samples (SB-F8A and SB-F17A) were collected by ARCADIS and one surface soil sample (B-7) was collected by KU in 2000 as part of the due diligence investigations. The surface soil samples were analyzed for select VOCs, SVOCs, inorganics, and PCBs. There were no exceedances of the applicable Act 2 direct-contact MSCs in the samples collected by ARCADIS and KU. Sample B-7 collected by KU had soil-to-groundwater pathway MSC exceedances for 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, and ethylbenzene. Tables 3 and 4 provide a summary of the analytical results for the ARCADIS and KU surface soil samples, respectively. Surface soil sample locations from the ARCADIS and KU investigations are shown on Figures 10 and 11, respectively.

Surface soil samples (0 to 2 feet bgs) were collected from 26 borings advanced during the soil characterization conducted by Cummings/Riter in November and December 2003. Soil headspace readings for each sample were measured prior to sampling to assess the presence to VOCs. The surface soil samples were analyzed for Appendix IX VOCS, (including 1,2,4-TMB, 1,3,5-TMB, and *cis*-1,2-dichloroethene [DCE]), Appendix IX SVOCS, and Appendix IX inorganics. **There were no direct-contact MSC exceedances in the surface soil samples collected by Cummings/Riter.** There was one soil-to-groundwater pathway exceedance of the Act 2 regulatory limits for toluene in Sample C-4 (0 to 2 feet). Table 5 provides a summary of the surface soil analytical results from the Cummings/Riter site characterization investigation while Figure 13 shows the soil boring locations. Soil boring logs have also been provided in Appendix A.

4.1.2 Subsurface Soil

Subsurface soil samples were collected by both ARCADIS and KU as part of their due diligence investigations in 2000. A total of 34 subsurface soil samples (2 to 15 feet) were collected by ARCADIS and 10 subsurface soil samples were collected by KU. The subsurface soil samples were analyzed for select VOCs, SVOCs, inorganics, and PCBs. There were no Act 2 direct-contact MSC exceedances reported for the ARCADIS and KU subsurface soil samples. However, there were several Act 2 soil-to-groundwater MSC exceedances. Samples SB-F2/MW-F2A and SB-F3/MW-F3A collected by ARCADIS reported naphthalene concentrations exceeding the soil-to-groundwater MSC. Sample B1 collected by KU reported a benzene concentration, while



Samples B1, B5, and B6 reported 1,2,4-TMB and naphthalene concentrations above corresponding soil-to-groundwater MSCs. Also, Samples B1 and B5 reported 1,3,5-TMB concentrations above its corresponding soil-to-groundwater MSC. Tables 6 and 7 provide a summary of the analytical results for the ARCADIS and KU subsurface soil samples, respectively. Figures 10 and 11 show the ARCADIS and KU subsurface boring locations, respectively.

A total of 41 subsurface soil samples were collected by Cummings/Riter personnel during the 2003 to 2004 site characterization. A truck-mounted Geoprobe[®] was utilized to collect the subsurface soil samples using direct-push technology (DPT). Macro-core samplers with new acetate liners were advanced to collect the samples. Representative samples from each two-foot interval were placed into plastic sealable bags and were allowed to equilibrate for a minimum of five minutes. The soil samples were then screened for total organic vapors using a photoionization detector (PID) with a 10.2 electron volt (eV) lamp. A sample from the two-foot interval exhibiting the highest PID reading was collected and sent for laboratory analysis. If elevated PID readings were not detected in a sample, soil from the two-foot interval immediately above the water table was sampled and sent for laboratory analysis. The subsurface soil samples were analyzed for Appendix IX VOCS, (including 1,2,4-TMB, 1,3,5-TMB, and *cis*-1,2-DCE), Appendix IX SVOCS, and Appendix IX inorganics.

Analytical results for the subsurface soil samples were compared to the appropriate Act 2 standards. There were no subsurface soil direct-contact MSC exceedances for VOCs, SVOCs, or inorganics. Furthermore, the detected concentrations of SVOCS and inorganics in subsurface soil samples did not exceed the soil-to-groundwater Act 2 MSCs. Subsurface soil samples with reported exceedances of applicable soil-to-groundwater MSCs are summarized for specific COC as follows:

- 1,2,4-TMB in Samples C-1 (17.5 to 19.5 feet bgs), V-1 (12.9 to 14.9 feet bgs), and TF-5 (7.7 to 9.7 feet bgs);
- 1,3,5-TMB in Samples C-1 (17.5 to 19.5 feet bgs), V-1 (12.9 to 14.9 feet bgs), and TF-7 (5.5 to 7 feet bgs); and
- Benzene in Sample V-1 (12.9 to 14.9 feet bgs).



Table 8 provides a summary of the subsurface soil analytical results collected by Cummings/Riter while Figure 14 provides the subsurface boring locations with soil-to-groundwater MSC exceedances. Soil boring logs are presented in Appendix A.

4.2 GROUNDWATER

Compounds detected in groundwater samples have been (conservatively) compared to Act 2 used aquifer criteria. Currently, there is no on-site groundwater usage. Hercules Incorporated and Eastman are proposing to implement a deed restriction for groundwater usage at the Jefferson Plant. This restriction will limit groundwater usage for remediation/monitoring purposes only.

Groundwater samples were collected by ARCADIS and KU in 2000 as part of the due diligence investigations. A summary of the ARCADIS analytical results for groundwater and a comparison of groundwater results to Act 2 standards are provided in Table 9. The following table provides a summary of the groundwater MSC exceedances from the groundwater samples collected by ARCADIS in October/November 2000:

October/November 2000	Act 2 MSC (μg/l)	Number of Wells With Exceedances	Exceedance Wells	Range of Exceedances
· · · · · · · · · · · · · · · · · · ·	(μg/1)	Exceedances		(μg/l)
VOCs (μg/l)	110	<u></u>		
1,1-Dichloroethane (DCA)	110	1	E-24	1,700
cis-1,2-DCE	70	2	E-24 and SB-F9	84 - 3,200
Benzene	5	7	E-27, MW-F4, MW-F5, SB-F18, SB-F22, W-2A, and W-15	17 - 6,200
Ethylbenzene	700	5	E-43, MW-F4, MW-F5, SB-F22, and W-15	790 - 19,000
Styrene	100	2	E-43 and MW-F4	460 - 2,300
Toluene	1,000	1	MW-F4	1,400
Trichloroethene (TCE)	5	2	E-29 and SB-F8	11 - 190
Vinyl Chloride	2	2	E-24 and SB-F9	2.4 - 360
Xylenes	10,000	1	W-15	15,000
SVOCs (μg/l)				
bis(2-Ethylhexyl)phthalate	6	1	MW-F3	6.9
Naphthalene	100	5	E-46, MW-F4, SB-F18, W-2A, and W-15	240 - 1,500

October/November 2000	Act 2 MSC (μg/l)	Number of Wells With Exceedances	Exceedance Wells	Range of Exceedances (µg/l)
Inorganics (total) (µg/l)		· 	1	
Antimony	6	.4	E-35, E-37, SB-F16, and SB-F21	6.9 - 14.0
Arsenic	50	3	E-37, SB-F16, and SB-F21	140 - 293
Barium	2,000	1	E-37	3,140
Beryllium	4	3	E-37, SB-F16, and SB-F21	14 - 29
Cadmium	5	1	E-35	17.2
Chromium	100	9.	E-37, E-49, SB-F9, SB-F13, SB-F14, SB-F15, SB-F16, SB-F18, and SB-F21	163 - 1,400
Lead	5	17	E-27, E-29, E-33, E-35, E-37, E-38, SB-F8, SB-F9, SB-F10, SB-F13, SB-F14, SB-F15, SB-F16, SB-F18, SB-F19, SB-F-21, and SB-F22	5.2 - 504
Nickel	100	9	E-35, E-37, E-46, SB-F13, SB-F14, SB-F15, SB-F16, SB-F18, and SB-F21	122 - 1,190

The concentrations of nine constituents were found to exceed the applicable Act 2 standards in groundwater samples collected by KU in 2000. A summary of analytical results for groundwater and a comparison of groundwater results to Act 2 standards are provided in Table 10. The COC that exceeded corresponding Act 2 MSCs and the wells at which the exceedance occurred include the following:

- Antimony Monitoring Well E-37;
- Arsenic Monitoring Well E-37;
- Benzene Monitoring Well W-2A;
- Chromium Monitoring Well E-37;
- Lead Monitoring Well E-37 and E-38;
- Naphthalene Monitoring Wells E-31, E-38; and W-2A;
- 1,2,4-TMB Monitoring Wells E-31, E-38, E-39A, and W-2A;
- 1,3,5-TMB Monitoring Wells E-31, E-38, E-39A, and W-2A; and
- Zinc Monitoring Well W-2A.



Cummings/Riter performed groundwater sampling during two events occurring from January 26 to February 5, 2004 and from March 1 to 2, 2004 at the Jefferson Plant. Prior to initiating groundwater sampling activities, a complete round of groundwater levels was measured at the site monitoring wells and piezometers. The depth to LNAPL and product thickness were also measured in the wells where LNAPL was observed. Table 2 provides a summary of the water levels/product thickness from two water level monitoring events. Potentiometric surface maps were constructed to depict groundwater flow in the shallow (Figures 6 and 7) and deep (Figures 8 and 9) unconsolidated groundwater zones for the two events.

During the first sampling event (January 26 to February 5, 2004), a total of 43 wells were sampled using low-flow purging and sampling techniques. The objective of the first sampling event was to confirm analytical results from the two due diligence investigations in 2000 (KU and ARCADIS).

Prior to the installation of five new deep groundwater monitoring wells in January 2004, there were limited data (analytical and water level) for the deep unconsolidated groundwater zone at the Jefferson Plant. A total of 13 deep wells were sampled during the second event. Additionally, three shallow unconsolidated groundwater zone wells (E-21, W-1A, and W-7) that could not be located during the first round of sampling due to snow and ice cover were also sampled during the second sampling event. The purpose of the second sampling event (March 1 to 2, 2004) was to provide additional analytical data for the deep groundwater zone, and collect samples from wells that could not be located during the first event.

The samples were analyzed for Appendix IX VOCs (including 1,2,4-TMB, 1,3,5-TMB, and *cis*-1,2-DCE), Appendix IX SVOCs, Appendix IX inorganics, and TDS. The Appendix IX inorganic samples were field filtered directly from the discharge tubing using a 0.45-micron filter; therefore, the analytical results represent the dissolved fraction of inorganics in groundwater. The following paragraphs summarize groundwater analytical results for the samples collected by Cummings/Riter with respect to Act 2 MSCs.



4.2.1 Volatile Organic Compounds

The concentration of select VOCs were found to exceed the applicable Act 2 used aquifer MSCs in samples collected from 11 wells during the first groundwater sampling event. Thirty-two of the wells sampled during the first event had no exceedances of the applicable Act 2 used aquifer MSCs. A summary of groundwater analytical results and comparisons to Act 2 standards are provided in Table 11. The constituents that were detected at concentrations exceeding corresponding Act 2 MSCs and the wells at which the exceedance occurred include the following:

- 1,2,4-TMB Monitoring Wells E-43, E-31, E-33, W-15, E-56, MW-F2, and E-2;
- 1,3,5-TMB Monitoring Wells E-43 and W-15;
- 1,1-DCA Monitoring Well E-24;
- 1,1-DCE Monitoring Well E-24;
- *cis*-1,2-DCE Monitoring Well E-24;
- Acrolein Monitoring Well E-49;
- Benzene Monitoring Wells W-15, E-24, E-56, MW-F2, and E-27;
- Ethylbenzene Monitoring Well W-15;
- Tetrachloroethene (PCE) Monitoring Well E-24;
- TCE Monitoring Wells E-24; and E-29; and
- Vinyl chloride Monitoring Well E-24.

During the second sampling event conducted by Cummings/Riter in March 2004, VOC concentrations exceeding Act 2 MSCs were reported for only one shallow monitoring well (W-7) of the 13 deep and 3 shallow wells sampled. Concentrations of 1,2,4-TMB, 1,3,5-TMB, and benzene in the sample from Monitoring Well W-7 exceeded corresponding groundwater MSCs. The VOC exceedances were observed in the perched and shallow unconsolidated groundwater zones. There were no Act 2 MSC exceedances for the deep groundwater zone. Monitoring well locations where VOCS were reported to exceed Act 2 MSCs are presented in plan view on Figure 15. Wells with measurable LNAPL are also shown on the map.

4.2.2 Semivolatile Organic Compounds

Seven SVOCs were detected at concentrations exceeding corresponding Act 2 used aquifer MSCs in samples from several monitoring wells during both groundwater sampling events performed by Cummings/Riter. The detected (or estimated) SVOCs



include: 1,4-dioxane, benzo(a)pyrene, benzo(g,h,i)perylene, bis(2-ethylhexyl) phthalate, dibenzo(a,h)anthracene, naphthalene, and pentachlorophenol. The following table summarizes the exceedances of the MSCs from the first sampling event:

January/February 2004	Act 2 MSC (μg/l)	Number of Wells With Exceedances	Exceedance Wells	Range of Exceedances (µg/l)
SVOCs (µg/l)				
1,4-Dioxane	24	1	W-15	26
Benzo(a)pyrene	0.2	3	W-15, E-45D, and W-2A	0.7J – 0.98J
Benzo(g,h,i)perylene	0.26	3	W-15, E-45D, and W-2A	0.99J - 2.5J
Bis(2-ethylhexyl)phthalate	6	1	E-13D	8.0J
Dibenzo(a,h)anthracene	0.36	2	W-15 and W-2A	0.99J - 2.1J
Naphthalene	100	3	E-43, E-31, and W-15	180 – 840
Pentachlorophenol	1	1	W-2A	5.6J

During the second sampling event, two constituents [benzo(g,h,i) perylene and dibenzo(a,h)anthracene] were reported as having MSC exceedances. Benzo(g,h,i) perylene was detected at concentrations exceeding its corresponding MSC in samples from Monitoring Wells E-59 and E-28D. Dibenzo(a,h)anthracene was detected at a concentration that exceeds its corresponding MSC in the sample from Monitoring Well E-28D. It is noted that the detections of benzo(a)pyrene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, and pentachlorophenol were qualified by the laboratory as estimated concentrations because the concentrations were reported between the reporting limit and the method detection limit (MDL).

Table 11 provides a summary of analytical results for samples collected by Cummings/Riter during this investigation. Figure 16 presents a plan view of SVOC exceedances reported for samples from perched and shallow unconsolidated groundwater monitoring wells collected by ARCADIS, KU, and Cummings/Riter.

4.2.3 Inorganics

Dissolved inorganics analyzed during the 2004 sampling events that exceeded the MSC consisted of arsenic, cadmium, nickel, and thallium. Dissolved arsenic was detected in one sample (from Monitoring Well E-62) at a concentration of 51 micrograms per liter (µg/l) during the March 2004 sampling event. This reported arsenic concentration



exceeds the corresponding Act 2 MSC. Dissolved cadmium was detected in the sample from Monitoring Well MW-F3 collected in January 2004 at a concentration of 7.9 μ g/l which exceeds its corresponding MSC. Dissolved nickel was detected in several groundwater samples at concentrations which exceed its corresponding MSC including: Monitoring Wells E-12 (110 μ g/l in January 2004), E-46D (140 μ g/l in the January 2004 results and 110 μ g/l in the March 2004 results), MW-F3 (130 μ g/l in January 2004), and E-47D (2,000 μ g/l in March 2004). The sample collected in January 2004 from Monitoring Well MW-F3 also had a reported dissolved thallium concentration of 6.1 μ g/l which exceeds its corresponding MSC.

A summary of analytical results for inorganic compounds are presented in Table 11. Figure 17 provides the location of inorganic exceedances (dissolved fraction) for the perched/shallow groundwater zone while Figure 18 provides the location of inorganic exceedances for the deep unconsolidated groundwater zone for samples collected by ARCADIS, KU, and Cummings/Riter.

4.3 SURFACE WATER AND SEDIMENT

Surface water samples were collected from five locations (SW-1 through SW-5) along the unnamed tributary to the Monongahela River (Figure 19) on December 8, 2003. The samples were collected directly from the vertical and horizontal midpoint of the unnamed tributary at each location and proceeded in order from the furthest downstream location (SW-5) to the furthest upstream location (SW-1) to minimize sample disturbance.

The surface water samples were analyzed for Appendix IX VOCS, (including 1,2,4-TMB, 1,3,5-TMB, and *cis*-1,2-DCE), Appendix IX SVOCS, and Appendix IX total inorganics. Surface water samples were compared to the most stringent Surface Water Criteria (fish and aquatic life, human health, and criteria maximum) as defined by Title 25, Chapter 16, Appendix A, Table 1.

Reported concentrations of toluene in samples from Surface Water Locations SW-4 and SW-5 (19,000 μ g/l and 8,500 μ g/l, respectively) and benzene in the sample from Surface Water Location SW-3 (1.7 μ g/l) exceeded Chapter 16 surface water criteria. There were no detected concentrations of SVOCs and inorganics that exceeded surface water



criteria in any of the surface water samples collected during this investigation.

Table 12 provides a summary of the surface water analytical results with a comparison to the applicable surface water criteria. Figure 19 presents the concentrations of detected VOCs, SVOCs, and inorganics in plan view for each surface water sample location.

Sediment samples were collected concurrently with the surface water samples from the midpoint of the stream channel. Sediment samples were analyzed for Appendix IX VOCS, (including 1,2,4-TMB, 1,3,5-TMB, and *cis*-1,2-DCE), Appendix IX SVOCS, and Appendix IX inorganics. Concentrations of VOCs, SVOCs, and inorganics were detected above MDLs in each of the five samples collected. Since MSCs have not been promulgated for sediment under the PADEP Act 2 program, sample results were compared to reported sample concentrations from Sediment Sample Location SD-1, which represents background sediment conditions. Furthermore, sediment sample results were compared to USEPA Ecotox Threshold Benchmark values in Superfund ecological risk assessments (USEPA, 1996).

Sample Location SD-1 is located where the unnamed tributary flows onto the 837 Tank Farm Area portion of the Jefferson Plant (Figure 20). Concentrations of detected COC in Sample SD-2 are similar to those detected in (background) Sample SD-1. Detected concentrations of VOCs and SVOCs in Sample SD-3 (Jorgy's Pond) show a substantial increase when compared to background (Sample SD-1) concentrations. Sample SD-4 had the highest detected VOC concentrations compared to the remaining sediment samples collected during this investigation. The VOC and SVOC concentrations reported in Sample SD-5 show a considerable decrease from those reported in Sample SD-4. The concentrations of inorganics are similar in the five sediment samples collected during this investigation. Table 13 presents a summary of the sediment samples results. Figures 20, 21, and 22 present the detected concentrations of VOCs, SVOCs, and inorganics in plan view, respectively.

As previously discussed, the sediment sample analytical results were also compared to the USEPA Ecotox Threshold Benchmark values. The following table summarizes the results of this comparison:



Parameter	Ecotox Threshold	Sample Location	Detected . Concentration ^(a)
	Value (μg/kg)		(μg/kg)
VOCs			
Toluene	670	SD-4	310,000/430,000
,		SD-5	1,200
Xylenes (total)	25	SD-3	2,900
		SD-5_	140J
SVOCs		<u> </u>	
Benzo(a)pyrene	430	SD-1	610J
		SD-3	1,400J
		SD-4	560J
Fluoranthene	600	SD-1	1,200J
•	•]	SD-2	1,000Ј
	'	SD-3	2,100J
		SD-4	960J
Naphthalene	160	SD-4	710J/900J
Phenanthrene	240	SD-1	650J
		SD-3	480J
		SD-4	720J
Ругепе	660	SD-1	1,100J
•		SD-2	9701
		SD-3	2,200J
		SD-4	900J
INORGANICS			
Arsenic	8,200	SD-3	10,000L
		SD-5	8,300L
Copper	34,000	SD-2	51,000L
		SD-4_	35,000
Nickel	21,000	SD-1	34,000
		SD-2	55,000
· I	\ \ \ \ \	SD-3	29,000
		SD-4	26,000
***************************************	***************************************	SD-5	27,000
Zinc	150,000	SD-2	210,000K
		SD-3	160,000
		SD-4	180,000

NOTE:

(a) Data qualifiers include: J = estimated value; L = positive result is biased high; and K = positive result is biased low.

As shown, the majority of the Ecotox exceedances are found at Sediment Sample Locations SD-3 and SD-4. Also, there were several Ecotox exceedances at the Sediment Sample Location SD-1, which represents background conditions for the site.



4.4 INDOOR AIR

Indoor air quality samples were collected to assess the potential of vapor intrusion to indoor air based on the presence of LNAPL associated with shallow groundwater in the vicinity of several buildings at the Jefferson Plant. According to the "Land Recycling Program Technical Guidance Manual – Section IV.A.4. - Vapor Intrusion into Buildings from Groundwater and Soil Under the Act 2 Statewide Health Standards," (PADEP, 2004), if LNAPL in encountered within 100 lineal feet of an occupied building, indoor air sampling and/or soil gas sampling is required to assess the vapor intrusion pathway.

Indoor air samples were collected from five buildings including: V-8 Control Building, W.W. Poly, M.P. Poly, Pilot Plant Building, and C5 Plant (Figure 23). These buildings were selected for indoor air sampling due to the building being located in areas of known LNAPL. Air samples were collected using Summa® canisters with flow controllers (provided by the laboratory) and were deployed over an eight-hour period. The indoor air samples were analyzed for BTEX, styrene, and naphthalene.

Air readings using a PID (10.2 eV lamp) were measured outside and inside buildings prior to canister deployment to establish background air quality readings and to provide real-time data. Although the PID can only provide a reading for a range of compounds, the data was useful in determining if VOCs were present at the time of sampling.

VOCs were detected with the PID both inside and outside of buildings prior to, during, and after the testing period at several buildings in the investigation including W.W. Poly, M.P. Poly, and Pilot Plant Buildings. The parameters selected for laboratory analysis for the air samples were the same as the constituents that Eastman currently uses at the Jefferson Plant. The possibility exists for the vapors produced by manufacturing processes to interfere with any concentrations possibly caused by vapor intrusion to indoor air. An ambient air sample was collected outside of the M.P. Poly Building to measure potential interference from extraneous sources. The ambient air field blank sample was collected concurrently with the indoor air samples to provide background concentrations. The ambient air sample canister was deployed on the upwind side of the M.P. Poly Building at the time of sampling (Figure 23).



The results of the indoor air samples were compared to exposure standards and guidelines set by the Occupational Safety and Health Administration (OSHA). Specifically, OSHA Permissible Exposure Limits (PELs) were used to evaluate the results since OSHA regulates operations at the Jefferson Plant. Compounds that were detected in concentrations above the MDLs include: ethylbenzene, toluene, xylenes, and styrene. The detected concentrations for the indoor air samples did not exceed corresponding OSHA PELs. Also, detected concentrations in the ambient air sample were similar to those detected in the indoor air samples. This demonstrates that compounds detected in the indoor air samples can be attributed, in part, to site operations rather than vapor intrusion to indoor air from subsurface contaminants. A summary of the indoor air analytical results is provided in Table 14. Figure 23 shows the locations of the indoor air samples and their corresponding detected concentrations.

4.5 GROUNDWATER FLOW ASSESSMENTS

4.5.1 Under Creek Interceptor Trench Assessment

A groundwater flow assessment was performed at the UCIT on February 4 and 5, 2004. Figure 3 provides the locations of the UCIT and the access manholes located along the UCIT. The submersible pump located in Manhole MH-A was turned off 24-hours prior to the initiation to the assessment to allow enough time for groundwater levels to equilibrate to static conditions. The submersible pump is used to evacuate water and/or free product (LNAPL) from the UCIT and transfer it to the plant water treatment building where it is subsequently treated. A round of water levels in wells and piezometers (in both the shallow and deep unconsolidated groundwater zones) in the immediate vicinity of the UCIT was collected prior to the start of the flow assessment. The water level in the adjacent unnamed tributary was also monitored during the assessment. The flow assessment was initiated after water levels were measured and the submersible pump in the UCIT was restarted.

Water levels in the 4 UCIT manholes (MH-A, MH-B, MH-C, and MH-D), 21 assessment wells (E-8D, E-9, E-13D, E-14, E-15, E-16, E-17D, E-18, E-26, E-29, E-32, E-33, E-35, E-40, E-43, E-47D, E-54, E-60, E-61, W-10, and W-21A), and 2 piezometers (LP-2 and LP-5) were measured approximately every 1¹/₂ hours during the first seven hours of the flow assessment. The flow rate of the pump was adjusted by Eastman personnel to



approximately 13.5 gallons per minute (gpm). This flow rate was the maximum pumping rate that could be used without exceeding the capacity of the treatment system. According to Eastman personnel, 13.5 gpm is the typical pumping rate that is used to remove water from the UCIT; therefore, the flow assessment is representative of normal pumping conditions for the UCIT.

Steady state conditions had not been achieved after pumping for approximately eight hours; therefore, the flow assessment testing period was continued. Assessment well water levels were measured after approximately 24 hours of pumping. These levels were compared to the last round of measurements collected the previous day and indicated that the water levels in the wells continued to decrease overnight. The final round of assessment well water levels were measured approximately 29 hours after initiating the test and were compared to the 24-hour levels. Water levels from the two rounds were similar; therefore, it was interpreted that steady state conditions had been achieved.

The maximum drawdown during the investigation observed at pumping location (MH-A) was 1.62 feet. Pumping at the UCIT influenced water levels in the shallow unconsolidated groundwater zone. The maximum drawdown was primarily observed in wells/piezometers located east of the UCIT. With the exception of Piezometer LP-2 located north of the UCIT, shallow wells upgradient (north) of the UCIT showed little to no response to pumping. The UCIT also influenced several of the deep groundwater monitoring wells that were included in the assessment. These observations demonstrate that the UCIT is working as it was designed by preventing the communication between the unconsolidated groundwater zone and the tributary.

Figure 24 shows the total drawdown in the shallow unconsolidated groundwater zone wells included in the UCIT assessment. Table 15 provides a summary of select C5 Plant and Lower Plant Areas well and piezometer water levels and corresponding drawdown values measured during the UPIT flow assessment.

4.5.2 Lower Plant Interceptor Trench Assessment

A groundwater flow assessment was performed at the LPIT on March 18 and 19, 2004. Figure 3 provides the locations of the LPIT and the access manholes located along the LPIT. The collection piping in the LPIT is designed to collect water from the perched

- 35 -



groundwater zone in the Lower Plant Area. The collection piping is also constructed such that water collected by the trench flows to Manhole MH-3. The submersible pump in Manhole MH-3 is then used to remove water and/or free product from the LPIT and transfer it to an equalization tank. From the equalization tank, the water is pumped to the on-site water treatment plant where it is treated and either reused or discharged through a National Pollutant Discharge Elimination System (NPDES)-permitted outfall to the local POTW. The LPIT is designed to be in communication with the perched groundwater zone that exists in the Lower Plant Area.

Approximately 24 hours prior to the initiation of the LPIT test, the collection pump located in Manhole MH-3 was turned off to allow groundwater levels to equilibrate. A round of water levels in Monitoring Wells E-21, E-22, E-28D, E-30, E-31, E-34, E-59, W-1A, W-2A, W-7, W-10, W-15, and MW-F3 and Piezometers LP-6, LP-7, LP-8, and LP-9 (screened in the perched, shallow, and deep groundwater zones) in the Lower Plant Area were measured prior to the start of the LPIT flow assessment. The water level in the Monongahela River was also monitored during the test at Staff Gauge X-0. The water level in the Monongahela River was higher than normal due to recent precipitation events, but below flood stage level. The flow assessment was started after the water level measurements were completed and the submersible pump in Manhole MH-3 was restarted.

Water levels in the assessment wells were measured approximately every two hours after the start of the test for the initial eight hours. The flow rate of the pump was adjusted by Eastman personnel at the start of the test to approximately 15 gpm. The pump was also set on automatic mode during the flow assessment to ensure that it would function over the duration of the test. According to Eastman personnel, 15 gpm represents the normal pumping rate that is used to remove water from the LPIT. Therefore, the LPIT flow assessment was considered to be representative of normal pumping conditions.

Steady state conditions had not been achieved after pumping for approximately eight hours; therefore, the flow assessment testing period was continued. A round of water levels was measured in the wells included in the LPIT flow assessment approximately 24 hours after pumping began. These levels were compared to the round of measurements collected after eight hours of pumping and indicated that the water levels



305/R2 - 36 -

continued to decrease. The final round of assessment well water levels was measured approximately 26 hours after pumping began and was compared to the water levels after 24 hours of pumping. Water levels from the two rounds were similar indicating that steady state conditions had been reached.

The maximum drawdown during the investigation observed at the pumping location (MH-3) was 4.86 feet. The pumping of the LPIT influenced the water levels in wells monitoring the perched groundwater zone with the maximum drawdown observed to the northwest. Figure 25 shows the total drawdown (in feet) for groundwater levels in the shallow wells, piezometer, and manholes included in the LPIT assessment. There was no noticeable drawdown in the two deep wells (E-28D and E-59) monitored during the test. Table 16 provides a summary of Lower Plant Area well and piezometer water levels and drawdown values during the LPIT flow assessment.

4.6 STORM SEWER GROUNDWATER INFILTRATION INVESTIGATION

Two storm sewers (discussed in Section 2.4.4) are present from the eastern limits of the 837 Tank Farm Area at State Route 837 to Jorgy's Pond (Figure 26). A video inspection and pipe cleaning effort was conducted on November 12, 13, and 18, 2003. During the videotaping, multiple groundwater infiltration points (cracks and holes) were observed in the 36-inch and 24-inch sewers. Also, sheens on the water entering the two storm sewers were observed. A letter report containing the findings of the storm sewer videotaping/cleaning is included in Appendix A.

As a result of observations during the videotape inspection, Cummings/Riter and Robinson Pipe Cleaning Company (RPC) conducted surface water sampling on March 2, 2004 at various points along the 36-inch storm sewer to aid in determining the possible location(s) of groundwater infiltration. A surface water sample was collected from a location immediately before the unnamed tributary to the Monongahela River enters the 36-inch sewer. Surface water collected from this sampling location was noted as being clear and absent of an oil sheen.

An additional surface water sample was collected from the 36-inch culvert immediately prior to where it discharges into Jorgy's Pond. Surface water collected from this



sampling point was described as having a noticeable sheen. A culvert located in the Upper Plant Area adjacent to a service point for the 36-inch culvert was also sampled. From observations made during the video inspection, water from this culvert appears to flow into the larger 36-inch storm sewer at the service point. A sheen was also observed on the water at this location at the time of sampling. The surface water samples were analyzed for Appendix IX VOCs (including 1,2,4-TMB, 1,3,5-TMB, and *cis*-1,2-DCE), Appendix IX SVOCs, and Appendix IX inorganics (total fraction only).

During a previous video inspection, water was observed entering the 36-inch culvert through a crack located approximately 131 feet downstream from the 36-inch pipe entrance, on the southern side of Route 837. RPC, under the direction of Cummings/Riter, attempted to sample this infiltration point; however, at the time of sampling, water was not flowing from this infiltration into the storm sewer and, therefore, a sample could not be collected.

Analytical results for the three surface water sampling locations indicate that impacted groundwater is infiltrating into the 36-inch culvert. Analytical results from the influent sampling location (36-inch Pipe Influent) did not report detectable concentrations of VOCs and SVOCs. The sample collected from the service point contained concentrations of VOCs and SVOCs, while the sample collected near the discharge point also had detectable VOC and SVOC concentrations, but at levels less than those reported for the sample collected at the service point. Table 17 provides a summary of the analytical results for the samples collected from the 36-inch culvert. Along with a comparison of the most stringent PADEP statewide surface water criteria (fish and aquatic life, human health, and criteria maximum) as defined by Title 25, Chapter 16, Appendix A, Table 1. Figure 26 shows the sample locations.



5.0 SOURCE AND IDENTIFICATION OF CONSTITUENTS OF CONCERN

As mentioned in Section 4.1, there were no soil direct-contact exceedances identified in the samples collected at the Jefferson Plant. Soil COC (with regard to the soil-to-groundwater pathway) consist of 1,2,4-TMB, 1,3,5-TMB, benzene, ethylbenzene, toluene, and naphthalene. Groundwater COC consists of 1,2,4-TMB, 1,3,5-TMB, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, arcolein (propenal), benzene, ethylbenzene, styrene, PCE, TCE, vinyl chloride, o-xylene, 1,4-dioxane, benzo(a)pyrene, benzo(g,h,i)perylene, bis(2-ethylhexyl) phthalate, dibenzo(a,h)anthracene, naphthalene, pentachlorophenol, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, nickel, thallium, and zinc. Surface water COC consist of benzene and toluene.

As previously discussed, the source of COC is believed to have occurred from a number of potential sources related to improper material handling and accidental releases. Potential source areas within the Jefferson Plant property were identified as a result of the GAI Phase II investigations. Three source areas include the 837 Tank Farm Area, Jorgy's Pond Area, and the Lower Plant Area. The 837 Tank Farm Area currently contains eight ASTs with each AST surrounded by earthen containment berms. There are also conveyance lines leading from the 837 Tank Farm Area, beneath Route 837, to the Upper Plant Area. Concentrations of 1,2,4-TMB, 1,3,5-TMB, and BTEX have been detected in soils and groundwater in the 837 Tank Farm Area. Also, Monitoring Well MW-F4 contains the presence of LNAPL.

A second source area has been identified near Jorgy's Pond. Several monitoring wells located in the central portion of the site contain LNAPL. Monitoring wells in the Upper Plant Area (including E-6, E-26, E-36, W-18A, and MW-F5) have detected LNAPL ranging from a sheen to several feet thick. Also, previous investigations in the Jorgy's Pond Area have reported elevated concentrations of BTEX and impacted seeps have been observed discharging into the pond.

A third source area likely exists in the Lower Plant Area. A number of ASTs are located in this area. Monitoring Well E-30 contains LNAPL, and prior to the implementation of



remedial measures (e.g., the LPIT), Well W-7 had previously reported a detectable thickness of LNAPL. LNAPL has also been encountered in soil borings in the Lower Plant Area.

A chlorinated VOC source has been identified in the Finished Products Warehouse Area. The source area is believed to be located in the northern portion of the area based on groundwater and soil analytical results. Higher concentrations of chlorinated VOCs were detected in groundwater in the northern portion of the area, while chlorinated VOC daughter products have been detected in groundwater in the southern portion (downgradient) of the area. The presence of daughter products indicates that natural attenuation processes are likely to be occurring in this area.

6.0 POTENTIAL PATHWAY IDENTIFICATION AND EVALUATION

The identification and evaluation of potential pathways with respect to COC are included in this section pursuant to the Act 2 TGM. The identification process describes potential sources, pathways, and receptors in the absence of institutional or engineering controls. These potential pathways are then evaluated to determine whether impacted media meet applicable Act 2 statewide health standards for characterization purposes.

6.1 POTENTIAL PATHWAY IDENTIFICATION

The following discussion of the potential pathway identification has been modified from the description presented in the DOCC and Work Plan (MTR, 2003).

Factors analyzed in the identification of pathways include source areas, migration routes, receptors, and exposure pathways. Potential source materials at the Jefferson Plant consist of COC identified in site media as described in Section 4.0. Soil, surface water, sediment, and groundwater represent potential source media since investigations have indicated that site-related activities have impacted these media. Constituent migration in soil and groundwater may occur to other environmental media through various migration pathways. Potential migration pathways to ambient air from impacted soils include transport via fugitive dust generation (e.g., wind erosion, vehicle traffic, or excavation) and constituent volatilization (including indoor air). COC migration from soil to groundwater could occur through constituent leaching and infiltration through unsaturated soils to groundwater. Once in groundwater, the COC can migrate advectively via groundwater flow to discharge points (i.e., surface water) or migrate to indoor air through volatilization. A potential pathway exists from soils to surface water and sediment via the transport of impacted soil particles by storm water runoff to surface water bodies. Impacted sediments can also act as a continuing source for surface waters.

Based on the potential source media and migration pathways identified above, the potential on-site exposure media for the plant includes surface and subsurface soil



(various plant areas), site-wide groundwater, outdoor air particulate and volatile emissions, indoor air volatile emissions, and surface water and sediment in the unnamed tributary and Jorgy's Pond.

6.1.1 Potential Receptors and Exposure Pathways

The current and expected future site use is industrial and the potential receptors were based on the current and expected future use of the site. In the event that future site use is changed, then an updated evaluation of potential receptors would be required. Based on the current and expected future use, the likely human receptors include full-time plant workers (both outdoors and indoors), and construction or utility maintenance workers present on an infrequent or short-term basis. The plant worker is not expected to be involved in any intrusive subsurface activities, while the construction or utility worker may be involved in excavation-type work. Visitors and trespassers are also potential receptors, but they would be present on such an infrequent basis (in comparison to workers) that quantitative assessment is not necessary.

Exposure pathways describe the constituent pathways from source media to the potential receptor. The following presents potentially complete exposure pathways based on receptors described above and current understanding of the site:

- Plant Worker (Outdoor): Incidental ingestion of surface soil, dermal contact with surface soils, inhalation of volatile and particulate emissions in outdoor air, incidental ingestion of surface water, dermal contact with surface water, incidental ingestions of sediment, and dermal contact with sediment;
- Plant Worker (Indoor): Inhalation of volatile emissions in indoor air; and
- Construction or Utility Worker: Incidental ingestion of surface and subsurface soil, dermal contact with surface and subsurface soil, and inhalation of volatile and particulate emissions in outdoor air.

Although direct contact with groundwater is possible by plant and construction/utility workers, it is not expected to be a significant exposure pathway. Workers potentially bailing LNAPL from wells could be exposed to groundwater, but these workers are assumed to conduct the activity using appropriate personal protective equipment (PPE).



In addition, groundwater pumped from the LPIT or UCIT and treated at the on-site treatment plant could be added to process waste water; however, contact with this water is extremely unlikely. For these reasons, direct dermal contact or incidental ingestion with groundwater is not expected to be significant. The only significant potential exposure pathway for chemicals in groundwater is inhalation of vapors that volatilize into indoor air.

6.1.2 Potential Future Exposure Pathways

Potential future exposure pathways and receptors are basically similar to the aforementioned current exposure scenario. However, potential future exposure pathways exist in addition to the current exposure pathways listed above. Direct contact with COC in groundwater by on-site workers could potentially occur in the future through ingestion or inhalation of volatilized constituents if an on-site groundwater supply well is constructed and used. The ingestion or inhalation of volatilized COC or fugitive emissions in ambient air by site workers may occur if subsurface soils are disturbed at the facility through redevelopment or renovation activities. Remediation of Jorgy's Pond is anticipated, and there is a potential for exposure to sediment and surface water by remediation workers. However, this activity would be of short duration, and the activities would be conducted using appropriate PPE and health and safety procedures. Evaluation of exposure to sediment and surface water by an outdoor plant worker will be of sufficient frequency and magnitude to address potential risks to other worker receptors.

6.2 POTENTIAL PATHWAY EVALUATION

The following paragraphs evaluate each pathway identified as they apply to site media (i.e., soils, groundwater, surface water, and indoor air). The evaluation determines whether COC present in existing pathways exceed applicable statewide health standards for characterization purposes or if the pathway elimination component of the site-specific standard can be used. Section 4.0 provides an overview of current environmental conditions at the Jefferson Plant as compared to statewide health MSCs.

6.2.1 Soils (Direct Contact)

Soil analytical results collected at the Jefferson Plant were compared to applicable MSCs for characterization purposes. The evaluation shows that there are no exceedances of



statewide health direct-contact standards for surface and subsurface soils. Therefore, the direct-contact exposure pathway for surface and subsurface soils is insignificant and does not require further evaluation.

6.2.2 Soils (Soil-to-Groundwater Pathway)

As stated in Section 4.1.2, COC exceeding applicable soil-to-groundwater standards are 1,2,4-TMB, 1,3,5-TMB, benzene, ethylbenzene, toluene, and naphthalene. Therefore, the soil-to-groundwater pathway for these compounds is complete and requires further evaluation.

6.2.3 Groundwater

Groundwater COC consists of 1,2,4-TMB, 1,3,5-TMB, 1,1-DCA, 1,1-DCE, *cis*-1,2-DCE, arcolein (propenal), benzene, ethylbenzene, styrene, PCE, TCE, vinyl chloride, o-xylene, 1,4-dioxane, benzo(a)pyrene, benzo(g,h,i)perylene, bis(2-ethylhexyl)phthalate, dibenzo(a,h)anthracene, naphthalene, pentachlorophenol, arsenic, cadmium, nickel, and thallium. As stated earlier, groundwater is currently not used at the Jefferson Plant. However, incidental contact with site groundwater may occur through subsurface disturbances during redevelopment or renovation activities if excavations were to proceed to the water table. To prohibit potential future pathway completion for on-site groundwater, institutional controls in the form of restrictive covenants prohibiting the on-site use of groundwater for purposes other than environmental monitoring and/or remediation will be implemented to eliminate the possibility of direct contact to existing or future tenants.

The UCIT and LPIT inhibit groundwater discharge to surface water in the unnamed tributary and the Monongahela River, respectively, at the Jefferson Plant. Fate and transport analysis was performed to assess theoretical concentrations of COC in groundwater associated with the perched, shallow, and deep unconsolidated groundwater zones of the Jefferson Plant. Section 6.3 provides a description of the fate and transport analysis and subsequent findings.

Surface water from two storm water culverts (which receive groundwater inflow) and perched groundwater (along with LNAPL seeps) provide baseflow to Jorgy's Pond. No



attempt was made to model the groundwater impacts on Jorgy's Pond due to the presence of LNAPL. Also, groundwater samples were not collected from wells containing LNAPL, which included many of the wells in close proximity to Jorgy's Pond.

6.2.4 Surface Water and Sediment

As mentioned in Section 4.3, VOC exceedances in surface water exist on the Jefferson Plant property. The exceedances of benzene and toluene are believed to be a result of LNAPL seeps discharging to the unnamed tributary between Jorgy's Pond and the UCIT. To prohibit potential future pathway completion for surface water, a remedial alternative is currently being designed for Jorgy's Pond and the surrounding area to minimize the flow of impacted groundwater to the unnamed tributary. The remedial alternative will be implemented to eliminate the possibility of direct contact to existing or future tenants. Currently, the surface water pathway is complete and requires further evaluation.

As mentioned in Section 4.3, VOC, SVOC, and inorganic exceedances of USEPA's Ecotox Threshold Benchmark values in Superfund ecological risk assessments (USEPA, 1996) were observed. The majority of the exceedances occurred at Jorgy's Pond (SD-3) and the two sample locations downstream of Jorgy's Pond with the C5 Plant Area (SD-4) and the Lower Plant Area (SD-5). Currently, the sediment pathway is complete and requires further evaluation.

6.2.5 Indoor Air

As discussed in Section 4.4, concentrations of VOCs and SVOCs reported for the indoor air samples collected during the site characterization do not exceed regulatory limits. Therefore, the indoor air pathway for the selected VOCs and SVOCs at the Jefferson Plant is incomplete and does not require further evaluation.

6.3 FATE AND TRANSPORT ANALYSIS

As discussed in Section 4.0, VOCs have been detected in groundwater samples from site monitoring wells above applicable MSCs. The fate and transport of COC in two site areas (Finished Products Warehouse and Lower Plant Areas) were evaluated. The COC have been detected in groundwater samples collected from monitoring wells located in suspected source areas and at downgradient well locations (i.e., future points of



compliance [POC]) at concentrations that exceed applicable groundwater MSCs. A third area (the central portion of the Upper Plant Area) is known to have groundwater impacted by LNAPL; however, monitoring wells that were found to contain LNAPL were not sampled as part of the current groundwater monitoring program. A portion of the LNAPL in this area is believed to migrate into the UCIT where it is collected, transferred, and treated at the on-site water treatment plant.

A fate and transport analysis has been performed to evaluate the extent that COC may migrate under current site conditions. Recent groundwater sampling data from samples collected as part of the ongoing site characterization program was used in the fate and transport analysis. PADEP software programs, Quick Domenico (QD), SWLOAD (Version 5B) and PENTOXSD (Version 1.0a), were used to evaluate groundwater fate and transport and surface water impacts from diffuse flow of impacted groundwater at the site.

Due to a limited number of groundwater samples collected from Monitoring Wells E-29 (Finished Products Warehouse Area) and W-15 (Lower Plant Area), the plume character could not be evaluated as part of this evaluation. Therefore, it is noted that this fate and transport evaluation conservatively assumes that the contaminant plumes are at steady state.

As described in the TGM (PADEP, 2002), the QD model is used to calculate contaminant concentrations anywhere in a plume at any time after a continuous, finite source becomes active. QD was calibrated to a downgradient well by varying the attenuation lambda (i.e., first-order decay constant) until simulations reflected empirical field data. Next, the calibrated decay constant was used as input in the SWLOAD model. SWLOAD is a screening tool that uses a rearrangement of the QD equation to calculate concentrations at different points in the cross-section of a plume at any distance from a continuous finite source. Based on the plume concentrations, the mass loading of a particular contaminant from diffuse groundwater flow to a surface water body can be estimated. The results of the SWLOAD simulation compare the highest concentration in the plume with an "edge criterion" to determine whether or not a PENTOXSD analysis is required. Output parameters (average groundwater concentration and plume flow) from the SWLOAD model are used as input into the PENTOXSD model. PENTOXSD is used to determine



if the groundwater discharge to a surface water body meets applicable surface water quality criteria. The PENTOXSD model uses a mass-balance water quality analysis model that includes considerations for mixing and first-order decay to determine recommended water quality-based effluent limits.

The model simulations were evaluated for COC using the January to February 2004 and March 2004 monitoring data. As previously discussed, calibration of the QD simulations was completed by varying the first-order decay constant until the plume concentration matched detected concentrations at actual downgradient sample locations. Calibration methods (as appropriate) are further discussed for each modeled area. The three areas of interest at the site are the Finished Products Warehouse, the Upper Plant, and Lower Plant Areas. Contaminant fate and transport was not attempted for the Upper Plant because of the limited groundwater analytical data due to the presence of LNAPL. Contaminant fate and transport was evaluated for the Finished Products Warehouse and Lower Plant Area using different procedures which are discussed in the following sections.

6.3.1 Finished Products Warehouse Area

Chlorinated solvents have been identified in groundwater samples from the Finished Products Warehouse Area. The specific location of the source area is believed to be in the vicinity of Monitoring Well E-29. COC evaluated during the analysis of the Finished Products Warehouse Area include:

- 1,1-DCA,
- 1,1-DCE,
- *cis*-1,2-DCE,
- Benzene,
- PCE,
- TCE, and
- Vinyl chloride.

Groundwater sample results (January 2004 sampling event) from Monitoring Wells E-29 (located in the suspected source area) and E-24 (downgradient location) were included in this evaluation. The COC related to the Finished Products Warehouse Area were identified as impacting the shallow unconsolidated aquifer. It is believed that



groundwater in the shallow unconsolidated aquifer in this area provides recharge to, and mixes with, surface water in the Monongahela River. Monitoring Wells E-29 and E-24 are located approximately 325 and 80 feet upgradient from the Monongahela River, respectively. It is assumed that the Monongahela River will be considered the POC for groundwater discharging to surface water downgradient of the Finished Products Warehouse Area.

For the portion of the groundwater between the suspected source area and the river, QD was used to simulate groundwater fate and transport. Only TCE was detected above the used aquifer, TDS ≤ 2,500 mg/l, non-residential MSCs in the groundwater samples from Monitoring Well E-29. Sample results from Monitoring Well E-29 and E-24 collected during the January 2004 sampling event were used as input for the QD analysis. Site-specific hydrogeologic data from the current and past investigations were also used as input for the spreadsheet. The calibration of TCE was performed for the QD model using the analytical results from Monitoring Well E-24 (the furthest downgradient groundwater sample where TCE was detected). The output sheets for the QD model are provided in Appendix E. Also, Table E-1 in Appendix E presents a summary of the input parameters used for the QD model.

The calibrated first-order decay constant was then used in the SWLOAD simulations for the Finished Products Warehouse Area. The SWLOAD simulation indicates that diffuse flow from the shallow unconsolidated aquifer near the Finished Products Warehouse Area results in COC concentrations above regulatory limits at the surface water POC (the Monongahela River). Based on this result, further evaluation using a PENTOXSD analysis was required. The output sheets for the SWLOAD program are provided in Appendix E. Also, Table E-2 in Appendix E presents a summary of the input parameters used for the SWLOAD model.

The PENTOXSD model was used to evaluate attainment of various surface water regulatory limits at the surface water POC. As previously discussed, the Monongahela River is considered to be the surface water POC for this evaluation. The stream reach evaluated by the PENTOXSD model is defined as the portion of the Monongahela River immediately downstream from the site area. Input data used for the model are summarized below:



Parameter	Value	Source of Data
Basin	19	PA Gazetteer of Streams (PA Code Title 25, Chapter 93)
Stream Code	37185	Stream code for the Monongahela River (defined by PENTOXSD).
River Mile Index (RMI)	1 and 0.1	Distance (in miles) of stream nodes for the Monongahela River adjacent to the site downstream to the Elizabeth Bridge.
Elevation	727 and 719	Elevation (feet, MSL) at nodes from topographic map.
Drainage Area	5340 and 5350	Drainage area (in square miles [mi²]) for the Monongahela River reported by the U.S. Geological Survey for gage stations at Lock/Dam No. 3 and at the Elizabeth Bridge.
Q 7-10 Flow Rate	494	Flow rate (in cubic feet per second [ft³/sec]) for the Monongahela River reported by the U.S. Geological Survey for gage stations at Lock/Dam No. 3 and at the Elizabeth Bridge. Reporting period 1935-1995.
Harmonic Mean Flow Rate	2860	Flow rate (in cubic feet per second) for the Monongahela River reported by the U.S. Geological Survey for gage stations at Lock/Dam No. 3 and at the Elizabeth Bridge. Reporting period 1935-1995.
Permit Number	PA000E24	Direct input (not an actual permit number).
Existing Discharge Flow	0.0016	Plume flow (in millions of gallons per day) based on the results of the SWLOAD model.
Parameter	TCE	Primary COC.
Discharge Concentration	3.05	The average plume concentration (in μg/l) calculated and reported by the SWLOAD model.

In addition to TCE, six other VOCs were detected in the groundwater sample from Monitoring Well E-24 (but not in the sample from Well E-29) including: 1,1-DCA (1,400 µg/l), 1,1-DCE (67 µg/l), cis-1,2-DCE (3,600 µg/l), benzene (10 µg/l), PCE (20 µg/l), and vinyl chloride (370 µg/l). With the exception of cis-1,2-DCE, these parameters were also included in the PENTOXSD simulation. It is noted that cis-1,2-DCE is not a parameter that is available for analysis by PENTOXSD. The remaining input values used by the model were default values. It is noted that the default values assume immediate and complete mixing of groundwater into surface water.

To be conservative, the parameter concentrations reported in the sample from Monitoring Well E-24 were used as the discharge concentrations entering the river. It is likely that these parameter concentrations will attenuate (to some degree) prior to discharging into the river.



The output for the January 2004 model simulation indicates that the surface water concentration of TCE (calculated by SWLOAD) or the five additional VOCs evaluated by PENTOXSD will not theoretically exceed any of the four water quality-based criteria used by the model. The output sheets for the PENTOXSD simulation are presented in Appendix E. Also, a summary of input parameters for the model are provided in Table E-3 in Appendix E.

6.3.2 Lower Plant Area

The Lower Plant Area is monitored by several monitoring wells where VOCs and SVOCs have been detected in groundwater samples at concentrations above applicable Act 2 MSCs. Based on the results for sampling and analysis (highest concentration of VOCs and SVOCs), the specific location of the source area is believed to be in the vicinity of Monitoring Well W-15. COC evaluated during the analysis of the Lower Plant Area include the following:

- Benzene,
- Benzo(a)pyrene,
- Benzo(g,h,i)perylene,
- Dibenzo(a,h)anthracene,
- 1,4-Dioxane,
- Ethylbenzene,
- Naphthalene,
- 1,2,4-TMB, and
- 1,3,5-TMB.

Groundwater sample results (January to February 2004 and March 2004 sampling events) from Monitoring Wells W-15 (located in the suspected source area) and W-7 (downgradient location) were included in this evaluation. The COC related to the Lower Plant Area were identified as impacting the perched unconsolidated groundwater zone and shallow unconsolidated groundwater zone. It is believed that groundwater in the perched unconsolidated unit discharges to the shallow unconsolidated zone in this area providing recharge to, and mixes with, surface water in the Monongahela River. Monitoring Wells W-15 and W-7 are located approximately 175 and 15 feet upgradient from the Monongahela River, respectively. It is assumed that the Monongahela River will be considered the POC for groundwater discharging to surface water downgradient of the LP Area.



For the portion of the groundwater between the suspected source area and the river, QD was used to simulate groundwater fate and transport. Four COC were detected in both Monitoring Wells W-15 and W-7 including 1,2,4-TMB, 1,3,5-TMB, benzene, and ethylbenzene above applicable MSCs. Sample results from Monitoring Well W-15 (January to February 2004 sampling event) and Monitoring Well W-7 (March 2004 sampling event) were used as input for the QD analysis. Site-specific hydrogeologic data from the current and past investigations were also used as input for the spreadsheet. The calibration of the COC was performed for the QD model using the analytical results from Monitoring Well W-7. It is noted that the remaining compounds [benzo(a)pyrene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, 1,4-dioxane, and naphthalene] were either not detected above reporting limits or were reported as estimated values. Therefore, these compounds could not be calibrated in the model. The output sheets for the QD model are provided in Appendix E. Also, Table E-4 in Appendix E presents a summary of the input parameters used for the QD model.

The calibrated first-order decay constant was then used in the SWLOAD simulations for the Lower Plant Area. The SWLOAD simulation indicates that diffuse flow from the shallow groundwater unconsolidated groundwater zone near the Lower Plant Area results in COC concentrations above regulatory limits (for each of the three COC evaluated) at the surface water POC (the Monongahela River). Based on this result, further evaluation using a PENTOXSD analysis was required. The output sheets for the SWLOAD program are provided in Appendix E. Also, Table E-5 in Appendix E presents a summary of the input parameters used for the SWLOAD model. It is noted that, for unknown reasons, the calibrated first-order decay constant for 1,2,4-TMB (1.84 x 10⁻⁵ days⁻¹ determined from the QD model simulation) did not yield the correct highest modeled concentration in the SWLOAD simulation. Therefore, the first-order decay constant used in the SWLOAD simulation was adjusted (to 9.23 x 10⁻⁵ days⁻¹) until the highest modeled concentration matched the concentration of 1,2,4-TMB calculated by the QD model. This was done so that the average groundwater concentration of the plume entering the river would be accurate.

As previously discussed, the Monongahela River is considered to be the surface water POC for this evaluation. The stream reach evaluated by the PENTOXSD model is defined as the portion of the Monongahela River immediately downstream from the site area. Input data used for the model are summarized below:

<u>Parameter</u>	Value	Source of Data
Basin	19	PA Gazetteer of Streams (PA Code Title 25, Chapter 93).
Stream Code	37185	Stream code for the Monongahela River (defined by PENTOXSD).
RMI	1 and 0.1	Distance (in miles) of stream nodes for the Monongahela River adjacent to the site downstream to the Elizabeth Bridge.
Elevation	727 and 719	Elevation (feet, MSL) at nodes from topographic map.
Drainage Area	5340 and 5350	Drainage area (in mi²) for the Monongahela River reported by the U.S. Geological Survey for gage stations at Lock/Dam No. 3 and at the Elizabeth Bridge.
Q 7-10 Flow Rate	494	Flow rate (in ft ³ /sec) for the Monongahela River reported by the U.S. Geological Survey for gage stations at Lock/Dam No. 3 and at the Elizabeth Bridge. Reporting period 1935-1995.
Harmonic Mean Flow Rate	2860	Flow rate (in ft ³ /sec) for the Monongahela River reported by the U.S. Geological Survey for gage stations at Lock/Dam No. 3 and at the Elizabeth Bridge. Reporting period 1935-1995.
Permit Number	PA000W15	Direct input (not an actual permit number).
Existing Discharge Flow	0.053	Plume flow (in millions of gallons per day) calculated using flow equations based on site-specific data.
Parameter	Benzene, Benzo(a)pyrene, Benzo(g,h,i)perylene, Dibenzo(a,h)anthracene	Primary COC.
Discharge Concentrations	470 2,200 840 1 1	The reported contaminant concentrations (in µg/l) for the COC listed above.

In addition to the six COC listed above, three other VOCs or SVOCs were detected in the groundwater sample from Monitoring Well W-15 including: 1,2,4-TMB ($2,000 \,\mu g/l$), 1,3,5-TMB ($900 \,\mu g/l$), and 1,4-dioxane ($26 \,\mu g/l$). It is noted that 1,2,4-TMB, 1,3,5-TMB, and 1,4-dioxane are not parameters that are available for analysis by PENTOXSD. To be conservative, the parameter concentrations reported in the sample from Monitoring Well W-15 were used as the discharge concentrations entering the river. It is likely that these parameter concentrations will attenuate (to some degree) prior to discharging into



the river. The remaining parameters were also included in the PENTOXSD simulation. The remaining input values used by the model were default values. It is noted that the default values assume immediate and complete mixing of groundwater into surface water.

The output for the January 2004 model simulation indicates that the surface water concentrations of COC in the Lower Plant Area will not theoretically exceed any of the four water quality-based criteria used by PENTOXSD. The output sheets for PENTOXSD simulation are presented in Appendix E. Also, a summary of input parameters for the model are provided in Table E-6 in Appendix E.

It is also noted that the LPIT is a groundwater remedial measure that is located between the suspected source area in the Lower Plant Area and the Monongahela River. The LPIT collects impacted groundwater from a large portion of the Lower Plant Area and transfers it to the on-site water treatment plant for treatment and disposal.

7.0 CONCLUSIONS AND RECOMMENDATIONS

This RI Report has been prepared in accordance with Chapter 250 regulations and the *Final Draft of the Act 2 TGM*. This report evaluates potential exposure pathways used in the site conceptual model and historical investigation and characterization data. The RI Report findings are as follows:

- Surface and subsurface soil concentrations in samples collected during the Remedial Investigation were below applicable direct-contact MSCs. Therefore, a direct-contact exposure pathway evaluation was not performed for this medium.
- There were several surface and subsurface soil concentrations that exceeded the soil-to-groundwater pathway MSCs. Therefore, the soilto-groundwater exposure pathway is complete and has been evaluated.
- Based on a comprehensive evaluation of groundwater samples collected from site monitoring wells, MSC exceedances of VOCs, SVOCs, and inorganics for the used aquifer standard exist.
- The groundwater exposure pathway related to potable use of site groundwater is incomplete. Currently, there is no on-site use of groundwater. Furthermore, deed restrictions will provide groundwater use restrictions at the Jefferson Plant.
- Two COC exceed Chapter 16 surface water criteria in the unnamed tributary to the Monongahela River making the pathway complete.
- There is a number of USEPA Ecotox threshold exceedances in sediments collected from the unnamed tributary to the Monongahela River at the Jefferson Plant. Also, the background sediment sampling location contains several threshold exceedances.
- Groundwater flow assessments conducted at the UCIT and the LPIT concluded that when in operation, the trenches mitigate groundwater discharge to surface water and capture LNAPL and impacted groundwater, as designed.



305/R2

- A videotape inspection and surface water sampling conducted at the two storm sewers traversing from the 837 Tank Farm Area to Jorgy's Pond identified impacted groundwater infiltrating into the storm water collection system.
- Fate and transport analysis of diffuse groundwater flow from the Lower Plant and Finished Products Warehouse Areas to the Monongahela River indicates surface water concentrations of COC in both areas will not theoretically exceed any of the four water qualitybased criteria used by PENTOXSD.

Institutional controls consisting of deed restrictions will be placed on the use of groundwater within the Jefferson Plant. Interim remedial measures are being evaluated for surface water associated with the Upper Plant Area in the vicinity of Jorgy's Pond. Subsequent attainment demonstrations under the site-specific standard will be made according to the remedial measure implemented.

Respectively submitted, Cummings/Riter Consultants, Inc.

Cameron L. Nix Project Geologist

William A. Baughman, P.G!

Vice President

PROFESSIONAL

MATTHEW J. VALENTINE

GEOLOGIST

NO.

PG-000820-G

"By affixing my seal to this report, I am certifying that this information is true and correct. I further certify that I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of this information."

Matthew J. Valentine, P.G.

Date

8/16/04

GUMMINGS ITER

REFERENCES

ARCADIS Geraghty & Miller, 2001, Phase II Due Diligence Report – Volume 1, April.

Commonwealth of Pennsylvania, 2000, PA Code, Title 25, Chapter 16, Appendix A, Table 1, November.

Cummings/Riter Consultants, Inc., 2004, "Letter Report – Culvert Video Inspection and Cleaning, Former Hercules Jefferson Plant," January 27.

GAI Consultants, Inc., 1996, "Phase II Addendum Assessment of Conditions, Jefferson Plant, West Elizabeth, PA," October.

GAI Consultants, Inc., 1993, "Phase II Assessment Report, Jefferson Plant, West Elizabeth, PA," June.

GAI Consultants, Inc., 1991, "Phase I Ground Water Evaluation, Jefferson Plant, West Elizabeth, PA."

Management and Technical Resources, 2003, Description of Current Conditions and Work Plan, February.

Pennsylvania Department of Environmental Protection, 2002, Pennsylvania's Land Recycling Program, Technical Guidance Manual, June.

Pennsylvania Department of Environmental Protection, 2004, Pennsylvania's Land Recycling Program, Technical Guidance Manual – Section IV.A.4, Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard, January.

Roy F. Weston, Inc., 1986, "A Design for a Ground Water Interception System at the Hercules Jefferson Plant, West Elizabeth, PA," December.

Sevon, W. D., 2000, Physiographic Provinces of Pennsylvania, PA Department of Conservation and Natural Resources Website.

U.S. Environmental Protection Agency, 1996, EPA ECO Update: ECOTOX Thresholds, Office of Solid Waste and Emergency Response (OSWER), January.



TABLES

TABLE 1 SUMMARY OF DEEP UNCONSOLIDATED GROUNDWATER ZONE SLUG TEST RESULTS FEBRUARY 2004

HERCULES INCORPORATED

JEFFERSON PLANT

WEST ELIZABETH, PENNSYLVANIA

		Hydraulic (Conductivity	
Well ID	Falling I	Head Test Results	Rising Head	d Test Results
Analytical Solution	(ft/day)	(cm/sec)	(ft/day)	(cm/sec)
E-59				
Bouwer & Rice	12.80	4.52E-03	16.10	5.68E-03
E-60				
Bouwer & Rice	11.90	4.20E-03	12.80	4.52E-03
E-61				
Bouwer & Rice	3.51	1.24E-03	4.26	1.50E-03
E-62				
Bouwer & Rice	0.20	7.06E-05	0.26	9.00E-05
E-63				
Bouwer & Rice	9.91	3.50E-03	13.90	4.90E-03
Average =	7.66	2.70E-03	9.46	3.34E-03
Overall Average =	8.56	ft/day		· · · · · · · · · · · · · · · · · · ·
	3.02E-03	cm/sec	1	

TABLE 2
WATER LEVEL ELEVATIONS
HERCULES INCORPORATED
JEFFERSON PLANT
WEST ELIZABETH, PENNSYLVANIA

Monitoring Well/Piczonacter Identification E-1 E-2 E-3AD E-4 E-5	1 op of Riser (1 OK) Elevation	Depth to Water	Depth to	LNAPL	Water Level	Depth to Water		LNAPL	Water Level
E-3AD E-4 E-5-7 E-5-7 E-5-7 E-5-7			יין איטויקן		Elevation	•	LNAPL	Thickness	Elevation
E-1 E-2 E-3AD E-4 E-5	feet above MSL ^(a)	feet TOR ^(b)	feet TOR	feet	feet above MSL	feet TOR	feet TOR	feet	feet above MSL
6-2 6-3AD 8-4 6-5	763.78	7.41			756.37	7.43			756.35
E-3AD E-4 E-5	760.68	11.55			749.13	11:11			749.57
E 54	753.39	4.99			748.40	5.37			748.02
E-5	761.50	11.28			750.22	12.98			748.52
	759.30	12.29			747.01	12.40			746.90
D-1	758.76	12.48	12.45	0.03	746.28	13.66	13.64	0.02	745.10
E-7	758.18	NA ^(d)	•		AN	NA ⁽⁶⁾	•		NA AX
Б-8 8-11	748.46	13.84		_	734.62	15.81			732.65
E-9	748.28	11.39			736.89	12.73			735.55
E-12	750.86	17.25			733.61	19.00			731.86
E-13	753.10	19.50			733.60	21.53			731.57
E-14	753.25	17.20			736.05	19.80			733.45
E-15	753.65	14.24			739.41	15.96			737.69
E-16	752.51	5.46			747.05	5.64			746.87
E-17	753.63	17.92			735.71	19.91			733.72
E-18	752.80	60.6			743.71	19.6			743.19
E-21	742.40	2.89			739.51	1.90	_		740.50
E-23	754.20	22.87			731.33	25.00			729.20
E-24	751.97	15.24			736.73	16.90	_		735.07
. E-25	757.14	17.25			739.89	18.95			738.19
E-26	755.06	10.32	10.32	Sheen	744.74	17.71	17.71	Sheen	737.35
E-27	757.06	12.70		_	744.36	12.94			744.12
E-28	/42.39	16.99			04.62/	20.43			05.355
67-G	50:00	00.00			50.00	7.0			(1.52)
E-30	742.86	5.70	5.17	0.53	737.16	NA			NA
E-31	740.89	5.71			735.18	5.69			735.20
E-32	741.78	3.61			738.17	4.85			736.93
E-33	745.81	6.85			738.96	8.41			737.40
E-34	742.61	3.99			738.62	3.93			738.68
E-35	750.23	15.27			734.96	11.00	Ī		739.23
E-36	751.21	16.25	9.87	6.38	734.96	20.40	10.45	9.95	730.81
E-37	753.50	11.73			741.77	13.11			740.39
E-38	744.67	NA(3)			NA(t)	NAW			NA
E-40	751.68	14.72			736.96	16.50			735.18
E-41	752.01	NA ⁽⁶⁾			NA	NA ^(f)			NA
E-42	755.98	18.36			737.62	16.61			736.07
F-43	756.04	17.46			738.58	19.28			736.76
E-44	757.47	14.63			742.84	16.26			741.21
E-45	752.38	10.76			741.62	8.15			744.23
E-46	752.42	18.47			733.95	20.51			731.91
E-47	752.35	18.18			734.17	20.19			732.16
E-48	752.14	15.38			736.76	68.91			735.29
E-49	751.29	14.89			747.83	10.13			745.01
E-51	757.78	56.8 08.81			744.43	14.48		,	743.25

TABLE 2
WATER LEVEL ELEVATIONS
HERCULES INCORPORATED
JEFFERSON PLANT
WEST ELIZABETH, PENNSYLVANIA

	1000		1	1007101			1		
Monitoring Well/Piczometer	1 op of Kiser (1 OK) Elevation	Depth to Water	Depth to LNAPL ^(c)	LNAPL Thickness	Water Level Elevation	Depth to Water	Depth to LNAPL	LNAPL Thickness	Water Level Elevation
dentification	feet above MSL ^(a)	feet TOR ^(b)	feet TOR	feet	feet above MSL	feet TOR	feet TOR	feet	feet above MSL
E-53	754.42	10.54			743.88	11.94		,	742.48
E-54	754.71	15.82			738.89	17.80			736.91
E-55	755.96	10.15			745.81	10.71			745.25
E-56	754.89	10.12			744.77	10.08			744.81
E-57	756.23	9.36			746.87	9.54			746.69
E-58	755.68	17.90			737.78	19.40			736.28
E-59	740.84	6.11			734.73	8.24			732.60
E-60	746.27	11.30			734.97	13.34		•	732.93
E-61	747.92	14.07			733.85	15.58			732.34
20-02	00.007	21 60			735.84	23.60			713.84
MW	787.25	16.03			66 191	18.59			764.66
MW-2	757 77	6.38			751.39	5.46			752,31
MW-3	755.90	3.26			752.64	3.37			752.53
WW.4	754.50	4.38			750.12	4.78			749.72
MW-5	759.67	7.03			752.64	7.30			752.37
MW-F1	750.11	5.77			744.34	7.12			742.99
MW-F2	757.65	6.45			751.20	8.02			749.63
MW-F3	746.37	10.32		-	736.05	10.70	-	ı	735.67
MW-F4	761.26	18.60	19.6	8.99	742.66	15.37	10.22	5.15	745.89
MW-F5	755.89	15.98	10.50	5.48	739.91	17.48	12.01	5.47	738.41
W-1A	743.00 (8)	4.60			738.40	5.31			737.69
W-2A	741.52	14.59			726.93	16.09			725.43
W-7	743.53	NA ^(F)			¥	13,10		•	730.43
W-10	743.49	3.26			740.23	3.55			739.94
W-15	744.36	4.39			739.97	4.45			739.91
W-18A	757.15	21.00	11.80	9.20	736.15	29.82	12.57	17.25	727.33
W-21A1	750.61	14.01			736.60	14.99			735.62
LP-2	753.83	8.45			745.38	86.6			743.85
LP-3	756.06	13.70			742.30	13.22			140.04
LP-5	751.56	11.43			740.13	13.20			/38.30
LP-6	742.86	NA ^(e)			NA	13.49			729.37
LP-7	742.65	96.9			735.69	2.54			740.11
LP-8	741.57	4.95			736.62	5.30			736.27
LP-9	741.23	9.76			731.45	69.6			731.52
UP-4	755.37	9.95			745.42	10.03			745.34
UP-6	755.67	21.25	11.48	9.77	734.42	21.30	11.82	9.48	734.37
UP-7	755.98	SAN			NA	8.47			747.51
. IID-8	756 59	10.63			746.07				274 00

WATER LEVEL ELEVATIONS HERCULES INCORPORATED JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA TABLE 2

· Notes:

- (a) "feet above MSL" is feet above mean sea level.(b) "feet TOR" is feet from the top of riser.

- Water level could not be measured due to the piezometer being covered with Eastman equipment. (c) "LNAPL" is light non-aqueous phase liquid.
 (d) Water level could not be measured due to the monitoring well being filled with ice.
 (e) Water level could not be measured due to the piezometer being covered with Eastman equip.
 (f) Water level could not be measured due to damage to monitoring well.
 (g) Monitoring well has not been surveyed and elevation provided is estimated from site map.
 (h) Water level could not be measured due to the monitoring well being covered with ice.

TABLE 3 SUMMARY OF SURFACE SOIL ANALYTICAL RESULTS ARCADIS GERAGHTY AND MILLER (2000) HERCULES INCORPORATED JEFFERSON PLANT

WEST ELIZABETH, PENNSYLVANIA

Analyte	PADEP MSC Direct Contact Surface Soil (mg/kg) ^(b)	PADEP MSC Soil to Groundwater Pathway ^(c) (mg/kg) TDS <2,500 mg/L		SB-F8A (1.5 - 2.5 ft) ⁽ 10/16/00	d)		SB-F17A (1.5 - 2.5 ft 10/19/00	t)
Groundwater Depth (feet) ^(a)				30			. 15.5	
Inorganies (mg/kg)								
Antimony	1,100	27	İ	0.48	$J^{(f)}$		0.38	J
Arsenic	53	150		8.6			6.9	
Barium	190,000	8,200		189	J	l	31.9	
Beryllium	5,600	320		1.5		l	0.3	$\mathbf{B}^{(\mathrm{g})}$
Cadmium	210	38		3.3		l	0.12	В
Chromium	420 ^(e)	190 ^(e)		19.4				~
Cobalt	56,000	200		19.4 13.4			4.6 5 <i>.</i> 7	
Copper	100,000	36,000		19.5		·	3.7 10.8	
Lead	1,000	450		18.8			6	
Mercury	840	10		0.049	В	<	0.11	R
Nickel	56,000	650		18.1	ь	`	7.6	K
Selenium	·			1.2 ^(h)				
Silver	14,000	26	<			<	0.56	
Thallium	14,000	84	_	0.13	В	<	0.56	
Tin	200	14	<	2.4		<	1.1	
Vanadium	190,000 20,000	6,100	<	11.8	i	<	11.3	
Zinc	190,000	72,000 12,000		21.4 69.3			7.5	
Volatile Organics (mg/kg)	150,000	12,000		09.3			36.2	
Acetone	10,000	1,000		0.0022	J	<	0.0041	
Benzene	210	0.5	<	0.0022	J		0.0041 0.0072	
1,1-Dichloroethane	1,000	11	<	0.0045			0.0072	
cis-1,2-Dichloroethene	1,900	7	<	0.0043			0.0072	
Ethylbenzene	10,000	70	<	0.0022		~	0.0036	
Tetrachloroethene	1,500	0.50	<	0.0045		~	0.0072	
Toluene	10,000	100	<	0.0045		<	0.0072	
o-Xylene	10,000 ^(f)	1,000 ⁽ⁱ⁾	` <	0.0043			0.0072	
m-Xylene & p-Xylene	10,000 ⁽ⁱ⁾	1,000 ⁽ⁱ⁾	<	0.0022		~	0.0030	j
Semivolatile Organics (mg/kg)								
Acenaphthene	170,000	4,700	<	0.39		<	0.37	
Acenaphthylene	170,000	6,900	<	0.39		<	0.37	1
Anthracene	190,000	350	<	0.39		<	0.37	
Benzo (a) anthracene	110	320		0.063	J	<	0.37	
Benzo (a) pyrene	11	46		0.062	J	<	0.37	
Benzo (b) fluoranthene	110	170		0.063	J	<	0.37	
Benzo (k) fluoranthene	1,100	610		0.059	1	~	0.37	
Benzo (ghi) perylene	170,000	180	<	0.39	•	<	0.37	
bis(2-Ethylhexyl) phthalate	5,700	130	<	0.17		1	0.038	J [
Butyl benzyl phthalate	10,000	10,000	<	0.39		<	0.37	Ť

305/T14.xls

Page 1 of 2

TABLE 3

SUMMARY OF SURFACE SOIL ANALYTICAL RESULTS ARCADIS GERAGHTY AND MILLER (2000)

HERCULES INCORPORATED

JEFFERSON PLANT

WEST ELIZABETH, PENNSYLVANIA

Analyte	PADEP MSC Direct Contact Surface Soil (mg/kg) ^(h)	PADEP MSC Soil to Groundwater Pathway ^(c) (mg/kg) TDS <2,500 mg/L	(SB-F8A 1.5 - 2.5 ft) ⁰ 10/16/00	d)		SB-F17A 1.5 - 2.5 ft) 10/19/00
Groundwater Depth (feet)(a)				30		228	15.5
Semivolatile Organics (mg/kg) (Contin Chrysene Dibenz(a,h)anthracene Dibenzofuran Fluoranthene Fluorene Indeno(1,2,3-cd) pyrene 2-Methylnaphthalene 2-Methylphenol Naphthalene Phenanthrene Phenol Pyrene	11,000 11 100 ^(f) 110,000 110,000 110 10,000 10,000 56,000 190,000 84,000	230 160 0.5 ⁽ⁱ⁾ 3,200 3,800 28,000 8,000 510 25 10,000 400 2,200	V V V V V V	0.074 0.39 0.39 0.13 0.39 0.39 0.028 0.39 0.39 0.061 0.39 0.072	1 1 1	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	0.37 0.37 0.37 0.37 0.37 0.37 0.37 0.37
Polychlorinated Biphenyls (ug/kg) ^(k)	(i)	(1)	None Detected			d	
Other (mg/kg) Hydrocarbons as GRO Hydrocarbons as DRO pH (standard units) Total Organic Carbon TPH			V V	0.12 12 9 9,140 367	J	< <	0.11 11 8.7 385 37.2

Notes:

- (a) Groundwater depth based on ARCADIS depth to groundwater during drilling.
- (b) PADEP medium specific concentration (MSC) direct-contact, non-residential surface soil (Pennsylvania Bulletin, Volume 31, No. 47, November 24, 2001); "mg/kg" is milligrams per kilogram or parts per million.
- (c) PADEP medium specific concentration (MSC) used-aquifer, non-residential soil to groundwater (Pennsylvania Bulletin, Volume 31, No. 47, November 24, 2001).
- (d) Depth below ground surface.
- (e) MSC listed is for hexavalent chromium.
- (f) "J" indicates estimated results for organic compounds.
- (g) "B" indicates estimated results for inorganics.
- (h) "<x" indicates the constituent was not detected above the sample specific detection limit.
- (i) MSC is based on total xylenes.
- (j) From Table 6, threshold of regulated compounds (Pennsylvania Bulletin, Volume 31, No. 47, November 24, 2001).
- (k) "ug/kg" is micrograms per kilogram or parts per billion.
- (1) Total PCB not listed; listed for individual aroclors.



TABLE 4

SUMMARY OF SURFACE SOIL ANALYTICAL RESULTS OF DETECTED CONSTITUENTS ·

KU RESOURCES (2000)

HERCULES INCORPORATED

JEFFERSON PLANT

WEST ELIZABETH, PENNSYLVANIA

	Direct Contact Surface Soil	Soil to Groundwater Pathway PADEP MSC ^(r)	
Analyte	PADEP MSC	TDS<2500 mg/L	В7
	(mg/kg) ^(b)	(mg/kg) ·	0.5-feet ^(d)
Groundwater Depth (feet) (*)			0.5
(norganics (mg/kg)	to suppropries while the extra exercit		
Arsenic	53	150	0.83
Barium	190,000	8,200	119
Cadmium	210	38	<1
Chromium	420 ^(c)	190 ^(c)	10.4
Lead	1,000	450	14.2
Selenium	14,000	26	0.28
Copper	100,000	36,000	19.9
Nickel	56,000	650	8.4
Zinc	190,000	12,000	31.9
Aluminum	190,000	NL	3,700
Calcium	NL ^(f)	· NL ·	80,600
Cobalt	56,000	· 200	4
Iron	190,000	NL	7,150
Potassium	NL	NL	366
Magnesium	NL	NL	1,650
Manganese	190,000	NL	586
Sodium	NL	NL	212
Vanadium	20,000	72,000	9
Cyanide	56,000 ^(g)	200 [©]	<0.05
Volatile Organic Compounds (mg			
Benzene	210	0.5	<0.20
n-Butylbenzene	10,000	2,600	<0.20
sec-Butylbenzene	10,000	960	18.7
Carbon Disulfide	10,000	410	<0.20
Ethylbenzene	10,000	70.	696 ⁰⁾
Isopropylbenzene	NL	NL	43.5
p-Isopropyltoluene	NL	NL.	17.7
Naphthalene	56,000	25	134
n-Propylbenzene	10,000	780	102
Toluene	10,000	100	11.6
1,2,4-Trichlorobenzene	10,000	27	<0.20
1,2,4-Trimethylbenzene	320	20 6.2	145 70.5
1,3,5-Trimethylbenzene Xylenes, Total	320 10,000	1,000	465
M,p-Xylenes	NL	NL NL	326
o-Xylene	NL	NL NL	139
Semivolatile Organic Compounds			
Acenaphthylene	170,000	6,900	0.72
Anthracene	190,000	350	0.33
Benzo(a)anthracene	110	320	<0.01
Benzo(a)pyrene	11	46	<0.01
Benzo(b)fluoranthene	110	170	<0.01
Benzo(k)fluoranthene	1,100	610	<0.01
bis (2-Ethylhexyl) phthalate	5,700	130	6.11
Butylbenzyl phthalate	10,000	10,000	0.14
4-Chloroaniline	11,000	52	1
Chrysene	11,000	230	<0.01
Dibenzofuran	100 ^(h)	0.5 ^(h)	<0.01
Di-n-butyl phthalate	10,000	4,100	0.12
2,6-Dinitrotoluene	2,800	10	0.06
Fluoranthene	110,000	3,200	0.41
Phenanthrene	190,000	10,000	0.69
Pyrene	84,000	2,200	0.17
2-Methylnapthalene	10,000	8,000 () .	<0.01
PCBs (ug/kg)	""	<u>"-</u>	None Detecte

- (a) Groundwater depth based on depth to groundwater during drilling.
- (b) PADEP medium specific concentration (MSC), direct-contact, non-residential surface soil (0-2 Feet) (Pennsylvania Bulletin, Volume 3, No. 47, November 24, 2001; "mg/kg" is milligrams per kilogram or parts per million.

 (c) PADEP medium specific concentration (MSC), used-aquifer, non-residential soil to groundwater.
- (d) Depth collected below ground surface.
- (e) Value for total and hexavalent chromium.

 (f) NL an MSC does not exist for this constituent.
- (g) Free cyanide MSC.
 (h) From Table 6, threshold of regulatiod compounds (Pennsylvania Bulletin, Volume 3, No. 47, November 24, 2001).
- (i) Total PCBs not listed; listed for individual Aroclors.
 (j) Values shaded and in bold indicate an exceedance of the soil-to-groundwater MSC. There are no direct-contact MSC exceedances.



6l_r	PADEP Act 2 MSCs(b)	PADEP Act 2 MSCs	ς.	(A 2)	_		_	2 (0.2)		0.470.00
Sample I		Direct Contact,		(0-2)		2 (0-2)		3 (0-2)		C-4 (0-2)
Sample Da		Non-Residential	12/3	/2003	12	/3/2003	12	/3/2003	}	12/2/2003
Parameter Volatile Organic Compounds (ug/kg) (6)	Non-Residential	0 - 2 feet			-		┝		-	
			<(d)		├		┼		 	· · · · · · · · · · · · · · · · · · ·
1,1,1,2-Tetrachioroethane	. 18,000	3,100,000		5.6	 <	5.2	<	5	<	5,200
1,1,1-Trichloroethane	20,000	10,000,000	<	5.6	 <	5.2	<	· 5	<	5,200
1,1,2,7-Tetrachloroethane 1,1,2-Trichloroethane	30 500	28,000	<	5.6	< <	5.2	< <	5	<	5,200
1,1-Dichloroethane	11,000	100,000	<	5.6 5.6	<	5.2 5.2	<	5	< ·	5,200
1,1-Dichloroethene	700	1,000,000 33,000	~	5,6	~	5.2 5.2	<	5 5	<	5,200
1,2,3-Trichloropropane	400,000	820	~	5.6	~	5.2	<	5		5,200 5,200
1,2,4-Trimethylbenzene	20,000	320,000	~	5.6	<	5.2	<	5	< .	5,200
1,2-Dibromo-3-chloropropane	20	11,000		11	<	10	<	10	<	10,000
1,2-Dibromoethane (EDB)	5	930	<	5.6	<	5.2	<	5	<	5,200
1,2-Dichloroethane	500	63,000	<	5,6	<	5.2	<	5	<	5,200
1,2-Dichloropropane	500	160,000	<	5.6	<	5.2	<	5	<	5,200
1,3,5-Trimethylbenzene	6,200	320,000	<	5.6	<	5.2	<	5	<	5,200
2-Butanone (Methyl ethyl ketone)	580,000	10,000,000		11J ^(e)	<	26	<	25	<	26,000
2-Hexanone	(e)		<	28	<	26	<	25	<	26,000
3-Chloropropene (Allylchloride)	4,100	370,000	<	28 5.6	~	5.2	<	25 5	<	5,200
4-Methyl-2-pentanone (MIBK)	410,000	4,300,000	~	28		26	<	25	<	26,000
Acetone	1,000,000	10,000,000	`	120	1	29J	1	65	<	52,000
Acetonitrile	35,000	3,200,000	<	220	<	210	<	200	<	210,000
Acrolein (Propenal)	12	1,100	<	110	<	100	<	100	<	100,000
Acrylonitrile	270	24,000	<	110	<	100	<	100	<	100,000
Benzene	500 ·	210,000	<	5.6	<	5.2	<	5	<	5,200
Bromodichloromethane	10,000	45,000	<	5.6	<	5.2	<	5	<	5,200
Bromoform	10,000	1,500,000	<	5,6	<	5.2	<	5	<	5,200
Bromomethane (Methyl Bromide)	. 1,000	270,000	<	5.6	<	5.2	<	· 5	<	5,200
Carbon disulfide	410,000	10,000,000	<	5.6	<	5.2	1 -	4.2J	<	5,200
Carbon tetrachloride	500	110,000	<	5.6	<	5.2	<	5	<	5,200
Chiorobenzene	10,000	10,000,000	<	5.6	<	5.2	<	5	<	5,200
Chloroethane	90,000	10,000,000	<	5.6	<	5.2	<	5	<	5,200
Chloroform	10,000	17,000	<	5.6	<	5.2	<	5	<	5,200
Chloromethane (Methyl Chloride)	300	920,000	<	5.6	<	5.2	<	5	<	5,200
Chloroprene	4,100	370,000	<	5.6	<	5.2	<	5	<	5,200
cis-1,2-Dichloroethene	7,000	1,900,000	<	5.6	<	5.2	<	5	<	5,200
cis-1,3-Dichloropropene	2,600	410,000	<	5.6	<	5.2	<	5	<	5,200
Dibromochloromethane		-	<	5.6	<	5.2	<	5	<	5,200
Dibromomethane (Methylene bromide) Dichlorodifluoromethane	20,000	1,900,000	<	5.6	< <	5.2	< <	5	<	5,200
Ethyl methacrylate	100,000 180,000	10,000,000	<	5.6 5.6	<	5.2 5.2	<	5 5	< <	5,200
Ethylbenzene	70,000	10,000,000	~	5.6	<	5.2	<	5	`	5,200
Iodomethane (Methyl iodide)	. 70,000		<	5.6	<	5.2	~	5	<	210J 5,200
Isobutanol (Isobutyl alcohol)	610,000	10,000,000	~	220	<	210	<	200	<	210,000
Methacrylonitrile	410	37,000	~	110	<	100	<	100	<	100,000
Methyl methacrylate	410,000	10,000,000	~	5.6	<	5.2	<	5	<	5,200
Methylene chloride (Dichloromethane)	500	920,000	`~	5.6	<	5.2	<	5	~	5,200
Pentachloroethane			<	28	<	26	<	25	<	26,000
Propionitrile	i -	_	<	110	<	100	<	100	<	100,000
Styrene	24,000	10,000,000	<	5.6	<	5.2	<	5	İ	190J
Tetrachloroethene	500	1,500,000	<	5.6	<	5.2	<	5	<	5,200
Toluene	100,000	10,000,000	<	5.6	<	5.2		6.8	100	150,000
trans-1,2-Dichloroethene	10,000	3,700,000	<	5.6	<	5.2	<	5	< 224	5,200
trans-1,3-Dichloropropene	2,600	410,000	<	5.6	<	5.2	<	5	<	5,200
trans-1,4-Dichloro-2-butene	7	190,000,000	<	11	<	10	<	10	<	10,000
Trichloroethene	500	970,000	<	5.6	<	5.2	<	5	<	5,200
Trichlorofluoromethane] -	_	<	5.6	<	5.2	<	5	<	5,200
Vinyl acetate	120,000	10,000,000	<	11	<	10	<	10	<	10,000
Vinyl chloride	200	53,000	<	5,6	<	5.2	<	5	<	5,200
Xylenes, Total	1,000,000	10,000,000	<	11	<	10	<	10	<	10,000



					·	
	PADEP Act 2 MSCs(b)	PADEP Act 2 MSCs				
Sample ID:	Soil-to-Groundwater Pathway	Direct Contact,	C-I (0-2)	C-2 (0-2)	C-3 (0-2)	C-4 (0-2)
Sample Date:	Used Aquifers, TDS<2,500	Non-Residential	12/3/2003	12/3/2003	12/3/2003	12/2/2003
Parameter	Non-Residential	0 - 2 feet			<u> </u>	
Semivolatile Organic Compounds (ug/kg) 1,2,4,5-Tetrachlorobenzene	14.000					
1,2,4-Trichlorobenzene	14,000	840,000	< 420	< 410	< 410	< 410
1,2-Dichlorobenzene (o-Dichlorobenzene)	27,000	10,000,000	< 420	< 410	< 410	< 410
1,3,5-Trinitrobenzene	60,000	10,000,000	< 420	< 410	< 410	< 410
1,3-Dichlorobenzene (m-Dichlorobenzene)	61,000	-	< 420	< 410	< 410	< 410
1,4-Dichlorobenzene (p-Dichlorobenzene)	10,000	10,000,000	< 420	< 410	< 410	< 410
1,4-Dioxane	2,400	3,300,000	< 420 < 420	< 410 < 410	< 410	< 410
1,4-Naphthoquinone	2,400	1 210,000			< 410 < 410	< 410
1,4-Phenylenediamine (p-Phenylenediamine)			< 420 < 2,200			< 410
1-Naphthylamine	1,100	44,000	< 420	< 2,100 < 410	< 2,100 < 410	< 2,100
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000	160,000	< 420	< 410	< 410	< 410 < 410
2,3,4,6-Tetrachlorophenol	950,000	84,000,000	< 420	< 410	< 410	
2,4,5-Trichlorophenol	6,100,000	190,000,000	< 420	< 410	< 410	< 410 < 410
2,4,6-Trichlorophenol	8,900	840,000	< 420	< 410	< 410	< 410
2,4-Dichlorophenol	2,000	8,400,000	< 420	< 410	< 410	< 410
2,4-Dimethylphenol	200,000	10,000,000	< 420	< 410	< 410	< 410
2,4-Dinitrophenol	4,100	5,600,000	< 2,200	< 2,100	< 2,100	< 2,100
2,4-Dinitrotoluene	840	260,000	< 420	< 410	< 410	< 410
2,6-Dichlorophenol	-	<u>-</u>	< 420	< 410	< 410	< 410
2,6-Dinitrotoluene	10,000	2,800,000	< 420	< 410	< 410	< 410
2-Acetylaminofluorene	280	21,000	< 420	< 410	< 410	< 410
2-Chloronaphthalene	18,000,000	190,000,000	< 420	< 410	< 410	< 410
2-Chiorophenol	4,400	920,000	< 420	< 410	< 410	< 410
2-Methylnaphthalene	8,000,000	10,000,000	< 420	< 410	< 410	< 410
2-Naphthylamine	140	44,000	< 420	< 410	< 410	< 410
2-Nitroaniline (o-Nitroaniline)	580	160,000	< 2,200	< 2,100	< 2,100	< 2,100
2-Nitrophenol (o-Nitrophenol)	82,000	22,000,000	< 420	< 410	< 410	< 410
2-Picoline 3,3'-Dichlorobenzidine		-	< 420	< 410	< 410	< 410
3,3'-Dimethylbenzidine	32,000	180,000	< 850	< 820	< 820	< 820
3-Methylcholanthrene	1,500	8,600	< 2,200	< 2,100	< 2,100	< 2,100
3-Nitroaniline (m-Nitroaniline)	-		< 420	< 410	< 410	< 410
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	580	160,000	< 2,200	< 2,100	< 2,100	< 2,100
4-Aminobiphenyl	12	2 000	< 2,200	< 2,100	< 2,100	< 2,100
4-Bromophenylphenyl ether		3,800	< 420 < 420	< 410	< 410	< 410
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	14,000,000	< 420 < 420	< 410 < 410	< 410 < 410	< 410
4-Chloroaniline (p-Chloroaniline)	52,000	11,000,000	< 850	< 820	1	< 410 < 820
4-Chlorophenylphenyl ether	52,000	11,000,000	< 420	< 410	1	
4-Nitroaniline (p-Nitroaniline)	580	160,000	< 2,200	< 2,100	< 410 < 2,100	1
4-Nitrophenol (p-Nitrophenol)	6,000	22,000,000	< 2,200	< 2,100	< 2,100	< 2,100 < 2,100
4-Nitroquinoline-1-oxide		==	< 4,200	< 4,100	< 4,100	< 4,100
5-Nitro-o-toluidine		_	< 420	< 410	< 4,100	< 4,100
7,12-Dimethylbenz(a)anthracene			< 420	< 410	< 410	< 410
Acenaphthene	4,700,000	170,000,000	< 420	< 410	< 410	< 410
Acenaphthylene	6,900,000	170,000,000	< 420	< 410	< 410	< 410
Acetophenone	1,000,000	10,000,000	< 420	< 410	< 410	< 410
alpha,alpha-Dimethylphenethylamine	- '		< 86,000	< 84,000	< 84,000	< 84,000
Aniline	580	53,000	< 420	< 410	< 410	< 410
Anthracene	350,000	190,000,000	< 420	< 410	< 410	< 410
Aramite, Total	_	_	< 420	< 410	< 410	< 410
Benzo(a)anthracene	320,000	110,000	46J	150J	< 410	< 410
Benzo(a)pyrene	46,000	11,000	< 420	160J	< 410	< 410
Benzo(b) fluoranthene	170,000	110,000	< 420	< 410	< 410	< 410
Benzo(g,h,i)perylene	180,000	170,000,000	51J	90J	< 410	< 410
Benzo(k)fluoranthene Benzyi alcohol	610,000	1,100,000	52 J	< 410	< 410	< 410
bis(2-Chloroethoxy)methane	3,100,000	10,000,000	< 420	< 410	< 410	< 410
отада-стиотоентохуунтеннице		<u></u>	< 420	< 410	< 410	< 410



	Sample ID: Sample Date:	Used Aquifers, TDS<2,500	PADEP Act 2 MSCs Direct Contact, Non-Residential	C-1 (0-2) 12/3/2003		:-2 (0-2) 2/3/2003	C-3 (0-2) 12/3/2003	C-4 (0-:
arameter		Non-Residential	0 - 2 feet					
emivolatile Organic Compounds cont'd. (ug/kg)					⅃.			
bis(2-Chloroethyl)ether		55	5,000	< 420	<	410	< 410	< 410
bis(2-Ethylhexyl)phthalate		130,000	5,700,000	120J	<	410	58J	< 410
Butylbenzylphthalate	•	10,000,000	10,000,000	< 420	<	410	< 410	< 410
Chrysene		230,000	11,000,000	45J		160J	< 410	< 410
Cresol (ortho)		510,000	10,000,000	< 420	<	410	< 410	< 410
Cresol, m & p		51,000	14,000,000	< 420	<	410	< 410	< 410
Diallate, Total		1,000	93,000	< 420	<	410	< 410	< 410
Dibenzo(a,h)anthracene		160,000	11,000	< 420	<	410	177	
Dibenzofuran		_	11,000		<		!	
Diethylphthalate		500,000	10.000.000			. 410		< 410
Dimethoate		. '	10,000,000	< 420	<	410	< 410	< 410
Dimethylphthalate	i	2,000	560,000	< 420	<	410	< 410	< 410
		 ·		< 420	<	410	< 410	< 410
Di-n-butylphthalate		4,100,000	10,000,000	< 420	<	410	< 410	< 410
Di-n-octylphthalate	į	10,000,000	10,000,000	< 420	<	410	< 410	< 410
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		7 00	2,800,000	< 420	<	410	< 410	< 410
Disulfoton	•	. 78	7,600	< 420	<	410	< 410	< 410
Ethyl methanesulfonate		· -	-	< 420	. ~	410	< 410	< 410
Ethyl parathion (Parathion)		360,000	10,000,000	< 420	~	410		
Famphur		300,000	10,000,000					< 410
Fluoranthene			110 000 000	< 420	<	410	< 410	< 410
Fluorene		3,200,000	110,000,000	44J	1	220J .	< 410	< 410
Hexachlorobenzene		3,800,000	110,000,000	< 420	<	410	< 410	< 410
		960	50,000	< 420	<	410	< 410	< 410
Hexachlorobutadiene	,	1,200	560,000	< 420	<	410	< 410	< 410
Hexachlorocyclopentadiene		91,000	10,000,000	< 420	<	410	< 410	< 410
Hexachloroethane		560	2,800,000	< 420	<	410	< 410	< 410
Hexachlorophene		_		< 220,000		210,000	< 210,000	
Hexachloropropene		_		< 420	<			
Indeno(1,2,3-cd)pyrene		28,000,000			`	410		< 410
Isophorone			110,000	36J		63J	< 410	< 410
Isosafrole		10,000	10,000,000	< 420	<	410	< 410	< 410
m-Dinitrobenzene		-		< 420	<	410	< 410	< 410
		100	280,000	< 420	<	410	< 410	< 410
Methapyrilene		-		< 86,000	<	84,000	< 84,000	< 84,00
Methyl methanesulfonate		2,600	800,000	< 420	<	410	< 410	< 410
Methyl parathion		420	48,000	< 420	<	410	< 410	< 410
Naphthalene		25,000	56,000,000	< 420	<	410	< 410	< 410
Nitrobenzene	,	5,100	1,400,000	< 420	<	410		
N-Nitrosodiethylamine		1.3	38		<			
N-Nitrosodimethylamine		1.3				410	< 410	< 410
N-Nitrosodi-n-butylamine			120	< 420	<	410	< 410	< 410
		14	15,000	< 420	<	410	< 410	< 410
n-Nitrosodi-n-propylamine		37	11,000	< 420	<	410	< 410	< 410
N-Nitrosodiphenylamine		83,000	16,000,000	< 420	<	410	< 410	< 410
N-Nitrosomethylethylamine				< 420	<	410	< 410	< 410
N-Nitrosomorpholine		_	_	< 420	<	410	< 410	< 410
N-Nitrosopiperidine				< 420	<	410	< 410	
N-Nitrosopyrrolidine			_	< 420	<	410	1	1
O,O,O-Triethyl phosphorothioate		<u></u>	-		<		1	< 410
o-Toluidine		1.200		< 420		410	< 410	< 410
p-(Dimethylamino)azobenzene		,	330,000	< 420	<	410	< 410	< 410
Pentachlorobenzene		150	17,000	< 420	<	410	< 410	< 410
		660,000	2,200,000	< 420	<	410	< 410	< 410
Pentachloronitrobenzene		20,000	310,000	< 420	<	410	< 410	< 410
Pentachlorophenol		5,000	660,000	< 2,200	<	2,100	< 2,100	< 2,10
Phenacetin		120,000	36,000,000	< 420	<	410	< 410	< 410
Phenanthrene		10,000,000	190,000,000	< 420	1	73J	< 410	1
Phenol		400,000	190,000,000		<			
Phorate		880				410	< 410	< 410
Pronamide			37,000	< 420	<	410	< 410	 < 410
		5,000	190,000,000	< 420	<	410	< 410	< 410
Рутепе		2,200,000	84,000,000	42J		200J	< 410	< 410
Pyridine		2,000	190,000	<· 420	<	410	< 410	< 410
Safrole				< 420	<	410	< 410	< 410
Sulfotepp (Tetraethyl dithiopyrophosphate)		1,500	92,000	< 420	<	410	< 410	
Thionazin (0,0-Diethyl-O-pyrazinyl phosphorothioate	.	****	,	1 - 720	1.~	7.0	~ 410	< 410



TABLE 5 SUMMARY OF SURFACE SOIL ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED

JEFFERSON PLANT
WEST ELIZABETH, PENNSYLVANIA

Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil-to-Groundwater Pathway Used Aquifers, TDS<2,500 Non-Residential	PADEP Act 2 MSCs Direct Contact, Non-Residential 0 - 2 feet	C-1 (0-2) 12/3/2003	C-2 (0-2) 12/3/2003	C-3 (0-2) 12/3/2003	C-4 (0-2) 12/2/2003
Inorganics (mg/kg) (a)					<u> </u>	
Antimony	27	1,100	< 2.5	< 2.4	< 2.3	< 2.4
Arsenic	150	·53	6.7	7.5	9,9	8.2
Barium	8,200	190,000	150	130	110K	130
Beryllium	320	5,600	0,96	0.98	0.86	0.89
Cadmium	38	210	0.2J	0,36J	< 0.57	< 0.61
Chromium	190,000	190,000	17	18	23	24
Cobalt	200	56,000	14	17	7.1	8.1
Copper	36,000	100,000	19K ^(g)	21K	21K	19K
Lead	450	1,000	18K	17K	11K	11K
Mercury	10	840	0.043	0.04	0.035	0.025
Nickel	650	56,000	22	20	19	. 21
Selenium	26	14,000	< 1.2	< 1.2	< 1,1	< 1.2
Silver	84	14,000	< 1.2L ^(b)	< 1.2L	< 1.1L	< 1.2L
Thallium	14	200	< 1.2	< 1.2	< 1.1	< 1.2
Tin	6,100	190,000	2.5B ⁽ⁱ⁾	2.2B	2.4B	2.1B
Vanadium	72,000	20,000	23	24	32	28
Zinc	12,000	190,000	66K	72K	62K	61K



Parameter	Sample ID; Sample Date:	PADEP Act 2 MSCs ^(b) Soil-to-Groundwater Pathway Used Aquifers, TDS<2,500 Non-Residential	PADEP Act 2 MSCs Direct Contact, Non-Residential 0 - 2 feet		5 (0-2) 24/2003		6 (0-2) /2/2003		-7 (0-2) 24/2003		-1 (0-2 /4/2003
Volatile Organic Compounds (ug/kg) ^(a)								_		-	
1,1,1,2-Tetrachloroethane	,	18,000	3,100,000	<	5.2	<	5	<	5,4	<	5.4
1,1,1-Trichloroethane		20,000	10,000,000	<	5.2	<	5	<	5.4	<	5.4
1,1,2,2-Tetrachloroethane		30	28,000	<	5.2	<	5	<	5.4	<	5.4
1,1,2-Trichloroethane		500	100,000	<	5.2	<	5	<	5.4	<	5.4
1,1-Dichloroethane	·	11,000	1,000,000	<	5.2	<	5	<	5.4	<	5.4
1,1-Dichloroethene		700	33,000	<	5.2	<	5	<	5.4	<	5.4
1,2,3-Trichloropropane		400,000	820	<	5.2	<	5	<	5.4	~	5.4
1,2,4-Trimethylbenzene		20,000	320,000	<	5.2	<	5	<	5.4	₹.	5.4
1,2-Dibromo-3-chloropropane		20	11,000	<	10	<	10	<	11	<	11
1,2-Dibromoethane (EDB)	•	5	930	<	5.2	<	. 5	<	5.4	<	5.4
1,2-Dichloroethane		500	63,000	<	5,2	<	5	<	5.4	<	5.4
I,2-Dichloropropane		500	160,000	<	5.2	<	5	<	5.4	<	5.4
1,3,5-Trimethylbenzene		6,200	320,000	<	5.2	<	5	<	5.4	<	5.4
2-Butanone (Methyl ethyl ketone)		580,000	10,000,000	<	26	<	25	<	27	<	
2-Hexanone		(c)		<				1		l	27
3-Chloropropene (Allylchloride)			270.000	<	26	<	25	 <	27	<	27
4-Methyl-2-pentanone (MIBK)		4,100 410,000	370,000	<	5.2	<	5	<	5.4	<	5,4
Acetone			4,300,000		26	<	25	<	27	<	27
Acetonitrile		1,000,000	10,000,000	<	52	<	50	<	54	<	54
Acrolein (Propenal)		35,000	3,200,000	<	210	<	200	<	220	<	220
Acrylonitrile		12	1,100	<	100	<	100	<	110	<	110
Benzene		270	24,000	<	100	<	100	<	110	<	110
Bromodichloromethane		500	210,000	١	4.5J	<	5	ı	2.1J	<	5.4
Bromoform		10,000	45,000	<	5.2	<	5	<	5.4	<	5.4
Bromomethane (Methyl Bromide)		10,000	1,500,000	<	5.2	<	5	 <	5.4	<	5.4
Carbon disulfide		1,000	270,000	<	5.2	<	5	<	5.4	<	5.4
Carbon tetrachloride		410,000	10,000,000	<	5.2	<	5	<	5.4	<	5.4
Chlorobenzene		500	110,000	<	5.2	<	5	<	5.4	<	5.4
Chloroethane		10,000	10,000,000		6.9	<	5		5J	i	2J
Chloroform		90,000	10,000,000	<	5.2	<	5	 <	5.4	<	5.4
Chloromethane (Methyl Chloride)		10,000	17,000	<	5.2	<	5	<	5.4	<	5.4
Chloroprene		300	920,000	<	5.2	<	5	<	5.4	<	5.4
cis-1,2-Dichloroethene		4,100	370,000	<	5.2	<	5	<	5.4	<	5.4
cis-1,3-Dichloropropene		7,000	1,900,000	<	5.2	<	5	<	5.4	<	5.4
Dibromochloromethane		2,600	410,000	<	5.2	<	5	<	5.4	<	5,4
Dibromomethane (Methylene bromide)				<	5.2	<	5	<	5.4	 <	5.4
Dichlorodifluoromethane		20,000	1,900,000	<	5.2	<	5	<	5.4	<	5.4
Ethyl methacrylate		100,000	10,000,000	<	5.2	<	5	<	5.4	<	5,4
Ethylbenzene		180,000	190,000,000	<	5.2	<	5	<	5.4	<	5.4
•		70,000	10,000,000		1.6J	<	5		1.4J	<	5.4
Iodomethane (Methyl iodide) Isobutanol (Isobutyl alcohol)			-	<	5.2	<	5	<	5.4	<	5.4
Methacrylonitrile		610,000	10,000,000	<	210	<	200	<	220	<	220
Methyl methacrylate		410	37,000	<	100	<	100	<	110	<	110
Methylene chloride (Dichloromethane)		410,000	10,000,000	<	5.2	<	5	<	5,4	<	5.4
Pentachloroethane		500	920,000	<	5.2	<	5	<	5.4	<	5.4
Propionitrile		-		 <	26	<	25	<	27	 <	27
				<	100	<	100	<	110	<	110
Styrene Tetrachloroethene		24,000	10,000,000	<	5.2	<	5	<	5,4	<	5.4
		500	1,500,000	1	18	<	5		14	1	2.31
Toluene		100,000	10,000,000	1	2.5J	<	5	<	5.4	 <	5.4
trans-1,2-Dichloroethene		10,000	3,700,000	<	5.2	<	5	<	5.4	<	5.4
trans-1,3-Dichloropropene		2,600	410,000	<	5.2	<	5	<	5.4	<	5.4
trans-1,4-Dichloro-2-butene		7	190,000,000	<	10	<	10	<	11	<	-11
Trichloroethene	•	500	970,000	1	14	<	5	1	5,7	1	6.7
Trichlorofluoromethane		. –		<	5.2	<	5	<	5.4	<	5.4
Vinyl acetate		120,000	10,000,000	<	10	<	10	<	11	<	11
Vinyl chloride		200	53,000	<	5.2	<	5	<	5.4	<	5.4
Xylenes, Total		1,000,000	10,000,000	1	5.8J	<	10	1	6.3J	<	11



Sample ID Sample Date Parameter		PADEP Act 2 MSCs Direct Contact, Non-Residential 0 - 2 feet		:-5 (0-2) /24/2003		-6 (0-2) 2/2/2003		2-7 (0-2) /24/2003		P-1 (0-2 2/4/2003
Semivolatile Organic Compounds (ug/kg)			1		-		\vdash		├	
1,2,4,5-Tetrachlorobenzene	14,000	840,000	<	400	<	380	7	390	<	440
1,2,4-Trichlorobenzene	27,000	10,000,000	<	400	<	380	<	390	<	440
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000	10,000,000	<	400	<	380	<	390	{	440
1,3,5-Trinitrobenzene	_		<	400	<	380	<	390	-	440
1,3-Dichlorobenzene (m-Dichlorobenzene)	61,000	10,000,000	<	400	<	380	<	390	<	440
I,4-Dichlorobenzene (p-Dichlorobenzene)	10,000	3,300,000	<	400	<	380	<	390	<	440
1,4-Dioxane	2,400	210,000	<	400	<	380	<	390	<	440
1,4-Naphthoquinone		<u></u>	<	400	<	380	<	390	<	440
I,4-Phenylenediamine (p-Phenylenediamine)	_		<	2,000	<	2,000	<	2,000	<	2,30
I-Naphthylamine	1,100	44,000	<	400	<	380	<	390	<	440
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000	160,000	<	400	<	380	<	390	<	440
2,3,4,6-Tetrachlorophenol	950,000	84,000,000	<	400	<	380	<	390	<	440
2,4,5-TrichlorophenoI	6,100,000	190,000,000	<	400	<	380	<	390	<	440
2,4,6-Trichlorophenol	8,900	840,000	<	400	/	380	<	390	<	440
2,4-Dichlorophenol	2,000	8,400,000	<	400	<	380	<	390		440
2,4-Dimethylphenol	200,000	10,000,000	<	400	<	380	<	390	-	440
2,4-Dinitrophenol	4,100	5,600,000	<	2,000	<	2,000	<	2,000	<	2,30
2,4-Dinitrotoluene	840	260,000	<	400	<	380	<	390	~	440
2,6-Dichlorophenol		<u></u>	<	400	<	380	<	390	Į₹.	440
2,6-Dinitrotoluene	10,000	2,800,000	<	400	<	380	<	390	ĮŽ.	440
2-Acetylaminofluorene	280	21,000	<	400	-	380	<	390	~	440
2-Chloronaphthalene	18,000,000	190,000,000	<	400	<	380	×	390	<	440
2-Chlorophenol	4,400	920,000	<	400	<	380	<	390	<	440
2-Methylnaphthalene	8,000,000	10,000,000	<	400	<	380	<	390	<	440
2-Naphthylamine	140	44,000	<	400	~	380	<	390	<	
2-Nitroaniline (o-Nitroaniline)	580	160,000	<	2,000	<	2,000	{		<	440
2-Nitrophenol (o-Nitrophenol)	82,000	22,000,000	<	400	<	380	<	2,000 390	<	2,30
2-Picoline		22,000,000	<	400	<	380	<	390	<	440
3,3'-Dichlorobenzidine	32,000	180,000	<	800	~	770			<	440
3,3'-Dimethylbenzidine	1,500	8,600	<		<		1	780		880
3-Methylcholanthrene		8,000	<	2,000 400	<	2,000 380	\ <	2,000	 	2,30
3-Nitroaniline (m-Nitroaniline)	580	160,000	<					390	 	440
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)		160,000	>	2,000	 <	2,000	< <	2,000	<	2,30
4-Aminobiphenyl	12	3,800	<	2,000	\ <u></u>	2,000		2,000	 <	2,30
4-Bromophenylphenyl ether	12	3,000	<	400	<	380	<	390	<	440
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	14.000.000	<	400	1	380	<	390	<	440
4-Chloroaniline (p-Chloroaniline)	52,000	14,000,000		400	 <	380	<	390	<	440
4-Chlorophenylphenyl ether	32,000	11,000,000	<	800	<	770	<	780	<	880
4-Nitroaniline (p-Nitroaniline)	580	-	<	400	<	380	<	390	<	440
4-Nitrophenol (p-Nitrophenol)		160,000	<	2,000	<	2,000	 <	2,000	<	2,30
4-Nitroquinoline-1-oxide	6,000	22,000,000	<	2,000	<	2,000	<	2,000	<	2,30
5-Nitro-o-toluidine	-	-	<	4,000	 <	3,800	<	3,900	<	4,40
7,12-Dimethylbenz(a)anthracene	-	-	<	400	<	380	<	390	 <	440
Acenaphthene	4 700 000		<	400	<	380	<	390	<	440
Acenaphthylene	4,700,000	170,000,000	<	400	<	380	<	390 .	<	440
Acetophenone	6,900,000	170,000,000	<	400	<	380	<	390	<	440
alpha,alpha-Dimethylphenethylamine	1,000,000	10,000,000	<	400	<	380	<	390	 <	440
Aniline	-		<	81,000	<	78,000	<	79,000	 <	89,00
Anthracene	580	53,000	<	400	 <	380	<	390	<	440
Aramite, Total	350,000	190,000,000		120J	<	380	<	390	<	44(
· · · · · · · · · · · · · · · · · · ·	-		<	400	<	380	<	390	<	440
Benzo(a)anthracene	320,000	110,000		650	1	593	1	743	<	440
Benzo(a)pyrene	46,000	11,000		580	<	380	1	66J	<	44(
Benzo(b)fluoranthene	170,000	110,000		540	<	380	1	57J	<	440
Benzo(g,h,i)perylene	180,000	170,000,000		3203		35J	1	42J	<	440
Benzo(k)fluoranthene	610,000	1,100,000		570	<	380	1	67J	١.	391
Benzyl alcohol	3,100,000	10,000,000	<	400	<	380	<	390	<	440
bis(2-Chloroethoxy)methane	_		<	400	<	380	<	390	<	44



irameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil-to-Groundwater Pathway Used Aquifers, TDS<2,500	PADEP Act 2 MSCs Direct Contact, Non-Residential	C-5 (0-2) 11/24/2003		C-6 (0-2) 2/2/2003		2-7 (0-2) /24/2003		P-1 (0-: 2/4/200
mivolatile Organic Compounds cont'd. (ug/kg)		Non-Residential	0 - 2 feet		-		_		L	
bis(2-Chloroethyl)ether			5.000		<u> </u>		╙		닏	
bis(2-Ethylhexyl)phthalate		55	5,000	< 400	<	380	<	390	<	440
Butylbenzylphthalate		130,000	5,700,000	< 400	<	380	<	. 390	<	440
		10,000,000	10,000,000	< 400	<	380	<	390	<	440
Chrysene		230,000	11,000,000	590	1	56J	ı	71J		42B
Cresol (ortho)		510,000	10,000,000	< 400	<	380	<	390	<	440
Cresol, m & p		51,000	14,000,000	< 400	<	380	<	390	<	440
Diallate, Total		1,000	93,000	< 400	<	380	<	390	<	440
Dibenzo(a,h)anthracene		160,000	11,000	180J	<	380	<	390	<	. 440
Dibenzofuran				47J	<	380	<	390	<	440
Diethylphthalate		500,000	10,000,000	< 400	<	380	<	390	<	44
Dimethoate		2,000	560,000	< 400	<	380	<	390	<	441
Dimethylphthalate				< 400	<	380	<	390	<	441
Di-n-butylphthalate .		4,100,000	10,000,000	< 400	<	380	<	390	~	440
Di-π-octylphthalate		10,000,000	10,000,000	< 400	<	380	<			
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		700	2,800,000	< 400	<		<	390	<	44
Disulfoton		78 78			1	380		390	<	44
Ethyl methanesulfonate	•	/8 _	7,600	< 400	<	380	<	390	<	44
Ethyl parathion (Parathion)		_	-	< 400	<	380	<	390	<	44
Famphur		360,000	10,000,000	< 400	<	380	<	390	<	44
•		-		< 400	<	380	<	390	<	44
Fluoranthene		3,200,000	110,000,000	1100		1003	1	120J	1	62
Fluorene		3,800,000	110,000,000	40J	<	380	<	390	<	44
Hexachlorobenzene		960	50,000	< 400	<	380	<	390	<	44
Hexachlorobutadiene		1,200	560,000	< 400	<	380	<	390	<	44
Hexachlorocyclopentadiene		91,000	10,000,000	< 400	<	380	<	390	<	44
Hexachloroethane		560	2,800,000	< 400	<	380	<	390	<	44
Hexachlorophene	•			< 200,000	<	200,000	1	200,000	<	230,
Hexachloropropene				< 400	<	380	<	390	<	230, 44
Indeno(1,2,3-cd)pyrene		28,000,000	110,000	290J	<	380			`	
Isophorone		10,000	10,000,000	< 400	<	380	<	41J	ŀ.	24
Isosafrole			10,000,000	t e				390	<	44
m-Dinitrobenzene		100	200.000		<	380	<	390	<	44
Methapyrilene		' '	280,000	< 400	<	380	<	390	<	44
Methyl methanesulfonate		-		< 81,000	<	78,000	<	79,000	<	89,
Methyl parathion	:	2,600	800,000	< 400	<	380	<	390	<	44
* •		420	48,000	< 400	<	380	<	390	<	44
Naphthalene		25,000	56,000,000	58J	<	380	<	390	<	44
Nitrobenzene		5,100	1,400,000	< 400	<	380	<	390	 <	44
N-Nitrosodiethylamine		1.3	38	< 400	<	380	<	390	<	44
N-Nitrosodimethylamine		1.3	120	< 400	<	380	<	390	<	44
N-Nitrosodi-n-butylamine		14	15,000	< 400	<	380	<	390	<	44
n-Nitrosodi-n-propylamine		37	11,000	< 400	<	380	<	390	<	44
N-Nitrosodiphenylamine		83,000	16,000,000	< 400	<	380	<	390		
N-Nitrosomethylethylamine			10,000,000	< 400	<	380	<	390 390		44
N-Nitrosomorpholine					<					
N-Nitrosopiperidine		-	-			380	<	390	<	44
N-Nitrosopyrrolidine				< 400	<	380	<	390	<	44
O,O,O-Triethyl phosphorothioate		1	_	< 400	<	380	<	- 390	<	44
o-Toluidine			-	< 400	<	380	<	390	<	44
p-(Dimethylamino)azobenzene		1,200	330,000	< 400	<	380	<	390	<	44
• • •		150	17,000	< 400	<	380	<	390	<	44
Pentachlorobenzene		660,000	2,200,000	< 400	<	380	<	390	<	44
Pentachloronitrobenzene		20,000	310,000	< 400	<	380	<	390	<	44
Pentachiorophenol		5,000	660,000	< 2,000	<	2,000	<	2,000	<	2,3
Phenacetin		120,000	36,000,000	< 400	<	380	<	390	<	44
Phenanthrene		10,000,000	190,000,000	480		92J		82J	<	44
Phenol		400,000	190,000,000	< 400	<	380	<	390	<	44
Phorate		880	37,000	< 400	<	380	<	390	~	
Pronamide		5,000	190,000,000	< 400	<		1		1	44
Pyrene		2,200,000			`	380	<	390	<	44
	;	4,400,000	84,000,000	870	1	90J	t	913	1	50
•					1 -		1.			
Pyridine		2,000	190,000	< 400	<	380	<	390	<	44
•				< 400 < 400 < 400	< < <	380 380 380	< < <	390 390 390	< < <	44



Sample ID Sample Date Parameter		PADEP Act 2 MSCs Direct Contact, Non-Residential 0 - 2 feet		-5 (0-2) /24/2003		2/2/2003		:-7 (0-2) /24/2003		P-I (0 - 2) 2/4/2003
Inorganics (mg/kg) ^(a)	·		l		1					
Antimony	. 27	1,100	<	2.2	<	2.1	<	2.1	<	2,4
Arsenic	150	· 53	1	10		9.8	1	7.6		13L
Barium	8,200	190,000		170K		100		150K	1	140
Beryllium	320	5,600		1.1		0.88		1.2		0.98
Cadmium	38	210	<	0.56	<	0.53	<	0.54	<	0.61
Chromium	190,000	190,000		130	1	21		31		24K
Cobalt	200	56,000		11		15	İ	13		13K
Copper	36,000	100,000	1	24		23K		24		41
Lead	450	1,000		25L		17K		20L		81L
Mercury	10	840		0.14		0.033		0.11		0.091
Nickel	650	56,000	ł	20		20	1	22		24
Selenium	26	14,000	<	5.6	<	1.1	<	1.1	<	1,2R [©]
Silver	84	14,000		0.14B	<	1.1L	<	1.1	<	1.2
Thallium	14	200	<	5.6	<	1.1	<	1.1	<	1.2L
Tin	6,100	190,000		2.3B		1.9B		2B	ļ	110
Vanadium	72,000	20,000	1	80	I	30		21	1	32
Zinc	12,000	190,000	1	86B	1	67K		86B	1	170J

· · · · · · · · · · · · · · · · · · ·							
		PADEP Act 2 MSCs ^(b)	PADEP Act 2 MSCs				
	Sample ID:	Soil-to-Groundwater Pathway	Direct Contact,	LP-2 (0-2)	SC-1 (0-2) SC-2 (0-2) SC-3 (0
·	Sample Date:	Used Aquifers, TDS<2,500	Non-Residential	12/11/2003	11/24/200		
Parameter	_	Non-Residential	0 - 2 feet				1
Volatile Organic Compounds (ug/kg) ^(a)							
1,1,1,2-Tetrachloroethane		18,000	3,100,000	< 5	< 5.1	< 5.1	< 5.5
1,1,1-Trichloroethane		20,000	10,000,000	< 5	< 5.1	< . 5.1	< 5.5
1,1,2,2-Tetrachloroethane	•	30	28,000	< 5	< 5.1	< 5.1	< 5.
1,1,2-Trichloroethane		500	100,000	< 5	< 5.1	< 5.1	< 5.
1, 1-Dichloroethane		11,000	1,000,000	< 5	< 5.1	< 5.1	< 5.
1, 1-Dichloroethene		700	33,000	< 5	< 5.1	< 5.1	< 5
1,2,3-Trichloropropane		400,000	820	< 5	< 5.1	< 5.1	< 5.
1,2,4-Trimethylbenzene		20,000	320,000	< 5	< 5.1	< 5.1	< . 5.
1,2-Dibromo-3-chloropropane		20	11,000	< 10	< 10	< 10	< 1
1,2-Dibromoethane (EDB)		. 5	930	< 5	< 5.1	< 5.1	< 5
1,2-Dichloroethane		500	63,000	< 5	< 5.1	< 5.1 < 5.1	< 5
1,2-Dichloropropane		500	160,000	< 5	< 5.1	< 5.1	1 *
1,3,5-Trimethylbenzene		6,200	320,000	< 5	< 5.1	< 5.I	1 -
		· ·	· ·	1	1		1 -
2-Butanone (Methyl ethyl ketone)		580,000	10,000,000	< 25	< 26	< 26	4
2-Hexanone		(c)		< 25	< 26	< 26	< 2
3-Chloropropene (Allylchloride)		4,100	370,000	< 5	< 5.1	< 5.1	< ` 5
4-Methyl-2-pentanone (MIBK)		410,000	4,300,000	< 25	< 26	< 26	< 2
Acetone	•	1,000,000	10,000,000	< 50	< 51	< 51	1 7
Acetonitrile		35,000	3,200,000	< 200	< 200	< 200	< 2
Acrolein (Propenal)		12	1,100	< 100	< 100	< 100	< 1
Acrylonitrile		270	24,000	< 100	< 100	< 100	< 1
Benzene		500	210,000	< 5	4.4J	2,73	4
Bromodichloromethane		10,000	45,000	< 5	< 5.1	< 5.1	< 5
Bromoform		10,000	1,500,000	< 5	< 5.1	< 5.1	< 5
Bromomethane (Methyl Bromide)		1,000	270,000	< 5	< 5.1	< 5.1	< 5
Carbon disulfide		410,000	10,000,000	< 5	< 5.1	< 5.1 < 5.1	< 5
Carbon tetrachloride		500	110,000	< 5	< 5.1	< 5.1	1 *
Chlorobenzene		10,000	10,000,000	< 5	7.2		1 *
Chloroethane		90,000		1		2.7J	
Chloroform		· ·	10,000,000	1	< 5.1	< 5.1	< 5
Chloromethane (Methyl Chloride)		10,000	17,000	< 5	< 5.1	< 5.1	< 5
		300	920,000	< 5	< 5.1	< 5,1	< 5
Chloroprene		4,100	370,000	< 5	< 5.1	< 5.1	< s
cis-1,2-Dichloroethene		7,000	1,900,000	< 5	< 5.1	< 5.1	< 5
cis-1,3-Dichloropropene		2,600	410,000	< 5	< 5.1	< 5.1	< 5
Dibromochloromethane		ļ -	-	< 5	< 5.1	< 5.1	< 5
Dibromomethane (Methylene bromide)		20,000	1,900,000	< 5	< 5.1	< 5.1	< 5
Dichlorodifluoromethane		100,000	10,000,000	< 5	< 5.1	< 5.1	< 5
Ethyl methacrylate		180,000	190,000,000	< 5	< 5.1	< 5.1	< :
Ethylbenzene		70,000	10,000,000	< 5	1.73	< 5.1	2
Iodomethane (Methyl iodide)		-	-	< 5	< 5.1	< 5.1	< 5
Isobutanol (Isobutyl alcohol)		610,000	10,000,000	< 200	< 200	< 200	< 2
Methacrylonitrile		410	37,000	< 100	< 100	< 100	< 1
Methyl methacrylate		410,000	10,000,000	< 5	< 5.1	< 5.1	< 5
Methylene chloride (Dichloromethane)		500	920,000	< 5	< 5.1	< 5.1	< 5
Pentachloroethane		- '	-	< 25	< 26	< 26	< ;
Propionitrile		1		< 100	< 100	< 100	< i
Styrene		24,000	10,000,000	< 5	< 5.1	< 5.1	< 5
Tetrachloroethene		500	1,500,000	< 5	20	7.6	` :
Toluene	- 1	100,000		1	1	I	
trans-1,2-Dichloroethene			10,000,000	< 5	1.93		2
		10,000	3,700,000	< 5	< 5.1	< 5.1	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
trans-1,3-Dichloropropene		2,600	410,000	< 5	< 5.1	< 5.1	< 5
trans-1,4-Dichloro-2-butene		7	190,000,000	< 10	< 10	<. 10	 < .:
Trichloroethene	•	500	970,000	< 5	14	7.2	1 :
Trichlorofluoromethane				< 5	< 5.1	< 5.1	< 5
Vinyl acetate		120,000	10,000,000	< 10	< 10	< 10	< :
Vinyl chloride		200	53,000	< 5	< 5.1	< 5.1	< 5
Xylenes, Total		1,000,000	10,000,000	< 10	4.8J	< 10	8



	PADEP Act 2 MSCs(b)	PADEP Act 2 MSCs					
Sample ID:	Soil-to-Groundwater Pathway	Direct Contact,	LP-2 (0-2)	SC-1 (0	<u>"</u>	SC-2 (0-2)	8C 2 (A 2)
Sample Date:	Used Aquifers, TDS<2,500	Non-Residential	12/11/2003	11/24/29		11/24/2003	SC-3 (0-2)
Parameter	Non-Residential	0 - 2 feet	12/11/2003	11/24/20	ا دس	11/24/2003	11/24/2003
Semivolatile Organic Compounds (ug/kg)	1400-Aesidentiai	0 - 2 Ieel		 			
1,2,4,5-Tetrachlorobenzene	14,000	840,000	< 410	< 410	,	< 410	< 420
1,2,4-Trichlorobenzene	27,000	10,000,000	< 410	< 410	1	< 410	< 420
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000	10,000,000	< 410	< 410		< 410	< 420
1,3,5-Trinitrobenzene	-	10,000,000	< 410	< 41		< 410	< 420
1,3-Dichlorobenzene (m-Dichlorobenzene)	61,000	10,000,000	< 410	< 41		< 410	< 420
1,4-Dichlorobenzene (p-Dichlorobenzene)	10,000	3,300,000	< 410	< 41		< 410	< 420
1,4-Dioxane	2,400	210,000	< 410	< 41		< 410	< 420
1,4-Naphthoquinone	2,100		< 410	< 41	1	< 410	< 420
1,4-Phenylenediamine (p-Phenylenediamine)		_	< 2,100	< 2,10		< 2,100	< 2,200
1-Naphthylamine	1,100	44,000	< 410	< 41		< 410	< 420
2,2'-Oxybis(I-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000	160,000	< 410	< 41		< 410	< 420
2,3,4,6-Tetrachlorophenol	950,000	84,000,000	< 410	< 41		< 410	< 420
2,4,5-Trichlorophenol	6,100,000	190,000,000	< 410	< 41		< 410	< 420
2,4,6-Trichlorophenol	8,900	840,000	< 410	< 41		< 410	< 420
2,4-Dichlorophenol	2,000	8,400,000	< 410	< 41		< 410	< 420
2,4-Dimethylphenol	200,000	10,000,000	< 410	< 41		< 410	< 420
2,4-Dinitrophenol	4,100	5,600,000	< 2,100	< 210		< 2,100	< 2,200
2,4-Dinitrotoluene	840	260,000	< 410	< 41		< 410	< 420
2,6-Dichlorophenol	_	200,000	< 410	< 41		< 410	< 420
2,6-Dinitrotoluene	10,000	2,800,000	< 410	< 41		< 410	< 420
2-Acetylaminofluorene	280	21,000	< 410	< 41		< 410	< 420
2-Chloronaphthalene	18,000,000	190,000,000	< 410	< 41		< 410	< 420
2-Chlorophenol	4,400	920,000	< 410	< 41		< 410	< 420
2-Methylnaphthalene	8,000,000	10,000,000	< 410	< 41		< 410	< 420
2-Naphthylamine	140	44,000	< 410	< 41		< 410	< 420
2-Nitroaniline (o-Nitroaniline)	580	160,000	< 2,100	< 2,10		< 2,100	< 2,200
2-Nitrophenol (o-Nitrophenol)	82,000	22,000,000	< 410	< 41		< 410	< 420
2-Picoline			< 410	< 41		< 410	< 420
3,3'-Dichlorobenzidine	32,000	180,000	< 820	< 81		< 810	< 850
3,3'-Dimethylbenzidine	1,500	8,600	< 2,100	< 2,1		< 2100	< 2,200
3-Methylcholanthrene			< 410	< 41		< 410	< 420
3-Nitroaniline (m-Nitroaniline)	580	160,000	< 2,100	< 2,1		< 2,100	
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	-	100,000	< 2,100	< 2,1		< 2,100	1 '
4-Aminobiphenyl	12	3,800	< 410	< 41		< 410	1 .
4-Bromophenyiphenyi ether	<u> </u>	3,000	< 410	< 41		< 410	1
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	14,000,000	< 410	< 41		< 410	
4-Chloroaniline (p-Chloroaniline)	52,000	11,000,000	< 820	< 81		< 810	
4-Chlorophenylphenyl ether	52,000	11,000,000	< 410	< 41		< 410	
4-Nitroaniline (p-Nitroaniline)	580	160,000	< 2,100	< 2,1		< 2,100	
4-Nitrophenol (p-Nitrophenol)	6,000	22,000,000	< 2,100	< 2,1		< 2,100	1
4-Nitroquinoline-1-oxide		22,000,000	< 4,100	< 4,1		< 4,100	
5-Nitro-o-toluidine		_	< 410	< 41		1 '	, , , ,
7,12-Dimethylbenz(a)anthracene			< 410	< 41		1	1
Acenaphthene	4,700,000	170,000,000	< 410	< 41			1
Acenaphthylene	6,900,000	170,000,000	< 410	< 41		< 410 < 410	1 '
Acetophenone	1,000,000	10,000,000	< 410	< 41		< 410	
alpha,alpha-Dimethylphenethylamine	1,000,000	10,000,000	< 84,000	< 83,0		< 83.000	
Aniline .	580	52,000				,	
Anthracene	350,000	53,000 190,000,000	< 410 < 410	< 41		< 410 < 410	< 420 < 420
Aramite, Total	330,000	150,000,000	< 410			1	
Benzo(a)anthracene	320,000	110,000					< 420
Benzo(a)pyrene		110,000				< 410	< 420
Benzo(b)fluoranthene	46,000	11,000	< 410	< 41		< 410	< 420
Benzo(g,h,i)perylene	170,000	110,000	< 410	< 41		< 410	< 420
1	180,000	170,000,000	< 410	< 41		< 410	< 420
Benzo(k)fluoranthene Benzyl alcohol	610,000	1,100,000	< 410	< 41		< 410	< 420
	3,100,000	10,000,000	< 410	< 41		< 410	< 420
bis(2-Chloroethoxy)methane		<u> </u>	< 410	< 41	0	<u>< 410</u>	< 420



	Sample ID;	PADEP Act 2 MSCs ^(b) Soil-to-Groundwater Pathway	PADEP Act 2 MSCs Direct Contact,		P-2 (0-2)		C-1 (0-2)		C-2 (0-2)	sc	3 (0-2)
arameter	Sample Date:	Used Aquifers, TDS<2,500 Non-Residential	Non-Residential 0 - 2 feet	12	/11/2003 ⁻¹	11/	/24/2003	11	/24/2003	11/	/24/2003
emivolatile Organic Compounds cont'd. (ug/kg)	·····	140n-Residential	U - 2 leet	├─				-		⊢	
bis(2-Chloroethyl)ether	_	55	5,000	<	410	~	410	<	410	<	420
bis(2-Ethylhexyl)phthalate		130,000	5,700,000	ľ	57J	<	410	ľ	. 85J	`	210J
Butylbenzylphthalate		10,000,000	10,000,000	<	410	<	410	<	410	<	420
Chrysene		230,000	11,000,000	<	410	<	410	<	410	<	420
Cresol (ortho)	. • •	510,000	10,000,000	<	410	<	410	<	410	~	420
Cresol, m & p		51,000	14,000,000	<	410	<	410	<	410	<	
Diallate, Total		1,000	93,000	<	410	<	410	<	410	>	420 420
Dibenzo(a,h)anthracene		160,000	11,000	<	410	<	410	<	410	<	
Dibenzofuran		100,000	11,000	<	410	~	410	>		< ·	420
Diethylphthalate		500,000	10,000,000	<		< .		>	410		420
Dimethoate		1	· ·	<	410		410	1	410	<	420
Dimethylphthalate		2,000	560,000		410	<	410	<	410	<	420
Di-n-butylphthalate		4 100 000	-	<	410	<	410	<	410	<	420
Di-n-octylphthalate		4,100,000	10,000,000	<	410	<	410	<	410	<	420
		10,000,000	10,000,000	<	410	<	410	<	410	<	420
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		700	2,800,000	<	410	<	410	<	410	<	420
Disulfoton		78	7,600	<	410	<	410	<	410	<	420
Ethyl methanesulfonate	·			<	410	<	410	<	410	<	420
Ethyl parathion (Parathion)		360,000	10,000,000	<	410	<	410	<	410	<	420
Famphur ·		_	 ,	<	410	<	410	<	410	<	420
Fluoranthene		3,200,000	110,000,000	<	410	<	410	<	410	<	420
Fluorene		3,800,000	110,000,000	<	410	<	410	<	410	<	420
Hexachlorobenzene		960	50,000	<	410	<	410	<	410	<	420
Hexachlorobutadiene		1,200	560,000	<	410	<	410	<	410	<	420
Hexachlorocyclopentadiene		91,000	10,000,000	<	410	<	410	<	410	<	420
Hexachloroethane		560	2,800,000	<	410	<	410	<	. 410	<	420
Hexachlorophene		-		<	210,000	<	210,000		210,000	1	220,000
Hexachloropropene			_	<	410	<	410	<	410	<	420
Indeno(1,2,3-cd)pyrene		28,000,000	110,000	<	410	<	410	<	410	<	420
Isophorone		10,000	10,000,000	<	410	<	410	<	410	<	420
Isosafrole		, _		<	410	<	410	<	410	<	420
m-Dinitrobenzene		100	280,000	<	410	<	410	<	410	-	420
Methapyrilene				<	84,000	<	83,000	<	83,000	~	86,000
Methyl methanesulfonate		2,600	800,000	<	410	<	410	2	410	<	420
Methyl parathion		420	48,000	<	410	<	410	<	410	~	420
Naphthalene		25,000	56,000,000	<	410	~	410	<	410	~	
Nitrobenzene		5,100	1,400,000	<	410	<	410	~	410		420
N-Nitrosodiethylamine		1.3	38	<	410	<	410	<			420
N-Nitrosodimethylamine		1.3	120	<	410	<	410	~	410	<	420
N-Nitrosodi-n-butylamine		1.3		<				1	410	<	420
n-Nitrosodi-n-propylamine		37	15,000	<	410	<	410	<	410	<	420
N-Nitrosodiphenylamine			11,000	1	410	<	410	<	410	<	420
N-Nitrosomethylethylamine		. 83,000	16,000,000	<	410	<	410	<	410	<	420
N-Nitrosomorpholine		_	_	<	410	<	410	<	410	<	420
		-		<	410	<	410	<	410	<	420
N-Nitrosopiperidine			_	<	410	<	410	<	410	<	420
N-Nitrosopyrrolidine			-	<	410	 <	410	<	410	<	420
O,O,O-Triethyl phosphorothioate				<	410	<	410	<	410	<	420
o-Toluidine		1,200	330,000	<	410	<	410	<	410	<	420
p-(Dimethylamino)azobenzene		150	17,000	<	410	<	410	<	410	<	420
Pentachlorobenzene		660,000	2,200,000	<	410	<	410	<	410	<	420
Pentachloronitrobenzene		20,000	310,000	<	410	<	410	<	410	<	420
Pentachlorophenol		5,000	660,000	<	2,100	<	2,100	<	2,100	 <	2,200
Phenacetin		120,000	36,000,000	<	410	<	410	<	410	<	420
Phenanthrene		10,000,000	190,000,000	<	410	<	410	<	410	<	420
Phenol		400,000	190,000,000	<	410	<	410	<	410	<	420
Phorate		880	37,000	<	410	<	410	<	410	<	420
Pronamide		5,000	190,000,000	<	410	<	410	<	410	<	420
Pyrene		2,200,000	84,000,000	<	410	<	410	{	410		420 24J
Pyridine		2,000		<		~		{		٦	
Safrole		1	190,000	>	410 410	1	410		410	\ <u></u>	420
DESCRIP		1		15	4111	<	410	<	410	<	420
Sulfotepp (Tetraethyl dithiopyrophosphate)		1,500	92,000	<	410	<	410	<	410	<	420



Parameter	Sample ID; Sample Date:	PADEP Act 2 MSCs ^(b) Soil-to-Groundwater Pathway Used Aquifers, TDS<2,500 Non-Residential	PADEP Act 2 MSCs Direct Contact, Non-Residential 0 - 2 feet		P-2 (0-2) /11/2003		C-1 (0-2) /24/2003		C-2 (0-2) /24/2003		C-3 (0-2) /24/2003
Inorganics (mg/kg) ^(a)						l		i .		Ī	
Antimony		27	1,100	<	2.3R	<	2,4	<	2.3	<	2.4
Arsenic		150	53		11K	l	9.6	1	9.6	1	6.7
Barium		8,200	190,000		89	1	400K	1	220K	1	170K
Beryllium		320	5,600	1	0.94	1	1.4		1.3		1.2
Cadmium		38	210	<	0.57	<	0.6	<	0.57	<	0.6
Chromium		190,000	190,000	1	18	l	19	1	18	1	15
Cobalt	•	200	56,000		25		20		13		14
Copper		36,000	100,000		24		33		33		14B
Lead	-	450	1,000		21L	l	18L		17L		15L
Mercury		10	840	1	0.03J		0,038		0.037		0.059
Nickel		650	56,000	1	23		62	1	41		26
Selenium		26	14,000	<	1.1L	<	1,2	<	1.1	<	1.2
Silver		84	14,000	<	1.1	<	1.2	<	1,1	<	1.2
Thallium		14	200	<	1.1	<	1.2	<	1.1	<	1.2
Tin		6,100	190,000		1.8B		1.3B		1.6B		1.8B
Vanadium	•	72,000	20,000		25		17		13	1	21
Zinc		12,000	190,000		70		86B		74B		82B

			•				
		PADEP Act 2 MSCs(b)	PADEP Act 2 MSCs		1		
	Sample ID:	Soil-to-Groundwater Pathway	Direct Contact,	TF-1 (0-2)	TF-2 (0-2)	TF-3 (0-2)	TF-4 (0-2
·	Sample Date:	Used Aquifers, TDS<2,500	Non-Residential	12/8/2003	12/12/2003	12/8/2003	
Parameter ·	Daupic Daici	Non-Residential	0 - 2 feet	12/8/2003	12/12/2003	12/6/2003	12/12/200
Volatile Organic Compounds (ug/kg) (s)		110H-Ittsidelinai	0 - 2 1661		 		
1,1,1,2-Tetrachloroethane		18,000	3,100,000	< 5.4	< 5.4	< 4.9	< 5.9
1, 1, 1-Trichloroethane		20,000	10,000,000	< 5.4	< 5.4	1	
1,1,2,2-Tetrachloroethane		30		1		1	< 5.9
1,1,2-Trichloroethane		500	28,000		< 5.4 < 5.4	< 4.9	< 5.9
1, I-Dichloroethane	•	L	100,000			< 4.9	< 5.9
1,1-Dichloroethene		11,000 700	1,000,000	1	< 5.4	< 4.9	< 5.9
1,2,3-Trichloropropane		400.000	33,000	< 5.4	< 5.4	< 4.9	< 5.9
1,2,4-Trimethylbenzene		,	820	< 5.4	< 5.4	< 4.9	< 5.9
• •		20,000	320,000	20	< 5.4	< 4.9	< . 5.9
1,2-Dibromo-3-chloropropane 1,2-Dibromoethane (EDB)		20	11,000	< 11	< 11	< 9.8	< 12
		.5	930	< 5.4	< 5.4	< 4.9	< 5.9
1,2-Dichloroethane		500	63,000	< 5.4	< 5.4	< 4.9	< 5.9
1,2-Dichloropropane		500	160,000	< 5.4	< 5.4	< 4.9	< 5.9
1,3,5-Trimethylbenzene		6,200	320,000	29	< 5.4	< 4.9	< 5.9
2-Butanone (Methyl ethyl ketone)		580,000	10,000,000	< 27	< 27	< 24	< 30
2-Hexanone		_(c)		< 27	< 27	< 24	< 30
3-Chloropropene (Allylchloride)		4,100	370,000	< 5.4	< 5.4	< 4.9	< 5.9
4-Methyl-2-pentanone (MIBK)		410,000	4,300,000	< 27	< 27	< 24	< 30
Acetone		1,000,000	10,000,000	43J	< 54	28J	< 59
Acetonitrile		35,000	3,200,000	< 220	< 220	< 200	< 240
Acrolein (Propenal)		12	1,100	< 110	< 110	< 98	
Acrylonitrile		270	24,000	< 110	< 110	< 98	
Benzene		500	210,000	< 5.4	1		
Bromodichloromethane		10,000		1	1		< 5.9
Bromoform		•	45,000		< 5.4	< 4.9	< 5.9
Bromomethane (Methyl Bromide)		10,000 .	1,500,000	< 5.4	< 5.4	< 4.9	< 5.9
Carbon disulfide		1,000	270,000	< 5.4	< 5.4	< 4.9	< 5.9
		410,000	10,000,000	< 5.4	< 5.4	< 4.9	< 5.9
Carbon tetrachloride		500	110,000	< 5.4	< 5.4	< 4.9	< 5.9
Chlorobenzene		10,000	10,000,000	< 5.4	< 5.4	< 4.9	1.63
Chioroethane		90,000	10,000,000	< 5.4	< 5.4	< 4.9	< 5.9
Chloroform		10,000	17,000	< 5.4	< 5.4	< 4.9	< 5.9
Chloromethane (Methyl Chloride)		· 300	920,000	< 5.4	< 5.4	< 4.9	< 5.9
Chloroprene		4,100	370,000	< 5.4	< 5.4	< 4.9	< 5.9
cis-1,2-Dichloroethene		7,000	1,900,000	< 5.4	< 5.4	< . 4.9	< 5.9
cis-1,3-Dichloropropene		2,600	410,000	< 5.4	< 5.4	< 4.9	< 5,9
Dibromochloromethane		_	_	< 5.4	< 5.4	< 4.9	< 5.9
Dibromomethane (Methylene bromide)		20,000	1,900,000	< 5.4	< 5.4	< 4.9	< 5.9
Dichlorodifluoromethane		100,000	10,000,000	< 5.4	< 5.4	< 4.9	< 5.9
Ethyl methacrylate		180,000	190,000,000	< 5.4	< 5.4	< 4.9	< 5.9
Ethylbenzene		70,000	10,000,000	3.1J	< 5.4	< 4.9	< 5.9
Iodomethane (Methyl iodide)				< 5.4	< 5.4	< 4.9	< 5.9
Isobutanol (Isobutyl alcohol)		610,000	10,000,000	< 220	< 220	< 200	< 240
Methacrylonitrile		410	37,000	< 110	< 110	< 98	< 120
Methyl methacrylate		410,000	10,000,000	< 5.4	< 5,4	< 4.9	< 5.9
Methylene chloride (Dichloromethane)		500	920,000	< 5.4	< 5.4	< 4.9	
Pentachloroethane			1	< 27	< 27		
Propionitrile		_		< 110	< 110		
Styrene		24.000			1	1	< 120
Tetrachloroethene		24,000	10,000,000	1.43	< 5.4	< 4.9	< 5.9
		500	1,500,000	< 5.4	< 5.4	< 4.9	< 5.5
Toluene		100,000	10,000,000	< 5.4	< 5.4	< 4.9	2.6
trans-1,2-Dichloroethene		10,000	3,700,000	< 5.4	< 5.4	< 4.9	< 5.9
trans-1,3-Dichloropropene		2,600	410,000	< 5.4	< 5.4	< 4.9	< 5.9
trans-1,4-Dichloro-2-butene		7	190,000,000	< 11	< 11	< 9.8	< .12
Trichloroethene		500	970,000	< 5.4	1.43	< 4.9	< 5.9
Trichlorofluoromethane			_	< 5.4	< 5.4	< 4.9	< 5.9
Vinyl acetate		120,000	10,000,000	< 11	< 11	< 9.8	< 12
Vinyl chloride		200	53,000	< 5.4	< 5.4	< 4.9	< 5.9
Xylenes, Total		1,000,000	10,000,000	12	< 11	< 9.8	< 12



	PADEP Act 2 MSCs(b)	PADEP Act 2 MSCs					
Sample ID:	Soil-to-Groundwater Pathway	Direct Contact,	TF-1 (0-2)	TF-2 (0	-2)	TF-3 (0-2)	TF-4 (0-2)
Sample Date:	Used Aquifers, TDS<2,500	Non-Residential	12/8/2003	12/12/20	003	12/8/2003	12/12/2003
Parameter	Non-Residential	0 - 2 feet					
Semivolatile Organic Compounds (ug/kg)							
1,2,4,5-Tetrachlorobenzene	14,000	840,000	< 420	< 40)	< 400	< 400
1,2,4-Trichlorobenzene	27,000	10,000,000	< 420	< 40)	< 400	< 400
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000	10,000,000	< 420	< 40)	< 400	< 400
1,3,5-Trinitrobenzene	-	-	< 420	< 40)	< 400	< 400
1,3-Dichlorobenzene (m-Dichlorobenzene)	61,000	10,000,000	< 420	< 40)	< 400	< 400
1,4-Dichlorobenzene (p-Dichlorobenzene)	10,000	- 3,300,000	< 420	< 40)	< 400	< 400
1,4-Dioxane	2,400	210,000	< 420	< 40)	< 400	< 400
1,4-Naphthoquinone	_		< 420	< 40)	< 400	< 400
1,4-Phenylenediamine (p-Phenylenediamine)	-	-	< 2,200	< 2,00	00	< 2,100	< 2,000
1-Naphthylamine	1,100	44,000	< 420	< 40)	< 400	< 400
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000	160,000	< 420	< 40)	< 400	< 400
2,3,4,6-Tetrachlorophenol	950,000	84,000,000	< 420	< 40)	< 400	< 400
2,4,5-Trichlorophenol	6,100,000	190,000,000	< 420	< 40)	< 400	< 400
2,4,6-Trichloropheno!	8,900	840,000	< 420	< 40)	< 400	< 400
2,4-Dichlorophenol	2,000	8,400,000	< 420	< 40)	< 400	< 400
2,4-Dimethylphenol	200,000	10,000,000	< 420	< 40)	< 400	< 400
2,4-Dinitrophenol	4,100	5,600,000	< 2,200	< 2,00	10	< 2,100	< 2,000
2,4-Dinitrotoluene	840	260,000	< 420	< 40		< 400	< 400
2,6-Dichlorophenol	_	<u> </u>	< 420	< 40	0	< 400	< 400
2,6-Dinitrotoluene	10,000	2,800,000	< 420	< 40	0	< 400	< 400
2-Acetylaminofluorene	280	21,000	< 420	< 40	0	< 400	< 400
2-Chloronaphthalene	18,000,000	190,000,000	< 420	< 40	0	< 400	< 400
2-Chlorophenol	4,400	920,000	< 420	< 40		< 400	< 400
2-Methylnaphthalene	8,000,000	10,000,000	< 420	< 40		< 400	< 400
2-Naphthylamine	140	44,000	< 420	< 40	D	< 400	< 400
2-Nitroaniline (o-Nitroaniline)	580	160,000	< 2,200	< 2,0	00	< 2,100	< 2,000
2-Nitrophenol (o-Nitrophenol)	82,000	22,000,000	< 420	< 40		< 400	< 400
2-Picoline		''	< 420	< 40		< 400	< 400
3,3'-Dichlorobenzidine	32,000	180,000	< 840	< 80	0	< 800	< 800
3,3'-Dimethylbenzidine	1,500	8,600	< 2,200	< 2,00		< 2,100	< 2,000
3-Methylcholanthrene	·		< 420	< 40		< 400	< 400
3-Nitroaniline (m-Nitroaniline)	580	160,000	< 2,200	< 2,0	00	< 2,100	< 2,000
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)		ļ <u>.</u>	< 2,200	< 2,0		< 2,100	< 2,000
4-Aminobiphenyl	12	3,800	< 420	< 40		< 400	< 400
4-Bromophenylphenyl ether	. <u>–</u>	_ ·_	< 420	< 40		< 400	< 400
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	14,000,000	< 420	< 40		< 400	< 400
4-Chloroaniline (p-Chloroaniline)	52,000	11,000,000	< 840	< 80		< 800	< 800
4-Chlorophenylphenyl ether	_	· -′	< 420	< 40		< 400	< 400
4-Nitroaniline (p-Nitroaniline)	580	160,000	< 2,200	< 2,0		< 2,100	< 2,000
4-Nitrophenol (p-Nitrophenol)	6,000	22,000,000	< 2,200	< 2,0		< 2,100	< 2,000
4-Nitroquinoline-1-oxide	-		< 4,200	< 4,0		< 4,000	< 4,000
5-Nitro-o-toluidine			< 420	< 40		< 400	< 400
7,12-Dimethylbenz(a)anthracene	_	_	< 420	< 40		< 400	< 400
Acenaphthene	4,700,000	170,000,000	< 420	< 40		< 400	< 400
Acenaphthylene	6,900,000	170,000,000	< 420	< 40		< 400	< 400
Acetophenone	1,000,000	10,000,000	< 420	< 40	_	< 400	< 400
alpha,alpha-Dimethylphenethylamine			< 85,000	1		< 82,000	< 81,000
Aniline	580	53,000	< 420	< 40		< 400	< 400
Anthracene	350,000	190,000,000	< 420	70		< 400	< 400
Aramite, Total			< 420	< 40		< 400	< 400
Benzo(a)anthracene	320,000	110,000	48J	36		< 400	< 400
Benzo(a)pyrene	46,000	11,000	78J	32		< 400	< 400
Benzo(b)fluoranthene	170,000	110,000	64J	30		< 400	< 400
Benzo(g,h,i)perylene	180,000	170,000,000	1503	20	-	< 400	< 400
Benzo(k)fluoranthene	610,000	1,100,000	823	27		< 400	1
Benzyl alcohol	3,100,000	10,000,000					
Benzyi aicondi	1 <u>3. (()() (()()</u>		< 420	< 40		< 400	< 400



	Sample ID:	PADEP Act 2 MSCs ^(b) Soil-to-Groundwater Pathway	PADEP Act 2 MSCs Direct Contact,		-1 (0-2)		-2 (0-2)		F-3 (0-2)		-4 (0-2)
.	Sample Date:	Used Aquifers, TDS<2,500	Non-Residential	12	2/8/2003	12	/12/2003	1:	2/8/2003	12/	/12/2003
Parameter		Non-Residential	0 - 2 feet							L.	
Semivolatile Organic Compounds cont'd. (ug/kg)				_							
bis(2-Chloroethyl)ether		55	5,000	<	420	<	400	<	400	<	400
bis(2-Ethylhexyl)phthalate		130,000	5,700,000	1	690B	<	400	Ì	.300B	<	400
Butylbenzylphthalate		10,000,000	10,000,000	<	420	<	400	<	400	<	400
Chrysene		230,000	11,000,000		62J		370J	<	400	<	400
Cresol (ortho)		510,000	10,000,000	<	420	<	400	<	400	<	400
Cresol, m & p	!	51,000	14,000,000	<	420	<	400	<	400	<	400
Diallate, Total	}	1,000	93,000	<	420	<	400	<	400	<	400
Dibenzo(a,h)anthracene		160,000	11,000		120J	1	66J	<	400	l<	400
Dibenzofuran	•	·	_	<	420	<	400	<	400	<	400
Diethylphthalate		500,000	10,000,000	<	420	<	400	<	400	<	400
Dimethoate		2,000	560,000	<	420	<	400	<	400	<	400
Dimethylphthalate	,	·_	_	<	420	<	400	<	400	<	400
Di-n-butylphthalate		4,100,000	10,000,000	<	420	<	400	<	400	<	400
Di-n-octylphthalate		10,000,000	10,000,000	<	420	<	400	<	400	>	400
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		700	2,800,000	<	420	<	400	>	400	<	
Disulfoton		78	7,600	<	420	<	400	<	400	~	400
Ethyl methanesulfonate			7,000	<		~	400	<		1	400
Ethyl parathion (Parathion)			10 000 000	2	420	~			400	<	400
Famphur		360,000	10,000,000	<	420		400	<	400	<	.400
Fluoranthene		-		 	420	<	400	<	400	<	400
Fluorene	:	3,200,000	110,000,000	1	I 10J	1	640	<	400	<	400
		3,800,000	110,000,000	<	420	<	400	<	400	<	400
Hexachlorobenzene		960	50,000	<	420	<	400	<	400	<	400
Hexachlorobutadiene		1,200	560,000	<	420	<	400	<	400	<	400
Hexachlorocyclopentadiene		91,000	10,000,000	<	420	<	400	<	400	<	400
Hexachloroethane		560	2,800,000	<	420	<	400	<	. 400	<	400
Hexachlorophene		- .		<	220,000	<	200,000	<	210,000	<	200,000
Hexachloropropene		-	-	<	420	<	400	<	400	<	400
Indeno(1,2,3-cd)pyrene		28,000,000	110,000		110J		220J	<	400	<	400
Isophorone		10,000	10,000,000	<	420	<	400	<	400	<	400
Isosafrole		_		<	420	<	400	<	400	<	400
m-Dinitrobenzene		100	280,000	<	420	<	400	<	400	<	400
Methapyrilene				<	85,000	<	81,000	<	82,000	<	81,000
Methyl methanesulfonate		2,600	800,000	<	420	<	400	<	400	<	400
Methyl parathion		420	48,000	<	420	<	400	<	400	~	400
Naphthalene		25,000	56,000,000	<	420	<	400	~	400	~	400
Nitrobenzene		5,100	1,400,000	<	420	<	400	<	400	-	400
N-Nitrosodiethylamine		1.3	38	<	420	<	400	<	400	<	400
N-Nitrosodimethylamine		1,3	120	<	420	<	400	<	400	<	
N-Nitrosodi-n-butylamine		1,3	1	<		<		<			400
n-Nitrosodi-n-propylamine		37	15,000	<	420	<	400	1	400	<	400
N-Nitrosodiphenylamine			11,000	1	420		400	<	400	<	400
N-Nitrosomethylethylamine		83,000	16,000,000	<	420	<	400	<	400	<	400
				<	420	<	400	<	400	<	400
N-Nitrosomorpholine		~		<	420	<	400	<	400	<	400
N-Nitrosopiperidine		-	_	<	420	<	400	<	400	<	400
N-Nitrosopyrrolidine		 ,		<	420	<	400	<	400	<	400
O,O,O-Triethyl phosphorothioate		-	-	<	420	<	400	 <	400	<	400
o-Toluidine		1,200	330,000	<	420	<	400	<	400	<	400
p-(Dimethylamino)azobenzene		150	17,000	<	420	<	400	<	400	<	400
Pentachlorobenzene		660,000	2,200,000	<	420	<	400	<	400	<	400
Pentachloronitrobenzene		20,000	310,000	<	420	<	400	<	400	<	400
Pentachlorophenol		5,000	660,000	<	2,200	<	2,000	<		<	2,000
Phenacetin		120,000	36,000,000	<	420	<	400	<	400	<	400
Phenanthrene		10,000,000	190,000,000		71J	1	310J	<	400	<	400
Phenol		400,000	190,000,000	<	420	<	400	<	400	<	400
Phorate		880	37,000	<	420	<	400	<	400	<	400
Pronamide		5,000	190,000,000	<	420	<	400	{	400	<	
Pyrene		2,200,000	84,000,000	1	100J	1	510	•			400
Pyridine			1 ' '	1_				1	400	 <	400
Safrole		2,000	190,000	<	420	\ <u>`</u>	400	 	400	<	400
1		-	-	<	420		. 400	<	400	<	400
Sulfotepp (Tetraethyl dithiopyrophosphate)		1,500	92,000	<	420	<	400	<		<	400
Thionazin (o,o-Diethyl-O-pyrazinyl phosphorothio	ate)			<	420	_<_	400	<	400	<	400



	PADEP Act 2 MSCs(b)	PADEP Act 2 MSCs				т-	_		
Sample ID:	Soil-to-Groundwater Pathway	Direct Contact,		2 1 (0.0)	TT 3 (0 3)	۱.,	F 2 (0 0)		
•	•	· ·		-1 (0-2)	TF-2 (0-2)		F-3 (0-2)		4 (0-2)
Sample Date:	, , ,	Non-Residential	12	2/8/2003	12/12/2003	1	2/8/2003	12/1	2/2003
Parameter	Non-Residential	0 - 2 feet	<u> </u>			┷			
Inorganics (mg/kg) (a)			J .			\perp			
Antimony	27	1,100	<	2.5	0.73J	7~	2.2	<	2.2
Arsenic '	150	- 53	į .	8.5L	9	1	6.5L	i	7.4
Barium	8,200	190,000		230	340	1	170	1	150
Beryllium	320	5,600		1.4	2.4		0.86	ł	1.1
Cadmium	38	210	<	0.62	0.33J	<	0.55		0,2J
Chromium	190,000	190,000		26K .	34		20K		32
Cobalt	200	56,000		14K	12		6.3K		17
Copper	36,000	100,000		33	29		19		29
Lead	450	1,000		34L	25L		8.4L		26L
Mercury	10	840	l	0.099	0.22		0.036		0.2
Nickel	650	56,000		32	23		22		30
Selenium	26	14,000	<	1.2R	< 1.1	<	1.1R	<	1.1
Silver	84	14,000	<	1.2	< 1.1	<	1.1	<	1.1
Thallium	14	200	<	1.2L	< 1.1L	<	1.1L	<	I.IL
Tin	6,100	190,000		3.IB	3.1B		2B		2.8B
Vanadium	72,000	20,000	1	29	31		25		41
Zinc .	12,000	190,000	1	160	86		60		100

·	•	<u> </u>		•			
		PADEP Act 2 MSCs(b)	PADEP Act 2 MSCs				· ·
	Sample ID:	Soil-to-Groundwater Pathway	Direct Contact,	TF-5 (0-2)	TF-6 (0-2)	TF-7 (0-2)	TF-8 (0-2
	Sample Date:	Used Aquifers, TDS<2,500	Non-Residential	12/8/2003	12/8/2003	12/12/2003	12/12/20
Parameter		Non-Residential	0 - 2 feet				
olatile Organic Compounds (ug/kg) ^(a)							
1,1,1,2-Tetrachloroethane		18,000	3,100,000	< 5.2	< 5.3	< 5.6	< 200
1,1,1-Trichloroethane		20,000	10,000,000	< 5.2	< 5.3	< 5.6	< 200
1,1,2,2-Tetrachloroethane		30	28,000	< 5.2	< 5,3	< 5.6	< 200
1,1,2-Trichloroethane		500	100,000	< 5.2	< 5.3	< 5.6	< 200
1,1-Dichloroethane		11,000	1,000,000	< 5.2	< 5.3	< 5.6	< 200
1,1-Dichloroethene		700	33,000	< 5.2	< 5.3	< 5,6	< 200
1,2,3-Trichloropropane		400,000	820	< 5.2	< 5.3	< .5.6	< 200
1,2,4-Trimethylbenzene		20,000	320,000	< 5.2	< 5.3	1,53	< 200
1,2-Dibromo-3-chloropropane		20	11,000	< 10	< 10	< 11	< 410
1,2-Dibromoethane (EDB)		5	930	< 5.2	< 5.3	< 5.6	1
1,2-Dichloroethane		500	63,000	< 5.2			
1,2-Dichloropropane		500	i '	1	i		< 200
1,3,5-Trimethylbenzene			160,000		< 5.3	< 5.6	< 200
-		6,200	320,000	< 5.2	< 5.3	< 5.6	< 200
2-Butanone (Methyl ethyl ketone)		580,000	10,000,000	< 26	< 26	< 28	< 1,00
2-Hexanone		_(6)	- ·	< 26	< 26	< 28	< 1,00
3-Chloropropene (Allylchloride)		4,100 -	370,000	< 5.2	< 5,3	< 5.6	< 200
4-Methyl-2-pentanone (MIBK)		410,000	4,300,000	< 26	< 26	< 28	< 1,00
Acetone		1,000,000	10,000,000	< 52	< 53	< 56	< 2,00
Acetonitrile		35,000	3,200,000	< 210	< 210	< 220	< 8,20
Acrolein (Propenal)		12	1,100	< 100	< 100	< 110	< 4,10
Acrylonitrile		270	24,000	< 100	< 100	< 110	< 4,10
Benzene		500	210,000	< 5.2	< 5.3	< 5.6	< 200
Bromodichloromethane		10,000	45,000	< 5.2	< 5.3	< 5.6	
Bromoform		10,000	1,500,000	< 5.2	< 5.3		
Bromomethane (Methyl Bromide)		1,000		1			
Carbon disulfide		1	270,000		I .	< 5.6	< 200
Carbon tetrachloride		410,000	10,000,000	< 5.2	< 5.3	< 5.6	< 200
Chlorobenzene		500	110,000	< 5.2	< 5.3	< 5.6	< 200
Chloroethane		10,000	10,000,000	< 5.2	< 5.3	< 5.6	< 200
		90,000	10,000,000	< 5.2	< 5.3	< 5.6	< 200
Chloroform		10,000	17,000	< 5.2	< 5.3	< 5.6	< 200
Chloromethane (Methyl Chloride)		300	920,000	< 5.2	< 5.3	< 5.6	< 200
Chloroprene		4,100	370,000	< 5.2	< 5.3	< 5.6	< 200
cis-1,2-Dichloroethene		7,000	1,900,000	< 5.2	< 5.3	< 5.6	< 200
cis-1,3-Dichloropropene		2,600	410,000	< 5,2	< 5.3	< 5.6	< 200
Dibromochloromethane		-		< 5.2	< 5.3	< 5.6	< 200
Dibromomethane (Methylene bromide)		20,000	1,900,000	< 5.2	< 5.3	< 5.6	< 200
Dichlorodifluoromethane		100,000	10,000,000	< 5.2	< 5.3	< 5.6	< 200
Ethyl methacrylate		180,000	190,000,000	< 5.2	< 5.3	< 5.6	< 200
Ethylbenzene		70,000	10,000,000	< 5.2	< 5.3	< 5.6	< 200
Iodomethane (Methyl iodide)				< 5.2	< 5.3	< 5.6	< 200
Isobutanol (Isobutyl alcohol)		610,000	10,000,000	< 210	< 210	< 220	< 8,20
Methacrylonitrile		410	37,000	< 100	< 100		
Methyl methacrylate		410,000	10,000,000	< 5.2	< 5,3	1 '	
Methylene chloride (Dichloromethane)		500	1	1		1	
Pentachloroethane]	920,000	1	1	< 5.6	< 200
Propionitrile				< 26		< 28	< 1,00
Styrene		24.000		< 100	< 100	< 110	< 4,10
		24,000	10,000,000	< 5.2	< 5.3	< 5.6	< 200
Tetrachloroethene		500	1,500,000	< 5.2	< 5.3	< 5.6	< 200
Toluene		100,000	10,000,000	< 5.2	< 5.3·	< 5.6	< 200
trans-1,2-Dichloroethene		10,000	3,700,000	< 5.2	< 5.3	< 5.6	< 200
trans-1,3-Dichloropropene		2,600	410,000	< 5.2	< 5.3	< 5.6	< 200
trans-1,4-Dichloro-2-butene		7	190,000,000	< 10	< 10	< 11	< 410
Trichloroethene		500	970,000	< 5.2	< 5.3	< 5.6	< 200
Trichlorofluoromethane			-	< 5.2	< 5.3	< 5.6	< 20
Vinyl acetate		120,000	10,000,000	< 10	< 10	< 11	< 410
Vinyl chloride		200	53,000	< 5.2	< 5.3	< 5.6	< 200
Xylenes, Total		1,000,000	1 -2,000	1 - 5.2	1	1. 0.0	- 200



TABLE 5 SUMMARY OF SURFACE SOIL ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED JEFFERSON PLANT

WEST ELIZABETH, PENNSYLVANIA

Sample ID: Sample Date: Parameter		PADEP Act 2 MSCs Direct Contact, Non-Residential		-5 (0-2) /8/2003		-6 (0-2) 1/8/2003		-7 (0-2) /12/2003	ı	F-8 (0-2 1/12/200
Parameter Semivolatile Organic Compounds (ug/kg)	Non-Residential	0 - 2 feet							<u> </u>	
1,2,4,5-Tetrachlorobenzene	14,000	840.000	_	410	<	420	_	410	ļ.,	
1,2,4-Trichlorobenzene	•	840,000	<	410		420	<	410	<	410
• •	27,000	10,000,000	<	410	<	420	<	410	<	410
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000	10,000,000	<	410	<	420	<	410	<	410
1,3,5-Trinitrobenzene			<	410	<	420	<	410	<	410
1,3-Dichlorobenzene (m-Dichlorobenzene)	61,000	10,000,000	<	410	<	420	<	410	<	410
1,4-Dichlorobenzene (p-Dichlorobenzene)	- 10,000	3,300,000	<	410	<	420	<	410	<	410
1,4-Dioxane	2,400	210,000	<	410	<	420	<	410	<	410
1,4-Naphthoquinone	_	_	<	410	<	420	<	410	<	410
1,4-Phenylenediamine (p-Phenylenediamine)	-	.	<	2,100	<	2,200	<	2,100	<	2,10
1-Naphthylamine	1,100	44,000	<	410	<	420	<	410	<	410
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000	160.000	<	410	<	420	<	410	<	410
2,3,4,6-Tetrachlorophenol	950,000	84,000,000	<	410	<	420	<	410	~	410
2,4,5-Trichlorophenol	6,100,000	190,000,000	<	410	<	420	<	410	~	410
2,4,6-Trichlorophenol	8,900	840,000	<	410	<	420	<	410	<	
2,4-Dichlorophenol	2,000		<		<		<			410
2,4-Dimethylphenol	200,000	8,400,000	<	410	<	420	<	410	<	410
2,4-Dinitrophenol	The state of the s	10,000,000		410		420		410	<	410
•	4,100	5,600,000	<	2,100	<	2,200	<	2,100	<	2,10
2,4-Dinitrotoluene	840	260,000	<	410	<	420	<	410	 <	410
2,6-Dichlorophenol	-	-	<	410	<	420	<	410	 <	410
2,6-Dinitrotoluene	10,000	2,800,000	<	410	<	420	<	410	<	410
2-Acetylaminofluorene	280	21,000	<	410	<	420	<	410	<	410
2-Chloronaphthalene	18,000,000	190,000,000	<	410	<	420	<	410	<	41
2-Chlorophenol	4,400	920,000	<	410	<	420	 <.	410	<	410
2-Methylnaphthalene	8,000,000	10,000,000	<	410	<	420	<	410	<	410
2-Naphthylamine	140	44,000	<	410	<	420	<	410	~	410
2-Nitroaniline (o-Nitroaniline)	580	160,000	<	2,100	<	2,200	<	2,100	<	
2-Nitrophenol (o-Nitrophenol)	82,000		<	410	~	420	<	•		2,10
2-Picoline	82,000	22,000,000	<		<			410	<	410
3,3'-Dichlorobenzidine	22.000			410		420	<	410	<	410
•	32,000	180,000	<	820	<	840	<	820	<	81
3,3'-Dimethylbenzidine	1,500	8,600	<	2,100	<	2,200	 <	2,100	<	2,10
3-Methylcholanthrene			<	410	<	420	<	410	<	41
3-Nitroaniline (m-Nitroaniline)	580	160,000	<	2,100	<	2,200	<	2,100	<	2,10
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	-	ļ - -	<	2,100	<	2,200	<	2,100	<	2,10
4-Aminobiphenyl	12	3,800	<	410	<	420	<	410	<	41
4-Bromophenylphenyl ether	_		<	410	<	420	<	410	<	41
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	14,000,000	<	410	<	420	<	410	<	41
4-Chloroaniline (p-Chloroaniline)	52,000	11,000,000	<	820	<	840	<	820	<	81
4-Chlorophenylphenyl ether	1		<	410	<	420	<	410	~	41
4-Nitroaniline (p-Nitroaniline)	580	160,000	<	2,100	~	2,200		2,100	~	
4-Nitrophenol (p-Nitrophenol)		1	<							2,10
4-Nitroquinoline-1-oxide	6,000	22,000,000		2,100	_	2,200	<	2,100	 <	2,10
	_	-	<	4,100	<	4,200	<	4,100	<	4,10
5-Nitro-o-toluidine	i	_	<	410	<	420	<	410	<	41
7,12-Dimethylbenz(a)anthracene			<	410	<	420	<	410	<	41
Acenaphthene	4,700,000	170,000,000	<	410	<	420	<	410	<	41
Acenaphthylene	6,900,000	170,000,000	<	410	<	420	<	410	<	41
Acetophenone	1,000,000	10,000,000	<	410	<	420	<	410	<	41
alpha,alpha-Dimethylphenethylamine	. –	-	<	84,000	<	85,000	<	84,000	<	83,0
Aniline	580	53,000	<	410	<	420	<	410	<	41
Anthracene	350,000	190,000,000	<	410	<	420	<	410	<	41
Aramite, Total			<	410	<	420	<	410	<	41
Benzo(a)anthracene	320,000	110,000	<	410	~	420	{	410	<	41
Benzo(a)pyrene	· · · · · · · · · · · · · · · · · · ·	1	<		ı					
	46,000	11,000		410	 	420	 	410	<	41
Benzo(b)fluoranthene	170,000	110,000	 <	410	<	420	 <	410	<	41
Benzo(g,h,i)perylene	180,000	170,000,000	1	58J	-	38J	<	410		29
Benzo(k)fluoranthene	610,000	1,100,000	<	410	<	420	<	410	1.	40
Benzyl alcohol	3,100,000	10,000,000	<	410	<	420	<	410	<	41
bis(2-Chloroethoxy)methane	-		<	410	<	420	<	410	<	41



•	_	PADEP Act 2 MSCs(b)	PADEP Act 2 MSCs		Τ				
	Sample ID:	Soil-to-Groundwater Pathway	Direct Contact,	TF-5 (0-2)		F-6 (0-2)	TF-7 (0-2)		TF-8 (0-2
arameter	Sample Date:	Used Aquifers, TDS<2,500	Non-Residential	12/8/2003	1:	2/8/2003	12/12/2003	12	2/12/200
emivolatile Organic Compounds cont'd. (ug/kg)		Non-Residential	0 - 2 feet		1			1	
bis(2-Chloroethyl)ether		55	6000	470	+	400		├ -	
bis(2-Ethylhexyl)phthalate		130,000	5,000	< 410 580B	<	420	< 410	<	410
Butylbenzylphthalate		10,000,000	5,700,000	1	<	580B	< 410 < 410	<	410
Chrysene		230,000	10,000,000	< 410 < 410	<	420		<	410
Cresel (ortho)		510,000	11,000,000	< 410	<	420 420		 	410
Cresol, m & p		51,000	10,000,000	< 410	~			<	410
Diallate, Total		1,000	14,000,000	< 410	<	420		 	410
Dibenzo(a,h)anthracene		160,000	93,000		<	420		<	410
Dibenzofuran		100,000	11,000	58J < 410	<	420	< 410 < 410	 <.	
Diethylphthalate		500,000	10.000.000			420		<	410
Dimethoate		*	10,000,000		<	420	< 410	<	410
Dimethylphthalate		2,000	560,000	< 410	<	420	< 410	<	410
Di-n-butylphthalate		4 100 000	-	< 410	<	420	< 410	 <	410
Di-n-octylphthalate		4,100,000	10,000,000	< 410	<	420	< 410	<	410
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		10,000,000	10,000,000	< 410	<	420	< 410	<	410
Disulfoton		700	2,800,000	< 410	<	420	< 410	<	410
Ethyl methanesulfonate		78	7,600	< 410	<	420	< 410	<	410
•				< 410	<	420	< 410	<	410
Ethyl parathion (Parathion)		360,000	10,000,000	< 410	<	420	< 410	<	410
Famphur			-	< 410	<	420	< 410	<	410
Fluoranthene		3,200,000	110,000,000	< 410	<	420	< 410	<	410
Fluorene		3,800,000	110,000,000	< 410	<	420	< 410	<	410
Hexachlorobenzene		960	50,000	< 410	<	420	< 410	<	410
Hexachlorobutadiene		1,200	560,000	< 410	<	420	< 410	<	410
Hexachlorocyclopentadiene		91,000	10,000,000	< 410	<	420	< 410	<	410
Hexachloroethane		560	2,800,000	< 410	<	420	< 410	<	410
Hexachlorophene		-		< 210,000	<	220,000	< 210,000	<	210,0
Hexachloropropene			_	< 410	<	420	< 410	<	410
Indeno(1,2,3-cd)pyrene		28,000,000	110,000	53J		30J	< 410	ı	241
Isophorone		10,000	10,000,000	< 410	<	420	< 410	<	410
Isosafrole			, <u>'</u>	< 410	<	420	< 410	<	410
m-Dinitrobenzene		100	280,000	< 410	<	420	< 410	<	410
Methapyrilene		-		< 84,000	<	85,000	< 84,000	<	83,00
Methyl methanesulfonate	İ	2,600	800,000	< 410	<	420	< 410	<	410
Methyl parathion		420	48,000	< 410	<	420	< 410	<	410
Naphthalene		25,000	56,000,000	< 410	<	420	< 410	<	410
Nitrobenzene		5,100	1,400,000	< 410	<	420	< 410	2	
N-Nitrosodiethylamine		1.3	38	< 410	<	420	< 410	<	410
N-Nitrosodimethylamine		1.3	120	< 410	<	420	< 410	<	410
N-Nitrosodi-n-butylamine	:	14	15,000	< 410	<	420		<	410
n-Nitrosodi-n-propylamine		37	l '	< 410	<		1		410
N-Nitrosodiphenylamine			. 11,000	l.		420		 <	410
N-Nitrosomethylethylamine		83,000	16,000,000	< 410	<	420	< 410	<	410
N-Nitrosomethylethylamine N-Nitrosomorpholine		 ,	_	< 410	<	420	< 410	<	410
		_	_	< 410	<	420	< 410	 <	410
N-Nitrosopiperidine				< 410	<	420	< 410	<	
N-Nitrosopyrrolidine		-	_	< 410	<	420	< 410	<	410
O,O,O-Triethyl phosphorothioate			-	< 410	<	420	< 410	<	
o-Toluidine		1,200	330,000	< 410	<	420	< 410	<	410
p-(Dimethylamino)azobenzene		150	17,000	< 410	<	420	< 410	<	41
Pentachlorobenzene		660,000	2,200,000	< 410	<	420	< 410	<	41
Pentachloronitrobenzene		20,000	310,000	< 410	<	420	< 410	<	41
Pentachlorophenol		5,000	660,000	< 2,100	<	2,200	< 2,100	<	2,10
Phenacetin		120,000	36,000,000	< 410	<	420	< 410	<	
Phenanthrene		10,000,000	190,000,000	< 410	<	420	< 410	<	
Phenol		400,000	190,000,000	< 410	<	420	< 410	<	
Phorate		880	37,000	< 410	<	420	< 410	[<	-
Pronamide		5,000	190,000,000	< 410	<	420	< 410	<	
Рутепе		-2,200,000	84,000,000	< 410	<	420	< 410	1	32.
Pyridine		2,000	190,000	< 410	<	420	< 410		
						4/11	·~ 4111	15	410
			1,70,000		1				
Safrole Sulfotepp (Tetraethyl dithiopyrophosphate)		 1,500	92,000	< 410 < 410	< <	420 420	< 410 < 410	< <	410



Sample ID: Sample Date: Parameter		PADEP Act 2 MSCs Direct Contact, Non-Residential 0 - 2 feet		?-5 (0-2) 2/8/2003	ı	7-6 (0-2) 2/8/2003	ı	-7 (0-2) /12/2003		F-8 (0-2) /12/2003
Inorganics (mg/kg) ^(q)			1				l		1	
Antimony	27	1,100	<	2.2	<	2.4	<	2.2	<	2.2
Arsenic	150	· 53	l	13L		14L	l	10	1	11
Barium	8,200	190,000		160	1	99	1	74	1	64
Beryllium	320	5,600	1	1.4		0.9		0.86		0.72
Cadmium	38	210	1	0.54B	l	0.24B	<	0.56	<	0.56
Chromium .	190,000	190,000	ł	27K	l	27K		28	ł	25
Cobalt	200	56,000		10K		9.5K		12		8.7
Copper	36,000	100,000		31		25		25	1	22
Lead	450	1,000		20L	l	18L	1	15L	i	16L
Mercury	10	840		0.044		0.068	1	0.039		0.062K
Nickel	650	56,000		33	1	17		22		19
Selenium	26	14,000	<	1.1K	<	1.2R	<	1.1	<	1.1
Silver	84	14,000	<	1.1	<	1.2	<	1.1	<	1.1
Thallium	14	200	<	1,1L	<	1.2L	<	1.1L	<	1.1L
Tin	6,100	190,000		1.8B		2.6B		2.3B		2.4B
Vanadium	72,000	20,000	1	39		40		37		36
Zinc	12,000	190,000	1	77		64		70		63

Parameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil-to-Groundwater Pathway Used Aquifers, TDS<2,500 Non-Residential	PADEP Act 2 MSCs Direct Contact, Non-Residential 0 - 2 feet		-1 (0-2) /4/2003		2-2 (0-2) 1/4/2003		UP-4 (0-2) 12/4/2003		9-5 (0-2) 11/2003
Volatile Organic Compounds (ug/kg) (0)											
1,1,1,2-Tetrachloroethane		18,000	3,100,000	<	5.9	<	5.5	<	6	<	3.9
1,1,1-Trichloroethane		20,000	10,000,000	<	5.9	<	5.5	<	. 6	<	3.9
I, I, 2, 2-Tetrachloroethane		30	28,000	<	5.9	<	5.5	<	6	<	3.9
1,1,2-Trichloroethane		500	100,000	<	5.9	<	5.5	<	6	<	3.9
I,1-Dichloroethane		11,000	1,000,000	<	5.9	<	5.5	<	6	<	3.9
I,1-Dichloroethene		700	33,000	<	5.9	<	5,5	<	6	<	3.9
1,2,3-Trichloropropane		400,000	820	<	5.9	<	5.5	<	. 6	<	3.9
1,2,4-Trimethylbenzene		20,000	320,000	-	5.8J	-	8.6	ľ	710	<	3.9
1,2-Dibromo-3-chloropropane		20	11,000	<	12	<	• 11	<	12	<	7.8
1.2-Dibromoethane (EDB)		5	930	<	5.9	<	5.5	<	6	<	3,9
1,2-Dichloroethane		500	63,000	<	5.9	<	5.5	<	6	<	3.9
1,2-Dichloropropane		500	160,000	<	5.9	<	5.5	<	6	~	3.9
1,3,5-Trimethylbenzene		6,200	320,000	1	3.6J	1	6,4	Ι.	150	<	3.9
· · · · · · · · · · · · · · · · · · ·		•	· ·	l.		_		١.		1	
2-Butanone (Methyl ethyl ketone)		580,000	10,000,000	<	30	<	28	<	30	<	19
2-Hexanone		_(c)		<	30	<	28	<	30	<	19
3-Chloropropene (Allylchloride)		4,100	370,000	<	5,9	<	5.5	<	6	<	3.9
4-Methyl-2-pentanone (MIBK)		410,000	4,300,000	<	30	<	28	<	30	<	19
Acetone		1,000,000	10,000,000	<	59	1	32J		41J	ŀ	22J
Acetonitrile		35,000	3,200,000	<	240	<	220	<	240	<	160
Acrolein (Propenal)		12	1,100	<	120	<	110	<	120	<	78
Acrylonitrile		270	24,000	<	120	<	110	<	120	<	78
Benzene		500	210,000	<	5.9	<	5.5		2.6J	<	. 3,9
Bromodichloromethane		10,000	45,000	<	5.9	<	5.5	<	6	<	3.9
Bromoform		10,000	1,500,000	<	5.9	<	5.5	<	6	<	3.9
Bromomethane (Methyl Bromide)		1,000	270,000	<	5.9	<	5.5	<	6	<	3.9
Carbon disulfide		410,000	10,000,000	<	5.9	<	5.5	1	2.4J	<	3.9
Carbon tetrachloride		500	110,000	 < .	5.9	<	5.5	<	6	<	3.9
Chlorobenzene		10,000	10,000,000	1	1.7J	1	1.7J	<	6 -	<	3.9
Chloroethane		90,000	10,000,000	<	5.9	<	5,5	<	6	<	3.9
Chloroform		10,000	17,000	<	5.9	<	5.5	<	6	<	3.9
Chloromethane (Methyl Chloride)		300	920,000	<	5.9	<	5.5	<	6	<	3.9
Chloroprene		4,100	370,000	<	5,9	<	5.5	<	6	<	3.9
cis-I,2-Dichloroethene		7,000	1,900,000	<	5.9	<	5.5	<	6	<	3.9
cis-1,3-Dichloropropene		2,600	410,000	<	5,9	<	5.5	<	6	<	3.9
Dibromochloromethane		_		<	5.9	<	5.5	<	6	<	3.9
Dibromomethane (Methylene bromide)		20,000	1,900,000	<	5.9	<	5.5	<	6	<	3.9
Dichlorodifluoromethane		100,000	10,000,000	<	5.9	<	5.5	<	6	<	3.9
Ethyl methacrylate		180,000	190,000,000	<	5.9	<	5.5	<	6	<	3.9
Ethylbenzene		70,000	10,000,000	1	1.3J	<	5.5		400	<	3.9
Iodomethane (Methyl iodide)		-		<	5.9	<	5.5	<	6	<	3.9
Isobutanol (Isobutyl alcohol)		610,000	10,000,000	<	240	<	220	<	240	<	160
Methacrylonitrile		410	37,000	<	120		110	<	120	<	78
Methyl methacrylate		410,000	10,000,000	<	5.9	<	5.5	{	6	<	3.9
Methylene chloride (Dichloromethane)		500	920,000	~	5.9	<	5.5	{	6	<	3.9
Pentachloroethane]	520,000	<	30	<	28	<	30	<	19
Propionitrile		_		<	120	<	110	{	120	<	78
Styrene		24,000	10,000,000	<	5.9	<	5.5	1	3.5J	<	3.9
Tetrachloroethene		500	1,500,000	1	1,8J	1	1,9J	<	6	<	3.9
Toluene		1	1	<		1_		1		1	
		100,000	10,000,000		5.9	<	5.5	1.	2.4J	<	3.9
trans-1,2-Dichloroethene		10,000	3,700,000	<	5.9	\	5.5	\	6	<	3.9
trans-1,3-Dichloropropene		2,600	410,000	<	5.9	<	5.5	\	6	<	3.9
trans-1,4-Dichloro-2-butene		7	190,000,000	<	12	<	11	<		<	7.8
Trichloroethene		500	970,000	Ι.	4.2	1.	4.63	<	_	<	3.9
Trichlorofluoromethane				<	5.9	<		- <	_	<	3.9
Vinyl acetate		120,000	10,000,000	<	12	<	11	<		<	7.8
Vinyl chloride		200	53,000	<	5.9	<		<	-	<	3.9
Xylenes, Total		1,000,000	10,000,000		5.2J		6. <u>6</u> J	\perp	59	<	7.8



	PADEP Act 2 MSCs(b)	PADEP Act 2 MSCs	_							
Sample ID;	Soil-to-Groundwater Pathway	Direct Contact,	lιπ	P-1 (0-2)	וז	P-2 (0-2)		UP-4 (0-2)	112	P-5 (0-2
Sample Date:	Used Aquifers, TDS<2,500	Non-Residential		/4/2003		2/4/2003	1	12/4/2003		/I 1/200:
Parameter	Non-Residential	0 - 2 feet	**	7472003	^	21412000		12/4/2003	12	11/200
Semivolatile Organic Compounds (ug/kg)	Tron-acsidential	0 - 2 1000	\vdash		┝				├	
1,2,4,5-Tetrachlorobenzene	14,000	840,000	7	420	7	420	7	420	-	250
1,2,4-Trichlorobenzene	27,000	10,000,000	<	420	<	420	<			350
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000		<	420	<		<	420		350
1,3,5-Trinitrobenzene		10,000,000	<	420	<	420 420	<	420	<	350
1,3-Dichlorobenzene (m-Dichlorobenzene)	61,000	***	<					420	<	350
1,4-Dichlorobenzene (p-Dichlorobenzene)	· -	10,000,000		420	<	420	<	420	<	350
1,4-Dioxane	10,000	3,300,000	<	420	<	420	<	420	<	350
1,4-Naphthoquinone	2,400	210,000	<	420	<	420	<	420	<	350
,	_	-	<	420	<	420	<	420	<	350
1.4-Phenylenediamine (p-Phenylenediamine)			<	2,200	<	2,200	<	2,200	<	1,80
1-Naphthylamine	1,100	44,000	<	420	<	420	<	420	<	350
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000	160,000 .	<	420	<	420	<	420	<	350
2,3,4,6-Tetrachlorophenol	950,000	84,000,000	<	420	<	420	<	420	<	350
2,4,5-Trichlorophenol	6,100,000	190,000,000	<	420	<	420	<	420	<	350
2,4,6-Trichlorophenol	8,900	840,000	<	420	<	420	<	420	<	350
2,4-Dichlorophenol	2,000	8,400,000	<	420	<	420	<	420	<	350
2,4-Dimethylphenol	200,000	10,000,000	<	420	<	420	<	420	<	350
2,4-Dinitrophenol	4,100	5,600,000	<	2,200	<	2,200	<	2,200	<	1,80
2,4-Dinitrotoluene	840	260,000	<	420	<	420	<	420	<	350
2,6-Dichlorophenol	_		<	420	<	420	<	420	<	350
2,6-Dinitrotoluene	10,000	2,800,000	<	420	<	420	<	420	~	350
2-Acetylarninofluorene	280	21,000	<	420	<	420	<	420	<	
2-Chloronaphthalene	18,000,000	190,000,000	<	420	<	420	<		<	350
2-Chlorophenol	4,400		<		<		<	420		350
2-Methylnaphthalene	8,000,000	920,000		420		420	`	420	<	350
2-Naphthylamine	1	10,000,000	١.	42J	<	420	١.	750	l	58J
2-Nitroaniline (o-Nitroaniline)	140	44,000	<	420	<	420	<	420	<	350
2-Nitrophenol (o-Nitrophenol)	580	160,000	<	2,200	<	2,200	<	2,200	<	1,80
2-Picoline	82,000	22,000,000	<	420	<	420	<	420	<	350
	_ 	_	<	420	<	420	<	420	 <	350
3,3'-Dichlorobenzidine	32,000	180,000	<	850	<	850	<	840	<	710
3,3'-Dimethylbenzidine	1,500	8,600	<	2,200	<	2,200	<	2,200	<	1,80
3-Methylcholanthrene		_	<	420	<	420	<	420	<	350
3-Nitroaniline (m-Nitroaniline)	580	160,000	<	2,200	<	2,200	<	2,200	<	1,80
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)			<	2,200	<	2,200	<	2,200	<	1,80
4-Aminobiphenyl	12	3,800	<	420	<	420	<	420	<	350
4-Bromophenylphenyl ether	_		<	420	<	420	<	420	<	350
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	14,000,000	<	420	<	420	<	420	<	350
4-Chloroaniline (p-Chloroaniline)	52,000	11,000,000	<	850	<	850	<	840	<	710
4-Chlorophenylphenyl ether			<	420	<	420	<	420	<	350
4-Nitroaniline (p-Nitroaniline)	580	160,000	<	2,200	<	2,200	<	2,200	<	1,80
4-Nitrophenol (p-Nitrophenol)	6,000	22,000,000	<	2,200	<	2,200	<	2,200	<	1,80
4-Nitroquinoline-I-oxide		22,000,000	<	4,200	<	4,200	<	4,200	<	
5-Nitro-o-toluidine			<	420	<		<		•	3,50
7,12-Dimethylbenz(a)anthracene	Ī	_	<	420	<	420	<	420	1	350
Acenaphthene	4,700,000	170 000 000	<		<	420	`	420	<	350
Acenaphthylene	1 ' '	170,000,000		420		420	L	89J	<	350
Acetophenone	6,900,000	170,000,000	<	420	<	420	<	420	<	350
	1,000,000	10,000,000	<	420	<	420	<	420	<	350
alpha,alpha-Dimethylphenethylamine			<	86,000	<	86,000	<	85,000	<	72,00
Aniline	580	53,000	<	420	<	420	<	420	<	350
Anthracene	350,000	190,000,000	<	420	<	420	<	420	<	350
Aramite, Total	-	_	<	420	<	420	<	420	<	350
Benzo(a)anthracene	320,000	110,000	1	54J	<	420	ľ	47J	<	350
Benzo(a)pyrene	46,000	11,000	1	76J	<	420	<	420	<	350
Benzo(b)fluoranthene	170,000	110,000	1	100	<	420	<	420	<	350
Benzo(g,h,i)perylene	180,000	170,000,000		63J	<		1	503	<	350
Benzo(k)fluoranthene	610,000	1,100,000	<	420	<	420	1	353	<	350
Benzyl alcohol	3,100,000	10,000,000	<	420	<	420	<	420	-	350
bis(2-Chloroethoxy)methane			<	420	<		<	420	<	350



305/T3_xls

rameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil-to-Groundwater Pathway Used Aquifers, TDS<2,500 Non-Residential	PADEP Act 2 MSCs Direct Contact, Non-Residential 0 - 2 feet		P-1 (0-2) 2/4/2003		P-2 (0-2) 2/4/2003		UP-4 (0-2) 12/4/2003		-5 (0- 11/20
mivolatile Organic Compounds cont'd. (ug/kg)				_							
bis(2-Chloroethyl)ether		55	5,000	<	420	<	420	<	420	٧	350
bis(2-Ethylhexyl)phthalate		130,000	5,700,000	<	420		59J	<	. 420		160J
Butylbenzylphthalate		10,000,000	10,000,000	<	420	<	420	<	420	<	350
Chrysene		230,000	11,000,000	l	82B	<	420		70B	<	350
Cresol (ortho)		510,000	10,000,000	<	420	<	420	<	420	<	350
Cresol, m & p		51,000	14,000,000	<	420	<	420	<	420	<	350
Diallate, Total		1,000	93,000	<	420	<	420	<	420	<	350
Dibenzo(a,h)anthracene		160,000	11,000	<	420	<	420	<	420	<	350
Dibenzofuran			_	<	420	<	420	<	420	<	350
Diethylphthalate		500,000	10,000,000	<	420	<	420	<	420	<	350
Dimethoate		2,000	560,000	<	420	<	420	<	420	2	350
Dimethylphthalate				<	420	<	420	<	420	/ V	
Di-n-butylphthalate		4,100,000	10,000,000	<	420	<	420	<			350
Di-n-octylphthalate		10,000,000	• •	<		'			420	<	350
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)			10,000,000	ı	420		420	<	420	<	350
Disulfoton		700	2,800,000	<	420	<	420	<	420	<	35
Insultation Ethyl methanesulfonate		78	7,600	<	420	<	420	<	420	<	35
	,		-	<	420	<	420	<	420	<	35
Ethyl parathion (Parathion)		360,000	10,000,000	<	420	<	420	<	420	<	35
amphur		_		<	420	<	420	<	420	<	35
luoranthene		3,200,000	110,000,000		74J	<	420		120J	<	35
Fluorene		3,800,000	110,000,000	<	420	<	420		110J	<	35
-lexachlorobenzene		960	50,000	<	420	<	420	<	420	<	35
lexachiorobutadiene		1,200	560,000	<	420	<	420	<	420	<	35
lexachlorocyclopentadiene		91,000	10,000,000	<	420	<	420	<	420	<	35
lexachloroethane		560	2,800,000	<	420	<	420	<	420	<	35
lexachlorophene			2,000,000	<	220,000	<	220,000	<	220,000		
lexachloropropene				~	420	<	420	~			180,0
ndeno(1,2,3-cd)pyrene		28,000,000	110,000	l`		~		`	420	<	35
sophorone		' '	110,000	L	43J		420	١.	42J	<	35
sosafrole		10,000	10,000,000	<	420	<	420	<	420	<	35
n-Dinitrobenzene		.7.		<	420	<	420	<	420	<	35
		100	280,000	<	420	<	420	<	420	<	35
Methapyrilene			-	<	86,000	<	86,000	<	85,000	<	72,0
Methyl methanesulfonate		2,600	800,000	<	420	<	420	<	420	<	35
Methyl parathion		420	48,000	<	420	<	420	<	420	<	35
laphthalene		25,000	56,000,000		320J	<	420		5,500		300
Vitrobenzene		5,100	1,400,000	<	420	<	420	<	420	<	35
V-Nitrosodiethylamine		1.3	38	<	420	<	420	l<	420	<	35
I-Nitrosodimethylamine		1.3	120	<	420	<	420	<	420	<	35
i-Nitrosodi-n-butylarnine		14	15,000	<	420	<	420	<	420	<	35
-Nitrosodi-n-propylamine		37	11,000	<	420	<	420	<	420	<	
N-Nitrosodiphenylamine		83,000	16,000,000	<	420	<	420	<		<	35
N-Nitrosomethylethylamine			20,000,000	<	420	~	420	<	420		35
N-Nitrosomorpholine				<		<		<	420	<	35
i-Nitrosopiperidine		_		<	420	<	420	1	420	<	35
N-Nitrosopyrrolidine		-	. –		420		420	<	420	<	35
		_		<	420	<	420	<	420	<	35
),O,O-Triethyl phosphorothioate			-	<	420	<	420	<	420	<	35
-Toluidine		1,200	330,000	<	420	<	420	<	420	<	35
-(Dimethylamino)azobenzene		150	17,000	<	420	<	420	<	420	<	35
entachlorobenzene		660,000	2,200,000	<	420	<	420	<	420	<	35
entachloronitrobenzene		20,000	310,000	<	420	<	420	<	420	<	35
entachlorophenol		5,000	660,000	<	2,200	<	2,200	<	2,200	<	1,80
henacetin		120,000	36,000,000	<	420	<	420	<	420	<	35
Phenanthrene		10,000,000	190,000,000	<	420	<	420	<	420	<	35
Phenol		400,000	190,000,000	<	420	<	420	<	420	<	35
Phorate		880	37,000	<	420	<	420	<		~	
Pronamide		5,000	190,000,000	<	420	<	420	<	420		35
Pyrene		2,200,000		`				`	420	٧.	35
Pyridine			84,000,000	_	67J	<	420	_	150J	<	35
		2,000	190,000	<	420	<	420	<	420	<	35
?afrala		i				ı		1			
Safrole Sulfotepp (Tetraethyl dithiopyrophosphate)		 I,500	 92,000 ·	< <	420 420	< <	420 420	< <	420 420	٧ ٧	35



TABLE 5 SUMMARY OF SURFACE SOIL ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED JEFFERSON PLANT

OPLY PROOL LIMIN	
WEST ELIZABETH, PENNSYLVAN	LA

Parameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil-to-Groundwater Pathway Used Aquifers, TDS<2,500 Non-Residential	PADEP Act 2 MSCs Direct Contact, Non-Residential 0 - 2 feet		P-1 (0-2) 2/4/2003		P-2 (0-2) 2/4/2003		UP-4 (0-2) 12/4/2003		P-5 (0-2) /11/2003
Inorganics (mg/kg) (a)				į		<u> </u>		1			
Antimony		27	1,100	<	2.3	<	2.4	<	2.5		0.8L
Arsenic		150	. 53		8.7L		9.5L	1	8.4L		3K
Barium		8,200	190,000		130		580	1	180		210K
Beryllium		320	5,600		1.1		1.9	ŀ	1.8	ŀ	4.4K
Cadmium		38	210		0.12B	<	0.59	<	0.61		0.24J
Chromium		190,000	190,000		38L		33K		27K		21
Cobalt	•	200	56,000	1	7.3K		28K	1	15K		2.4
Copper		36,000	100,000		20		32	1	31		18
Lead		450	1,000	ı	IIL		33	1	31 32L	i	
Mercury		10	840	1	0.035K		0.17	1]	7.1L
Nickel		650	56,000	ı	21		36	1	0.038	1	0.27L
Selenium		26	· ·	١.				1	29	i	11
Silver			14,000	<	1.2R	<	5.9L	<	1.2	ŀ	0.95L
		84 ·	14,000	<	1.2	<	1.2	<	1.2	<	1
Thallium		14	200	<	1.2L	<	5.9	<	1.2L	<	1
Tin		6,100	190,000		2.4B		2B	l	2.6B		2.5B
Vanadium		72,000	20,000	1	39	1	30	l	30		11B
Zinc		12,000	190,000		67J	Į į	100J	l	93J		42

Parameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil-to-Groundwater Pathway Used Aquifers, TDS<2,500 Non-Residential	PADEP Act 2 MSCs Direct Contact, Non-Residential 0 - 2 feet	V-1 (0-2) 12/5/2003		3 (0-2) 5/2003
Volatile Organic Compounds (ug/kg) (a)		110B-Residential	0 - 7 1661			
1,1,1,2-Tetrachloroethane		18,000	3,100,000	<6.3/<5.8 ^(k)	<	5.6
1,1,1-Trichloroethane		20,000	10,000,000	<6.3/<5.8	~	5.6
1,1,2,2-Tetrachloroethane		30	28,000	<6.3/<5.8	<	5.6
I, I, 2-Trichloroethane		500	100,000	<6.3/<5.8	>	5.6
1,1-Dichloroethane		11,000	1,000,000	<6.3/<5.8	<	5.6
I,1-Dichloroethene		700		<6.3/<5.8	<	5.6
1,2,3-Trichloropropane		400,000	33,000 820		>	
1,2,4-Trimethylbenzene		20,000	320,000	<6.3/<5.8 2.2J/1.8J		5.6
1,2-Dibromo-3-chloropropane		20,000	11,000	<13/<11	<	11
1,2-Dibromoethane (EDB)	•	5	930	<6.3/<5.8	<	11 5.6
1,2-Dichloroethane		500	63,000	<6.3/<5.8	<	5.6
1,2-Dichloropropane		500	160,000	<6,3/<5,8		
1,3,5-Trimethylbenzene		6,200		<6.3/<5.8	1	5.6 8.7
		<u>-</u>	320,000			
2-Butanone (Methyl ethyl ketone)		580,000	10,000,000	<32/<28	<	28
2-Нехалопе		(c)		<32/<28	<	28
3-Chloropropene (Allylchloride)	-	4,100	370,000	<6.3/<5.8	<	5.6
4-Methyl-2-pentanone (MIBK)		410,000	4,300,000	<32/<28	<	28
Acetone		1,000,000	10,000,000	513/393	 <	56
Acetonitrile		35,000	3,200,000	<250/<220	<	220
Acrolein (Propenal)		12	1,100	<130/<110	<	110
Acrylonitrile		270	24,000	<130/<110	<	110
Benzene		500	210,000	<6.3/<5.8	<	5.6
Bromodichloromethane		10,000	45,000	<6.3/<5.8	<	5.6
Bromoform		10,000	1,500,000	<6.3/<5.8	<	5.6
Bromomethane (Methyl Bromide)		1,000	270,000	<6.3/<5.8	<	5.6
Carbon disulfide		410,000	10,000,000	<6.3/<5.8	<	5.6
Carbon tetrachloride		500	110,000	<6.3/<5.8	<	5.6
Chlorobenzene		10,000	10,000,000	<6,3/<5,8	İ	1,5
Chloroethane		90,000	10,000,000	<6.3/<5.8	<	5.6
Chloroform		10,000	17,000	<6.3/<5.8	< `	5.6
Chloromethane (Methyl Chloride)		300	920,000	<6.3/<5.8	<	5.6
Chloroprene		4,100	370,000	<6.3/<5.8	<	5,6
cis-1,2-Dichloroethene		7,000	1,900,000	<6.3/<5.8	<	5.6
cis-1,3-Dichloropropene		2,600	410,000	<6.3/<5.8	<	5.6
Dibromochloromethane			_	<6.3/<5.8	<	5.6
Dibromomethane (Methylene bromide)		20,000	1,900,000	· <6.3/<5.8	<	5.6
Dichlorodifluoromethane		100,000	10,000,000	<6.3/<5.8	<	5.6
Ethyl methacrylate		180,000	190,000,000	<6.3/<5.8	<	5.6
Ethylbenzene		70,000	10,000,000	<6.3/<5.8		2.11
Iodomethane (Methyl iodide)		_		<6.3/<5.8	<	5.6
Isobutanol (Isobutyl alcohol)		610,000	10,000,000	<250/<220	<	220
Methacrylonitrile		410	37,000	<130/<110	<	110
Methyl methacrylate		410,000	10,000,000	<6.3/<5.8	<	5.6
Methylene chloride (Dichloromethane)		500	920,000	<6.3/<5.8	<	5.6
Pentachloroethane		· -	-	<32/<28	<	28
Propionitrile		-	-	<130/<110	<	110
Styrene		24,000	10,000,000	<6.3/<5,8	<	5.6
Tetrachloroethene		500	1,500,000	<6.3/<5.8	<	5.6
Toluene		100,000	10,000,000	<6,3/<5,8	1	2,2
trans-1,2-Dichloroethene		10,000	3,700,000	<6.3/<5.8	<	5.6
trans-1,3-Dichloropropene		2,600	410,000	<6.3/<5.8	<	5.6
trans-1,4-Dichloro-2-butene		7	190,000,000	<13/<11	<	11
Trichloroethene		500	970,000	<6.3/<5.8		5.3
Trichlorofluoromethane		!		<6.3/<5.8	<	5.6
Vinyl acetate		120,000	10,000,000	<13/<11	<	11
Vinyl chloride		200	53,000	<6.3/<5.8	<	5.6
Xylenes, Total		1,000,000	10,000,000	<13/<11	1	6.1



TABLE 5 SUMMARY OF SURFACE SOIL ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED

JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

Sample ID Sample Date Parameter		PADEP Act 2 MSCs Direct Contact, Non-Residential 0 - 2 feet	V-1 (0-2) 12/5/2003	V-3 (0-2 12/5/200
Semivolatile Organic Compounds (ug/kg)				
1,2,4,5-Tetrachlorobenzene	14,000	840,000	<430/<440	< 2,000
1,2,4-Trichlorobenzene	27,000	10,000,000	<430/<440	< 2,000
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000	. 10,000,000	<430/<440	< 2,00
1,3,5-Trinitrobenzene			<430/<440	< 2,00
1,3-Dichlorobenzene (m-Dichlorobenzene)	61,000	10,000,000	<430/<440	< 2,00
1,4-Dichlorobenzene (p-Dichlorobenzene)	10,000	3,300,000	<430/<440	< 2,00
1,4-Dioxane	2,400	210,000	<430/<440	< 2,00
1,4-Naphthoquinone			<430/<440	< 2,00
1,4-Phenylenediamine (p-Phenylenediamine)	_		<2,200/<2,300	< 10,00
1-Naphthylamine	1,100	44,000	<430/<440	< 2,00
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyi)ether]	30,000	160,000	<430/<440	< 2,00
2,3,4,6-Tetrachlorophenol	950,000	84,000,000	<430/<440	< 2,00
2,4,5-Trichlorophenol	6,100,000	190,000,000	<430/<440	< 2,00
2,4,6-Trichlorophenol	8,900	840,000	<430/<440	< 2,00
2,4-Dichlorophenol	2,000	8,400,000	<430/<440	< 2,00
2,4-Dimethylphenol	200,000	10,000,000	<430/<440	< 2,00
2,4-Dinitrophenol	4,100	5,600,000	<2,200/<2,300	< 10,0
2,4-Dinitrotoluene	840	260,000	<430/<440	< 2,00
2,6-Dichlorophenol			<430/<440	< 2,00
2,6-Dinitrotoluene	10,000	2,800,000	<430/<440	< 2,00
2-Acetylaminofluorene	280	21,000	<430/<440	< 2,00
2-Chloronaphthalene	18,000,000	190,000,000	<430/<440	< 2,00
2-Chlorophenol	4,400	920,000	<430/<440	< 2,0
2-Methylnaphthalene	8,000,000	10,000,000	<430/<440	270
2-Naphthylamine	140	44,000	<430/<440	< 2,0
2-Nitroaniline (o-Nitroaniline)	580	160,000	<2,200/<2,300	< 10,0
2-Nitrophenol (o-Nitrophenol)	82,000	22,000,000	<430/<440	< 2,00
2-Picoline	82,000	22,000,000	<430/<440	< 2,00
3,3'-Dichlorobenzidine	32,000	180,000	<870/<880	< 4,00
3,3'-Dimethylbenzidine	I,500	8,600	<2,200/<2,300	< 10,0
3-Methylcholanthrene	1,500	8,000	<430/<440	< 2,0
3-Nitroaniline (m-Nitroaniline)	580	160,000	<2,200/<2,300	< 10,0
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)		100,000	<2,200/<2,300	< 10,0
4-Aminobiphenyl	12	2 900	<430/<440	
4-Bromophenylphenyl ether	12	3,800	<430/<440	
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	14 000 000	1	
4-Chloroaniline (p-Chloroaniline)	. 110,000	14,000,000	<430/<440	< 2,0° < 4.0°
4-Chlorophenylphenyl ether	52,000	11,000,000	<870/<880	1 '
4-Nitroaniline (p-Nitroaniline)	580	160,000	<430/<440	
4-Nitrophenol (p-Nitrophenol)	6,000	22,000,000	<2,200/<2,300 <2,200/<2,300	< 10,0 < 10,0
4-Nitroquinoline-I-oxide	0,000	22,000,000	1	
5-Nitro-o-toluidine	_	_	<4,300/<4,400	
7,12-Dimethylbenz(a)anthracene	_	-	<430/<440	
	4 700 000	170 000 000	<430/<440	
Acenaphthene Acenaphthylene	4,700,000	170,000,000	<430/<440	< 2,0 < 2,0
Acetophenone	6,900,000	170,000,000	<430/<440 <430/<440	
alpha.alpha-Dimethylphenethylamine	1,000,000	10,000,000	<88,000/<89,000	< 2,0 < 400.
Aniline	580	52,000	<430/<440	< 400, < 2,0
Anthracene	E.	53,000	ł.	
Aramite, Total	350,000	190,000,000	<430/<440	
Benzo(a)anthracene	220,000	110,000	<430/<440.	
Benzo(a)pyrene	320,000	110,000	<430/<440	< 2,0
Benzo(b)fluoranthene	46,000	11,000	<430/<440	< 2,0
``	170,000	110,000	<430/<440	< 2,0
Benzo(g,h,i)perylene	180,000	170,000,000	57J/48J	21
Benzo(k)fluoranthene	610,000	1,100,000	31J/47J	< 2,0
Benzyl alcohol bis(2-Chloroethoxy)methane	- 3,100,000	10,000,000	<430/<440 <430/<440	< 2,0 < 2,0



Parameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil-to-Groundwater Pathway Used Aquifers, TDS<2,500 Nov. Peridential	PADEP Act 2 MSCs Direct Contact, Non-Residential	V-1 (0-2) 12/5/2003	V-3 (0-1 12/5/20
Semivolatile Organic Compounds cont'd. (ug/kg)		Non-Residential	0 - 2 feet		
bis(2-Chloroethyl)ether		55	5,000	<430/<440	< 2,00
bis(2-Ethylhexyl)phthalate		130,000	5,700,000	<430/<440	< 2,00
Butylbenzylphthalate		10,000,000	10,000,000	<430/<440	< 2,00
Chrysene		230,000	11,000,000	44B/52B	< 2,00
Cresol (ortho)	•	510,000	10,000,000	<430/<440	< 2,00
Cresol, m & p		51,000	14,000,000	<430/<440	< 2,00
Diallate, Total		1,000	93,000	<430/<440	< 2,00
Dibenzo(a,h)anthracene		160,000	11,000	48J/<440	< 2,00
Dibenzofuran		_		<430/<440	< 2,00
Diethylphthalate		500,000	10,000,000	<43'0/<440	< 2,00
Dimethoate		2,000	560,000	<430/<440	< 2,00
Dimethylphthalate		:		<430/<440	< 2,00
Di-n-butylphthalate		4,100,000	10,000,000	<430/<440	< 2,00
Di-n-octylphthalate		10,000,000	10,000,000	<430/<440	< 2,00
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		700	2,800,000	<430/<440	< 2,00
Disulfoton		78	7,600	<430/<440	< 2,00
Ethyl methánesulfonate		-	-	<430/<440	< 2,00
Ethyl parathion (Parathion)		360,000	10,000,000	<430/<440	< 2,00
Famphur		_	- ·	<430/<440	< 2,00
Fluoranthene		3,200,000	110,000,000	70J/86J	< 2,00
Fluorene		3,800,000	110,000,000	<430/<440	< 2,00
Hexachlorobenzene		960	50,000	<430/<440	< 2,00
Hexachlorobutadiene		1,200	560,000	<430/<440	< 2,00
Hexachlorocyclopentadiene		91,000	10,000,000	<430/<440	< 2,00
Hexachloroethane		560	2,800,000	<430/<440	< 2,00
Hexachlorophene				<220,000/<230,000	
Hexachloropropene		_	_	<430/<440	< 2,00
Indeno(1,2,3-cd)pyrene		28,000,000	110,000	48J/39J	< 2,00
Isophorone		10,000	10,000,000	<430/<440	< 2,00
Isosafrole		<u>.</u>	-	<430/<440	< 2,00
m-Dinitrobenzene		100	280,000	<430/<440	< 2,00
Methapyrilene			<u>-</u>	<88,000/<89,000	< 400,0
Methyl methanesulfonate		2,600	800,000	<430/<440	< 2,00
Methyl parathion		420	48,000	<430/<440	< 2,00
Naphthalene		25,000	56,000,000	<430/<440	3,40
Nitrobenzene		5,100	1,400,000	<430/<440	< 2,00
N-Nitrosodiethylamine		1,3	38	<430/<440	< 2,00
N-Nitrosodimethylamine		1,3	120	<430/<440	< 2,00
N-Nitrosodi-n-butylamine		14	15,000	<430/<440	< 2,00
n-Nitrosodi-n-propylamine		37	11,000	<430/<440	< 2,00
N-Nitrosodiphenylamine		83,000	16,000,000	<430/<440	< 2,00
N-Nitrosomethylethylamine			_	<430/<440	< 2,00
N-Nitrosomorpholine			_	<430/<440	< 2,00
N-Nitrosopiperidine			_	<430/<440	< 2,00
N-Nitrosopyrrolidine		_		<430/<440	< 2,00
O,O,O-Triethyl phosphorothioate				<430/<440	< 2,00
o-Toluidine		1,200	330,000	<430/<440	< 2,00
p-(Dimethylamino)azobenzene		150	17,000	<430/<440	< 2,00
Pentachlorobenzene		660,000	2,200,000	<430/<440	< 2,01
Pentachloronitrobenzene		20,000	310,000	<430/<440	< 2,0
Pentachlorophenol		5,000	660,000	<2,200/<2,300	< 10,0
Phenacetin		120,000	36,000,000	<430/<440	< 2,0
Phenanthrene		10,000,000	190,000,000	70]/46]	< 2,0
Phenol		400,000	190,000,000	<430/<440	< 2,0
Phorate		880	37,000	<430/<440	< 2,0
Pronamide		5,000	190,000,000	<430/<440	< 2,0
Pyrene		2,200,000	84,000,000	59J/72J	< 2,0
Pyridine		2,000	190,000	<430/<440	< 2,0
Safrole		2,000	- 150,000	<430/<440	< 2,0
Sulfotepp (Tetraethyl dithiopyrophosphate)		1,500	92,000	<430/<440	< 2,0
Thionazin (0,0-Diethyl-O-pyrazinyl phosphorothic	catal	1,500	32,000	<430/<440	< 2,0



TABLE 5 SUMMARY OF SURFACE SOIL ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED

JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

	Sample ID: Sample Date:	· · · · · · · · · · · · · · · · · · ·	PADEP Act 2 MSCs Direct Contact, Non-Residential	V-1 (0-2) 12/5/2003	V-3 (0-2) 12/5/2003
Parameter		Non-Residential	0 - 2 feet	1,3,200	1275,200
Inorganics (mg/kg) ^(a)					
Antimony		27	1,100	1.1J/0.86J	1.5J
Arsenic		150	53	12L/11L	5.6L
Barium		8,200	190,000	140/140	970
Beryllium		320	5,600	1.5/1.2	2.6
Cadmium		38	210	<0.61/	0.44E
Chromium		190,000	190,000	25K/22K	26K
Cobalt	•	200	56,000	14K/13K	11K
Copper		36,000	100,000	27/21	85
Lead		450	1,000	120L/78L	360
Mercury		10	840	0,17/0,081	0.45
Nickel		650	56,000	19/18	18
Selenium		26	14,000	<1.2R/<1.2R	< 2,2
Silver		. 84	14,000	<1.2/<1.2	< 1.1
Thallium	,	, 14	200	<1.2L/<1.2L	< 2.2L
Tin		6,100	190,000	4B/3.7B	11
Vanadium		72,000	20,000	34/36	12
Zinc		12,000	190,000	98/91	120

NOTES:

- a. "ug/kg" is micrograms per kilogram or parts per billion (ppb). "mg/kg" is milligrams per kilogram or parts per million (ppm).
- b. PADEP statewide health, medium specific concentrations (MSCs) for regulated substances in soil (Title 25, PA Code Chapter 250).
- c. "--" indicates an MSC does not exist for this compound,
- d. "<x" indicates the result is less than the method detection limit (MDL).
- e. "J" indicates the value is estimated.
- f. Values shown in bold and shaded indicate an exceedance of the direct soil-to-groundwater MSCs. There are no direct-contact MSC exceedances for surface soils.
- g. "K" indicates the reported value may be biased high. Actual value is expected to be lower.
- h. "L" indicates the reported value is biased low. Actual value is expected to be higher.
- i. "B" indicates not detected substantially above the level reported in the laboratory or field blanks.
- j. "R" indicates the analyte may or may not be present in the sample.
- k. "x/x" indicates a duplicate sample was collected at this location.

TABLE 6
SUMMARY OF SUBSURFACE SOIL RESULTS
ARCADIS GERAGHTY AND MILLER (2000)
HERCULES INCORPORATED
JEFFERSON PLANT
WEST ELIZABETH, PENNSYLVANIA

																		1
Analyte	PADEP MSC Direct Contact Subsurface Soil ⁽⁵⁾ (ng/kg)	PADEP MSC Solt to Groundwater Pattway ^(c) (mg/kg)	SB-F1/MW-F1A		SB-F1/MW-F1B	V-FIB	SB-F2/MW-F2A	V-F2A	SB-	SB-F2/MW-F2B	<u> </u>	SB-F3/MW-F3A	F3A	SB-F3/ MW-F3B	V.F3B		SB-F4/MWD-F1A	FIA
	1	TDS <2.500 mg/L	(3 - 4 ft) ⁽⁴⁾ 10/16/2000		(11 - 12 ft) 10/16/2000	() () ()	(2.5 - 3.5 ft) 10/19/2000	5 ft) 000		(5 - 6 ft) 10/19/2000		(3 - 4 ft) 10/24/2000	-	(13 - 14 ft) 10/24/2000	(£ 00		(6 - 7 ft) 10/23/2000	
Groundwater Depth (feet)		単いて、日本	Sec. 512.		12		8	1		8 ·		16		91			30	
Inorganics (mg/kg) ⁽⁴⁾																		
Antimony	190,000	27	0.62	Ę,	99.0	v ¬.	4.1	§ 5		0.48		0.62	-	0.51	-		0.79	-
Arsenic	000'061	150	8.9		9.8	•	7.0			8.3		2.4		8.2			8.7	
Barium	000'061	8,200	117	<u></u>	87.5	<u>-,</u>	1,180			476		291		120			138	
Beryllium	190,000	320	0.75		0.81		1.5			1.0		6.3		0.83			0.88	
Cadmium	190,000	38	0.14	BO	0.18	y El	: 0.7			0.12 B		0.15	Ω;	0.28	8		0.46	ш
Chromium	190,000 (0	190(1)	13.8		18.2		54.6			. 1.68		18.2		14.9			183	
Cobalt	190,000	200	17.6		12.4		9.4			01		3.2	æ	11.8			14.3	
Copper	000'061	36,000	20.3	_	20.7		10.4			11.6		9.2		14.5			20.8	
Lead	000'061	450	15.8		15.6		5.5			10.7		8.6		13.1			20.1	
Mercury	190,000	01	0.039	щ	0.028	8 B	. 0.14	×	v	0.13 R		960'0	<u>.</u>	0.034	¬		0.051	7
Nickel	190,000	050	23.6		19.7		16.0			17.0		6.1	····	17.6			19.4	
Selenium	190,000	56	< 0.59 [©]		0.39	<u>m</u>	3.3	ш		1.5 B		3.0		0.52	EQ.	v	14.5	
Silver	000'061	84	< 0.59		< 0.62		Ξ.			0.51 B		0.53	<u>v</u>	9"0 >			1.5	
Thallium	000'061	4	< 1.2		Ξ:	v B	: 13.9		v	6.4	v	5.6	¥	< 2.4		v	29.1	
Tin	000'061	901'9	5.1	m	< 12.4	<u>v</u>	13.9		v	12.9	v	11.2	•	< 12.1		٧	23.3	
Vanadium	190,000	72,000	1.61		25.7		8.8			13.3		11.8		20.3			85.9	
Zinc	190,000	12,000	66.4		53.8	_	28.8			41.6	_	33	-	54.5	7		74.0	
Volatile Organics (mg/kg)												;						
Acctone	000'01	1,000	0.0038	_				#.	v	76'0	v	90.0		70.0		v .	60000	
Вепzепе	240	5.0	< 0.0068						v	0.35		0.47	-	-	-, «+ .	v ·	0,0000	
1,1-Dichloroethane	1,200	=	< 0.0068		o:000	<u>-</u>			v	0.35	v	4.	•		_	v	0.000	
cis-1,2-Dichloroethene	2,100	7	< 0.0034		< 0.0030	<u>v</u>	0.21		v	0.17	٧	0.69	•	< 0.0025	ب	v	0.0028	
Ethylbenzene	000'01	70	> 0.0068		< 0.0061	_	3.5			0.3 J		48		0.017	_	v	0,0056	
Tetrachtoroethene	3,300	0.50	< 0.0068		190000 >	<u>v</u>	. 0.42		v	0.35	٧	4.		< 0.005	15	v	0.0056	-
Toluene	10,000	001	> 0.0068		< 0.0061		0.51		v	0.35		33		0.0063	.	v	0.0056	
o-Xylene	10,000(4)	1,000(13)	< 0.0034		< 0.0030	•	13			86'0		45		0.036		v	0.0028	
m-Xylene & p-Xylene	10,000(6)	1,000(1)	< 0.0068		< 0.0061	_	7.6			0.59		70		0.042		٧	0.0056	ļ

TABLE 6	SUMMARY OF SUBSURFACE SOIL RESULTS	ARCADIS GERAGHTY AND MILLER (2000)	HERCULES INCORPORATED	JEFFERSON PLANT	WEST ELIZABETH, PENNSYLVANIA
---------	------------------------------------	------------------------------------	-----------------------	-----------------	------------------------------

		PADEP MSC Soil to								
Analyte	PADEP MSC Direct Contact Subsurface Soil ⁽⁶⁾ (mg/kg)	Groundwater Pathway ^(c) (mg/kg)	SB-FI/MW-FIA	SB-F1/MW-F1B	SB-F2/MW-F2A	SB-F2/MW-F2B	SB-F3/MW-F3A	SB-F3/MW-F3B	SB-F4/MWD-F1A	D-FIA
		TDS <2,500 mg/L	(3 - 4 ft) ⁽⁴⁾ 10/16/2000	(11 - 12 ft) 10/16/2000	(2.5 - 3.5 ft) 10/19/2000	(5 - 6 ft) 10/19/2000	(3 - 4 ft) 10/24/2000	(13 - 14 ft) 10/24/2000	(6 - 7 ft) 10/23/2000	
Groundwater Depth (feet) ⁽⁴⁾		The State of the S	12	2.55.512	8	8		913	30.	
Semivolatile Organics (mg/kg)										
Acenaphthene	000'061	4,700	< 0.39	> 0.41	< 9.2	<i>C</i> :1 >	> 7.4	0.4	0.024	5
Acenaphthylene	190,000	006*9	< 0.39	< 0.41	< 9.2	< 1.7	> 7.4	< 0.4	0.1	7
Anthracene	190,000	350	< 0.39	< 0.41	< 9.2	× 1.7	> 7.4	< 0.4	0.14	
Benzo (a) anthracene	000'061	320	< 0.39	0.033 J	< 9.2	< 1.7	> 7.4	< 0.4	69'0	
Benzo (a) pyrene	000'061	46	< 0.39	< 0.41	> 9.2	7.1 >	> 7.4	> 0.4	0.65	-
Benzo (b) fluoranthene	190,000	170	< 0.39	0.073 J	< 9.2	<i>t</i> :1 >	> 7.4	, 0.4	99'0	-
Benzo (k) fluoranthene	190,000	019	< 0.39	0.048	< 9.2	c 1.7	> 7.4	> 0.4	0.64	
Benzo (ghi) perylene	190,000	081	< 0.39	0.025 J	< 9.2	> 1.7	> 7.4	0.4	0.16	~
bis(2-Ethylhexyl) pluhalate	000'01	130	0.12	0.29 J	0.64	0.55 J	> 7.4	0.064	0.24	,
Butył benzył phthalate	000*01	10,000	< 0.39	< 0.048	< 9.2	< 1.7	> 7.4	> 0.4	< 0.38	_
Chrysene	190,000	230	< 0.39	0.048	< 9.2	< 1.7	> 7.4	. 0,4	99'0	_
Dibenz(a,h)anthracene	190,000	091	< 0.39	< 0.41	< 9.2	< 1.7	> 7.4	> 0.4	< 0.38	
Dibenzofuran	(m)001	0.5 ^(m)	< 0.39	< 0.41	< 9.2	< 1.7	. 7.4	0.4	0.037	ſ
Fluoranthene	190,000	3,200	< 0.39	0.067 J	< 9.2	< 1.7	× 7.4	< 0.4	4.	
Fluorene	000'061	3,800	< 0.39	0.41	< 9.2	< 1.7	> 7.4	> 0.4	0.029	-
Indeno(1,2,3-cd) pyrene	190,000	28,000	< 0.39	< 0.41	< 9.2	< 1.7	A.7. >	> 0.4	0.2	-
2-Methylnaphthalene	000'01	8,000	< 0.39	< 0.41	4.3 J	0.24 J	81//1	< 0,4	0.034	<u> </u>
2-Methylphenol	000'01	510	< 0.39	< 0.41	ĵ,	< 1.7	7.4	> 0.4	< 0.38	
Naphthalene	000'061	25	< 0.39	< 0.41	55	2.4	91 E ⁽¹⁷ /98	0.13 J	0.073	-
· Phenanthrene	000'061	_		<u></u>	> 9.2			> 0.4	9.4	
Phenol	000'061			< 0.41	l.5 J		7.4		× 0.38	
Pyrene	190,000	2,200	< 0.39	0.042 J	< 9.2	< 1.7	< 7.4	> 0.4	190	
Polychlorinated Biphenyls (ug/kg) ^(b)	(u)	(u)				None Detected			,	
Other (mg/kg)										
Hydrocarbons as GRO			< 0.12	< 0.12	006*1	20	1,600	8.7	< 0.12	
Hydrocarbons as DRO			< 12	v 12	3,500 J	160	1,400 J.	. 59	120	
pH (standard units)			5,0	5.6	12.9	12	8.8	5.6	9.5	
Total Organic Carbon			1,130	015,1	5,910	2,820			4,880	
17.1			393	218	4,/90	2,180	3,0/0	< 39.9	121	

TABLE 6
SUMMARY OF SUBSURRACE SOIL RESULTS
ARCADIS GERAGHTY AND MILLER (2000)
HERCULES INCORPORATED
JEFFERSON PLANT
WEST ELIZABETH, PENNSYLVANIA

					ŀ		ŀ		ŀ			-			-				١
. •	PADEP MSC Direct Contact Subsurface Soil th (ing/kg)	PADEP MSC Soil to Groundwater Pathway ⁽⁴⁾ (mg/kg)	SB-F	SB-F5/M/W-F4B		SB-F6/MW-F5A		SB-F7A		SB-F9A	V6.		SB-F10B	· · · · · · · · · · · · · · · · · · ·		SB-F11B		SB-F12B	112B
		TDS	2	(14 - 15 ft) ⁽⁴⁾		(9 - 7 ft)		(3 - 4 ft)		(3 - 4 ft) ⁽⁴⁾	ft) ⁽ⁱⁱ⁾		(3-4 ft)	E	= 	(10.5 - 11.5 ft)		(12	(12 - 13 ft)
Analyte		<2,500 mg/L	۱۳	10/18/2000		10/20/2000	_	10/17/2000	-	10/17/2000	2000	3	10/18/00	2		10/18/00	1	10/1	10/18/00
Groundwater Depth (feet)[4]	The second			. 16	06. 13	17.	7	20 613 ≥ ×	孫	. 20	S. 11.23		8	4	22.6	12 3			4
Inorganics (mg/kg)																			
Antimoný	000'061	27		0.54	_	0.49 B		0.6	-	0.39		_	0.52	-		29.0	-	0	0.58
Arsenic	000'061	150		 .		11.2		10.3		9.5	16		11.2			10.4		4	4.2
Barium	190,000	8,200		97.1		142 J		76.5 J		61.6		_	161	-		79.9	_	2	93.8
Beryllium	190,000	320		0.95		0.94		0.92		0.55		В	1.2			0.65		0	0.75
Cadmium	190,000	38	v	0.59 R	∨ ≃	0.6 R	٧	0.62 R	~	0.59		~	0.2	_	٧	0.61	~	ó	0.14
Chromium	190,000	0)061		8.8		16.1		15.1		15.0	0		22.4			11.1		17	17.7
Cobalt	000'061	200		10.8		14.0	· · · · · ·	30.0		8,5	10		18.0			11.5		15	15.9
Copper	000'061	36,000		1.91		23.8		22.5	,	15.1	_		25.2			18.4		23	23.4
Lead	000'061	450		13.0		16.8		22.2		13.9	6		17.1			11.3		5	13.7
Mercury	190,000	01		0.033 B		0.035 B		0.034 B	<u> </u>	0.12	. 2		90.0	æ		0.029	<u>.</u>	< 0.12	[2
Nickel	000'061	650		8.91		21.7		20.6		14.3			33.3			22.2		24.0	o.
Selenium	190,000	56	v	0.59	٧	9.0	v	1.2	v	0.59	٥		0.77	m	٧	19'0	Ÿ		25
Silver	000'061	84	٧	0.59	٧	9'0	v	0.62	v	0.59	6		0.15	B	٧	19'0	-	> 0.62	22
Thallium	190,000	14	v	1.2		0.74 B	٧	2.5		Ξ		× 	: 2.5		٧	1.2		< 1.2	7
Tin	190,000	6,100	v	11.7	٧	17.1	v	12.4		3.6		· ·	: 12.4		٧	12.2		2.9	9 B
Vanadium	190,000	72,000		61		23.3		22.7		21.6	ys.		29.1			21.0		21.1	- :
Zinc	190,000	12,000		50.0		76.5	_	68.5	4	49.4	4	\dashv	83.9			64.1		75.8	∞i
Volatile Organics (mg/kg)																			
Acetone	10,000	1,000	v	0.65	٠٧.	0.023	v	0.023		0.0057		<u> </u>		•	٧	0.0033		0.0026	926
Benzene	240	6,5	v	0.59	٧	0.0057	٧	0.0057	V	0.0049	49			₩.	v	0.0058	_	< 0.0055	55
1,1-Dichtoroethane	1,200	11	v	0.59	٧	0.0057	٧	0.0057	٧	0,0049	49		0.0074	4	v	0.0058		< 0.0055	355
cis-1,2-Dichloroethene	2,100	7	٧	0.30	٧	0.0057	v	0.0029	٧	0.0024	54	v		_	v	0.0029	_	< 0.0027	. 720
Ethylbenzene	10,000	70		8:1	٧	0.0057	v	0.0057	٧	0.0049	49	<u> </u>	0.0074	4	v	0.0058	_	< 0.0055	22
Tetrachloroethene	3,300	0.50	٧	0.59	ν	0.0057	٧	0.0057	<u> </u>	0.0049	49	<u> </u>			v	0.0058	<u>.</u>	< 0.0055	55
Toluene	10,000	100		0.63	ν	0.0057	ν	0.0057	v	0.0049	63	·	0.0074	,	٧	0.0058	_	< 0.0055	155
o-Xylene	10,000(6)	1,000(1		4.9	v	0.0029	٧	0.0029	<u> </u>	0.0024	24		. 0.0037	2	٧	0.0029		< 0.0027	12.7
m-Xylene & p-Xylene	10,000(2)	1,000(1)		6.0	٧	0.0057	v	0.0057	۷	0,0049	49	<u> </u>	0.0074		٧	0.0058	_	< 0.0055	55

TABLE 6
SUMMARY OF SUBSURFACE SOIL RESULTS
ARCADIS GERAGHTY AND MILLER (2000)
HERCULES INCORPORATED
JEFFERSON PLANT
WEST ELIZABETH, PENNSYLVANIA

		0000					L		L		\vdash		L	
	PADEP MSC Direct Contact Subsurface	Soil to Soil to Groundwater	SB-F5/MW-F4B	F4B SB-F6MW-F5A	FSA	SB-F7A		SR.F9A		SB-F10B		SR.F118		SB. 512B
	Soil ⁰¹ (mg/kg)	Pathway ^(c) (mg/kg)												
		.TDS	(14 - 15 ft)		-	(3-4ft)		(3 - 4 ft) ^(d)		(3 - 4 ft)	_	(10.5 - 11.5 ft)		(12 - 13 ft)
Analyte		<2,500 mg/L	10/18/2000	10/	0	10/17/2000	_	10/17/2000		10/18/00		10/18/00		10/18/00
Groundwater Depth (feet)(9)	10 may 2 may							20	100	. 8	12) 57:	12		\$145 (YE)
Semivolatile Organics (mg/kg)				-										
Acenaphthene	000'061	4,700	< 0.39	> 0.4	v	0.41	٧	0.39	٧	0.41	٧	0.4	٧	0.41
Acenaphthylene	190,000	006'9	< 0.39	× 0.4	<u>v</u>	0.41	٧	0.39	٧	0.41	٧	0.4	٧	0.41
Anthracene	000'061	350	< 0.39	× 0.4	٧	0.41	٧	0.39	٧	0.41	v	0.4	V-	0.41
Benzo (a) anthracene	000'061	320	< 0.39	> 0.4	٧	0.41	٧	0.39		0.032 J		0.4	v	0.41
Benzo (a) pyrene	000'061	46	< 0.39	> 0.4	V	0.41	ν	0.39		0.03	V	0.4	v	0.41
Benzo (b) fluoranthene	190,000	170	< 0.39	> 0.4	٧	0.41	٧	0.39		0.04 J		0.4	v	0.41
Benzo (k) fluoranthene	000'061	019	< 0.39	> 0.4	٧	0,41	v	0.39		0.035 J	V	0.4	٧.	0.41
Benzo (ghi) perylene	190,000	180	< 0.39	۸ 4.0	٧	0.41	ν	0.39	٧	0.41	٧	6.4	ν	0.41
bis(2-Ethylhexyl) phthalate	000'01	130	2.1	0.086	٦	0.11		0.19 J		0.83		0.047		0.64
Butyl benzyl phthalate	000*01	10,000	< 0.39	> 0.4	v	0.41	٧	0.39	٧	0.41		0.4	٧	0.41
Chrysene	190,000	230	< 0.39	< 0.4	<u>v</u>	0.41	v	0.39		0.037	·-	4.0	٧	0.41
Dibenz(a,h)anthracene	000'061	160	< 0.39	> 0.4	٧	0.41	٧	0.39	v	0.41	<u> </u>	4.0	٧	0.41
Dibenzofuran	· 100 _(ω)	0.5 ^(m)	< 0.39	۸ 0.4	٧	0.41	v	0.39	٧	0.41	<u></u>	4.0	٧	0.41
Fluoranthene	190,000	3,200	< 0.39	× 0.4	V	0.41	٧	0.39		0.083	٧	6.4	٧	0,41
Fluorene ·	190,000	3,800	< 0.39	۸ 0.4	V	0.41	v	0.39	v	0.41	v	6.4	v	0.41
Indeno(1,2,3-cd) pyrene	000'061	28,000	< 0.39	× 0.4	V	0.41	v	0.39	٧	0.41	<u> </u>	6.4	٧	0.41
2-Methylnaphthalene	10,000	8,000	0.065	J < 0.4	٧	0.41	٧	0.39	٧	0.41	<u>v</u>	6.4	v	0.41
2-Methylphenol	10,000	510	< 0.39	۸ 0.4	٧	0.41	v	0.39	v	0.41	٧	4.0	٧	0.41
Naphthalene	190,000	25	2.1	4.0	٧	0.41	v	0.39		2	٧	4.0	v	0.41
Phenanthrene	190,000	10,000	< 0.39		٧	0.41	v	0.39		0.035 J	٧	6.4	٧	0.41
Phenol	190,000	400		> 0.4	V	0.41	v	0.39	٧	0.41	v	0.4	v	0.41
Pyrene	190,000	2,200	< 0.39	× 0.4	<u> </u>	0.41	<u>v</u>	0.39		0.038 J	╧	0.4	v	0.41
Polychlorinated Biphenyls (ug/kg)	3	Ξ					-	None Detected		,				•
Other (mg/kg)										-				
Hydrocarbons as GRO		_	84	< 0.12	V	0.12		0.18		28	<u> </u>	0.12	v_	0.12
Hydrocarbons as DRO			39	× 12	V	. 21		7.0 J		16	٧	12	٧	12
pH (standard units)	·		7.3	7.4		5.1		5.8		7.5		7.9		∞
Total Organic Carbon			2,490	2,120	- : '	424	,	1,910		4,690		4,130	,	4,790
17.1			20.0	6.66	′	40.8	4	26.0	,	14	/	40.4	4	Ŧ

TABLE 6
SUMMARY OF SUBSURFACE SOIL RESULTS
- ARCADIS GERAGHTY AND MILLER (2000)
HERCULES INCORPORATED
JEFFERSON PLANT
WEST ELIZABETH, PENNSYLVANIA

		PADEP MSC			L				-						1				A	
	PADEP MSC Direct	Soil to	{					;		;		į	1				, !	· ·	j	
	Contact Subsurface Soil ^(b) (mg/kg)	Groundwater Pathway ^{te)}	SB	SB-F13A	5 1	SB-F13B		SB-F14A		SB-F14B	8	22	SB-F15A	٠. ,	SB-F16A		SB-F16B	<u></u>	SB-F18A	
		(mg/kg)				· —								<u> </u>					\	•
		TDS	(2.5-	(2.5 - 3.5 ft)	<u> </u>	(13 - 14 ft)	(3.5	(3.5 - 4.5 ft) ^(d)		(14.5 - 15.5 ft)	.5 ft)	(4.5	(4.5 - 5.5 ft)		(2.5 - 3.5 ft)	_ _	(13 - 14 ft)	2	(4 - 5 ft) ⁽⁴⁾	
Analyte		<2,500 mg/L	10/2	10/23/00		10/23/00	Ξ	10/20/00	_	10/20/00	00	11	10/20/00	_	10/23/00		10/23/00	10/	10/19/2000	\neg
Groundwater Depth (feet)(4)		P. C. W. W. W.	A	. 15		15		14		11	58,499		. 10.5	5 (E)	7		15	Not	Not Defined	140
Inorganics (mg/kg)																				
Antimony	000'061	27	J	0.6		0.3		0.66	_	0.56	В		0.73	æ	0.56		0.35 J		16.0	
Arsenic	000'061	150		11.8		9.7		0.11		10.1			8.3		8.9		10.3		5.6	
Barium	000'061	8,200	7	79.1		102		70.3	_	70.7	_		<u>50</u>	_	0.96		115		142	
Beryllium	000*061	320	Õ	0.75		0.84		0.77		0.71			29.0		97.0		98'0		1.2	
Cadmium	190,000	38	Ö	0.12 B		0.2 B	_	0.093 E	<u>в</u>	0.13	_	v	9.0	ద	0.18	В	0.22 B		0.63	
Chromium	₍₁)000'061	190(1	Ñ,	20.5		16.6		19.7		13.1			12.8		14.8		15.9		24.4	
Cobalt	190,000	200	·==	12.4		15.3		6.11		16.2			9.6		12.2		17.71		21.5	
Copper	190,000	36,000	2	21.5		21.6		22.0		22.0			8'91		19.2		21.3		30.7	
Lead	000'061	450		17.4		14.0		14.0		14.2			11.4		13.7		15.7		25.9	
Mercury	000'061	2	õ	0.033 J		0.038 J	_	0.028 J	<u>v</u>	0.12			0.045	m	0.034		0.035 J		0.51	_
Nickel	190,000	650	-	17.2		26.8		19.1		23.3			14.1		20.4		25.1	•	31.6	
Selenium	000'061	52	Ö	0.71		0.3		09.0	<u></u>	09.0		v	9.0		0.60		. £9'0			ш
Silver	190,000	84	0 v	9.0	v	19'0	v	9.0	٧	09.0		v	9.0	٧	0.58	v	9.0		0.31	щ
Thallium	190,000	4	7	2.4	v	2.4	ν	1.2	V	1.2			0.73	v m	2.3	v	1.2	v	0.9	
Tin	190,090	6,100	v	12.1	v	12.2	v	12	ν	12.1		v	12.1	٧	11.7	v	12.1	v	24.0	
Vanadium	190,000	72,000	2.	27.2		23.4		27.0		19.1			6.61		20.2		23.2	•	56.9	
Zinc	190,000	12,000	9	f 6:19		70.6J J	_	61.7	\dashv	9.79			53.6	\dashv	59.2 J		67.7 J		801	٦
Volatile Organics (mg/kg)	-													_						
Acetone	10,000	000'1	۰ ۷	0.005	v	0.0027	_		7.B.	0.003		v	0.0029	٧	0.02	v	0.0024	v	0.76	_
Benzene	240	0.5	0.0	. 1900'0	v	0.0056	0 V	0.0048	V	0.0058	on.	0 V	0.0059	v	0.0051	v	0.0054	v	0.26	_
1, t.Dichloroethane	1,200		0.0	0.0061	v	0.0056	0 V	0.0048	<u>v</u>	0.0058	er.	v	0.0059	٧	0.0051	v	0.0054	v	0.26	
cis-1,2-Dichloroethene	2,100	~). 0.	0.003	v	0.0028	0 V	0.0024	V	0.0029	_	0 v	0.0059	V	0.0025	v	0.0027	v	0.13	
Ethylbenzene	000'01	22	0.0	1900'0	v	0.0056	0 V	0.0048	V	0.0058		v	0.0059	V	0.0051	v	0.0054		2.2	
Tetrachloroethene	3,300	0.50	0.0	0.0061	v	0.0056	Φ V	0.0048	٧	0,0058	-	v	0.0059	v	0.0051	v	0.0054	v	0.26	
Toluene	000'01	901	0.0 >	0.0061	v	0.0056	0 V	0.0048	٧	0.0058		o V	0.0059	v	0.0051	v	0.0054	v	0.26	
o-Xylene	(9)000'01); V	0.003	v	0.0056	0 V	0.0024	٧	0.0029		o V	0.0029	V	0.0025	v	0.0027	_	91'0	
m-Xylene & p-Xylene	10,000(2)	1,000(1)	< 0.0061	190	v	0.0028	0 V	0.0048	<u> </u>	0.0058		v	0.0059	쒸	0.0051	┙	0.0054	_	11.0	

Page 6 of 11

TABLE 6
SUMMARY OF SUBSURFACE SOIL RESULTS
ARCADIS GERAGHTY AND MILLER (2000)
HERCULES INCORPORATED
JEFFERSON PLANT
WEST ELIZABETH, PENNSYLVANIA

													ļ						1
	PADEP MSC Direct Contact Subsurface Soil ¹⁰ (mg/kg)	PADEP MSC Soil to Groundwater Pathway ^(h) (mg/kg)	8 3	SB-F13A		SB-F13B		SB-F14A		SB-F14B		SB-F15A		SB-F16A		SB-F16B	 83	SB-F18A	
Analyte		TDS C	(2.5	(2.5 - 3.5 ft)		(13 - 14 ft) 10/23/00	ტ	(3.5 - 4.5 ft)	7	(14.5 - 15.5 ft)		(4.5 - 5.5 ft)		(2.5 - 3.5 ft)		(13 - 14 ft)	\$ 5	(4 - 5 ft)	
Groundwater Deptil (feet)		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		* 15 %	5.5	J-15 0 €		PASTITUTE SE		\$175		10.5		2 E1813	80	15	Not	Not Defined]	
Semivolatile Organics (mg/kg)													<u> </u>						Ĺ
Acenaphthene	190,000	4,700	v	0.4	ν	0.4	v	0.4	v	0.4	V	0.4		0.093	v	0.4	0	0.023	
Acenaphthylene	000'061	006'9	v	0,4	v	4.0	v	6.4	٧	0.4	v	0.4	v	0.39	v	0.4	0	0.034	
Anthracene	190,000	320	v	0.4	٧	4.0	v	6.4	v	4.0	V	4.0		0.23 J	٧	0.4	v	6.4	<u> </u>
Benzo (a) anthracene	190,000	320	v	0.4	v	4:0	v	6.4	v	0.4	٧	4.0		0.45	v	0.4	v	4.0	
Benzo (a) pyrene	000'061	46	v	0.4	v	4.0	v	4.0	v	0.4	V	0.4		0.35 J	v	9.4	v	6.4	
Benzo (b) fluoranthene	000'061	07.1	v	0.4	v	0.4	v	9.4	ν	0.4	v	0.4		0.35 J	v	0.4	v	0.4	
Benzo (k) fluoranthene	000'061	610	v	0.4	v	0.4	v	0.4	v	0.4	٧	0.4		0.34 J	ν	0.4	v	9.4	
Benzo (ghi) perylene	000'061	180	v	0.4	v	9.4	v	0.4	٧	4.0	٧	4.0		J · 60.0	v	4.0	v	9.4	
bis(2-Ethythexyl) phthalate	000'01	130	D	0.021	v	0.4	v	9.4		0.033	_	0.12		0.052 J	ν	9.4	Ü	0.24	
Butyl benzyl phthalate	1,000	10,000	v	9.4	٧	0.4	ν.	4.0	ν	0.4	٧	4.0	٧	0.39	ν	0.4	v	0.4	
Chrysene	000'061	230	v	0.4	v	4.0	v	4.0	٧	4.0	v	0.4		0.43	v	4.0	v	9.4	
Dibenz(a,h)anthracene	190,000	991	v	0.4	v	0.4	v	0.4	v	6,4	v	9.4		0.021	v	9.4	v	0.4	
Dibenzofuran	100 _(m)	0.5 ^(m)	v	0.4	v	9.4	ν	9.4	v	0.4	v	9.4		0.049	v	0.4	v	0.4	
Fluoranthene	190,000	3,200	v	0.4	v	4.0	ν	9.4	v	0.4	٧	6.4		1.3	v	0.4	΄. ν	0.4	
Fluorene	190,000	3,800	v	0.4	v	4.0	ν	9.4	v	9.0	٧	4.0		0.078 J	v	9.4	v	9.4	
Indeno(1,2,3-cd) pyrene	190,000	28,000	v	0.4	v	9.4	ν	9.4	v	0.4	ν	9.4	_	0.11	v	0.4	v	0,4	_
2-Methylnaphthalene	10,000	_	v	0.4	v	0.4	v	9.0	v	0.4	v	9.0	v	0.39	v	0.4	Ģ	0.16	
2-Methylphenol	10,000	510	v	0.4	v	0.4	ν	6.4	v	0.4	<u>v</u>	0.4	v	0.39	ν	0.4	v	4.0	
Naphthalene	190,000		v	0.4	v	0.4	v	0.4	v	0.4	v	9.4		0.036	v	0.4	••	2.3	
Phenanthrene	190,000	_	v	0.4	v	4.0	ν	0.4	v	4.0	v	9.4		0.82	v	4.0		0.064	_
Phenol	190,000		v	0.4	v	0.4	v	4.0	ν	0.4	v	9.4	٧	0.39	v	4.0		4.0	
Pyrene	190,000	2,200	-	0.4	v	0.4	v	0.4	v	0.4	<u>~</u>	0.4	4	0.58	┙	0.4	, ,	4.0	T
Polychlorinated Biphenyls (ug/kg)	(u)	(ω)								None	None Detected	pa	-					.	П
Other (ng/kg)											-								
Hydrocarbons as GRO	•	•	v	0.12	v	0.12	v	0.12	v	0.12	<u>v_</u>	0.12	v	0.12	v	0.12	_	150	_
Hydrocarbons as DRO			•	3.5 J		12	v	12	v	12	v	12		3.3	v	12	•		-
pH (standard units)				8.4		6.1		4.3		5.1		7.5		7.2		6.1	•	7.2	
Total Organic Carbon				1,610		528	,	2,090	,	271		2,660		2,140		715.	ooî [™]	8,790	
на				8,8	_	40.4	,	25.25	1	37.0	/-	27.7	4	0,00		32.0	` -	١	٦

TABLE 6
SUMMARY OF SUBSURFACE SOIL RESULTS
ARCADIS GERACHTY AND MILLER (2000)
HERCULES INCORPORATED
JEFFERSON PLANT
WEST ELIZABETH, PENNSYLVANIA

(mg/kg) TTDS (G.5-7.5 ft) (2,500 mg/L 10/197000 27 8,00 150 8,00 100 200 1172 36,000 252 450 265 24,8 265 24,8 265 267 26,100 29,1 1,000 1,	indivater Depth (feet) (%) in the mony in the mony in the mony in the mony in the mony in the mony in the month in the mon	190,000 190,000 190,000 190,000 190,000 190,000 190,000 190,000 190,000 190,000	(mg/kg) TDS C2,560 mg/L 27 150 8,200 320 38 190 ⁽⁹ 200	(6.5 - 7.5 II 10/19/2000 Not Define 0.63 8.6 106 0.93 0.16		(4 - 5 ft)		(13 - 14 (9)					_		_	/	
190,000 27 0.63 J 190,000 150 8.6 J 190,000 150 8.6 J 190,000 150 8.6 J 190,000 150 8.6 J 190,000 150 8.6 J 190,000 150 320 106 J 190,000 190,000 190,000 190,000 150,00	indivater Depth (feet) ⁶⁶ (000,001 000,001 000,001 000,001 000,001 000,001 000,001 000,001	25,500 mg/L 27 27 150 8,200 320 320 320 200 200	(6.5-7.5 ft 10/19/2000 Not Define 0.63 8.6 106 0.93		(4-5	<u>۔</u> § ۾	113.14	_						<u> </u>		
190,000 27 0.63 J 190,000 150 8.6 196 190,000 150 0.93 190,000 150 0.93 190,000 190,00	indvater.Depth (feet) ¹⁰ / ₁₀ / ₁₀ is congkg) nony non nic nn flium mium mium er er aury	190,000 190,000 190,000 190,000 190,000 190,000 190,000	27 150 8,200 320 38 190 ⁶⁰ 200 36,000	Not Define 0.63 8.6 106 0.93 0.16		17.00		10/19/2000	2 3	(2.5 - 3.5 ft) 10/24/2000	£ 9	(2.5 - 3.5 ft) 10/17/2000	£ 8	(2.5 - 3.5 ft) 10/24/2000	3.5 ft) ·	(3-	(3 - 4 ft) ⁽⁴⁾ 10/25/2000
190,000 150 8.6 190,000 150 8.6 190,000 150 8.200 106 190,000 320 106 190,000 38 0.16 B 190,000 36,000 120,00 17.2 190,000 36,000 25.2 190,000 26,000 25.2 190,000 26,000	nies (mg/kg) nony nic nn nium nium nium eer eer	000'061 000'061 000'061 000'061 000'061	27 150 8,200 320 38 190 ⁽⁴⁾ 200 36,000	0.63 8.6 106 0.93	ī	91		. 16	198	Not Defined	Pal	21	20 A S	5, 73	23.5		20
190,000 150 8.6 190,000 150 8.6 190,000 32.00 106 190,000 32.00 106 190,000 38 0.16 B 190,000 190,000 20.00 17.2 190,000 25.00 17.2 190,000 25.00	nony nic nn llium nium nium ilt rer rer uny	190,000 190,000 190,000 190,000 190,000 190,000 190,000	27 150 8,200 320 38 190 ⁽⁶⁾ 200	0.63 8.6 106 0.93 0.16	-				-								
190,000 150 8.6 190,000 320 106 190,000 38 0.16 190,000 190 ¹⁰ 20.9 190,000 260 17.2 190,000 450 20.7 190,000 450 20.7 190,000 650 24.8 190,000 26 0.54 190,000 26 0.54 190,000 26 0.54 190,000 26 0.54 190,000 26 0.54 190,000 10 2.9 190,000 12,000 29.1 190,000 12,000 14.6 190,000 11,000 14.6 190,000 11,000 14.6 1,000 1,000 1.000 1,000 1,000 1,000 1,000 1.000 1,000 1,000 1.000 1,000 1,000 1.000 1,000 1,000 1.000 1,000 1,000	nic nn Hium nium ilt ser ser sury	190,000 190,000 190,000 190,000 190,000 190,000	150 8,200 320 38 190 ⁽⁸⁾ 200 36,000	8.6 106 0.93 0.16		0.59	-	0.33		0.7	_	0.44	-	0	0.75 J	_	0.72
190,000 8,200 106 190,000 190,000 38 0.16 B 190,000 190% 20.9 190,000 190,000 20.0 17.2 190,000 25.0 20.7 190,000 25.0 20.7 190,000 25.0 24.8 B 190,000 25.0 24.8 B 190,000 25.0 24.8 B 190,000 25.0 25.1 20,000 25.0 25.1 20,000 25.0 25.1 20,000 25.0 25.1 20,000 25.0 25.1 20,000 25.0 25.1 20,000 25.0 25.1 20,000 25.0 25.1 20,000 25.0 25.1 20,000 25.0 25.1 20,000 25.0 25.1 20,000 25.0 25.1 20,000 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.0 25.1 25.1 25.1 25.0 25.1 25.	nn nium mium ser ser ser	190,000 190,000 190,000 190,000 190,000	8,200 320 38 190 ⁽⁰ 200 36,000	106 0.93 0.16		12.2		9.2		8. 8.		10.9		7.	7.0		8.5
190,000 320 0.93 190,000 38 0.16 B 190,000 190 ⁶⁰ 20.9 190,000 260 17.2 190,000 450 20.7 190,000 650 24.8 190,000 26 0.54 B 190,000 14 < 1.2 190,000 72,000 29.1 190,000 12,000 74.6 1,200 1,000 0.68 1,B 240 0.5 < 0.23 1,200 7 < 0.23 2,100 7 < 0.12	nium mium mium ser ser ser	190,000 190,000 ⁽⁰ 190,000 190,000	320 38 190 ⁽⁰ 200 36,000	0.93		9.69		140.0	_	169		68.1	-	427	<u>. </u>		102
190,000 38 0.16 B 190,000 ⁴ 190 ⁴ 20.9 190,000 26.0 17.2 190,000 450 25.2 190,000 450 20.7 190,000 650 24.8 190,000 26 0.54 B 190,000 26 0.54 B 190,000 26 0.54 B 190,000 26 0.54 B 190,000 14 < 1.2 190,000 72,000 29.1 190,000 12,000 74.6 1,200 1,000 0.68 1,B 240 0.5 < 0.23 1,200 1 < 0.23 2,100 7 < 0.12	nium mium lt ser ser sury	000'061 000'061 000'061	38 190 ⁽⁰ 200 36,000	91.0		0.87		0.79				99'0		3.3		_	0.84
190,000 ⁰ 190 ⁰ 20.9 190,000 200 17.2 190,000 450 25.2 190,000 450 20.7 190,000 650 24.8 190,000 26 0.54 B 190,000 14 < 1.2 190,000 14 < 1.2 190,000 72,000 29.1 190,000 12,000 29.1 190,000 12,000 24.6 190,000 12,000 29.1 190,000 12,000 14.6 190,000 12,000 14.6 190,000 12,000 14.6 190,000 12,000 14.6 190,000 12,000 14.6 190,000 11,000 14.6 190,000 11,000 14.6 1,200 11 < 0.23 1,200 7 < 0.12 1,200 7 < 0.12	it it ser ser sury	000'061 000'061 000'061	190 ⁽⁰ 200 36,000		щ	0.17	22	0.23	æ	0.22	× m	0.56	~	0.53	B 53	•	0.088
190,000 200 17.2 190,000 450 25.2 190,000 450 20.7 190,000 10 0.051 J 190,000 26 24.8 B 190,000 26 0.54 B 190,000 14 < 0.6 B 190,000 6,100 2.9 B 190,000 72,000 29.1 B 190,000 12,000 74.6 1,15 240 0.5 < 0.23 1,18 1,200 1 < 0.23 1,18 240 0.5 < 0.23 2,10 2,100 7 < 0.12 0.23	ilt per pury el	000'061	36,000	20.9		20.5		15.1		21.4	<u></u>	9.6		56	26.4		13.4
190,000 36,000 25.2 190,000 10 20.7 190,000 10 0.051 J 190,000 26 24.8 26 26 26 24.8 26 26 26 26 26 26 26 2	ver nury el	000,061	36,000	17.2		14.4		17.1		24.8		10.4		7.4	4		14.1
190,000 450 20.7 190,000 650 24.8 190,000 26 0.54 B 190,000 84 < 0.6 B 190,000 14 < 1.2 B 190,000 72,000 29.1 B 190,000 12,000 74.6 J.8 240 0.5 < 0.23 J.B 1,200 1,000 0.68 J.B 240 0.5 < 0.23 J.B 2,100 7 < 0.12 O.23	aury el	000'061		25.2		22.8		19.8	-	21.6		13.8		14.1	-		18.5
190,000 10 0.051 J 190,000 26 24.8 190,000 26 0.54 B 190,000 14 < 1.2 190,000 5,100 2.9 B 190,000 72,000 29.1 190,000 12,000 74.6 10,000 1,000 74.6 1,200 1,000 1,000 2.1 240 0.5 < 0.23 1,200 1 < 0.23 2,100 7 < 0.12	aury el		450	20.7		9:91		14.6		25.1		7.6		36.5		••	21.5
190,000 650 24.8 190,000 26 0.54 B 190,000 84 < 0.6 1.2 190,000 6,100 2.9 B 190,000 12,000 29.1 190,000 12,000 29.1 190,000 1,000 1,000 24.6 1.8 240 0.5 < 0.23 1,200 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 1 < 0.23 2,100 2,10	-	190,000	01	0.051	-	0.032	v 	< 0.12	~	0,035	. ''	0.11		0.19	5	•	0.032
190,000 26 0.54 B 190,000 84 < 0.6 190,000 14 < 1.2 12 190,000 12,000 29.1 190,000 12,000 29.1 190,000 1,0		000'061	059	24.8		20.8		24.5		26.4		12.6		12.2	. 7		18.3
190,000	nium .	190,000	56	0.54	щ	0.78		0.47	m	1.2	V	0.56		2.2	8 2	Ť	0.79
190,000		000'061				09'0	V	09.0	<u> </u>	< 0.61	V	0.56		0.86	2	v	0.62
190,000 6,100 2.9 B 190,000 12,000 29.1 190,000 12,000 74.6 1,000 240 1,000	lium	190,000			<u> </u>	1.2	V	2.4	·	< 1.2		0.92	ф	< 13.1	-	v	1.2
190,000 72,000 29.1 190,000 12,000 74.6		190,000	6,100	2.9		12.1	V	< 12.1	V	12.1	<u>v</u> _	11.3		< 13.1			5.1
190,000 12,000 74.6 10,000 1,000 0.68 1,B 240 0.5 < 0.23 1,200 11 < 0.23 2,100 7 < 0.12	dium	000'061	72,000	29.1		27.8		21.2	_	30.0		16.0		15.4	4		17.3
10,000 1,000 0,68 1,B 240 0,5 < 0,23 1,200 11 < 0,23 2,100 7 < 0,12		000,061	12,000	74.6	7	69.2	+	63.3	7	91.6	╡	41.9		82.2	.2 J		62.0
19,000 1,000 0,68 J,B 240 0,5 < 0.23 oroethane 1,200 11 < 0.23 chbrocethene 2,100 7 < 0.12	Organics (mg/kg)												-				
240 0.5 < 0.23 oroethane 1,200 11 < 0.23 ichloroethene 2,100 7 < 0.12	оле	10,000	000,1	89'0	_					> 0.02		0.006	٦,		4 ;		7 5
1,200 11 < 0.23 2,100 7 < 0.12	cne	240			v			× 0.0054	-	0.0013	<u>v</u>	0.0			7		5
2,100 7 < 0.12	Dichloroethane	1,200	_		<u> </u>			< 0.0054		< 0.005	v	0.01			2		0.31
	,2-Dichloroethene	2,100			V	_		< 0.0027		< 0.0025	۷ .	0.0051		> 0.16	9	v	0.31
70 0.93	lbenzene	000'01	70	0.93	V			< 0.0054		< 0.005	v	0.01		0.85	5		0.2
Tetracklorocultene 3,300 0.50 < 0.23 <	refiloroethene	3,300			V			< 0.0054		< 0.005	<u>v_</u>	0.01		< 0.32	2	v	0.31
	- -	10,000	_		<u>v</u>	0.005		< 0.0054	<u>v</u>	> 0.005		0.0032	-	0.22	12		=
10,000(0)	lene	10,000(t)	1,000(1)	0.1	· ·	0.0025		< 0.0027		< 0.0025	V	0.0051		1.5	S	v	0.15
m-Xylene & p-Xylene	rlene & p-Xylene	10,000 ^(E)	1,000(1)	0.085		0.005		< 0.0054	<u>v</u>	> 0,005	v	0.01	\neg	1.7	_	V	0.31

TABLE 6
SUMMARY OF SUBSURFACE SOIL RESULTS
ARCADIS GERAGHTY AND MILLER (2000)
HERCULES INCORPORATED
JEFFERSON PLANT
WEST ELIZABETH, PENNSYLVANIA

	PADEP MSC Direct Contact Subsurface	PADEP MSC Soil to Groundwater	SB-F18B	88	, s	SB-F19A	S	SB-F19B		SB-F20A		SB-F21A		SB-F22A		SB-F23A		
	(Sugar) nac	(mg/kg)																
Analyte		TDS <2,500 mg/L	(6.5 - 7.5 ft) 10/19/2000	.5 ft) 2000	_ =	(4 - 5 ft) 10/19/2000	5 2	(13 - 14 ft) 10/19/2000	<u> </u>	(2.5 - 3.5 ft) 10/24/2000		(2.5 - 3.5 ft) 10/17/2000	G	(2.5 - 3.5 ft) 10/24/2000		(3 - 4 ft) 10/25/2000	. •	
Groundwater Depth (feet)(1)		K Mil Xinanieri	Not Defined	fined 🐎	e e			ું 9ા	2	Not Defined		李素幼(4)		23.5	E.	20	1	
Semivolatile Organics (mg/kg)																		
Acenaphthene	190,000	4700	> 0,4		v	9.4	v	0.4	v	0.4	ν		v	2.2	٧	0.41		
Acenaphthylene	190,000	006'9	> 0.4	_	v	9.4	v	9.4	v	0.4	v		v	2.2	٧_	0.41		
Anthracene	190,000	350	۸ 0.4		v	9.4	v	0.4	٧	4.0	٧	0.37	v	2.2	<u>v_</u>	0.41		
Benzo (a) anthracene	000'061	320	> 0.4		v	6.4	v	0.4	٧	6.4	٧	0.37		0.18 J		0.027	_	
Benzo (a) pyrene	190,000	46	> 0.4		ν	0.4	v	0.4	v	0.4	v	0.37	v	2.2		0.029	_	
Benzo (b) fluoranthene	190,000	021	> 0.4		v	0.4	v	0.4	٧	9.4	v	0.37		0.2 J		0.025	_	_
Benzo (k) fluoranthene	190,000	019	A 0.4		v	0.4	v	4.0	v	4.0	v	0.37		0.19 J		0.024	-	
Benzo (ghi) perylene	190,000	180	> 0.4		v	4.0	v	4.0	v	0.4	v	0.37	v	. 2.2		0.021	_	
bis(2-Ethylhexyl) phthalate	10,000	130	0.33			0.054 J		0.037 J		0.029 J		0.25 J		0.13		0.065	_	
Butyl benzyl plithalate	10,000	10,000	> 0.4		v	0.4	v	0.4	v	4.0	v	0.37	v	2.2	v	0.41		
Chrysene	190,000	230	> 0.4		v	0.4	v	0.4	v	6.4	٧	0.37		0.2		0.026	_	
Dibenz(a,h)anthracene	190,000	091	> 0.4		v	9.4	ν	9.4	٧	0.4	v	0.37	v	2.2	v	0.41		
Dibenzofuran	100 _(m)	0.5(m)	> 0.4		v	0.4	٧	9.4	٧	0.4	v		v	2.2	V-	0.41		
Fluoranthene	190,000	3,200	< 0.028		v	0.4	v	0.4	v	0.4	٧	0.37		0.5		0.029.	_	
Fluorene	000'061	3,800	> 0.4		v	4:0	٧	0.4	ν	9.0	v		v	2.2	v.	0.41		
Indeno(1,2,3-cd) pyrene	000'061	28,000	s 0.4		v	0,4	v	0.4	ν	0.4	v	0.37	v	7.7		0.021	~	
2-Methylnaphthalene	10,000	8,000	> 0.4		v	9.4	v	0.4	v	0.4	v	0.37		0.21 J	v	0.41		
2-Methylphenol	10,000	510	> 0.4		v	6.4	v	0.4	v	6.4	ν.	•	v	2.2		0.2	- .	
Naphthalene	000'061	25	0.19	-	v	0.4	v	0.4	v	6.4	y	0.37		3.8	v	0.41		
Phenanthrene	000'061	10,000	0.029	-	ν	4.0	v	9.4	v	0.4	v.			0.34 J	v	0.41		
Phenol	190,000				v ·	4	v '	0.4	v ·	9.4	v .		v	2.2	v	0.41		
Рутепе	190,000	2,200	۰ 0,4		٧l	0.4	٧l	4:0	v]	6.4	┙	0.3/		670	4	4.0		
Polychlorinated Biphenyls (ug/kg)	(n)	(u)					١		ž	None Detected							1	
Other (ng/kg)												·						
Hydrocarbons as GRO			Ξ		v	0.12	٧	0.12		0.19	y	0.11		1,500		N		_
Hydrocarbons as DRO			13		v	12		· 10 J		14	v	=		1,700		4.3	_	
pH (standard units)			. 6.4			3.9		6.3		4.9		6.9		12.5		7.2		
Total Organic Carbon			8,620			4,650	v	2,610		3,990	v	37.3	•	14,000	v	41.0		
11.0			,								1		1					

TABLE 6
SUMMARY OF SUBSURFACE SOIL RESULTS
ARCADIS GERAGHTY AND MILLER (2000)
HERCULES INCORPORATED
JEFFERSON PLANT
WEST ELIZABETH, PENNSYLVANIA

,	PADEP MSC Direct	PADEP MSC Soil to		•				' ',			l				
	Contact Subsurface Soil ^{th)} (mg/kg)	Groundwater Pathway ^(e) (mg/kg)		SB-F24	<u> </u>	SB-F25			SB-F26		SB-F27	<u> </u>	••	SB-F28	
Anglyte		TDS <2.500 me/l.		(2 - 3 ft)		(2 - 3 ft)	0	-	(2 - 3 ft) 10/25/2000		(2 - 3 ft) 10/25/2000	5 00	0	(2 - 3 ft) 10/25/2000	
Croundwater Depth (feet)				No Log-	in co	No.Log	72.5 37.1		No Log	827	No Log	3		No Log	200
Inorganics (mg/kg)					<u> </u>					_					
Antimony	190,000	27		0.96		0.38	Γ.		0.98		0.79	٠,		99'0	Œ
Arsenic	190,000	150		13.7		5.4			12.8		12.2			8.6	
Barium	000'061	8,200		50.0		78.3			263	-	47.8			115	
Beryllium	190,000	320		0.88		1.2			1.8		0.55	8		Ξ	
Cadmium	000'061	38	v	9.0		0.075	В		0.6 B	v	0.62			0.15	ш
Clironium	190,000	₀₎ 061		19.2 J		13.3	J		73.8 J		17.9	_		14.7	٦.
Cobalt	190,000	200		36.8		14.7			12.5		8.8			18.2	
Copper	190,000	36,000		14.3		19.4			28.2		12.6			17.0	
Lead	190,000	450		28.9		21.3			51.0		15.9			20.5	
Mercury	000,061	0		0.029 E	ш	0.031	П		0.21	_	0.035	<u>EQ</u>		0.035	m
Nickei	000'061	. 059		13.9		18.0			24.1		11.0			19.7	
Selenium	000,001	26		4.1		0.30	æ		2.7 B		1.2	•		0.77	
Silver	190,000	84		0.12 E	V B	0.62			0.47 B		0.62			0.17	Ø
Thallium	190,000	14	v	2.4	v	1.2		v	6.9		[7		v	13	
Tin	000'061	001'9	v	6.11	<u>v</u>	12.5		٧	13.7	٧	12.5	-	v	12.9	
Vanadium	190,000	72,000		32.6		6.61			40.4		28.9			24.6	
Zinc	190,000	12,000	-	44.2	_	54.6			122		41.8			62.9	
Volatile Organics (mg/kg)															
Acetone	10,000	1,000	v	0.023	V	0.0035			0.0045 J,	J,B			v	0.024	
Benzene	240	0.5	v	0.0057		0.002	_	ν	0.0035	<u>v</u>	0.0052		ν	9000	
1,1-Dichloroethane	1,200	=	v	0.0057	V.	0.0057		v	0.0035	٧	0.0052		ν	900'0	
cis-1,2-Dichloroethene	2,100	7	v	0.0029	v	0.0029		v	0.0018	٧	0.0026		v	0.003	
Ethylbenzene	000'01	20	v	0.0057		0,022		v	0.0038	٧	0.0052		v	900.0	
Tetrachloroethene	3,300	0.50	v	0.0057	v	0.0057		v	0.0035	ν			v	900.0	
Tolucne	000'01	001	v	0.0057	v	0.0057			9,000	<u>v</u>	0.0052		v	900'0	
o-Xylene	10,000(0	1,000(1)	v	0.0029		0.022		v	0,0018	<u>v</u>	0.0026		v	0.003	_
m-Xytene & p-Xylene	(3)000'01	(1)000'1	v	0.0057		0.0081		v	0.0035		0.0052		v	900.0	
			İ		1		1	l		ł			١		Ì

TABLE 6
SUMMARY OF SUBSURFACE SOIL RESULTS
ARCADIS GERAGHTY AND MILLER (2000)
HERCULES INCORPORATED
JEFFERSON PLANT
WEST ELIZABETH, PENNSYLVANIA

			١				ŀ							ļ
	PADEP MSC Direct Contact Subsurface Soli ^(b) (ing/kg)	PADEP MSC Soil to Groundwater Pathway ^(c) (mg/kg)		SB-F24		SB-F25		SB-F26	10		SB-F27		SB-F28	
		TDS		(2-3 ft)		(2 - 3 ft)		(2 - 3 ft)			(2 - 3 ft)		(2 - 3 ft)	
Analyte Groundwater Denth (feedio)		<2,500 mg/L		10/25/2000 No Log		10/25/2000 No Loc	- 6 14	10/25/2000 No Loe	8	25 25 25 26	10/25/2000 No Log		10/25/2000 No l ne	20
Semi-Volatile Organics (mg/kg)	The second secon						6			í.	0	1_		· .
Acenaphthene	000,061	4,700	٧	0.39	v	0.41		0.16	-	ν	0.41	V	0.43	
Acenaphthylene	190,000	006'9	ν	0.39	v	0.41	V	2.3		٧	0.41	V.	0.43	
Anthracene	190,000	350	v	0.39	v	0.41		0.27	~	v	0.41	٧	0.43	
Benzo (a) anthracene	190,000	320	v	0.39	v	0.41		0.98	-	٧	0.41	٧	0.43	
Benzo (a) pyrene	190,000	46	ν	0.39	v	0.41		1.2	-	٧	0.41	٧	0.43	
Benzo (b) fluoranthene	190,000	170	٧	0.39	v	0.41		0.91	-	ν	0.41	٧	0.43	
Benzo (k) fluoranthene	000'061	019	v	0.39	v	0.41		0.81	•	٧	0.41	ν	0.43	
Benzo (ghi) perylene	000'061	180	v	0.39	٧	0.41		0.77	'n	٧	0.41	ν	0.43	
bis(2-Ethylhexyl) phthalate	10,000	130	ν	0.39		0.04	<u>v</u>	2.3			0.072 J		0.12	_
Butyl benzyl plithalate	10,000	000'01	v	0.39	v	0.41	v	2.3		v	0.41	٧	0.43	_
Clrrysene	190,000	230	v	0.39	v	0.41		0.94	-	٧	0.41	v	0.43	
Dibenz(a,h)antlracene	190,000	160	v	0.39	v	0.41		0.22	-	v	0.41	v	0.43	
Dibenzofuran	100 ^(m)	0.5(m)	ν	0.39	v	0.41	٧	2.3		v	0.41	v	0.43	
Fluoranthene	000'061	3,200	ν	0.39	v	0.41		1.8	٦	٧	0.41	v	0.43	
Fluorene	000'061	3,800	v	0.39	v	0.41	V	2.3		v	0.41	v	0.43	
Indeno(1,2,3-cd) pyrene	190,000	28,000	v	0.39	v	0.41		0.78	-	v	0.41	v	0.43	
2-Methylnaphthatene	000'01	8,000	٧	0.39	v	0.41	V			v	0.41	v	0.43	
2-Methylphenol	000'01	510	v	0.39	v	0.41	ν.			٧	0.41	v	0.43	
Naphthalene	190,000	25	v	0.39	v	0.41		0.22	-	v	0.41	v	0.43	
Phenauthrene	000'061	10,000	v		v	0.41		6.0	-	٧	0.41	v	0.43	
Phenol	190,000	400	v	0.39	ν	0.41	٧			٧	0.41	٧	0.43	
Pyrene	000'061	2,200	$_{\rm v}$	0.39	$_{\rm v} $	0.41	-	1.3	٦	٧	0.41	v	0.43	\neg
Polychiorinated Biphenyls (ug/kg)	(u)	(a)					-	None Detected	cted			.		П
Other (mg/kg)														
Hydrocarbons as GRO			v	0.12		£ .		0.32		v	0.12	v	0.13	_
Hydrocarbons as DRO				5		09	_	6.1	-	٧	13	v	13	
pH (standard units)				1.9		6.9		8.2			5.8		5.8	
Total Organic Carbon				_		5,390		16,600		V	63.6		5,810	
ТРН			v١	39.3	٧l	41.2	\dashv	65		4	41.2	<u></u>	42.6	╗

SUMMARY OF SUBSURFACE SOIL RESULTS ARCADIS GERAGHTY AND MILLER (2000) WEST ELIZABETH, PENNSYLVANIA HERCULES INCORPORATED JEFFERSON PLANT TABLE 6

Notes:

(a) Groundwater depth based on ARCADIS depth to groundwater during drilling.(b) PADEP MSC, direct-contact, subsurface soil (Pennsylvania Bulletin, Volume 31, No. 47. November 24, 2001).

(c) PADEP medium specific concentration (MSC) used-aquifer, non-residential soil to groundwater (Pennsylvania Bulletin, Volume 31, No. 47, Nover (d) Depth below ground surface.
(e) "mg/kg" is milligrams per kilogram or parts per million.
(f) MSC listed is for hexavalent chromium.
(g) MSC is based on total xylenes.
(h) "I" indicates estimated result.
(i) "B" indicates estimated result; result is less than reporting limit.
(j) "<x" indicates the result was not detected above the sample-specific detection limit shown.
(k) "UI" indicates sample result is estimated and is biased low.
(l) "ug/kg" is micrograms per kilogram or parts per billion.

(m) From Table 6, threshold of regulated compounds (Pennsylvania Bulletin, Volume 31, No. 47, November 24, 2001).

(n) Total PCB not listed; listed for individual aroclors.
(o) Value shaded and shown in bold indicates soil to groundwater MSC exceedance.
(p) "E" indicates the value is estimated because of the presence of interference.

TABLE 7 SUMMARY OF SUBSURFACE SOIL ANALYTICAL RESULTS KU RESOURCES (2000) HERCULES INCORPORATED

JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

	Direct Contact Subsurface Soil	Soil to Groundwater Pathway PADEP MSC ^(d)				
Analyte	PADEP MSC ^(b)	TDS<2,500 mg/L	B1	В5	В6	В9
	(mg/kg) ^(c)	(mg/kg)	10 feet ^(e)	11 feet	11 feet	3 feet
Groundwater Depth (feet) (a)	计算法的数据 证明	ing water to be to be to be	i i i	12.5	15	4.0
norganics (mg/kg)						
Arsenic	190,000	150	0.37	0.87	0.86	1.62
Barium	190,000	8,200	97.5	92.8	96	128
Cadmium	190,000	38	<1	<1	<1	<1
Chromium	190,000 ^(I)	190 ⁽¹⁾	8.6	9	8.6	12.5
Lead	190,000	450	8.5	7.9	7.6	18.6
Selenium	190,000	26	<0.25	<0.25	<0.25	<0.25
Copper	190,000	36,000	24.3	28.8	30.3	33.3
Nickel	190,000	650	9.9	12.7	13.2	15.6
Zinc	190,000	12,000	30.1	33.9	34.9	55.9
Aluminum	190,000	NL ^(g)	4,950	4,960	5,500	6,130
Calcium	NL	, NL	838	986	694	5,207
Cobalt	190,000	200	7.6	7,7	7.7	8.3
Iron	190,000	NL	10,700	12,200	13,800	12,700
Potassium	NL	NL NL	351	343	396	502
Magnesium	NL NL	NL NL	1,070	1,190	1,290	1,220
Manganese	190,000	NL NL	336	313	402	686
Sodium	NL NL	NL.	296	166	213	284
Vanadium	190,000	72,000	9.9	9.8	9,4	11.6
T LIMES, LECT	150,000	72,000	7.5	9.0	2,4	11.0
Cyanide	190,000 ^(h)	200 ^(h)	<0.05	<0.05	<0.05	<0.05
olatile Organic Compounds (mg/kg)						
Benzene	240	0.5	1.35 ⁽⁰⁾	<0.040	<0.002	<0.002
n-Butylbenzene	10,000	2,600	3.49	6.8	0.195	<0.002
sec-Butylbenzene	10,000	960	3.85	5.79	0.247	<0.002
Carbon Disulfide	10,000	410	<0.020	3.88	<0.002	<0.002
Ethylbenzene	10,000	70	17.9	34.8	0.338	0.202
Isopropylbenzene	NL	NL	7.37	16	0.366	<0.002
p-Isopropyltoluene	NL	NL	6.04	13.5	0.127	<0.002
Naplithalene	190,000	25	44.1	81.9	18.6	0.61
n-Propylbenzene	10,000	780	19.9	44.9	0.888	<0.002
Toluene	10,000	100	3.42	<0.040	<0.002	<0.00
1,2,4-Trichlorobenzene	10,000	27	<0.02	<0.040	<0.002	<0.002
1,2,4-Trimethylbenzene	360	20	67.8	116	25.9	0.279
1,3,5-Trimethylbenzene	360	6.2	35.1	63.7	0.705	0:162
Xylenes, Total	10,000	1,000	57.7	67.1	0.283	0.633
m,p-Xylenes	NL	NL	33.6	36.5	0.0777	0.484
o-Xylene	NL	NL NL	24.1	30.6	0.205	0.139
emivolatile Organic Compounds (mg	/kg)					
Acenaphthylene	190,000	6,900	<0.01	<0.01	<0.01	<0.01
Anthracene	190,000	350	<0.01	<0.01	<0.01	2.87
Benzo(a)antluacene	190,000	320	<0.01	<0.01	<0.01	<0.01
Вепло(а)рутепе	190,000	46	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	190,000	170	<0.01	<0.01	<0.01	0.15
Benzo(k)fluoranthene	190,000	610	<0.01	<0.01	<0.01	0.12
bis (2-Ethylhexyl) phthalate	10,000	130	0.14	3.02	0.51	<0.01
Butylbenzyl phthalate	10,000	10,000	<0.01	<0.01	<0.01	<0.01
4-Chloroaniline	190,000	52	<0.01	<0.01	<0.01	<0.01
Chrysene	190,000	230	<0.01	<0.01	<0.01	<0.01
Dibenzofuran	100(1)	0.5(1)	<0.01	<0.01	<0.01	<0.01
Di-n-butyl phthalate	10,000	4,100	0.2	<0.01	0.1	0.19
2,6-Dinitrotoluene	190,000	10	<0.01	<0.01	<0.01	<0.03
Fluoranthene	190,000	3,200	<0.01	<0.01	<0.01	<0.01
Phenanthrene	190,000	10,000	<0.01	1	l .	1
Pyrene .	190,000	2,200	<0.01	<0,01	<0.01	2.77 0.41
2-Methylnapthalene	10,000	8,000	0.75	<0.01 7.59	<0.01 0.37	10
CBs (ug/kg) ^(k)	(0)	(1)	0.73	1.39	1 6.0	110



Notes:

- (a) Groundwater depth based on depth to groundwater during drilling.
- (b) PADEP medium specific concentration (MSC), direct-contact, non-residential subsurface soil (2-15 Feet) (Pennsylvania Bulletin, Volume 3, No. 47, November 24, 2001).
- (c) "mg/kg" is milligrams per kilogram or parts per million.
- (d) PADEP MSC, used-aquifer, non-residential soil to groundwater.
- (e) Depth collected below ground surface.
- (f) Value for total and hexavalent chromium.
- (g) "NL" indicates a MSC does not exist for this constituent.
- (h) Free cyanide MSC.
- (i) Value shaded and shown in bold indicates soil to groundwater pathway exceedance. There were no direct-contact MSC exceedances.
- (j) From Table 6, threshold of regulatiod compounds (Pennsylvania Bulletin, Volume 3, No. 47, November 24, 2001).
- (k) "ug/kg" is micrograms per kilogram or parts per billion.
- (1) Total PCBs not listed; listed for individual Aroclors.



•	Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)		(17.5-19.5)		2 (14-16)		(14-16)		4 (14-16)		13.5-15.5
•	Sample Date:	Soil to Groundwater Pathway Used Aquifers, TDS<2,500 mg/L	Direct Contact Subsurface Soil	1	12/3/2003	12	2/3/2003	12	/3/2003	12	2/2/2003	12	/2/2003
Parameter	•	Non-Residential	2 - 15 Feet										
Volatile Organic Compounds (ug/kg) (a)													
1,1,1,2-Tetrachloroethane		18,000	190,000,000	<	7300 ^(e)	<	5.2	<	4.6	<	190	<	6.4
1.1.1-Trichloroethane		20,000	10,000,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
1,1,2,2-Tetrachloroethane		30	33,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
1,1,2-Trichloroethane		500	120,000	<	7,300	<	5.2	<	4.6	<	190	 <	6.4
1,1-Dichloroethane		11,000	1,200,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
1,1-Dichloroethene		190	38,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
1,2,3-Trichloropropane		400,000	950	<	7,300	<	5.2	<	4.6	<	190	<	6.4
1,2,4-Trimethylbenzene		20,000	360,000		180,000 ⁽⁰⁾	<	5.2	< .	4.6		16B ^(g)	<	6.4
1,2-Dibromo-3-chloropropane		20	12,000	<	15,000	<	10	<	9.2	<	390	<	13
1,2-Dibromoethane (EDB)		5	8,600	<	7,300	<	5.2	<	4.6	<	190	<	6.4
1,2-Dichloroethane		500	73,000	<	7,300	<	5.2	<	4.6	 <	190	<	6.4
1,2-Dichloropropane		500	180,000	< ,	7,300	<	5.2	<	4.6	<	190	<	6.4
1,3,5-Trimethylbenzene		6,200	360,000		97,000 🖟	<	5.2	<	4.6	l	14J ^(b)	<	6.4
2-Butanone (Methyl ethyl ketone)	•	580,000	10,000,000	<	37,000	<	26	<	23		190B		16J
2-Hexanone		(d)	-	<	37,000	<	26	<	23	<	970	<	32
3-Chloropropene (Allylchloride)		4,100	430,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
4-Methyl-2-pentanone (MIBK)		410,000	4,900,000	<	37,000	<	26	<	23	<	970	<	32
Acetone		1,000,000	10,000,000	<	73,000	<	52	<	46		700B	į .	79
Acetonitrile		35,000	3,600,000	<	290,000	<	210	<	180	 	7,800	<	260
Acrolein (Propenal)		12 270	1,200	<	150,000	< <	100	<	92 92	<	3,900	< <	130
Acrylonitrile Benzene		500	28,000 240,000	~	150,000 7,300	<	100 5.2	<	4.6	ľ	3,900 9.7J	<	130 6.4
Bromodichloromethane		10,000	51,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
Bromoform		10,000	1,700,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
Bromomethane (Methyl Bromide)		1,000	300,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
Carbon disulfide		410,000	10,000,000	<	7,300	<	5.2	<	4.6	<	190	1	5.8J
Carbon tetrachloride		500	120,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
Chlorobenzene		10,000	10,000,000	<	7,300	<	5.2	<	4.6		13J	<	6.4
Chloroethane		90,000	10,000,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
Chloroform		10,000	19,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
Chloromethane (Methyl Chloride)		300	1,000,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
Chloroprene		4,100	430,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
cis-1,2-Dichloroethene		7,000	2,100,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
cis-1,3-Dichloropropene ^(c)		2,600	470,000	<	7,300	<	5.2	<	4.6	<	190	< ·	6.4
Dibromochloromethane		-		<	7,300	<	5.2	<	4.6	<	190	<	6.4
Dibromomethane (Methylene bromide) Dichlorodifluoromethane		20,000	2,100,000 10,000,000	<	7,300 7,300	<	5.2 5.2	< <	4.6 4.6	< <	190	< <	6.4
Ethyl methacrylate		100,000 180,000	190,000,000	<	7,300 7,300	~	5.2 5.2	<	4.6	<	190 190	[<	6.4 6.4
Ethylbenzene		70,000	10,000,000		9,900	<	5.2	<	4.6]	25J	<	6.4
Iodomethane (Methyl iodide)			10,000,000	<	7,300	<	5.2	<	4.6	<	190	-	6.4
Isobutanol (Isobutyl alcohol)		610,000	10,000,000	<	290,000	<	210	<	180	<	7,800	<	260
Methacrylonitrile		410	43,000	<	150,000	<	100	<	92	<	3,900	<	130
Methyl methacrylate		410,000	10,000,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
Methylene chloride (Dichloromethane)		500	1,000,000	<	7,300	<	5.2	<	4.6	<	190	<	6.4
Pentachloroethane		-		<	37,000	<	26	<	23	<	970	<	32
Propionitrile		_	-	<	150,000	<	100	<	92	<	3,900	<	130
Styrene		24,000	10,000,000	1	1,100J	<	5.2	<	4.6	1	28B	<	6.4
Tetrachloroethene		500	3,300,000	<	7,300	<	5.2	<	4.6	۲	190	<	6.4
Toluene trans-1,2-Dichloroethene		100,000	10,000,000	<	7,300	<	5.2	<	4.6	-	20,000B	_	14
		10,000	4,300,000		7,300	1	5.2		4.6	<	190	 	6.4
trans-1,3-Dichloropropene(c)		2,600	470,000	<	7,300	<	5.2	<	4.6	<	190	 <	6.4
trans-1,4-Dichloro-2-butene		7	190,000,000	<	15,000	<	10	<	9.2	_ <	390	<	13
Trichloroethene Trichlorofluoromethane		500	1,100,000	<	7,300 7,300	< <	5.2 5.2	<	4.6 · 4.6	< <	190	<	6.4
Vinyl acetate		120,000	10,000,000	<	7,300 15,000	<	3.2 10	<	9.2	<	190 390	< <	6.4 13
Vinyl chloride		200	220,000	<	7,300	<	5.2	<	4.6	<	390 190	<	6.4
Xylenes, Total		1,000,000	10,000,000	`	84,600	<	10	~	9.2	`	48J	<	13



arameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil to Groundwater Pathway Used Aquifers, TDS<2,500 mg/L Non-Residential	PADEP Act 2 MSCs (b) Direct Contact Subsurface Soil 2 - 15 Feet		(17.5-19.5) 2/3/2003		2 (14-16) 2/3/2003		/3/2003		1 (14-16) 1/2/2003		5 (13.5-15 12/2/2003
emivolatile Organic Compounds (ug/kg)		Tron recovering	2 10100	1		•				_			
1,2,4,5-Tetrachlorobenzene		14,000	190,000,000 '	<	460	 	420	<	390	~	400	<	400
1,2,4-Trichlorobenzene		27,000	10,000,000	<	460	<	420	<	390	<	400	<	400
1,2-Dichlorobenzene (o-Dichlorobenzene)		60,000	10,000,000	<	460	<	420	<	390	<	400	<	400
1,3,5-Trinitrobenzene				<	460	<	420	<	390	<	400	-	400
1,3-Dichlorobenzene (m-Dichlorobenzene)		000,13	10,000,000	<	460	<	420	<	390	<	400	<	400
1,4-Dichlorobenzene (p-Dichlorobenzene)		10,000	190,000,000	<	460	<	420	<	390	<	400	<	400
1.4-Dioxane		2,400	240,000	<	460	<	420	<	390	<	400	-	400
1,4-Naphthoquinone				<	460	<	420	<	390	<	400	-	400
1,4-Phenylenediamine (p-Phenylenediamine)		<u>_</u>	<u> </u>	<		<	2,200	[-	2,000	-	2,000	<	2,000
1-Naphthylamine		1.100	190,000,000	<	460	<	420	<	390	<	400	<	400
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisoprop	whether!	30,000	190,000	<	460	<	420	<	390	~	400	<	400
2,3,4,6-Tetrachlorophenol	yryemen]	950,000	<u> </u>	<	460	<	420	<	390	<		~	
2,4,5-Trichlorophenol		6,100,000	190,000,000	<				<	390	<	400		400
• •			190,000,000		460	<	420				400	<	400
2,4,6-Trichlorophenol		8,900	190,000,000	<	460	<	420	<	390	<	400	<	400
2,4-Dichlorophenol		2,000	190,000,000	<	460	<	420	<	390	<	400	<	400
2,4-Dimethylphenol		200,000	10,000,000	<	460	<	420	<	390	<	400	 	400
2,4-Dinitrophenol		4,100	190,000,000	<	2,400	<	2,200	<	2,000	 <	2,000	<	2,000
2,4-Dinitrotoluene		840	190,000,000	<	460	<	420	<	390	<	400	<	400
2.6-Dichlorophenol			<u> </u>	<	460	<	420	<	390	<	400	<	400
2,6-Dinitrotoluene		10,000	190,000,000	<	460	<	420	<	390	<	400	<	400
2-Acetylaminofluorene		280	190,000,000	<	460	<	420	<	390	<	400	<	400
2-Chloronaphthalene		18,000,000	190,000,000	<	460	<	420	<	390	<	400	<	400
2-Chlorophenol		4,400	1,100,000	<	460	<	420	<	390	<	400	<	400
2-Methylnaphthalene		8,000,000	10,000,000		200J	<	420	<	390	<	400	1	50J
2-Naphthylamine		140	190,000,000	<	460	<	420	<	390	<	400	<	400
2-Nitroaniline (o-Nitroaniline)		580	190,000,000	<	2,400	<	2,200	<	2,000	<	2,000	<	2,00
2-Nitrophenol (o-Nitrophenol)		82,000	190,000,000	<	460	<	420	<	390	<	400	<	400
2-Picoline	•	_	-	<	460	<	420	<	390	<	400	<	400
3,3'-Dichlorobenzidine	•	32,000	190,000,000	<	930	<	840	<	780	<	800	<	800
3,3'-Dimethylbenzidine		1,500	10,000,000	<	2,400	<	2,200	<	2,000	<	2,000	<	2,00
3-Methylcholanthrene		_		<	460	<	420	<	390	<	400	<	400
3-Nitroaniline (m-Nitroaniline)		580	190,000,000	<	2,400	<	2,200	<	2,000	<	2,000	<	2,00
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)		_		<	2,400	<	2,200	<	2,000	<	2,000	<	2.00
4-Aminobiphenyl		12	190,000,000	<	460	<	420	<	390	<	400	<	400
4-Bromophenylphenyl ether		_	-	<	460	<	420	<	390	<	400	<	400
4-Chloro-3-methylphenol (p-Chloro-m-cresol)		110,000	10,000,000	<	460	<	420	<	390	<	400	<	400
4-Chloroaniline (p-Chloroaniline)		52,000	190,000,000	<	930	<	840	<	780	<	800	<	800
4-Chlorophenylphenyl ether		-	}	<	460	<	420	<	390	<	400	<	400
4-Nitroaniline (p-Nitroaniline)		580	190,000,000	<	2,400	<	2,200	<	2,000	<	2,000	<	2,00
4-Nitrophenol (p-Nitrophenol)		6,000	190,000,000	<	2,400	<	2,200	<	2,000	<	2,000	<	2,00
4-Nitroquinoline-1-oxide				<	4,600	<	4,200	<	3,900	<	4,000	<	4,00
5-Nitro-o-toluidine				<	460	<	420	<	390	<	400	\ <u></u>	400
7,12-Dimethylbenz(a)anthracene			_	<	460	<	420	<	390	<	400	<	400
Acenaphthene		4,700,000	190,000,000	<	460	<	420	<	390	<	400	~	400
Acenaphihylene		6,900,000	190,000,000	<	460	<	420	~	390	<	400	<	
Acetophenone		1,000,000	10,000,000	<	460	<	420	<	390	~	400	<	400
alpha,alpha-Dimethylphenethylamine		1,000,000	10,000,000	<		<		<	79,000				400
Aniline		580		<	94,000		85,000			<	81,000	<	81,00
Anthracene			600,000	<	460	< <	420	< <	390	<	400	<	400
		350,000	190,000,000		460		420		390	<	400	1	160.
Aramite, Total				<	460	<	420	<	390	<	400	<	400
Benzo(a)anthracene		320,000	190,000,000	1	86J	<	420	<	390	<	400	1	510
Davida Antonia		46,000	190,000,000	<	84J	<	420	<	390	<	400	1	440
Benzo(a)pyrene		170.000			460				390	<	400	1	320.
Benzo(b)fluoranthene		170,000	190,000,000	`		<	420	<					
Benzo(b)fluoranthene Benzo(g,h,i)perylene		180,000	190,000,000	1	76J	<	420	<	390	<	400		240
Benzo(b)fluoranthene Benzo(g,h.i)perylene Benzo(k)fluoranthene		180,000 610,000	190,000,000 190,000,000		76J 100J	<	420 420	< <	390 390	< <	400 400		240. 400
Benzo(b)fluoranthene Benzo(g,h,i)perylene		180,000	190,000,000	, , ,	76J	<	420	<	390	<	400	\ \ \	240.



•	Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	C-1 (17.5	-19.5)	C-	2 (14-16)	C-3	3 (14-16)	C-	4 (14-16)	C-6	(13.5-1
	Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/3/2			2/3/2003		/3/2003		2/2/2003	ı	2/2/200
		Used Aquifers, TDS<2,500 mg/L	Subsurface Soil			ŀ							
rameter		Non-Residential	2 - 15 Feet			L.		Ĺ					
mivolatile Organic Compounds (continued) bis(2-Ethylhexyl)phthalate	ug/kg)		· ······										
ois(2-Ediyinexyi)phulalate Butylbenzylphthalate		130,000	10,000,000		50	<	420	<	390	<-	400	<	400
Chrysene		10,000,000	10,000,000		50	<	420	<	390	<	400	< .	400
Cirysene Cresol (ortho)		230,000	190,000,000		10J	<	420	<	390	<	400	l	470
		510,000	10,000,000		50	<	420	<	390	<	400	<	40
Cresol, m & p Diallate, Total		51,000	190,000,000		50	<	420	<	390	<	400	 <	40
The state of the s		1,000	110,000		50	<	420	<	390	<	400	 <	40
Dibenzo(a,h)anthracene		160,000	190,000,000	4		<	420	<	390	<	400	 <	40
Dibenzofuran Diethylphthalate			-		50	<	420	<	390	<	400	ľ	52
Dimethoate	•	500,000	10,000,000		50	<	420	<.	390	<	400	 <	40
		2,000	190,000,000	< 46		<	420	<	390	<	400	<	40
Dimethylphthalate			-		50	<	420	<	390	<	400	<	40
Di-n-butylphthalate		4,100,000	10,000,000		50	<	420	<	390	<	400	<	40
Di-n-octylphthalate		10,000,000	10,000,000	< 46		<	420	<		<	400	<	40
Pinoseb (2-sec-Butyl-4,6-dinitrophenol)		700	190,000,000	ł .	50	<	420	<	390	<	400	<	40
Disulfoton		78	8,700	1		<		<		<	400	<	40
thyl methanesulfonate			-	< 46		<	420	<		<	400	<	40
thyl parathion (Parathion)		360,000	10,000,000		50	<	420	<	390	<	400	<	40
amphur				< 46	50	<	420	<	390	<	400	<	40
luoranthene		3,200,000	190,000,000	- 18	:OJ	<	420	<	390	<	400		97
luorene		3,800,000	190,000,000	< 46	50	<	420	<	390	<	400		68
lexachlorobenzene		960	190,000,000	< 46	50	<	420	<	390	<	400	<	40
lexachlorobutadiene		1,200	10,000,000	< 46	50	<	420	<	390	<	400	<	40
lexachlorocyclopentadiene	-	91,000	10,000,000	< 46	50	٧	420	<	390	<	400	<	40
lexachloroethane		560	190,000,000	< 46	50	<	420	<	390	<	400	<	40
exachlorophene				< 240.	.000	٧	220,000	<			200,000	<	200,0
Texachloropropene					50	<	420	<	390	ζ.	400	-	40
ndeno(1,2,3-cd)pyrene		28,000,000	190,000,000	5		<		<		<	400	1	210
sophorone		10,000	10,000,000	< 46		<	420	<	390	<	400	<	40
sosafrole		<u></u>	-		50	V		~	390	~	400	[40
n-Dinitrobenzene		100	190,000,000		50	<	420	<		<	400	<	40
lethapyrilene				< 94,6		<	85,000	2	79,000	<	81,000	<	
fethyl methanesulfonate		2,600	190,000,000	< 46		\ \	420	<		2	400	ζ.	81,0
fethyl parathion		420	55,000	< 46		\ \	420	~		~	400	2	40
aphthalene .		25,000	190,000,000		00	<	420	<	390	<	400	`	40 55
itrobenzene	,	5,100	10,000,000	< 46		<i>'</i>	420	~		<		L	
-Nitrosodiethylamine		1.3	44		50	<i>'</i>	420	~		<	400	< .	40
-Nitrosodimethylamine		1.3	130		50	<i>/</i>		~	390		400		40
-Nitrosodi-n-butylamine		14	10,000,000	< 46		<i>'</i>	420	\ <		<	400	<	40
-Nitrosodi-n-propylamine		37	, ,			۷	420	<		<	400	<	40
-Nitrosodiphenylamine		83,000	10,000,000		50		420		390	<	400	<	40
l-Nitrosomethylethylamine			190,000,000		50	<	420	<	390	<	400	<	40
l-Nitrosomorpholine			_	< 46		<	420	<		<	400	<	40
-Nitrosopiperidine					50	<	420	<	390	<	400	<	40
-Nitrosopyrrolidine			-		50	<		<	390	<	400	<	40
OOOTriethyl phosphorothicate			-	< 46		<	420	<	390	<	400	<	40
-Toluidine					50	<	420	<	390	<	400	<	40
		1,200	10,000,000		50	<		<	390	<	400	<	40
-(Dimethylamino)azobenzene entachlorobenzene		150	190,000,000	< 46		<	420	<	390	<	400	<	40
eniacnioropenzene entachloronitrobenzene		660,000	190,000,000		50	<		<	390	<	400	<	40
		20,000	190,000,000		50	<		<	390	<	400	<	40
entachlorophenol		5,000	190,000,000		100	<	2,200	<	2,000	<	2,000	<	2,0
henacetin		.120,000	190,000,000	3	50	<	420	<	390	<	400	<	40
henol		400,000	190,000,000	< 46	50	<	420	<	390	<	400	<	40
henanthrene		10,000,000	190,000,000	. 12	10.	<	420	<	390	<	400		52
horate		880	43,000	< 46	50	<	420	<	390	<	400	<	40
ronamide		5,000	190,000,000	< 46	50	<	420	<	390	<	400	<	40
утепе		2,200,000	190,000,000	1	to	<	420	<	390	<	400		92
yridine		2,000	210,000	1	50	<	420	<	390	<	400	<	40
afrole					50	~	420	<	390	~	400	~	40
ulfotepp (Tetraethyl dithiopyrophosphate)		1,500	110,000		50	۲	420	<	390	<	400	<	400
hionazin (o.o-Diethyl-O-pyrazinyl phosphoro			1,,,,,	< 46	~~	\ <	420	1	390	١`	40 0	<	40



•													
· ·	Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	C-1	(17.5-19.5)	C-:	2 (14-16)	C-	3 (14-16)	Ç-	4 (14-16)	C-6 (13.5-15.
	Sample Date:		Direct Contact		2/3/2003	12	2/3/2003	1:	2/3/2003	12	2/2/2003	12	/2/2003
		Used Aquifers, TDS<2,500 mg/L	Subsurface Soil			1						1	
Parameter		Non-Residential	2 - 15 Feet	1									
Inorganics (mg/kg) ^(s)		•											
Antimony		27	190,000	<	2.7	<	. 2.3	<	2.1	<	2.3	[1.1J
Arsenic		150	190,000	į į	15		10		13		9.8	i	14
Barium		8,200	190,000	1	170	1	110	ì	130	ŀ	130	j	110
Beryllium	•	320	190,000		1.2		0.88	١	0.81		0.82	1	1.1
Cadmium		38	190,000		0.27J		0.213		0.17J	<	0.57		0.5J
Chromium		190,000	190,000		23		18		16		18		27
Cobalt		200	190,000		8.2		15		12		11		12
Copper		36,000	190,000		49K		21K		19K ^(j)		21		28K
Lead	•	450	190,000		27K	l	15K	1	13K	Į.	13	1	120K
Мегситу		10	190,000	1	0.11	Ī	0.02	i	0.02	ı	0.025	l	0.15
Nickel		650	190,000	1	23		23	1	21	1	23		20
Selenium		26	190,000	<	1.3	<	1.1	<	1.1	<	1.1	<	1.1
Silver		84	190,000	<	1.3L ⁽ⁱ⁾	<	1.1L	<	1.1L	<	1.1	<	1.1L
Thallium		14	190,000	<	1.3	<	1.1	<	1.1	<	1.1	<	1.1
Tin	•	6,100	190,000		5.1B	1	1.8B		1.9B	1	1.9		9.3
Vanadium	•	72,000	190,000	1	30		25	1	23		26	1	20
Zinc		12,000	190,000		68K		66K	1	61K	1	67	ļ	110K



Parameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil to Groundwater Pathway Used Aquifers, TDS<2,500 mg/L Non-Residential	PADEP Act 2 MSCs (b) Direct Contact Subsurface Soil 2 - 15 Feet	FP-1 (13.6-15.6) 12/2/2003	FP-2 (14.5-16.5) 11/25/2003	FP-3 (14-16) 12/2/2003	FP-4 (17.5-19 12/2/2003
Volatile Organic Compounds (ug/kg) (a)					<u></u>	·	
1,1,1,2-Tetrachloroethane		18,000	190,000,000	< 5,3	< 5.1	< 5.2	<4.9/<4.9 ^(k)
1.1.1-Trichloroethane		20,000	10,000,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9· · <4.9/<4.9
1,1,2,2-Tetrachloroethane		30	33,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
1,1,2-Trichloroethane		500	120,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
1,1-Dichloroethane		11,000	1,200,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
1,1-Dichloroethene		190	38,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
1,2,3-Trichloropropane		400,000	950	< 5.3	< 5.1	< 5.2	<4.9/<4.9
1,2,4-Trimethylbenzene		20,000	360,000	< 5.3	< 5.1	< 5.2	
1,2-Dibromo-3-chloropropane		20	12,000	< 10	< 10	< 10	<4.9/<4.9
1,2-Dibromoethane (EDB)		5	8,600	< 5.3	< 5.t	< 5.2	<9.8/<11 <4.9/<4.9
1,2-Dichloroethane		500	73,000	< 5.3	< 5.1	< 5.2	
1,2-Dichloropropane		500	180,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9 <4.9/<4.9
1,3,5-Trimethylbenzene							
2-Butanone (Methyl ethyl ketone)		6,200 580,000	360,000	< 5.3 < 26	< 5.1	< 5.2	<4.9/<4.9
	•	_(4)	10,000,000		< 25	< 26	<24/<27
2-Hexanone				< 26	< 25	< 26	<24/<27
3-Chloropropene (Allylchloride)		4,100	430,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
4-Methyl-2-pentanone (MIBK)		410,000	4,900,000	< 26	< 25	< 26	<24/<27
Acetone Acetonitrile		1,000,000	10,000,000	< 53	58	< 52	<49/<54
		35,000	3,600,000	< 210	< 200	< 210	<200/<220
Acrolein (Propenal) Acrylonitrile		12	1,200	< 100	< 100	< 100	<98/<110
Benzene		270	28,000	< 100	< 100	< 100	<98/<110
Bromodichloromethane		500	240,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
Bromoform		10,000	51,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
Bromomethane (Methyl Bromide)		10,000	1,700,000	< 5.3	< 5.1	< 5.2 _.	<4.9/<4.9
Carbon disulfide		1,000	300,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
Carbon tetrachloride		410,000	10,000,000	< 5.3	5.9	< ` 5.2	<4.9/<4.9
Chlorobenzene		500 10,000	120,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
Chloroethane		90,000	10,000,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
Chloroform		10,000	10,000,000	< 5.3 < 5.3	< 5.1	< 5.2	<4.9/<4.9
Chloromethane (Methyl Chloride)		300	19,000		< 5.1 < 5.1	< 5.2	<4.9/<4.9
Chloroprene		4,100	1,000,000 430,000	< 5.3 < 5.3		< 5.2	<4.9/<4.9
cis-1,2-Dichloroethene		7,000	2,100,000	< 5.3 < 5.3	< 5.1 < 5.1	< 5.2 < 5.2	<4.9/<4.9
cis-1,3-Dichloropropene ^(c)							<4.9/<4.9
Dibromochloromethane		2,600	470,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
Dibromomethane (Methylene bromide)			2 100 000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
Dichlorodifluoromethane		20,000	2,100,000	< 5.3 < 5.3	< 5.1	< 5.2	<4.9/<4.9
Ethyl methacrylate		100,000 180,000	10,000,000	< 5.3 < 5.3	< 5.1 < 5.1	< 5.2	<4.9/<4.9
Ethylbenzene		70,000	190,000,000			< 5.2	<4.9/<4.9
Iodomethane (Methyl iodide)	l	70,000	10,000,000	< 5.3 < 5.3	< 5.1 · < 5.1	< 5.2 < 5.2	<4.9/<4.9
Isobutanol (Isobutyl alcohol)	l	610,000	10,000,000	< 210	< 3.1 < 200	< 5.2 < 210	<4.9/<4.9
Methacrylonitrile		410	43,000	< 100	< 100	< 210 < 100	<200/<220
Methyl methacrylate	l	410,000	10,000,000	< 5.3	< 5.1	< 5.2	<98/<110
Methylene chloride (Dichloromethane)	l	500	1,000,000	< 5.3	< 5.1 < 5.1	< 5.2 < 5.2	<4.9/<4.9 <4.9/<4.9
Pentachloroethane			1,000,000	< 26	< 25	< 26	<4.9/<4.9 <24/<27
Propionitrile				< 100	< 100	< 100	
Styrene		24,000	10,000,000	< 5.3	< 5.1	< 5.2	<98/<110 <4.9/<4.9
Tetrachloroethene	l	500	3,300,000	< 5.3	< 5.1	< 5.2	<4.9/<4.9
Toluene	ļ	100,000	10,000,000		< 5.1	< 5.2	<4.9/<4.9
trans-1,2-Dichloroethene		10,000	4,300,000	< 5.3 < 5.3	< 5.1	< 5.2	<4.9/<4.9
trans-1,3-Dichloropropene(c)		2,600	470,000	< 5.3			
trans-1,4-Dichloro-2-butene	İ	7	190,000,000	< 10	Į.		<4.9/<4.9
Trichloroethene	j	500	1,100,000	< 5.3			<9.8/<11
Trichlorofluoromethane			1,100,000	< 5.3	< 5.1 < 5.1	33 < 5.2	<4.9/<4.9
Vinyl acetate		120,000	10,000,000	< 10	< 10		<4.9/<4.9
Vinyl chloride		200	220,000	< 5.3			<9.8/<11
Xylenes, Total		1,000,000	10,000,000	< 10	< 5.1 < 10	< 5.2 < 10	<4.9/<4.9 <9.8/<11



		•		-	-		
Sa	mple ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	FP-1 (13.6-15.6)	FP-2 (14.5-16.5)	FP-3 (14-16)	FP-4 (17.5-19
Sam	ple Date:	Soil to Groundwater Pathway	Direct Contact	12/2/2003	11/25/2003	12/2/2003	12/2/2003
	.	Used Aquifers, TDS<2,500 mg/L	Subsurface Soil		1		
arameter		Non-Residential	2 - 15 Feet				
emivolatile Organic Compounds (ug/kg)		· · · · · · · · · · · · · · · · · · ·	<u> </u>	1	,	,	
1,2,4,5-Tetrachlorobenzene		14,000	190,000,000	< 410	< 400	< 410	<400/<410
1,2,4-Trichlorobenzene		27,000	10,000,000	< 410	< 400	< 410	<400/<410
1,2-Dichlorobenzene (o-Dichlorobenzene)	- 1	60,000	10,000,000	< 410	< 400	< 410	<400/<410
1,3,5-Trinitrobenzene	ł	-		< 410	< 400	< 410	<400/<410
I,3-Dichlorobenzene (m-Dichlorobenzene)	l	61,000	10,000,000	< 410	< 400	< 410	<400/<410
1,4-Dichlorobenzene (p-Dichlorobenzene)	-	10,000	190,000,000	 < 410	< 400	< 410	<400/<41
1,4-Dioxane	1	2,400	240,000	< 410	< 400	< 410	<400/<41
I,4-Naphthoquinone	i	<u></u>		< 410	< 400	< 410	<400/<41
1,4-Phenylenediamine (p-Phenylenediamine)	.	_	<u> </u>	< 2,100	< 2,100	< 2,100	<2,100/<2,1
1-Naphthylamine		1,100	190,000,000	< 410	< 400	< 410	<400/<41
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)e	ther]	30,000	190,000	< 410	< 400	< 410	<400/<41
2,3,4,6-Tetrachiorophenol		950,000	190,000,000	< 410	< 400	< 410	<400/<41
2.4,5-Trichlorophenol	ŀ	6,100,000	190,000,000	< 410	< 400	< 410	<400/<41
2,4,6-Trichlorophenol		8,900	190,000,000	< 410	< 400	< 410	<400/<41
2,4-Dichlorophenol		2,000	190,000,000	< 410	< 400	< 410	<400/<41
2,4-Dimethylphenol		200,000	10,000,000	< 410	< 400	< 410	<400/<41
2,4-Dinitrophenol		4,100	190,000,000	2,100	< 2,100	< 2.100	<2,100/<2,
		4,100 840		< 410	< 400	< 410	
2,4-Dinitrotoluene		840	190,000,000	1	1		<400/<41
2,6-Dichlorophenol		. 10.000	100 000 000				<400/<41
2,6-Dinitrotoluene		10,000	190,000,000	< 410		< 410	<400/<41
2-Acetylaminofluorene	ļ	280	190,000,000	< 410	< 400	< 410	<400/<41
2-Chloronaphthalene	[18,000,000	190,000,000	< 410	< 400	< 410	<400/<41
2-Chlorophenol	1	4,400	1,100,000	< 410	< 400	< 410	<400/<41
2-Methylnaphthalene	i	000,000,8	10,000,000	< 410	< 400	< 410	<400/<41
2-Naphthylamine	1	ì40	190,000,000	< 410	< 400	< 410	<400/<41
2-Nitroaniline (o-Nitroaniline)		580	190,000,000	< 2,100	< 2,100	< 2,100	<2,100/<2,
2-Nitrophenol (o-Nitrophenol)	- 1	82,000	190,000,000	< 410	< 400	< 410	<400/<41
2-Picoline		 .		< 410	< 400	< 410	<400/<41
3,3'-Dichlorobenzidine		32,000	190,000,000	< 820	< 800	< 820	<800/<81
3,3'-Dimethylbenzidine		1,500	10,000,000	< 2,100	< 2,100	< 2,100	<2,100/<2,
3-Methylcholanthrene		••		< 410	< 400	< 410	<400/<41
3-Nitroaniline (m-Nitroaniline)		580	190,000,000	< 2,100	< 2,100	< 2,100	<2,100/<2.
4,6-Dinitro-2-methylphenol (4,6-Dinitro-a-cresol)		=	_	< 2,100	< 2,100	< 2,100	<2,100/<2,
4-Aminobiphenyl		12	190,000,000	< 410	< 400	< 410	<400/<41
4-Bromophenylphenyl ether				< 410	< 400	< 410	<400/<41
4-Chloro-3-methylphenol (p-Chloro-m-cresol)		110,000	10,000,000	< 410	< 400	< 410	<400/<4
4-Chloroaniline (p-Chloroaniline)		52,000	190,000,000	< 820	< 800	< 820	<800/<8
4-Chlorophenylphenyl ether		32,000	190,000,000	< 410	< 400	< 410	
	.	580	190,000,000		< 2,100	1	<400/<4
4-Nitroaniline (p-Nitroaniline)				1 '		-,	<2,100/<2,
4-Nitrophenol (p-Nitrophenol)		6,000	190,000,000	-,	< 2,100 < 4,000	< 2,100	<2,100/<2,
4-Nitroquinoline-1-oxide	.			.,		< 4,100	<4,000/<4,
5-Nitro-o-toluidine				< 410	< 400	< 410	<400/<4
7,12-Dimethylbenz(a)anthracene				< 410	< 400	< 410	<400/<4
Acenaphthene		4,700,000	190,000,000	< 410	< 400	< 410	<400/<4
Acenaphthylene		6,900,000	190,000,000	< 410	< 400	< 410	<400/<4
Acetophenone		1,000,000	10,000,000	< 410	< 400	< 410	<400/<4
alpha,alpha-Dimethylphenethylamine		-	i –	< 84,000	< 82,000	< 84,000	<82,000/<8
Aniline	-	580	600,000	< 410	< 400	< 410	<400/<4
Anthracene	- 1	350,000	190,000,000	< 410	< 400	< 410	<400/<4
Aramite, Total	l	_	_	< 410	< 400	< 410	<400/<4
Benzo(a)anthracene	Į	320,000	190,000,000	< 410	< 400	< 410	<400/<4
Benzo(a)pyrene	l	46,000	190,000,000	< 410	< 400	< 410	<400/<4
Benzo(b)fluoranthene		170,000	190,000,000	< 410	< 400	< 410	<400/<4
Benzo(g,h,i)perylene		180,000	190,000,000	< 410	< 400	< 410	<400/<4
Benzo(k)fluoranthene		610,000	190,000,000	< 410	< 400	< 410	<400/<4
				710		, - TIV	-4001 -4
				< 410	< 400	< 410	e400le4
Benzo(k)nuoranniene Benzyl alcohol bis(2-Chloroethoxy)methane		3,100,000	10,000,000	< 410 < 410	< 400 < 400	< 410 < 410	<400/<4 <400/<4



•	Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)		FP-2 (14.5-16.5)		FP-4 (17.5-19
•	Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/2/2003	11/25/2003	12/2/2003	12/2/2003
arameter		Used Aquifers, TDS<2,500 mg/L Non-Residential	Subsurface Soil 2 - 15 Feet	'	l		
arameter emivolatile Organic Compounds (continued) (u)	a/ka)	Non-Residential	2 - 15 Feet		L	<u> </u>	
bis(2-Ethylhexyl)phthalate	561	130,000	10,000,000	< 410	< 400	< 410	<400/<410
Butylbenzylphthalate		10,000,000	10,000,000	< 410	< 400	< 410	<400/<410
Chrysene		230,000	190,000,000	< 410	< 400	< 410	<400/<410
Cresol (ortho)		510,000	10,000,000	< 410	< 400	< 410	<400/<410
Cresol, m & p		51,000	190,000,000	< 410	< 400	< 410	<400/<410
Diallate, Total		1,000	110,000	< 410	< 400	< 410	<400/<410
Dibenzo(a,h)anthracene		160,000	190,000,000	< 410	< 400	< 410	<400/<410
Dibenzofuran		=	••	< 410	< 400	< 410	<400/<410
Diethylphthalate		500,000	10,000,000	< 410	< 400	< 410	<400/<410
Dimethoate		2,000	190,000,000	< 410	< 400	< 410	<400/<410
Dimethylphthalate			••	< 410	< 400	< 410	<400/<410
Di-n-butylphthalate		4,100,000	10,000,000	< 410	< 400	< 410	<400/<410
Di-n-octylphthalate		10,000,000	10,000,000	< 410	< 400	< 410	<400/<410
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		700	190,000,000	< 410	< 400	< 410	<400/<410
Disulfoton		78	8,700	< 410	< 400	< 410	<400/<410
Ethyl methanesulfonate		l <u>~</u>	6,700	< 410	< 400	< 410	<400/<410
Ethyl parathion (Parathion)		360,000	10,000,000	< 410	< 400	< 410	<400/<41
Famphur		200,000	10,000,000	< 410	< 400	< 410	
Fluoranthene		3,200,000	190,000,000	< 410	< 400	< 410	<400/<41 <400/<41
Fluorantiene Fluorene		3,800,000	190,000,000	< 410	< 400	< 410	<400/<41
Hexachlorobenzene		960	· ·	< 410	< 400	< 410	
Hexachlorobutadiene		1,200	190,000,000	1	< 400	< 410	<400/<41
Hexachlorocyclopentadiene		91,000	10,000,000	< 410 < 410	< 400	< 410	<400/<41
		· · · · · · · · · · · · · · · · · · ·	10,000,000		1		<400/<41
Hexachloroethane		560	190,000,000	1			<400/<41
Hexachlorophene		-	_	< 210,000	< 210,000	< 210,000	<210,000/<21
Hexachloropropene				< 410	< 400	< 410	<400/<41
Indeno(1,2,3-cd)pyrene		28,000,000	190,000,000	< 410	< 400	< 410	<400/<41
Isophorone		10,000	10,000,000	< 410	< 400	< 410	<400/<41
Isosafrole				< 410	< 400	< 410	<400/<41
m-Dinitrobenzene		100	190,000,000	< 410	< 400	< 410	<400/<41
Methapyrilene				< 84,000	< 82,000	< 84,000	<82,000/<83
Methyl methanesulfonate		2,600	190,000,000	< 410	< 400	< 410	<400/<4
Methyl parathion		420	55,000	< 410	< 400	< 410	<400/<4
Naphthalene	•	25,000	190,000,000	< 410	< 400	< 410	<400/<4
Nitrobenzene		5,100	10,000,000	< 410	< 400	< 410	<400/<4
N-Nitrosodiethylamine		1.3	44	< 410	< 400	< 410	<400/<4
N-Nitrosodimethylamine		1.3	130	< 410	< 400	< 410	<400/<4
N-Nitrosodi-n-butylamine		14	10,000,000	< 410	< 400	< 410	<400/<4
-Nitrosodi-n-propylamine		37	10,000,000	< 410	< 400	< 410	<400/<4
N-Nitrosodiphenylamine		83,000	190,000,000	< 410	< 400	< 410	<400/<4
N-Nitrosomethylethylamine		_	-	< 410	< 400	< 410	<400/<4
N-Nitrosomorpholine		- `		< 410	< 400	< 410	<400/<4
N-Nitrosopiperidine		-	-	< 410	< 400	< 410	<400/<4
N-Nitrosopyrrolidine		1	_	< 410	< 400	< 410	<400/<41
O.O.O-Triethyl phosphorothioate		-		< 410	< 400	< 410	<400/<4
p-Toluidine		1,200	10,000,000	< 410	< 400	< 410	<400/<4
p-(Dimethylamino)azobenzene		150	190,000,000	< 410	< 400	< 410	<400/<4
Pentachlorobenzene		660,000	190,000,000	< 410	< 400	< 410	<400/<4
Pentachloronitrobenzene		20,000	190,000,000	< 410	< 400	< 410	<400/<4
Pentachlorophenol		5,000	190,000,000	< 2,100	< 2,100	< 2,100	<2,100/<2
henacetin		120,000	190,000,000	< 410	< 400	< 410	<400/<4
Phenol		400,000	190,000,000	< 410	< 400	< 410	<400/<4
Phenanthrene		10,000,000	190,000,000	< 410	< 400	< 410	<400/<4
Phorate		880	43,000	< 410	< 400	< 410	<400/<4
Pronamide		5,000	190,000,000	< 410	< 400	< 410	<400/<4
Pyrene		2,200,000	190,000,000	< 410	< 400	< 410	<400/<4
ryiene Pyridine		2,200,000	210,000	< 410	< 400	< 410	<400/<4
Safrole		2,000	210,000	< 410	< 400		1
Sulfotepp (Tetraethyl dithiopyrophosphate)				1			<400/<4 <400/<4
onvorth (renacath manobhachnoshuge)	higate)	1,500	110,000	< 410 < 410	< 400 < 400	< 410 < 410	<400/<4 <400/<4



•	Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	FP-1 (13.6-15.6)	FP-2 (14.5-16.5)	FP-3 (14-16)	FP-4 (17.5-19.5)
	Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/2/2003	11/25/2003	12/2/2003	12/2/2003
		Used Aquifers, TDS<2,500 mg/L	Subsurface Soil			1	
Parameter		Non-Residential	2 - 15 Feet				
Inorganies (mg/kg) (*)							
Antimony		27	190,000	< 2.3	< 2.3	< 2.4	<2.3/<2.4
Arsenic		150	190,000	9	9.1L	10	9.5/9.6
Barium .		8,200	190,000	210	120	150	120/120
, Beryllium	•	320	190,000	0.99	0.85	0.95	0.77/0.77
Cadmium		38	190,000	0.073J	0.14J	0.094J	<0.57/<0.6
Chromium	• •	190,000	190,000	23	17	20	16/16
Cobalt		200	190,000	13	13	15	12/12
Copper		36,000	· 190,000 .	23K	22	23K	18K/19K
Lead		450	190,000	15K	14L	17K	13K/13K
Mercury		10	190,000	0.028	0.02	0.024	0.018J/0.017J
Nickel		650	190,000	25	25	26	21/21
Selenium		26	190,000	< 1.2	< 1.1L	< 1.2	<1.2/<1.2
Silver		84	190,000	< 1.2L	< 1.1	< 1.2L	<1.2L/<1.2L
Thallium		14	190,000	< 1.2	< 1.1	< 1.2	<1.2/<1.2
Tin		6,100	190,000	1.8B	2.8B	2.28	2.2B/2B
Vanadium		72,000	190,000	31	23	29	23/23
Zinc		12,000	190,000	73K	65	71K	59K/59K



Parameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil to Groundwater Pathway Used Aquifers, TDS<2,500 mg/L Non-Residential	PADEP Act 2 MSCs (b) Direct Contact Subsurface Soil 2 - 15 Feet	L.P-1 (15.1-17.1) 12/4/2003	LP-2 (14.7-16.7) 12/11/2003	LP-3 (19.5-21.5) 12/11/2003	LP-4 (14- 12/3/200
Volatile Organic Compounds (ug/kg) (a)		110H-Residential	Z - 13 Feet	·	l. ·		<u> </u>
1,1,1,2-Tetrachloroethane	,,,,,,,	18,000	190,000,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
1,1,1-Trichloroethane		20,000	10,000,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2 < 5.2
1,1,2,2-Tetrachloroethane		30	33,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
1,1,2-Trichloroethane		500	120,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
1,1-Dichloroethane		11,000	1,200,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
1,1-Dichloroethene		t90	38,000	< 5.8	< 5.5	<5,4/<5.8	< 5.2
1,2,3-Trichloropropane		400,000	950	< 5.8	< 5.5	<5.4/<5.8	< 5.2
1,2,4-Trimethylbenzene		20,000	360,000	< 5.8	3,500	2.5J/<5.8	38
1,2-Dibromo-3-chloropropane		20	12,000	< 12	< 11	<11/<12	< 10
1,2-Dibromoethane (EDB)		5	8,600	< 5.8	< 5.5	<5.4/<5.8	< 5.2
1,2-Dichloroethane		500	73,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
1,2-Dichloropropane		500	180,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
1,3,5-Trimethylbenzene		6,200	360,000	< 5.8	3,000	1.6J/<5.8	20
2-Butanone (Methyl ethyl ketone)		580.000	10,000,000	< 29	< 27	<27/<29	< 26
2-Hexanone		(d)	12,000,000	< 29	l	l .	-
3-Chloropropene (Allylchloride)		4,100	 430,000	< 5.8	< 27 < 5.5	<27/<29	< 26
4-Methyl-2-pentanone (MIBK)		410,000	4,900,000	< 29	170	<5.4/<5.8	< 5.2
Acetone		1,000,000	10,000,000	< 58	27J	<27/<29 20J/23J	< 26 < 52
Acetonitrile		35,000	3,600,000	< 230	< 220	203/233 <220/<230	< 52 < 210
Acrolein (Propenal)		12	1,200	< 120	< 110	<110/<120	< 100
Acrylonitrile		270	28,000	< 120	< 110	<110/<120	< 100
Benzene		, 500	240,000	< 5.8	< 5.5	<5.4/<5.8	36
Bromodichloromethane		10.000	51,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Bromoform		10,000	1,700,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Bromomethane (Methyl Bromide)		1,000	300,000	< 5.8	< 5.5	<5.4/<5.8	S.2
Carbon disulfide		410,000	10,000,000	< 5.8	25	<5.4/<5.8	< 5.2
Carbon tetrachloride		500	120,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Chlorobenzene		10,000	10,000,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Chloroethane		90,000	10,000,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Chloroform		000,01	19,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Chloromethane (Methyl Chloride)		300	1,000,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Chloroprene		4,100	430,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
cis-1,2-Dichloroethene		7,000	2,100,000	2.15	< 5.5	<5.4/<5.8	< 5.2
cis-1,3-Dichloropropene(c)	i	2,600	470,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Dibromochloromethane			_	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Dibromomethane (Methylene bromide)		20,000	2,100,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Dichlorodifluoromethane		100,000	10,000,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Ethyl methacrylate		180,000	190,000,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Ethylbenzene		70,000	10,000,000	< 5.8	1,400	<5.4/<5.8	37
fodomethane (Methyl iodide)			_	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Isobutanol (Isobutyl alcohol)		610,000	10,000,000	< 230	< 220	<220/<230	< 210
Methacrylonitrile		410	43,000	< 120	< 110	<110/<120	< 100
Methyl methacrylate		410,000	10,000,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Methylene chloride (Dichloromethane)	_	500	1,000,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
Pentachloroethane	·	-		< 29	< 27	<27/<29	< 26
Propionitrile		_		< 120	< 110	<110/<120	< 100
Styrene Total describers		24,000	10,000,000	< 5.8	4J	<5.4/<5.8	7.4
Tetrachloroethene Toluene		500	3,300,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
trans-1,2-Dichloroethene		000,000 10,000	10,000,000	< 5.8 < 5.8	< 5.5 < 5.5	<5.4/<5.8	< 5.2
			4,300,000		1	<5.4/<5.8	< 5.2
trans-1,3-Dichloropropene (c)		2,600	470,000	< 5.8	< 5.5	<5.4/<5.8	< 5.2
trans-1,4-Dichloro-2-butene		7	190,000,000	< 12	< 11 .	<11/<12	< 10
Trichloroethene		500	1,100,000	< 5.8	< 5.5	<5.4/<5.8	< . 5.2
Trichlorofluoromethane				< 5.8	< 5.5	<5.4/<5.8	< 5.2
Vinyl acetate Vinyl chloride		120,000	10,000,000	< 12	< 11	<11/<12	< 10
Xylenes, Total		200 1,000,000	220,000 10,000,000	< 5.8 < 12	< 5.5 560	<5.4/<5.8 <11/<12	< 5.2 15



Sample ID:	PADEP Act 2 MSCs (6)	PADEP Act 2 MSCs (b)		LP-2 (14.7-16.7)	LP-3 (19.5-21.5)		4 (14-16
Sample Date:	Soil to Groundwater Pathway Used Aquifers, TDS<2,500 mg/L	Direct Contact Subsurface Soil	12/4/2003	12/11/2003	12/11/2003	12	/3/2003
Parameter	Non-Residential	2 - 15 Feet					
Semivolatile Organic Compounds (ug/kg)			'				
1,2,4,5-Tetrachlorobenzene	14,000	190,000,000 '	< 440	< 430	<410/<420	<	410
1,2,4-Trichlorobenzene	27,000	10,000,000	< 440	< 430	<410/<420	<	410
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000	10,000,000	< 440	< 430	<410/<420	<	410
1,3,5-Trinitrobenzene			< 440	< 430	<410/<420	<	410
1,3-Dichlorobenzene (m-Dichlorobenzene)	61,000	10,000,000	< 440	< 430	<410/<420	<	410
1,4-Dichlorobenzene (p-Dichlorobenzene)	10,000	190,000,000	< 440	< 430	<410/<420	<	410
1,4-Dioxane	2,400	240,000	< 440	< 430	<410/<420	<	410
1,4-Naphthoquinone	. -		< 440	< 430	<410/<420	<	410
1,4-Phenylenediamine (p-Phenylenediamine)	-		< 2,300	< 2,200	<2,100/<2,200	<	2,100
1-Naphthylamine	1,100	190,000,000	< 440	< 430	<410/<420	<	410
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000	190,000	< 440	< 430	<410/<420	<	410
2,3,4,6-Tetrachlorophenol	950,000	190,000,000	< 440	< 430	<410/<420	<	410
2,4,5-Trichlorophenol	6,100,000	190,000,000	< 440	< 430	<410/<420	<	410
2,4,6-Trichlorophenol	8,900	190,000,000	< 440	< 430	<410/<420	<	410
2,4-Dichlorophenol	2,000	190,000,000	< 440	< 430	<410/<420	<	410
2,4-Dimethylphenol	200,000	10,000,000	< 440	< 430	<410/<420	<	410
2,4-Dinitrophenol	4,100	190,000,000	< 2,300	< 2,200	<2,100/<2,200	<	2,100
2,4-Dinitrotoluene	840	190,000,000	< 440	< 430	<410/<420	<	410
2,6-Dichlorophenol			< 440	< 430	<410/<420	<	410
2,6-Dinitrotoluene	10,000	190,000,000	< 440	< 430	<410/<420	<	410
2-Acetylaminofluorene	280	190,000,000	< 440	< 430	<410/<420	<	410
2-Chloronaphthalene	18,000,000	190,000,000	< 440	< 430	<410/<420	<	410
2-Chlorophenol 2-Methylnaphthalene	4,400	- 1,100,000	< 440 < 440	< 430	<410/<420	<	410
2-Naphthylamine	8,000,000 140	10,000,000		< 430	<410/<420	 	410
2-Napholylatinine 2-Nitroaniline (o-Nitroaniline)	580	190,000,000	I	< 430 < 2,200	<410/<420	 	410
2-Nitrophenol (o-Nitrophenol)	82,000	190,000,000 190,000,000	< 2,300 < 440	< 2,200 < 430	<2,100/<2,200 <410/<420	<	2,100
2-Picoline	82,000	190,000,000	< 440	< 430	<410/<420	< <	410 410
3,3'-Dichlorobenzidine	32,000	190,000,000	< 890	< 870	<820/<840	<	820
3,3'-Dimethylbenzidine	1,500	10,000,000	< 2,300	< 2,200	<2,100/<2,200	~	2,100
3-Methylcholanthrene			< 440	< 430	<410/<420	<	410
3-Nitroaniline (m-Nitroaniline)	580	190,000,000	< 2,300	< 2,200	<2,100/<2,200	<	2,100
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)			< 2,300	< 2,200	<2,100/<2,200	<	2,100
4-Aminobiphenyl	12	190,000,000	< 440	< 430	<410/<420	<	410
4-Bromophenylphenyl ether	l -		< 440	< 430	<410/<420	<	410
4-Chloro-3-methylphenoi (p-Chloro-m-cresol)	110,000	10,000,000	< 440	< 430	<410/<420	<	410
4-Chloroaniline (p-Chloroaniline)	52,000	190,000,000	< 890	< 870	<820/<840	<	820
4-Chlorophenylphenyl ether	_		< 440	< 430	<410/<420	<	410
4-Nitroaniline (p-Nitroaniline)	580	190,000,000	< 2,300	< 2,200	<2,100/<2,200	<	2,100
4-Nitrophenol (p-Nitrophenol)	6,000	190,000,000	< 2,300	< 2,200	<2,100/<2,200	<	2,100
4-Nitroquinoline-1-oxide	. -	-	< 4,400	< 4,300	<4,100/<4,200	<	4,100
5-Nitro-o-toluidine	ļ 	_	< 440	< 430	<410/<420	<	410
7,12-Dimethylbenz(a)anthracene	-	_	< 440	< 430	<410/<420	<	410
Acenaphthene	4,700,000	190,000,000	< 440	< 430	<410/<420	<	410
Acenaphthylene	6,900,000	190,000,000	< 440	< 430	<410/<420	<	410
Acetophenone	1,000,000	10,000,000	< 440	< 430	<410/<420	<	410
alpha,alpha-Dimethylphenethylamine	i	-	< 90,000	< 88,000	<84,000/<85,000	<	84,000
Aniline	580	600,000	< 440	< 430	<410/<420	<	410
Anthracene	350,000	190,000,000	< 440	< 430	<410/<420	<	410
Aramite, Total	-	-	< 440	< 430 ·	<410/<420	<	410
Benzo(a)anthracene	320,000	190,000,000	< 440	< 430	<410/<420	<	410
Benzo(a)pyrene	46,000	190,000,000	< 440	< 430	<410/<420	<	410
Benzo(b)fluoranthene	170,000	190,000,000	< 440	< 430	<410/<420	<	410
Benzo(g,h,i)perylene	180,000	190,000,000	< 440	< 430	<410/<420	<	410
Benzo(k)fluoranthene	610,000	000,000,001	< 440	< 430	<410/<420	<	410
Benzyl alcohol	3,100,000	10,000,000	< 440	< 430	<410/<420	<	410
bis(2-Chloroethoxy)methane	-	-	< 440	< 430 ·	<410/<420	<	410
bis(2-Chloroethyl)ether	55	5,700	< 440	< 430	<410/<420	<	410



	ple ID: PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	LP-1 (15.1-17.1)	LP-2 (14.7-16.7)	LP-3 (19.5-21.5)	LP-4 (14-16
· Sampl	e Date: Soil to Groundwater Pathway	Direct Contact	12/4/2003	12/11/2003	12/11/2003	12/3/2003
	Used Aquifers, TDS<2,500 mg/L					İ
Parameter	Non-Residential	2 - 15 Feet		L	i	
Semivolatile Organic Compounds (continued) (ug/kg)	120.000	· · · · · · · · · · · · · · · · · · ·	Į			
bis(2-Ethylhexyl)phthalate Butylbenzylphthalate	130,000	10,000,000	< 440	140J	300J/430	801
Chrysene	10,000,000	10,000,000	< 440	< 430	<410/<420	< 410
Cresol (ortho)	230,000 510,000	190,000,000	< 440 < 440	< 430 < 430	<410/<420	< 410
Cresol, m & p	51,000	10,000,000	< 440	< 430 < 430	<410/<420	< 410 < 410
Diallate, Total	1,000	110,000	< 440	< 430	<410/<420 <410/<420	< 410 < 410
Dibenzo(a,h)anthracene	160,000	190,000,000	< 440	< 430	<410/<420	< 410
Dibenzofuran	=		< 440	< 430	<410/<420	< 410
Diethylphthalate	500,000	10,000,000	< 440	< 430	<410/<420	< 410
Dimethoate	2,000	190,000,000	< 440	< 430	<410/<420	< 410
Dimethylphthalate		_	< 440	< 430	<410/<420	< 410
Di-n-butylphthalate	4,100,000	10,000,000	< 440	< 430	<410/<420	< 410
Di-n-octylphthalate	10,000,000	10,000,000	< 440	< 430	<410/<420	< 410
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)	700	190,000,000	< 440	< 430	<410/<420	< 410
Disulfoton	78	8,700	< 440	< 430	<410/<420	< 410
Ethyl methanesulfonate	-	-	< 440	< 430	<410/<420	< 410
Ethyl parathion (Parathion)	360,000	10,000,000	< 440	< 430	<410/<420	< 410
Famphur Fluoranthene	,		< 440	< 430	<410/<420	< 410
Fluoranthene	3,200,000	190,000,000	< 440	< 430	<410/<420	< 410
Hexachlorobenzene	3,800,000	190,000,000	< 440	< 430	<410/<420	< 410
Hexachlorobutadiene	960 .	190,000,000	< 440	< 430	<410/<420	< 410
Hexachlorocyclopentadiene	1,200 91,000	10,000,000	< 440 < 440	< 430 < 430	<410/<420	< 410
Hexachloroethane	560	190,000,000	< 440	< 430	<410/<420 <410/<420	< 410 < 410
Hexachlorophene		190,000,000	< 230,000	< 220,000	<210,000/<220,000	
Hexachloropropene			< 440	< 430	<410/<420	< 410
Indeno(1,2,3-cd)pyrene	28.000,000	190,000,000	< 440	< 430	<410/<420	< 410
Isophorone	10,000	10,000,000	< 440	< 430	<410/<420	< 410
Isosafrole	<u> </u>		< 440	< 430	<410/<420	< 410
m-Dinitrobenzene	100	190,000,000	< 440	< 430	<410/<420	< 410
Methapyrilene		_	< 90,000	< 88,000	<84,000/<85,000	< 84,000
Methyl methanesulfonate	2,600	190,000,000	< 440	< 430	<410/<420	< 410
Methyl parathion	420	55,000	< 440	< 430	<410/<420	< 410
Naphthalene-	25,000	190,000,000	< 440	< 430	<410/<420	< 410
Nitrobenzene	5,100	10,000,000	< 440	< 430	<410/<420	< 410
N-Nitrosodiethylamine	1.3	44	< 440	< 430	<410/<420	< 410
N-Nitrosodimethylamine	1.3	130	< 440	< 430	<410/<420	< 410
N-Nitrosodi-n-butylamine n-Nitrosodi-n-propylamine	14	10,000,000	< 440	< 430	<410/<420	< 410
N-Nitrosodiphenylamine	37 83,000	10,000,000	< 440	< 430	<410/<420	< 410
N-Nitrosomethylethylamine	· ·	190,000,000	< 440 < 440	< 430 < 430	<410/<420	< 410
N-Nitrosomorpholine			< 440	< 430 < 430	<410/<420	< 410 < 410
N-Nitrosopiperidine		-	< 440	< 430	<410/<420 <410/<420	
N-Nitrosopyrrolidine	1 =		< 440	< 430	<410/<420	< 410 < 410
O,O,O-Triethyl phosphorothioate	_	_	< 440	< 430	<410/<420	< 410
o-Toluidine	1,200	10,000,000	< 440	< 430	<410/<420	< 410
p-(Dimethylamino)azobenzene	150	190,000,000	< 440	< 430	<410/<420	< 410
Pentachlorobenzene	660,000	190,000,000	< 440	< 430	<410/<420	< 410
Pentachloronitrobenzene	20,000	190,000,000	< 440	< 430	<410/<420	< 410
Pentachlorophenol	5,000	190,000,000	< 2,300	< 2,200	<2,100/<2,200	< 2,100
Phenacetin	120,000	190,000,000	< 440	< 430	<410/<420	< 410
Phenol	400,000	190,000,000	< 440	< 430	<410/<420	< 410
Phenanthrene	10,000,000	190,000,000	< 440	< 430	<410/<420	< 410
Phorate	880	43.000	< 440	< 430	<410/<420	< 410
Pronamide	5,000	190,000,000	< 440	< 430	<410/<420	< ' 410
Pyrene	2,200,000	190,000,000	< 440	< 430	<410/<420	< 410
Pyridine	2,000	210,000	< 440	< 430	<410/<420	< 410
Safrole Sulfotene (Tetraethul dithian manhambara)	1.500		< 440	< 430	<410/<420	< 410
Sulfotepp (Tetraethyl dithiopyrophosphate) Thionazin (0,0-Diethyl-O-pyrazinyl phosphorothioate)	1,500	110,000	< 440	< 430	<410/<420	< 410
Amonazin (0,0-Diemyi-O-pyrazinyi phosphorothioate)			< 440	< 430	<410/<420	< 410



•							
	Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	LP-1 (15.1-17.1)	LP-2 (14.7-16.7)	LP-3 (19.5-21.5)	LP-4 (14-16
	Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/4/2003	12/11/2003	12/11/2003	12/3/2003
		Used Aquifers, TDS<2,500 mg/L	Subsurface Soil		ł		1
Parameter	<u> </u>	Non-Residential	2 - 15 Feet				i
Inorganics (mg/kg) ^(u)							
Antimony		27	190,000	< 2.5	< 2.5	0.8J/	< 2.4
Arsenic		150	190,000	10L	9.5K	9K/9.3K	6.2
Barium .		8,200	190,000	120	99	130/130	210
Beryllium		320	190,000	0.75	0.87	0.88/0.88	0.84
Cadmium	•	38	190,000	< 0.64	< 0.63	<0.58/<0.62	0.29J
Chromium	• •	190,000	190,000	18K	15	16/15	25
Cobalt		200	190,000	12K	13	9.6/18	9.5
Соррег		36,000	190,000	21	21	21/21	17K
Lead		450	190,000	14L	14L	13L/18L	10K
Mercury		10	190,000	0.025	0.02J	0.015J/0.025	0.035
Nickel		650	190,000	24	26	27/29	24
Selenium		26	190,000	< 1.3R ^(l)	< 1.3L	<1.2L/<1.2L	< 1.2
Silver		84	190,000	< 1.3	< 1.3	<1.2/<1.2	< 1.2L
Thallium		14	190,000	< 1.3L	< 1.3	<1.2/	< 1.2
Tin		6,100	190,000	2B	2.3B	1.8B/<2.1B	1.9B
Vanadium		72,000	190,000	25	21	21/21	27
Zinc		12,000	190,000	633	67	69/68	72K



· · · · · · · · · · · · · · · · · · ·	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil to Groundwater Pathway Used Aquifers, TDS<2,500 mg/L Non-Residential	PADEP Act 2 MSCs (b) Direct Contact Subsurface Soil 2 - 15 Feet	LP-9 (5.6-7.6) 12/8/2003	LP-10 (16-18) 12/4/2003	SB-1 (14-16) 11/25/2003	SB-2 (11.5-13. 11/25/2003
Volatile Organic Compounds (ug/kg) (a)		110H-ICCSIMERIAL	2-13 Peet	· · · · · · · · · · · · · · · · · · ·	· · ·	<u> </u>	
1,1,1,2-Tetrachloroethane		18,000	190,000,000	< 310	< 5.6	< 5.4	< 5.9
1,1,1-Trichloroethane		20,000	10,000,000	< 310	< 5.6	< 5.4	< 5.9
1,1,2,2-Tetrachforoethane		30	33,000	< 310	< 5.6	< 5.4	< 5.9
1,1,2-Trichloroethane		500	120,000	< 310	< 5.6	< 5.4	< 5.9
1,1-Dichloroethane		11,000	1,200,000	< 310	< 5.6	< 5.4	< 5.9
1.1-Dichloroethene		190	38,000	< 310	< 5.6	< 5.4	< 5.9
1,2,3-Trichloropropane		400,000	950	< 310	< 5.6	< 5.4	< 5.9
1,2,4-Trimethylbenzene		20,000	360,000	1,500	< 5.6 .	53	7.6
1,2-Dibromo-3-chloropropane		20,000	12,000	< 310	< 11	< 11	< 12
1,2-Dibromoethane (EDB)		. 5	8,600	< 310	< 5.6	< 5.4	< 5.9
1.2-Dichloroethane		500	73,000	< 310	< 5.6	< 5.4	< 5.9
1,2-Dichloropropane		500	180,000	< 310	< 5.6	< 5.4	< 5.9
• •			· ·			1	•••
1,3,5-Trimethylbenzene		6,200 580,000	360,000	170J < 1.600		1.4j < 27	6.6
2-Butanone (Methyl ethyl ketone)		'	10,000,000		1	_	"
2-Hexanone		^(d)	-	< 1,600	< 28	< 27	< 30
3-Chloropropene (Allylchloride)		4,100	430,000	< 310	< 5.6	< 5.4	< 5.9
4-Methyl-2-pentanone (MIBK)		410,000	4,900,000	< 1,600	< 28	< 27	< 30
Acetone		1,000,000	10,000,000	1100)	< 56	45J	40J
Acetonitrile		35,000	3,600,000	< 12,000	< 220	< 220	< 240
Acrolein (Propenal)		12	1,200	< 6,200	< 110	< 110	< 120
Acrylonitrile		270	28,000	< 6,200	< 110	< 110	< 120
Benzene		500	240,000	< 310	< 5.6	4.23	3.6J
Bromodichloromethane		10,000	51,000	< 310	< 5.6	< 5.4	< 5.9
Bromoform		10,000	1,700,000	< 310	< 5.6	< 5.4	< 5.9
Bromomethane (Methyl Bromide)		1,000	300,000	< 310	< 5.6	< 5.4	< 5.9
Carbon disulfide		410,000	10,000,000	< 310	< 5.6	< 5.4	< 5.9
Carbon tetrachloride	i	500	120,000	< 310	< 5.6	< 5.4	< 5.9
Chlorobenzene		10,000	10,000,000	< 310	< 5.6	11	8
Chloroethane		90,000	10,000,000	< 310	< 5.6	< 5.4	< 5.9
Chloroform		10,000	j 19,000	< 310	< 5.6	< 5.4	< 5.9
Chloromethane (Methyl Chloride)		300	1,000,000	< 310	< 5.6	< 5.4	< 5.9
Chloroprene		4,100	430,000	< 310	< 5.6	< 5.4	< 5.9
cis-1,2-Dichloroethene		7,000	2,100,000	< 310	< 5.6	< 5.4	< 5.9
cis-1,3-Dichloropropene ^(c)		2,600	470,000	< 310	< 5.6	< 5.4	< 5.9
Dibromochloromethane				< 310	< 5.6	< 5.4	< 5.9
Dibromomethane (Methylene bromide)		20,000	2,100,000	< 310	< 5.6	< 5.4	< 5.9
Dichlorodifluoromethane		100,000	10,000,000	< 310	< 5.6	< 5.4	< 5.9
Ethyl methacrylate		180,000	190,000,000	< 310	< 5.6	< 5.4	< 5.9
Ethylbenzene		70,000	10,000,000	700	< 5.6	9.4	4.73
odomethane (Methyl iodide)		1 -	-	< 310	< 5.6	< 5.4	< 5.9
sobutanol (Isobutyl alcohol)		610,000	10,000,000	< 12,000	< 220	< 220	< 240
Methacrylonitrile		410	43,000	< 6,200	< 110	< 110	< 120
Methyl methacrylate		410,000	10,000,000	< 310	< 5.6	< 5.4	< 5.9
Methylene chloride (Dichloromethane)		500	1,000,000	< 310	< 5.6	< 5.4	< 5.9
Pentachloroethane			_	< 1,600	< 28	< 27	< 30
Propionitrile			-	< 6,200	< 110	< 110	< 120
Styrene		24,000	10,000,000	< 310	< 5.6	< 5.4	< 5.9
Tetrachloroethene		500	3,300,000	< 310	< 5.6	30	21
Toluene .		100,000	10,000,000	< 310	< 5.6	2.43	2.5J
rans-1,2-Dichloroethene		10,000	4,300,000	< 310	< 5.6	< 5.4	< 5.9
rans-1,3-Dichloropropene ^(c)		2,600	470,000	< 310	< 5.6	< 5.4	< 5.9
trans-1,4-Dichloro-2-butene		7	190,000,000	< 620	< 11	< 11	< 12
Trichloroethene		500	1,100,000	< 310	< 5.6	14	12
Trichlorofluoromethane			-	< 310	< 5.6	< 5.4	< 5.9
Vinyl acetate		120,000	10,000,000	< 620	< 11	< 11	< 12
Vinyl chloride		200	220,000	< 310	< 5.6	< 5.4	< 5.9
Xylenes, Total		1,000,000	10,000,000	670	< 11	12	14



Sample ID: Sample Date:		PADEP Act 2 MSCs (b) Direct Contact	LP-9 (5.6-7.6) 12/8/2003	LP-10 (16-18) 12/4/2003	SB-1 (14-16) 11/25/2003	SB-2 (11.5-13.5) 11/25/2003
Gample Date.	Used Aquifers, TDS<2,500 mg/L	Subsurface Soil	12/0/2003	12/4/2003	11/23/2003	11/25/2003
Parameter	Non-Residential	2 - 15 Feet				
Semivolatile Organic Compounds (ug/kg)					·	
1,2,4,5-Tetrachlorobenzene	14,000	190,000,000	< 470	< 410	< 410	< / 450
1,2,4-Trichlorobenzene	27,000	10,000,000	< 470	< 410	< 410	< 450
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000	10,000,000	< 470	< 410	< 410	< 450
1,3,5-Trinitrobenzene	_	-	< 470	< 410	< 410	< 450
1,3-Dichlorobenzene (m-Dichlorobenzene)	61,000	10,000,000	< 470	< 410	< 410	< 450
1,4-Dichlorobenzene (p-Dichlorobenzene)	10,000	190,000,000	< 470	< 410	< 410	< 450
1,4-Dioxane	2,400	240,000	< 470	< 410	< 410	< 450
1,4-Naphthoquinone	ļ. -	-	< 470	< 410	< 410	< 450
1,4-Phenylenediamine (p-Phenylenediamine)		- '	< 2,400	< 2,100	< 2,100	< 2,300
1-Naphthylamine	1,100	190,000,000	< 470	< 410	< 410	< 450
2,2-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000	190,000	< 470	< 410	< 410	< 450
2,3,4,6-Tetrachlorophenol	950,000	190,000,000	< 470	< 410	< 410	< 450
2,4,5-Trichlorophenol	6,100,000	190,000,000	< 470	< 410	< 410	< 450
2,4,6-Trichlorophenol	8,900	190,000,000	< 470	< 410	< 410	< 450
2,4-Dichlorophenol	2,000	190,000,000	< 470	< 410	< 410	< 450
2,4-Dimethylphenol	200,000	10,000,000	< 470	< 410	< 410	< 450
2,4-Dinitrophenol 2,4-Dinitrotoluene	4,100	190,000,000	< 2,400	< 2,100	< 2,100	< 2,300
2,6-Dichlarophenol	840	190,000,000	< 470 < 470	< 410 < 410	< 410 < 410	< .450
2,6-Dinitrotoluene	10,000	100 000 000		1	1	< 450
2-Acetylaminofluorene	280	190,000,000	< 470 < 470	< 410 < 410	< 410 < 410	< 450 < 450
2-Chloronaphthalene	18,000,000	190,000,000	< 470	1	< 410	
2-Chlorophenol	4,400	190,000,000	< 470	< 410 < 410	1	
2-Methylnaphthalene	8,000,000		1			1
2-Naphthylamine	140	10,000,000	57J < 470	< 410 < 410	2,000 < 410	< 450
2-Nitroaniline (o-Nitroaniline)	580	190,000,000 190,000,000	< 470 < 2,400	< 2,100	< 410 < 2,100	< 450 < 2.300
2-Nitrophenol (o-Nitrophenol)	82,000	190,000,000	< 470	< 410	< 410	< 2,300 < 450
2-Picoline	82,000	190,000,000	< 470	< 410	< 410	< 450 < 450
3,3'-Dichlorobenzidine	32,000	190,000,000	< 940	< 820	< 820	< 900
3,3'-Dimethylbenzidine	1,500	10,000,000	< 2,400	< 2,100	< 2,100	< 2,300
3-Methylcholanthrene	1,500	10,000,000	< 470	< 410	< 410	< 450
3-Nitroaniline (m-Nitroaniline)	580	190,000,000	< 2,400	< 2,100	< 2,100	< 2,300
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-creso!)		170,000,000	< 2,400	< 2,100	< 2,100	< 2,300
4-Aminobiphenyl	12	190,000,000	< 470	< 410	< 410	< 450
4-Bromophenylphenyl ether	l :-	12010001000	< 470	< 410	< 410	< 450
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	10,000,000	< 470	< 410	< 410	< 450
4-Chloroaniline (p-Chloroaniline)	52,000	190,000,000	< 940	< 820	< 820	< 900
4-Chlorophenylphenyl ether			< 470	< 410	< 410	< 450
4-Nitroaniline (p-Nitroaniline)	580	190,000,000	< 2,400	< 2,100	< 2,100	< 2,300
4-Nitrophenol (p-Nitrophenol)	6,000	190,000,000	< 2,400	< 2,100	< 2,100	< 2,300
4-Nitroquinoline-1-oxide	-	-	< 4,700	< 4,100	< 4,100	< 4,500
5-Nitro-o-toluidine		.	< 470	< 410	< 410	< 450
7,12-Dimethylbenz(a)anthracene			< 470	< 410	< 410	< 450
Acenaphthene	4,700,000	190,000,000	< 470	< 410	< 410	< 450
Acenaphthylene	6,900,000	190,000,000	< 470	< 410	< 410	< 450
Acetophenone	1,000,000	10,000,000	< 470	< 410	< 410	< 450
alpha,alpha-Dimethylphenethylamine	<u>-</u>		< 96,000	< 84,000	< 84,000	< 92,000
Aniline	580	600,000	< 470	< 410	< 410	< 450
Anthracene	350,000	190,000,000	473	< 410	< 410	< 450
Aramite, Total	-	-	< 470	< 410	< 410	< 450
Benzo(a)anthracene	320,000	190,000,000	1003	< 410	75]	< 450
Benzo(a)pyrene	46,000	190,000,000	80J	< 410	951	68J
Benzo(b)fluoranthene	170,000	190,000,000	70J	< 410	8SJ	561
Benzo(g,h,i)perylene	180,000	190,000,000	64J	< 410	65J	74J
Benzo(k)fluoranthene	610,000	190,000,000	96J	< 410	94J	82J
Benzyi alcohol	3,100,000	10,000,000	< 470	< 410	< 410	< 450
bis(2-Chloroethoxy)methane			< 470	< 410	< 410	< 450
bis(2-Chloroethyl)ether	55	5,700	< 470	< 410	< 410	< 450



Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	LP-9 (5.6-7.6)	LP-10 (16-18)	SB-1 (14-16)	SB-2 (11.5-1
Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/8/2003	12/4/2003	11/25/2003	11/25/2003
ompte Date.	Used Aquifers, TDS<2,500 mg/L	Subsurface Soil	120/2003	1242005	1112512005	11/25/200,
arameter	Non-Residential	2 - 15 Feet		ļ.	[
emivolatile Organic Compounds (continued) (ug/kg)				· · · · · ·		ш
bis(2-Ethylhexyl)phthalate	130,000	10,000,000	510B	< 410	1601	< 450
Butylbenzylphthalate	10,000,000	10,000,000	< 470	< 410	< 410	< 450
Chrysene	230,000	190,000,000	120J	< 410	77J	< 450
Cresol (ortho)	510,000	10,000,000	< 470	< 410	< 410	< 450
Cresol, m & p	51,000	190,000,000	< 470	< 410	< 410	< 450
Diallate, Total	1,000	110,000	< 470	< 410	< 410	< 450
Dibenzo(a,h)anthracene	160,000	190,000,000	< 470	< 410	52J	611
Dibenzofuran			< 470	< 410	< 410	< 450
Diethylphthalate	500,000	0,00,000	< 470	< 410	< 410	< 450
Dimethoate	2,000	190,000,000	< 470	< 410	< 410	< 450
Dimethylphthalate	2,000	130,000,000	< 470	l.	L	
Di-n-butylphthalate	4100.000	-				
* *	4,100,000	10,000,000		< 410	150J	120J
Di-n-octylphthalate	10,000,000	10,000,000	< 470	< 410	< 410	< 450
Dinoseb (2-sec-Butyl-4,6-dinitropheno!)	700	190,000,000	< 470	< 410	< 410	< 450
Disulfoton	78	8,700	< 470	< 410	< 410	< 450
Ethyl methanesulfonate		-	< 470	< 410	< 410	< 450
Ethyl parathion (Parathion)	360,000	10,000,000	< 470	< 410	< 410	< 450
Famphur	. -	-	< 470	< 410	< 410	< 450
Fluoranthene	3,200,000	190,000,000	210J	< 410	98J	42)
Fluorene	3,800,000	190,000,000	373	< 410	160J	< 450
Hexachlorobenzene	960	190,000,000	< 470	< 410	< 410	< 450
Hexachlorobutadiene	1,200	10,000,000	< 470	< 410	< 410	< 450
Hexachlorocyclopentadiene	91,000	10,000,000	< 470	< 410	< 410	< 450
Hexachloroethane	560	190,000,000	< 470	< 410	< 410	< 450
Hexachlorophene			< 240,000	< 210,000	< 210,000	< 230,00
НехасьІогоргорепе	_	I	< 470	< 410	< 410	< 450
Indeno(1,2,3-cd)pyrene	28,000,000	190,000,000	55J	< 410	52J	56J
Isophorone	10,000		< 470	< 410	< 410	1
Isosafrole		10,000,000			1	
			< 470	< 410	< 410	< 450
m-Dinitrobenzene	100	190,000,000	< 470	< 410	< 410	< 450
Methapyrilene	1]	< 96,000	< 84,000	< 84,000	< 92,00
Methyl methanesulfonate	2,600	190,000,000	< 470	< 410	< 410	< 450
Methyl parathion	· 420	55,000	< 470	< 410	< 410	< 450
Naphthalene	25,000	190,000,000	250J	< 410	360J	< 450
Nitrobenzene .	5,100	10,000,000	< 470	< 410	< 410	< 450
N-Nitrosodiethylamine	1.3	44	< 470	< 410	< 410	< 450
N-Nitrosodimethylamine	1.3	130	< 470	< 410	< 410	< 450
N-Nitrosodi-n-butylamine	14	10,000,000	< 470	< 410	< 410	< 450
n-Nitrosodi-n-propylamine	37	10,000,000	< 470	< 410	< 410	< 450
N-Nitrosodiphenylamine	83,000	190,000,000	< 470	< 410	< 410	< 450
N-Nitrosomethylethylamine	-		< 470	< 410	< 410	< 450
N-Nitrosomorpholine		l	< 470	< 410	< 410	< 450
N-Nitrosopiperidine	1 _	l · _	< 470	< 410	< 410	< 450
N-Nitrosopyrolidine		I -	< 470	< 410	< 410	1
O,O,O-Triethyl phosphorothioate		_		1	1	1
	1 200	10 000 000				
o-Toluidine	1,200	10,000,000	< 470	< 410	< 410	< 450
p-(Dimethylamino)azobenzene	150	190,000,000	< 470	< 410	< 410	< 450
Pentachlorobenzene	660,000	190,000,000	< 470	< 410	< 410	< 450
Pentachloronitrobenzene	20,000	190,000,000	< 470	< 410	< 410	< 450
Pentachlorophenol	5,000	190,000,000	< 2,400	< 2,100	< 2,100	< 2,300
Phenacetin	120,000	190,000,000	< 470	< 410	< 410	< 450
Phenol	400,000	190,000,000	< 470	< 410	< 410	< 450
Phenanthrene	10,000,000	190,000,000	210J	< 410	18QJ	< 450
Phorate	880	43,000	< 470	< 410	< 410	< 450
Pronamide	5,000	190,000,000	< 470	< 410	< 410	< 450
Pyrene	2,200,000	190,000,000	1501	< 410	78J	38J
Pyridine	2,000	210,000	< 470	< 410	1	
Safrole	2,000	· ·	< 470	< 410	< 410 < 410	< 450
DAHUK			. 4/11	is 410	i~ 410	< 450
Sulfotepp (Tetraethyl dithiopyrophosphate)	1,500	110,000	< 470	< 410	< 410	< 450



··				•							
	Sample ID: Sample Date:		PADEP Act 2 MSCs (b) Direct Contact Subsurface Soil		-9 (5.6-7.6) 2/8/2003		-10 (16-18) 2/4/2003		-1 (14-16) /25/2003		2 (11.5-13.5) 1/25/2003
Parameter		Non-Residential	2 - 15 Feet	l		ł		1		1	
Inorganics (mg/kg) (a)											
Antimony		27	190,000	<	2.5	<	2.4	<	2.4L	<	2.5
Arsenic		150	190,000	l	19L		8.6L		9.5L	1	14L
Barium .		8,200	190,000	l	120		160		130	1	150
Beryllium		320	190,000	l	1.4		1.2	!	0.89	}	1.1
Cadmium		38	190,000	<	0.62	<	0.59		0.11J	ł	0.96
Chromium	•	190,000	190,000	l	16K	ŀ	21K	1	17		17
Cobalt		200	190,000	l	11K		8.8K	1	13		14
Соррег		36,000	190,000	l	39		18	1	22		26
Lead		450	190,000	1	64L	1	15L	1	15L		73L
Метсигу		10	190,000		0.27	ł	0.036		0.036		0.19
Nickel		650	190,000		22		20		21		21
Selenium		26	190,000	<	1.2R	<	1.2R	<	1.2L	<	1.3L
Silver		84	190,000	<	1.2	<	1.2	<	1.2	<	1.3
Thallium		-14	190,000	<	1.2L	<	1.2L	<	1.2	<	1.3
Tin		6,100	190,000	l	7.9B		2.6B		2.8B		18
Vanadium		72,000	190,000		19		30		23		24
Zinc		12,000	190,000		110		63J		66	1.	120



	Sample ID: Sample Date:	PADEP Act 2 MSCs (b) Soil to Groundwater Pathway Used Aquifers, TDS<2,500 mg/L	PADEP Act 2 MSCs ^(b) Direct Contact Subsurface Soil		3-3 (14-16) 1/25/2003		-4 (8-10) /25/2003		5 (12-14) 25/2003		-6 (11-13) /25/2003		1 (9.7-11.7) 2/8/2003
Parameter (n)		Non-Residential	2 - 15 Feet	├		<u> </u>		<u> </u>		1		<u> </u>	
Volatile Organic Compounds (ug/kg) (a)		•	1	┡		1				_			
1,1,1,2-Tetrachloroethane		18,000	190,000,000	<	5.i	<	5.2	<	5.4	<	5.4	 <	5.6
1,1,1-Trichloroethane		20,000	10,000,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
1,1,2,2-Tetrachloroethane		30	33,000	<	5.1	<	5.2	<	5.4	<	5.4	<u> </u>	5.6
1,1,2-Trichloroethane		500	120,000	 <	5.1	<	5.2	< <	5.4	<	5.4	< <	5.6
1.1-Dichloroethane		11,000 190	1,200,000	<	5.1 5.1	<	5.2 5.2	>	5.4 5.4	<	5.4 5.4	<	5.6 5.6
1,1-Dichloroethene		400,000	38,000 950	-	5.1	2	5.2	<	5.4	<	5.4	<	5.6
1,2,3-Trichloropropane				`		`		1	5.4	~		1	
1,2,4-Trimethylbenzene		20,000	360,000	_	1.3 10		21 10	< .	. 5.4 []	<	5.4 11	< <	5.6 11
1,2-Dibromo-3-chloropropane		20 · 5	12,000 8,600	<	5.1	~	5.2	<	5.4	~	5.4	2	5.6
1,2-Dibromoethane (EDB) 1,2-Dichloroethane		500	73,000	2	5.1	~	5.2	<	5.4	>	5.4	~	5.6
1,2-Dichloropropane		500	180,000	-	5.1 5.1	[5.2	<	5.4	<	5.4	~	5.6
		Į.		1		1			5.4	1			
1,3,5-Trimethylbenzene		6,200 580,000	360,000 10,000,000	<	5.1 5.7J		18 26	\ <u>`</u>	5.4 27		5.4 5.6J	< <	5.6 28
2-Butanone (Methyl ethyl ketone)		280,000	10,000,000			1		1		1			
2-Hexanone		==		<	25	\ <u>`</u>	26	<	27	\ <u></u>	27	<	28
3-Chloropropene (Allylchloride)		4,100	430,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
4-Methyl-2-pentanone (MIBK)		410,000	4,900,000	<	25 41 J	<	26 35J	<	27 30J	<	27 65	<	28
Acetone		1,000,000	10,000,000		41J 200	<	33J 210		220	<	63 220	<	31J 220
Acetonitrile		35,000 12	3,600,000 1,200	<	100	<	100	<	110	<	110	<	110
Acrolein (Propenal)		270	28,000	<	100	<	100	<	110	<	110	~	110
Acrylonitrile Benzene		500	240,000	`	4.7J	`	3.3J	`	1.8J	<	5.4	`	2.7J
Bromodichloromethane		10,000	51,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
Bromoform		10,000	1,700,000	<	5.1	<	5.2	<	5.4	<	5.4	-	5.6
Bromomethane (Methyl Bromide)		1,000	300,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
Carbon disulfide	•	410,000	10,000,000	<	5.1	<	5.2		3J	<	5.4	<	5.6
Carbon tetrachloride		500	120,000	<	5.3	<	5.2	<	5.4	<	5.4	<	5.6
Chlorobenzene		10,000	10,000,000		11	1	8.4	1	4.2J	<	5.4	<	5.6
Chloroethane		90,000	10,000,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
Chloroform		10,000	19,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
Chloromethane (Methyl Chloride)		300	1,000,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
Chloroprene		4,100	430,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
cis-1,2-Dichloroethene		7,000	2,100,000	<	5.1	1	1.21	<	5.4	<	5.4	<	5.6
eis-1,3-Dichloropropene(c)		2,600	470,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
Dibromochloromethane				<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
Dibromomethane (Methylene bromide)		20,000	2,100,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
Dichlorodifluoromethane		100,000	10,000,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
Ethyl methacrylate		180,000	190,000,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
Ethylbenzene		70,000	10,000,000		4J	1	14	<	5.4	<	5.4	1	1.43
Iodomethane (Methyl iodide)		_	_	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
Isobutanol (Isobutyl alcohol)		610,000	10,000,000	<	200	<	210	<	220	<	220	<	220
Methacrylonitrile	-	410	43,000	<	100	<	100	<	110	<	110	<	110
Methyl methacrylate		410,000	10,000,000	<	5.1	<	5.2	<	5.4	<	5.4	<	5.6
Methylene chloride (Dichloromethane)		500	1,000,000	<	5.1	<	5.2	<	5.4	 	5.4	<	5.6
Pentachloroethane		-	-	<	25	 <	26	< <	27	\ <u>`</u>	27	 <	28
Propionitrile		24.000	10.000.000	< <	100	< <	100	\ <	110 5.4	<	110 5.4	< <	110
Styrene		24,000 500	10,000,000	~	5.1 22	1	5.2 23	`	5.4 11	\ \ \ \	5.4 5.4	[5.6 5.6
Tetrachloroethene		100,000	3,300,000 10,000,000		12		6.4	<	5.4	<	5.4 5.4	1	5.6 4.8J
Toluene trans-1,2-Dichloroethene		10,000	4,300,000	<	5.1		5.2	~	5.4	{	5.4	<	4.83 5.6
		1	l .	1				- 1		- 1		1	
trans-1,3-Dichloropropene(c)		2,600	470,000	\ <u>`</u>	5.1	< <	5.2	< <	5.4	<	5.4	\ <u></u>	5.6
trans-1,4-Dichloro-2-butene		7	190,000,000	<	10		10	1	11	ľ	11	\ <u></u>	11
Trichloroethene		500	1,100,000	1_	21		12	<	6 5.4	{	5.4	<	. 5.6
Trichlorofluoromethane		120.000	10 000 000	<	5.1	< <	5.2	<	5.4 11	<	5.4	<	5.6
Vinyl acetate		120,000	10,000,000	<	10 5.1	<	10 5.2	\	5.4		11 5.4	<	11 5.6
Vinyl chloride Xylenes, Total		200 1,000,000	220,000 10,000,000	1	3.1 16	1	5.2 25	1	3.3J	{	5.4 11	\ \	5.6 11



Sample ID: Sample Date:	PADEP Act 2 MSCs (b) Soil to Groundwater Pathway	PADEP Act 2 MSCs (b) Direct Contact	SB-3 (14- 11/25/20		SB-4 (8 11/25/2		\$B-5 (11/25			6 (11-13) /25/2003		1 (9.7-11.7 2/8/2003
bampie Date.	Used Aquifers, TDS<2,500 mg/L	Subsurface Soil	11/25/20	ן ני	1112312	003	11123	/2003	1 *''	23/2003	1 1	2/8/2003
Parameter	Non-Residential	2 - 15 Feet	1								1	
Semivolatile Organic Compounds (ug/kg)	Non-Residential	2 - 13 Feet									Щ.	
1,2,4,5-Tetrachlorobenzene	14,000	190,000,000	< 400		< 41	^	< 4	120	<	430	<	410
1.2.4-Trichlorobenzene	27,000	10,000,000	< 400		< 41			120	<	430	<	410
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000	10,000,000	< 400		< 41		ı	120	<	430	<	410
1,3,5-Trinitrobenzene			< 400		< 41			120	<	430	<	410
1,3-Dichlorobenzene (m-Dichlorobenzene)	000,13	10,000,000	< 400		< 41			120	ζ.	430	<	410
1,4-Dichlorobenzene (p-Dichlorobenzene)	10,000	190,000,000	< 400		< 41		ı	120	\ -	430	<	410
1.4-Dioxane	2,400	240,000	< 400		< 41			120	<	430	<	410
1,4-Naphthoquinone		240,000	< 400		< 41			120	<	430	[2	410
1,4-Phenylenediamine (p-Phenylenediamine)			< 2,10	•	< 2,1			,200	<	2,200	<	2,100
1-Naphthylamine	1,100	190,000,000	< 400		< 41			120	<	430	-	410
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000	190,000	< 400		< 41			120	<	430	<	410
2,3,4,6-Tetrachiorophenol	950,000	190,000,000	< 400		< 41		ı	420	<	430	<	410
2,4,5-Trichlorophenol	6,100,000	190,000,000	< 400		< 41		ı	420	<	430	<	410
2,4,6-Trichlorophenol	8,900	190,000,000	< 400		< 41		ı	420 420	~	430	<	
2,4-Dichlorophenol	2,000	190,000,000	< 400		< 41	-		+20 420	<	430	2	410 410
2,4-Dimethylphenol	200,000	10,000,000	< 400		< 41			+20 420	<	430		410
2,4-Dinitrophenol	4,100	190,000,000	< 2,10		< 2,1		ı	,200	<	2,200		2,100
2,4-Dinitrotoluene	840	190,000,000	< 400		< 41		_	,200 420	/	430	`	410
2,6-Dichlorophenol		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	< 400		< 41			420	/	430	<	410
2,6-Dinitrotoluene	10,000	190,000,000	< 400		< 41			420	<	430	<	410
2-Acetylaminofluorene	280	190,000,000	< 400		< 41			420	<	430	<	410
2-Chloronaphthalene	18,000,000	190,000,000	< 400		< 41			420	<	430	<	410
2-Chlorophenol	4,400	1,100,000	< 400		< 41		1 '	420	<	430	-	410
2-Methylnaphthalene	8,000,000	10,000,000	< 400		< 41			420	<	430	<	410
2-Naphthylamine	140	190,000,000	< 400		< 41			420	<	430	<	410
2-Nitroaniline (o-Nitroaniline)	580	190,000,000	< 2,10		< 2,1			200	<	2,200	<	2,100
2-Nitrophenol (o-Nitrophenol)	82,000	190,000,000	< 400		< 41			420	<	430	<	410
2-Picoline		••	< 400		< 41			420	<	430	<	410
3,3'-Dichlorobenzidine	32,000	190,000,000	< 800		< 82			840	<	870	<	820
3,3'-Dimethylbenzidine	1,500	10,000,000	< 2,10		< 2,1			,200	<	2,200	<	2,100
3-Methylcholanthrene	_	••	< 400		< 41			420	<	430	<	410
3-Nitroaniline (m-Nitroaniline)	580	190,000,000	< 2,10		< 2,1			,200	<	2,200	<	2,100
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	_		< 2,10		< 2,1			,200	<	2,200	<	2,100
4-Aminobiphenyl	12	190,000,000	< 400		< 41			420	<	430	-	410
4-Bromophenylphenyl ether	_		< 400		< 41			420	<	430	<	410
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	10,000,000	< 400		< 41	0	< .	420	<	430	<	410
4-Chloroaniline (p-Chloroaniline)	52,000	190,000,000	< 800		< 82		<	840	<	870	<	820
4-Chlorophenylphenyl ether			< 400		< 41	0	< .	420	<	430	<	410
4-Nitroaniline (p-Nitroaniline)	580	190,000,000	< 2,10		< 2,1			,200	<	2,200	<	2,100
4-Nitrophenol (p-Nitrophenol)	6,000	190,000,000	< 2,10		< 2,1			,200	<	2,200	<	2,100
4-Nitroquinoline-1-oxide			< 4,00		< 4,1		1	,200	<	4,300	<	4,100
5-Nitro-o-toluidine	_		< 400		< 41			420	<	430	<	410
7,12-Dimethylbenz(a)anthracene	_	-	< 400		< 41	0	< .	420	<	430	<	410
Acenaphthene	4,700,000	190,000,000	< 400		< 41			420	<	430	<	410
Acenaphthylene	6,900,000	190,000,000	< 400		< 41			420	<	430	<	410
Acetophenone	1,000,000	10,000,000	< 400		< 41		ı	420	<	430	<	410
alpha,alpha-Dimethylphenethylamine			< 82,00		< 84,		1	5,000	<	88,000	<	84,000
Aniline	580	600,000	< 400		< 41		1	420	<	430	<	410
Anthracene	350,000	190,000,000	< 400		< 41		1	420	<	430	<	410
Aramite, Total	_	-	< 400		< 41		1	420	<	430	<	410
Benzo(a)anthracene	320,000	190,000,000	< 400		72		1	420	<	430	<	410
Benzo(a)pyrene	46,000	190,000,000	< 400		64		1	420	<	430	1	891
Benzo(b)fluoranthene	170,000	190,000,000	< 400		< 41		1	420	<	430		68J
Benzo(g,h,i)perylene	180,000	190,000,000	< 400		5		1	420	<	430	1	150J
Benzo(k)fluoranthene	610,000	190,000,000	< 400		< 41			420	<	430		78J
5 1111								420			1	
Benzyl alcohol	3,100,000	10,000,000	< 400		< 4	U.	<	440	 <	430	<	410
bis(2-Chloroethoxy)methane	3,100,000	10,000,000	< 400		< 4			420 420	<	430 430	< <	410 410



	Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	S	B-3 (14-16)	S	3-4 (8-10)	SB-5	(12-14)	SB-6	(11-13)	TF-1	(9.7-11.
•	Sample Date:	Soil to Groundwater Pathway	Direct Contact		1/25/2003		1/25/2003		/2003	ı	5/2003		/8/2003
		Used Aquifers, TDS<2,500 mg/L	Subsurface Soil			1							
Parameter		Non-Residential	2 - 15 Feet							<u> </u>			
Semivolatile Organic Compounds (continued) (ug/l bis(2-Ethylhexyl)phthalate	(8)	120 000	T .57.3	-		,							
Butylbenzylphthalate		130,000	10,000,000	<	400	<	410		420	<	430	1	510B
Chrysene		10,000,000	10,000,000	<	400	<	410		420	<	430	<	410
Cresol (ortho)		230,000	190,000,000	<	400	1	65J		420	<	430	<	410
Cresol, m & p		510,000	10,000,000	<	400	<	410		420	<	430	<	410
Diallate, Total		51,000	190,000,000	<	400	<	410		420	<	430	<	410
Dibenzo(a,h)anthracene		1,000	110,000	<	400	<	410			<	430	<	410
Dibenzofuran		160,000	- 190,000,000	<	400	<	410		420	<	430	١.	160J
Diethylphthalate		500.000		<	400	<	410		420	<	430	<	410
Dimethoate		500,000	10,000,000	<	400	<	410		420	<	430	<	410
Dimethylphthalate		2,000	190,000,000	<	400	<	410		420	<	430	<	410
Di-n-butylphthalate		4100.000		<	400	<	410	1	420	<	430	 <	410
Di-n-octylphthalate		4,100,000	10,000,000	<	400	<	410		420	<	430	< '	410
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		10,000,000	10,000,000	<	400	<	410		420	<	430		46J
Disulfoton		700	190,000,000	<	400	<	410		420	<	430	<	410
Ethyl methanesulfonate		78	8,700	<	400	<	410		420	<	430	<	410
Ethyl parathion (Parathion)		700,000		<	400	<	410		420	<	430	<	410
Famphur		360,000	10,000,000	<	400	<	410	ı	420	<	430	<	410
Fluoranthene		2 202 202	-	<	400	<	410	I	420	<	430	<	410
Fluorene		3,200,000	190,000,000	<	400	1	1503	ı	420	<	430	<	410
Hexachlorobenzene		3,800,000	190,000,000	<	400	<	410		420	<	430	<	410
Hexachlorobutadiene		960	190,000,000	<	400	<	410			<	430	<	410
		. 1,200	10,000,000	<	400	<	410	1	420	<	430	<	410
Hexachlorocyclopentadiene Hexachloroethane	1	91,000	10,000,000	<	400	<	410		420	<	430	<	410
Hexachlorophene	1	560	190,000,000	<	400	<	410	<	420	<	430	<	410
				<	210,000	<	210,000	< 22	0,000	< . 22	20,000	< 2	210,00
Hexachioropropene				<	400	<	410	<	420	<	430	<	410
Indeno(1,2,3-cd)pyrene		28,000,000	190,000,000	 <	400	1	38J	<	420	<	430		120J
Isophorone		10,000	10,000,000	<	400	<	410	<	420	<	430	<	410
Isosafrole		T		<	400	<	410	<	420	<	430	<	410
m-Dinitrobenzene		100	190,000,000	<	400	<	410	<	420	<	430	<	410
Methapyrilene		. . .	· 	 <	82,000	<	84,000	< 8:	5,000	< 8	8,000	< :	84,000
Methyl methanesulfonate	- 1	2,600	190,000,000	<	400	<	410	<	420	<	430	<	410
Methyl parathion	ļ	420	55,000	<	400	<	410	< -	420	<	430	<	410
Naphthalene		25,000	190,000,000	<	400	<	410	< .	420	<	430	<	410
Nitrobenzene		5,100	10,000,000	<	400	<	410	< .	420	<	430	<	410
N-Nitrosodiethylamine		1.3	44	<	400	<	410	< .	420	<	430	<	410
N-Nitrosodimethylamine		1.3	130	<	400	<	410	< .	420	<	430	<	410
N-Nitrosodi-n-butylamine		14	10,000,000	<	400	<	410	<	420	<	430	<	410
n-Nitrosodi-n-propylamine		37	10,000,000	<	400	<	410	< `	420	<	430	<	410
N-Nitrosodiphenylamine		83,000	190,000,000	<	400	<	410	<	420	<	430	<	410
N-Nitrosomethylethylamine	1			<	400	<	410	<	420	<	430	<	410
N-Nitrosomorpholine	- 1	_		<	400	<	410	< .	420	<	430	<	410
N-Nitrosopiperidine	í	-		<	400	<	410	< .	420	<	430	<	410
N-Nitrosopyrrolidine	ŀ	-		<	400	<	410	< .	420	<	430	<	410
O,O,O-Triethyl phosphorothicate		_		<	400	<	410	< .	420	<	430	<	410
o-Toluidine		1,200	10,000,000	<	400	<	410	< .	420	<		<	410
p-(Dimethylamino)azobenzene		150	190,000,000	<	400	<	410	< .	420	<		<	410
Pentachlorobenzene		660,000	190,000,000	<	400	<	410	< .	420	<		<	410
Pentachloronitrobenzene		20,000	190,000,000	<	400	<	410	<	420	<	430	<	410
Pentachlorophenol		5,000	190,000,000	<	2,100	<	2,100	< 2	,200	< 2	2,200	<	2,100
Phenacetin		120,000	190,000,000	<	400	<	410					<	410
Phenol		400,000	190,000,000	<	400	<	410				430	<	410
Phenanthrene		10,000,000	190,000,000	<	400	1	130J				430	<	410
Phorate	1	880	43,000	<	400	<	410				430	<	410
Pronamide		5,000	190,000,000	<	400	<	410			<	430	<	410
Pyrene	- 1	2,200,000	190,000,000	<	400	1	140Ј		420		430	<	410
Pyridine	,	2,000	210,000	<	400	<	410				430	<	410
Safrole	ļ	·_		<	400	<	410				430	<	410
Sulfotepp (Tetraethyl dithiopyrophosphate)	1	1,500	110,000	<	400	<	410				430	<	410
Thionazin (o.o-Diethyl-O-pyrazinyl phosphorothioa	1			ζ.	400		410				430	<	410



•	Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	SE	3-3 (14-16)	SI	3-4 (8-10)	SB	-5 (12-14)	SE	3-6 (11-13)	TF	-1 (9.7-11.7
	Sample Date:	Soil to Groundwater Pathway	Direct Contact		1/25/2003	11	/25/2003	11	/25/2003	1	1/25/2003		12/8/2003
		Used Aquifers, TDS<2,500 mg/L	Subsurface Soil			ı		l		1			
Parameter		Non-Residential	2 - 15 Feet	ļ									
Inorganics (mg/kg) ^(x)				İ					•				
Antimony		27	190,000	<	2.2	<	2.2	<	2.4	<	2.4	<	2.4
Arsenic	;	150	190,000		7.6L	1	10L		23L	ļ	9.2L	1	7.9L
Barium ·		8,200	190,000		180	1	110	1	130	1	140	l	100
Beryllium		320	190,000		1.1	1	1		2.1	1	1.2		0.81
Cadmium	•	38	190,000		0.087J		0.16J	1	0.22J	1	0.16J	<	0.6
Chromium		190,000	190,000		16	1	34	1	29	ł	23	l	17K
Cobalt		200	190,000		14		10		14	ı	14		HK
Copper		36,000	190,000		16		22		17	ı	20		23
Lead		450	190,000		14L		17L	1	27L	ı	22L	l	13L
Mercury		10	190,000		0.035		0.015J	1	0.044	ı	0.034	ł	0.025
Nickel		650	190,000	ļ.	24		21		23	ı	24	ŀ	20
Selenium		26	190,000	<	1.1L	<	1.1L	<	1.2L	<	1.2L	<	1.2R
Sîlver		. 84	190,000	<	1.1	<	1.1	<	1.2	<	1.2	<	1.2
Thallium		14	190,000	<	1.1	<	1.1	<	1.2	<	1.2	<	1.2L
Tin	•	6,100	190,000		2.4B		3B		2.5B		3.2B		2B
Vanadium		72,000	190,000		22		29		42	ı	27		21
Zinc		12,000	190,000		61	1	71	I	64	ı	85		63



Sample I Sample Da Parameter		PADEP Act 2 MSCs (b) Direct Contact Subsurface Soil 2 - 15 Feet	TF-2 (6-8) 12/12/2003	TF-3 (7.4-9.4) 12/8/2003) TF-4 (4-6) 12/12/2003	TF-5 (7.7-9.7)	TF-6 (14-16) 12/8/2003
Volatile Organic Compounds (ug/kg) (3)	· - ·						
1,1,2-Tetrachloroethane	18,000	190,000,000	< 5.7	< 5	< 5.8	< 210	< 4.9
1.1.1-Trichloroethane	20,000	10,000,000	< 5.7	< 5	< 5.8	< 210	< 4.9
1,1,2,2-Tetrachloroethane	30	33,000	< 5.7	< 5	< 5.8	< 210	< 4.9
1,1,2-Trichloroethane	500	120,000	< 5.7	< 5	< 5.8	< 210	< 4.9
1,1-Dichloroethane	11,000	1,200,000	< 5.7	< 5	< 5.8	< 210	< 4.9
1.1-Dichloroethene	190	38,000	< 5.7	< 5	< 5.8	< 210	< 4.9
1.2,3-Trichloropropane	400,000	950	< 5.7	< 5	< 5.8	< 210	< 4.9
1,2,4-Trimethylbenzene	20,000	360,000	< 5.7	< 5	54	30,000	9.1
1,2-Dibromo-3-chioropropane	20	12,000	< 11	< 5	< 12	< 420	< 9.9
1,2-Dibromoethane (EDB)	5	8,600	< 5.7	< 5	< 5.8	< 210	< 4.9
1,2-Dichloroethane	500	73,000	< 5.7	< 5	< 5.8	< 210	< 4.9
1,2-Dichloropropane	500	180,000	< 5.7	< 5	< 5.8	< 210	< 4.9
1,3,5-Trimethylbenzene	6,200	360,000	< 5.7	< 5	< 5.8	5,200	9.6
2-Butanone (Methyl ethyl ketone)	580,000	10,000,000	< 28	< 25	20J	< 1,000	< 25
2-Hexanone	(d) .	_	< 28	< 25	< 29	< 1,000	< 25
3-Chloropropene (Allylchloride)	4,100	430,000	< 5.7	< 5	< 5.8	< 210	< 4.9
4-Methyl-2-pentanone (MIBK)	- 410,000	4,900,000	< 28	< 25	< 29	< 1,000	< 25
Acetone	1,000,000	10,000,000	< 57	< 50	120	760J	22J
Acetonitrile	35,000	3,600,000	< 230	< 200	< 230	< 8,400	< 200
Acrolein (Propenal)	12	1,200	< 110	< 100	< 120	< 4,200	< 99
Acrylonitrile	270	28,000	< 110	< 100	< 120	< 4,200	< 99
Benzene Bromodichloromethane	500	240,000	< 5.7	< 5	11	1703	15
Bromodichioromethane Bromoform	10,000	51,000	< 5.7 < 5.7	< 5 < 5	< 5.8 < 5.8	< 210 < 210	< 4.9
Bromomethane (Methyl Bromide)	10,000	1,700,000 300,000	< 5.7 < 5.7	< 5 < 5	< 5.8 < 5.8	< 210 < 210	< 4.9 < 4.9
Carbon disulfide	410,000	10,000,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Carbon tetrachloride	500	120,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Chlorobenzene	10,000	10,000,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Chloroethane	90,000	10,000,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Chloroform	10,000	19,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Chloromethane (Methyl Chloride)	300	1,000,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Chioroprene	4,100	430,000	< 5.7	< 5	< 5.8	< 210	< 4.9
cis-1,2-Dichloroethene	7,000	2,100,000	< 5.7	< 5	< 5.8	< 210	< 4.9
cis-1,3-Dichloropropene ^(c)	2,600	470,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Dibromochloromethane		_	< 5.7	< 5	< 5.8	< 210	< 4.9
Dibromomethane (Methylene bromide)	20,000	2,100,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Dichlorodifluoromethane	100,000	10,000,000	< 5.7	< 5	< . 5.8	< 210	< 4.9
Ethyl methacrylate	180,000	190,000,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Ethylbenzene Iodomethane (Methyl iodide)	70,000	10,000,000	< 5.7 < 5.7	< 5 < 5	40 < 5.8	880 < 210	5.9 < 4.9
Isobutanol (Isobutyl alcohol)	610,000	10,000,000	< 230	< 200	< 230	< 8,400	< 4.9 < 200
Methacrylonitrile	410	43,000	< 110	< 100	< 120	< 4,200	< 99
Methyl methacrylate	410,000	10,000,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Methylene chloride (Dichloromethane)	500	1,000,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Pentachloroethane	_	_	< 28	< 25	< 29	< 1,000	< 25
Propionitrile			< 110	< 100	< 120	< 4,200	< 99
Styrene	24,000	10,000,000	< 5.7	< 5	< 5.8	1,100	8.2
Tetrachloroethene	500	3,300,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Toluene	100,000	10,000,000	< 5.7	< 5	2.8J	880	16
trans-1,2-Dichloroethene	10,000	4,300,000	< 5.7	< 5	< 5.8	< 210	< 4.9
trans-1,3-Dichloropropene(c)	2,600	470,000	< 5.7	< 5	< 5.8	< 210	< 4.9
trans-1,4-Dichloro-2-butene	7	190,000,000	< 11	< 10	< 12	< 420	< 9.9
Trichloroethene	500	1,100,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Trichlorofluoromethane			< 5.7	< 5	< 5.8	< 210	< 4.9
Vinyl acetate	120,000	10,000,000	< 11	< 10	< 12	< 420	< 9.9
Vinyl chloride	200	220,000	< 5.7	< 5	< 5.8	< 210	< 4.9
Xylenes, Total	1,000,000	10,000,000	< 11	< 10	23	7,100	100



TABLE 8 SUMMARY OF SUBSURFACE SOIL ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED JEFFERSON PLANT

JEFFERSON PLANT	
WEST ELIZABETH, PENNSY	LVANIA

•	•						-					
Sample ID Sample Date	1	PADEP Act 2 MSCs (b) Direct Contact Subsurface Soil 2 - 15 Feet	TF-2 (6			(7.4-9.4) 8/2003		-4 (4-6) 12/2003		(7.7-9.7) 8/2003		-6 (14-10 2/8/2003
emivolatile Organic Compounds (ug/kg)	11011-INESIGERHAI	p-151-cct _					1	-			_	
	14,000	190,000,000	< 41	<u>~ 1</u>	<	410	<	430	<	410	<	420
1,2,4,5-Tetrachlorobenzene	27,000	10,000,000	< 41	•	<	410	<	430	<	410	<	420
1,2,4-Trichlorobenzene			< 41		<	410	2	430	<	410	<	420
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000	10,000,000			<i>'</i>	410	/	430	<	410	~	420
1,3,5-Trinitrobenzene		_			<	410	2	430	<	410	<	420
1.3-Dichlorobenzene (m-Dichlorobenzene)	61,000	10,000,000							<			
1,4-Dichlorobenzene (p-Dichlorobenzene)	10,000	190,000,000	< 41		<	410	<	430		410	<	. 420
1,4-Dioxane	2,400	240,000	< 4l		<	410	<	430	<	410	<	420
1,4-Naphthoquinone		 ,	< 41		<	410	<	430	<	410	<	420
1.4-Phenylenediamine (p-Phenylenediamine)		 .	< 2,1			2,100	<	2,200	<	2,100	<	2,20
1-Naphthylamine	1,100	190,000,000	< 41		<	410	<	430	<	410	<	420
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000	190,000	< 41		<	410	<	430	<	410	<	420
2,3,4,6-Tetrachlorophenol	950,000	190,000,000	< 41		<	410	<	430	<	410	<	420
2,4,5-Trichlorophenol	6,100,000	190,000,000	< 41	10	<	410	<	430	<	410	<	420
2,4,6-Trichlorophenol	8,900	190,000,000	< 41	10	<	410	<	430	<	410	<	420
2,4-Dichlorophenol	2,000	190,000,000	< 4	10	<	410	<	430	<	410	<	420
2,4-Dimethylphenol	200,000	10,000,000	< 41	10	<	410	<	430	<	410	<	420
2,4-Dinitrophenol	4,100	190,000,000	< 2.1	00	<	2,100	<	2,200	<	2,100	<	2,20
2,4-Dinitrotoluene	840	190,000,000		10	<	410	<	430	<	410	<	420
2,6-Dichlorophenol				10	<	410	<	430	<	410	<	420
2.6-Dinitrotoluene	10,000	190,000,000	1	10	<	410	<	430	<	410	<	420
2-Acetylaminofluorene	280	190,000,000		01	<	410	<	430	<	410	<	420
	18,000,000	190,000,000		10	<	410	<	430	\ <u></u>	410	<	421
2-Chloronaphthalene	4,400	1,100,000	1	10	<	410	<	430	2	410	<	420
2-Chlorophenol			1	10	<	410	~	430	<	410	`	120
2-Methylnaphthalene	8,000,000	10,000,000			~	410	2	430	<	410	<	
2-Naphthylamine	140	190,000,000	1	10		2,100	<	2,200	<	2,100	<	420 2.20
2-Nitroaniline (o-Nitroaniline)	580	190,000,000	-,-	00			<	430	<		<	
2-Nitrophenol (o-Nitrophenol)	82,000	190,000,000		10	<	410				410		42
2-Picoline		-	1	10	 <	410	 	430	 <	410	<	42
3,3'-Dichlorobenzidine	32,000	190,000,000	1	20	<	810	<	860	<u> </u>	810	<	84
3,3'-Dimethylbenzidine	1,500	10,000,000		100	<	2,100	<	2,200	<	2,100	<	2,20
3-Methylcholanthrene		-	1	10	<	410	<	430	<	410	<	42
3-Nitroaniline (m-Nitroaniline)	. 580	190,000,000		100	<	2,100	<	2,200	<	2,100	<	2,20
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	-	-	1 .	100	<	2,100	<	2,200	<	2,100	<	2,2
4-Aminobiphenyl	12	190,000,000		10	<	410	<	430	<	410	<	42
4-Bromophenylphenyl ether	, 	_	< 4	10	<	410	<	430	<	410	<	42
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	10,000,000	< 4	10	<	410	<	430	<	410	<	42
4-Chloroaniline (p-Chloroaniline)	52,000	190,000,000	< 8:	20	<	810	<	860	<	810	<	84
4-Chlorophenylphenyl ether		_	< 4	10	<	410	<	430	<	410	<	42
4-Nitroaniline (p-Nitroaniline)	580	190,000,000	< 2,	100	<	2,100	<	2,200	<	2,100	<	2,20
4-Nitrophenol (p-Nitrophenol)	6,000	190,000,000	< 2.	100	<	2,100	<	2,200	<	2,100	<	2,2
4-Nitroquinoline-1-oxide			1 .	100	<	4,100	<	4,300	<	4,100	<	4.2
5-Nitro-o-toluidine		_		10	<	410	<	430	<	410	<	42
7,12-Dimethylbenz(a)anthracene	_	_		10	<	410	<	430	<	410	<	42
Acenaphthene	4,700,000	190,000,000		10	<	410	<	430	<	410	<	42
	6,900,000	190,000,000		10	<	410	<	430	<	410	<	42
Acenaphthylene	1,000,000	10,000,000		10	<	410	<	430	<	410	<	42
Acetophenone	1,000,000	10,000,000	1	.000		83,000	<	87,000	<	83,000	<	85,0
alpha,alpha-Dimethylphenethylamine	580	400,000		,000 10	<	410	<	430	[~	410	~	65,0 42
Aniline		600,000					<	430	<			
Anthracene	350,000	190,000,000		10	<	410			4	410	F	42
Aramite, Total				10	<	410	<	430	<	410	 	42
Benzo(a)anthracene	320,000	190,000,000		10	<	410	1	250J	<	410	<	42
Benzo(a)pyrene	46,000	190,000,000		10	< .	410	l	250J	<	410	<	42
Benzo(b)fluoranthene	170,000	190,000,000		10	<	410	1	280J	 <	410	<	42
Benzo(g,h,i)perylene	180,000	190,000,000		110	<	410	1	1503		56J		39
Benzo(k)fluoranthene	610,000	190,000,000	< 4	110	<	410		230J	<	410	<	42
Benzyl alcohol	3,100,000	10,000,000	< 4	110	<	410	<	430	<	410	<	42
bis(2-Chloroethoxy)methane	1 -	_	< 4	110	<	410	<	430	<	410	. <	42
	55	5,700		110	<	410	<	430	ì	410	<	42



Parameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil to Groundwater Pathway Used Aquifers, TDS<2,500 mg/L Non-Residential	PADEP Act 2 MSCs (b) Direct Contact Subsurface Soil		F-2 (6-8) 2/12/2003		7-3 (7.4-9.4) 12/8/2003		F-4 (4-6) /12/2003		-5 (7.7-9.7) 12/8/2003		F-6 (14-1 2/8/200
rarameter Semivolatile Organic Compounds (continued	(malka)	Non-Residential	2 - 15 Feet	╀╌									
bis(2-Ethylhexyl)phthalate	(ug/kg)	130,000	10,000,000	╁╴	410		390B	<	430	Π.	260B	_	4205
Butylbenzylphthalate		10,000,000	10,000,000	~	410	<	410	~	430	<	410	<	430B
Chrysene		230,000		<	410	<	410	`	300J	~	410	~	420
Cresol (ortho)		510,000	190,000,000	[<		<	430	<		\ <u></u>	420
Cresol, m & p			10,000,000	<	410	<	410	<	430	<	410		420
•		51,000	190,000,000		410		410			<	410	<	420
Dialiate, Total		1,000	110,000	<	410	<	410	<	430	١٩	410	<	420
Dibenzo(a,h)anthracene		160,000	. 190,000,000	<	410	<	410	<	430		51J	<	420
Dibenzofuran				<	410	<	410	<	430	<	410	<	420
Diethylphthalate		500,000	10,000,000	<	410	<	410	<	430	<	410	<	420
Dimethoate		2,000	190,000,000	<	410	<	410	<	430	<	410	<	420
Dimethylphthalate				<	410	<	410	<	430	<	410	<	420
Di-n-butylphthalate		4,100,000	10,000,000	<	410	<	410	<	430	<	410	<	42
Di-n-octylphthalate		10,000,000	10,000,000	<	410	<	410	<	430	<	410	<	420
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		.700	190,000,000	<	410	<	410	<	430	<	410	<	420
Disulfoton		78	8,700	<	410	<	410	<	430	<	410	<	42
Ethyl methanesulfonate		-	-	<	410	<	410	<	430	<	410	<	42
Ethyl parathion (Parathion)		360,000	10,000,000	<	410	<	410	<	430	<	410	<	42
Famphur		. =		<	410	<	410	<	430	<	410	<-	42
Fluoranthene		3,200,000	190,000,000	<	410	<	410	1	520	<	410	<	42
Fluorene		3,800,000	190,000,000	<	410	<	410	<	430	<	410	<	42
Hexachlorobenzene		960	190,000,000	<	410	<	410	<	430	<	410	<	42
Hexachlorobutadiene		1,200	10,000,000	<	410	<	410	<	430	<	410	<	42
Hexachlorocyclopentadiene		91,000	10,000,000	<	410	<	410	<	430	<	410	<	42
Hexachloroethane		560	190,000,000	<	410	<	410	<	430	<	410	<	42
Hexachlorophene				~	210,000	<	210,000	-	220,000	- -	210,000	~	220,
Hexachloropropene				~	410	~	410	1	430	<u>ځ</u> .	410	~	42
Indeno(1,2,3-cd)pyrene		28,000,000	190,000,000	<	410	<	410	1	160J	Γ.	41J	`	32
Isophorone		10,000		<	410	<		_	430	<		1.	
Isosafrole		10,000	10,000,000			<	410	< <	430		410	<	. 42
				<	410	1	410			 <	410	<	42
m-Dinitrobenzene		100	190,000,000	<	410	<	410	<	430	<	410	<	42
Methapyrilene				<	84,000	<	83,000	<	87,000	<	83,000	<	85,0
Methyl methanesulfonate		2,600	190,000,000	<	410	<	410	<	430	<	410	<	42
Methyl parathion		420	55,000	<	410	<	410	<	430	<	410	<	4:
Naphthalene	•	25,000	190,000,000	<	410	<	410	<	430	1	300J	1	24
Nitrobenzene		5,100	10,000,000	<	410	<	410	<	430	۱<	410	< <	4:
N-Nitrosodiethylamine		1.3	44	<	410	<	410	<	430	<	410		4
N-Nitrosodimethylamine		1.3	130	<	410	<	410	<	430	<	410	<	4:
N-Nitrosodi-n-butylamine		14	10,000,000	<	410	<	410	<	430	<	410	<	42
n-Nitrosodi-n-propylamine		37	10,000,000	<	410	<	410	<	430	<	410	<	43
N-Nitrosodiphenylamine		83,000	190,000,000	<	410	<	410	<	430	<	410	<	4
N-Nitrosomethylethylamine			-	<	410	<	410	<	430	<	410	<	4
N-Nitrosomorpholine		-		<	410	<	410	<	430	<	410	<	4
N-Nitrosopiperidine				<	410	<	410	<	430	<	410	<	4
N-Nitrosopyrrolidine			_	<	410	<	410	<	430	<	410	<	4
O,O,O-Triethyi phosphorothioate		_		<	410	<	410	<	430	<	410	<	4
o-Toluidine	•	1,200	10,000,000	<	410	<	410	<	430	<	410	<	4
p-(Dimethylamino)azobenzene		150	190,000,000	<	410	<	410	<	430	<	410	<	4
Pentachlorobenzene		660,000	190,000,000	<	410	<	410	<	430	<	410	<	4
Pentachloronitrobenzene		20,000	190,000,000	<	410	<	410	<	430	<	410	<	4
Pentachlorophenol		5,000	190,000,000	<	2,100	<	2,100	<	2,200	<	2,100	{	2.3
Phenacetin		120,000	190,000,000	<	410	<	410	<	430	<	410	<	4
Phenol		400,000	190,000,000	<	410	<	410	<	430		410	~	4
Phenanthrene		10,000,000	190,000,000	<	410	<		1	220J	<			
Phorate							410	_			410	<	4
		880	43,000	<	410	<	410	<	430	 <	410	<	4
Pronamide		5,000	190,000,000	<	410	<	410	<	430	 <	410	<	4
Pyrene		2,200,000	190,000,000		32J	<	410		380J	<	410	<	4
Pyridine		2,000	210,000	<	410	<	410	<	430	<	410	<	4
Safrole			-	<	410	<	410	<	430	<	410	<	4.
Sulfotepp (Tetraethyl dithiopyrophosphate)		1,500	110,000	<	410	<	410	<	430	<	410	<	4
Thionazin (o.o-Diethyl-O-pyrazinyl phosphe		_			410	<	410	<	430	 <	410 .	<	4



TABLE 8 SUMMARY OF SUBSURFACE SOIL ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED JEFFERSON PLANT

JEFFERSU	INTLANT
WEST ELIZABETH	PENNSYLVANIA

···	Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)		F-2 (6-8)		-3 (7.4-9.4)		F-4 (4-6)		-5 (7.7-9.7)		-6 (14-16)
	Sample Date:	Soil to Groundwater Pathway	Direct Contact	12	/12/2003	1	2/8/2003	12	/12/2003	1	2/8/2003	1	2/8/2003
		Used Aquifers, TDS<2,500 mg/L	Subsurface Soil	l		1		l				1	
Parameter		Non-Residential	2 - 15 Feet	╙						<u> </u>		<u>L.</u>	
Inorganics (mg/kg) (x)													
Antimony		27	190,000	<	2.3	<	2.3	۱<	2.5	5	2.1	<	2.1
Arsenic		150	190,000		9.8	1	10L		13	1	2.4L	1	18L
Barium ·		8,200	190,000		180		140		150	1	57		110
Beryllium		320	190,000		1		0.92		1.8	l	0.72		1
Cadmium	_	38	190,000	<	0.56	<	0.58		0.72	<	0.52		0.42B
Chromium		190,000	190,000	1	27		20K	ļ	28	l	18K		22K
Cobalt .		200	190,000		14		14K	1	28		8.8K		15K
Copper		36,000	190,000		25		23	1	47	ļ	18		30
Lead		450	190,000	1	16L	1	16L	1	62L	1	11 L	1	17L
· Mercury		10	190,000	1	0.0079J	1	0.028	1	0.053	1	0.024	1	0.17
Nickel		650	190,000		30		25		53		21		32
· Selenium		26	190,000	<	1.1	<	1.2R	<	1.2	<	IR	<	1.1R
Silver		84	190,000	<	1.1	<	1.2	<	1.2	<	1	<	1.1
Thallium		14	190,000	<	1.1L	 <	1.2L	<	1.2L	<	1L	<	1.1L
Tin		6,100	190,000		2.2B	1	2.3B		4.1B	1	2B	ĺ	1.7B
Vanadium		72,000	190,000		33	1	23		35	1	17		27
Zinc		12,000	000,001		76	1	66	Ι.	180	L	57	1	82



	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil to Groundwater Pathway	PADEP Act 2 MSCs (b) Direct Contact	TF-7 (5.5-7) 12/12/2003	TF-8 (6-7.5) 12/12/2003	UP-1 (13.7-15.7) 12/4/2003	UP-2 (13.5-15.5) 12/4/2003
		Used Aquifers, TDS<2,500 mg/L	Subsurface Soil	12122003	12122003	12-72003	1242003
Parameter Volatile Organic Compounds (ug/kg) (2)		Non-Residential	2 - 15 Feet				<u> </u>
						1	_
1,1,1,2-Tetrachloroethane 1,1,1-Trichloroethane		18,000 20,000	190,000,000		< 1,200	< 210	< 5.3
1,1,2,2-Tetrachloroethane		20,000	10,000,000 33,000		< 1,200 < 1,200	< 210 < 210	< 5.3 < 5.3
1.1.2-Trichloroethane		500	120,000		-,	< 210	
1,1-Dichloroethane		11,000	1,200,000		< 1,200 < 1,200	< 210	< 5.3 < 5.3
1.1-Dichloroethene		190	38,000		< 1,200	< 210	< 5.3
1,2,3-Trichloropropane		400,000	950		< 1,200	< 210	< 5.3
1,2,4-Trimethylbenzene		20,000	360,000	14,000	< 1,200	3,700	< 5.3
1,2-Dibromo-3-chloropropane		20	12,000		< 2,400	< 420	< 10
1,2-Dibromoethane (EDB)		5	8,600		< 1,200	< 210	< 5.3
1,2-Dichloroethane		500	73,000		< 1,200	< 210	< 5.3
1,2-Dichtoropropane		500	180,000	< 1,100	< 1,200	< 210	< 5.3
1,3,5-Trimethylbenzene		6,200	360,000	15,000	870J	1,100	< 5.3
2-Butanone (Methyl ethyl ketone)	,	580,000	10,000,000	< 5,300	< 6,000	< 1,000	< 26
2-Нехаполе		_(a)	· -	< 5,300	< 6,000	< 1,000	< 26
3-Chloropropene (Allylchloride)		4,100	430,000	-,	< 1,200	< 210	< 5.3
4-Methyl-2-pentanone (MIBK)		410,000	4,900,000		< 6,000	< 1,000	< 26
Acetone		1,000,000	10,000,000		< 12,000	840J	< 53
Acetonitrile		35,000	3,600,000	< 43,000	< 48,000	< 8,400	< 210
Acrolein (Propenal)		12	1,200		< 24,000	< 4,200	< 100
Acrylonitrile		270	28,000		< 24,000	< 4,200	< 100
Benzene		500	240,000		< 1,200	< 210	< 5.3
Bromodichloromethane		10,000	51,000		< 1,200	< 210	< 5.3
Bromoform		10,000	1,700,000		< 1,200	< 210	< 5.3
Bromomethane (Methyl Bromide) Carbon disulfide		1,000	300,000		< 1,200	< 210	< 5.3
Carbon tetrachloride		410,000 500	10,000,000	< 1,100 < 1,100	< 1,200	< 210	< 5.3
Chlorobenzene		10.000	120,000 10,000,000	.,,,,,	< 1,200 < 1,200	< 210 < 210	< 5.3 < 5.3
Chloroethane		90,000	10,000,000	< 1,100	< 1,200	< 210	< 5.3 < 5.3
Chloroform		10,000	19,000		< 1,200	< 210	< 5.3
Chloromethane (Methyl Chloride)	-	300	1,000,000		< 1,200	< 210	< 53
Chloroprene		4,100	430,000	< 1,100	< 1,200	< 210	< 5.3
cis-1,2-Dichloroethene		7,000	2,100,000	< 1,100	< 1,200	< 210	< 5.3
cis-1,3-Dichloropropene(c)		2,600	470,000	< 1,100	< 1.200	< 210	< 5.3
Dibromochloromethane			-	< 1,100	< 1,200	< 210	< 5.3
Dibromomethane (Methylene bromide)		20,000	2,100,000	< 1,100	< 1,200	< 210	< 5.3
Dichlorodifluoromethane		100,000	10,000,000	< 1,100	< 1,200	< 210	< 5.3
Ethyl methacrylate		180,000	190,000,000	< 1,100	< 1,200	< 210	< 5.3
Ethylbenzene		70,000	10,000,000	2,300	2,700	3,000	< 5.3
Iodomethane (Methyl iodide)				< 1,100	< 1,200	< 210	< 5.3 ·
Isobutanol (Isobutyl alcohol)		610,000	10,000,000	< 43,000	< 48,000	< 8,400	< 210
Methacrylonitrile		410	43,000	< 21,000	< 24,000	< 4,200	< 100
Methyl methacrylate Methylene chloride (Dichloromethane)		410,000	10,000,000	< 1,100	< 1,200	< 210	< 5.3
Pentachioroethane		500	1,000,000	< 1,100	< 1,200	< 210	< 5.3
Propionitrile		_		< 5,300 < 21,000	< 6,000 < 24,000	< 1,000 < 4,200	< 26 < 100
Styrene		24,000	10,000,000	250B	1,900	< 4,200	< 5.3
Tetrachloroethene		500	3,300,000	< 1,100	< 1,200	< 210	< 5.3
Toluene		100,000	10,000,000	< 1,100	< 1,200	< 210	< 5.3
trans-1,2-Dichloroethene		10,000	4,300,000	< 1,100	< 1,200	< 210	< 5.3
trans-1,3-Dichloropropene(c)		2,600	470,000	< 1.100	< 1.200	< 210	< 5.3
trans-1,4-Dichloro-2-butene		. 7	190,000,000	< 2,100	< 2,400	< 420	< 10
Trichloroethene		500	1,100,000	< 1,300	< 1,200	< 210	< 5.3
Trichlorofluoromethane	-	ļ -		< 1,100	< 1,200	< 210	< 5.3
Vinyl acetate		120,000	000,000,01	< 2,100	< 2,400	< 420	< 10
Vinyl chloride		200	220,000	< 1,100	< 1,200	< 210	< 5.3
Xylenes, Total		000,000,1	10,000,000	2,800	2,100J	2001	< 10



	mple ID: ple Date:	PADEP Act 2 MSCs ^(b) Soil to Groundwater Pathway	PADEP Act 2 MSCs (b) Direct Contact		-7 (5.5-7) /12/2003		TF-8 (6-7.5) 12/12/2003	U	P-1 (13.7-15.7) 12/4/2003		2 (13.5-15.5) 2/4/2003
		Used Aquifers, TDS<2,500 mg/L	Subsurface Soil	ļ	į	l					
Parameter		Non-Residential	2 - 15 Feet	ļ		١		<u>_</u>		l	
Semivolatile Organic Compounds (ug/kg)		14000	100 000 000 1	ļ	100		410		400		
1,2,4,5-Tetrachlorobenzene		14,000	190,000,000 '	<		<	410	< <	420	<	420
1,2,4-Trichlorobenzene		27,000	10,000,000	<	420	<	410		420	<	420
1,2-Dichlorobenzene (o-Dichlorobenzene)		60,000	10,000,000	< <	420	<	410	<	420	< <	420
1,3,5-Trinitrobenzene				1	420	<	410		420		420
1,3-Dichlorobenzene (m-Dichlorobenzene)		61,000	10,000,000	<	420	<	410	<	420	<	420
1,4-Dichlorobenzene (p-Dichlorobenzene)		10,000	190,000,000	<	420	<	410	<	420	<	420
1,4-Dioxane		2,400	240,000	<	420	<	410	<	420	<	420
1,4-Naphthoquinone			_	<	420	<	410	<	420	<	420
1,4-Phenylenediamine (p-Phenylenediamine)				<	2,200	<	2,100	<	2,200	<	2,200
1-Naphthylamine		1,100	190,000,000	<	420	<	410	<	420	<	420
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)et	nerj	30,000	190,000	<	420	<	410	<	420	<	420
2,3,4,6-Tetrachlorophenol		950,000	190,000,000	<	420	<	410	<	420	<	420
2,4,5-Trichlorophenol		6,100,000	190,000,000	<	420	<	410	<	420	<	420
2,4,6-Trichlorophenol		8,900	190,000,000	<	420	<	410	<	420	<	420
2,4-Dichlorophenol		2,000	190,000,000	<	420	<	410	<	420	<	420
2,4-Dimethylphenol		200,000	10,000,000	<	420	<	410	<	420	<	420
2,4-Dinitrophenol		4,100	190,000,000	<	2,200	<	2,100	<	2,200	<	2,200
2,4-Dinitrotoluene		840	190,000,000	<	420	<	410	<	420	< .	420
2,6-Dichlorophenol			-	<	420	<	410	<	420	<	420
2,6-Dinitrotoluene		10,000	190,000,000	<	420	<	410	<	420	<	420
2-Acetylaminofluorene		280	190,000,000	<	420	<	410	<	420	<	420
2-Chloronaphthalene		18,000,000	190,000,000	<	420	<	410	<	420	<	420
2-Chlorophenol		4,400	. 1,100,000	<	420	<	410	<	420	<	420
2-Methylnaphthalene		8,000,000	10,000,000	<	420	<	410	<	420	<	420
2-Naphthylamine		140	190,000,000	<	420	<	410	<	420	<	420
2-Nitroanîline (o-Nitroanîline)		580	190,000,000	<	2,200	<	2,100	<	2,200	<	2,200
2-Nitrophenol (o-Nitrophenol)		82,000	190,000,000	<	420	<	410	<		<	420
2-Picoline			-	<	420	<	410	<	420	<	420
3,3'-Dichlorobenzidine		32,000	190,000,000	<	850	<	820	<	840	<	840
3,3'-Dimethylbenzidine		1,500	10,000,000	<	2,200	<	2,100	<		<	2,200
3-Methylcholanthrene		-	-	<	420	<	410	<		<	420
3-Nitroaniline (m-Nitroaniline)		580	190,000,000	<	2,200	<		<		<	2,200
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)		-	-	<	2,200	<		<		<	2,200
4-Aminobiphenyl		12	190,000,000	<	420	<		<		<	420
4-Bromophenylphenyl ether		. –	- '	<	420	<		<		<	420
4-Chloro-3-methylphenol (p-Chloro-m-cresol)		110,000	10,000,000	<	420	<		<		<	420
4-Chloroaniline (p-Chloroaniline)		52,000	190,000,000	<	850	<		<		<	840
4-Chlorophenylphenyl ether		_	-	<	420	<		<		<	420
4-Nitroaniline (p-Nitroaniline)		580	190,000,000	<	2,200	<		<		<	2,200
4-Nitrophenol (p-Nitrophenol)		6,000	190,000,000	<	2,200	<		<		<	2,200
4-Nitroquinoline-1-oxide		-	_	<	4,200	<		<		<	4,200
5-Nitro-o-toluidine		-	-	<	420	<		<		<	420
7,12-Dimethylbenz(a)anthracene		-	_	<	420	<		<		<	420
Acenaphthene		4,700,000	190,000,000	<	420	<		<		<	420
Acenaphthylene		6,900,000	190,000,000	<	420	<		<		<	420
Acetophenone		1,000,000	10,000,000	<	420	<		<		<	420
alpha,alpha-Dimethylphenethylamine		-	1 -	<	86,000	<		<		<	85,000
Aniline		580 .	600,000	<	420	<		<		<	420
Anthracene		350,000	190,000,000	<	420	<		<		<	420
Aramite, Total		-	_	<	420	<		<		<	420
Benzo(a)anthracene		320,000	190,000,000	<	420	<		<	420	<	420
Велго(а)рутеле		46,000	190,000,000	<	420	<		<	420	<	420
Benzo(b)fluoranthene		170,000	190,000,000	<	420	<	410	<	420	<	420
Benzo(g,h,i)perylene		180,000	190,000,000	<	420	<	410	<	420	1	50J
Benzo(k)fluoranthene		610,000	190,000,000	<	420	<	410	<	420	<	420
Benzyl alcohol		3,100,000	10,000,000	<	420	<		<		<	420
bis(2-Chloroethoxy)methane		_	_	<	420	<		<		<	420
bis(2-Chloroethyl)ether		55	5,700	<	420	le	410	<		<	420



Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	TF-7 (5.5-7)	TF-8 (6-7.5)	·UP-1 (13.7-15.7)	UP-2 (13.5-15
Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/12/2003	12/12/2003	12/4/2003	12/4/2003
	Used Aquifers, TDS<2,500 mg/L	Subsurface Soil			ŀ	1
arameter	Non-Residential	2 - 15 Feet			<u> </u>	<u>.</u> .
mivolatile Organic Compounds (continued) (ug/kg) bis(2-Ethylhexyl)phthalate	120.000	10.000.000				·
Butylbenzylphthalate	130,000 10,000,000	10,000,000	< 420	< 410	< 420	< 420
Chrysene	230,000	10,000,000	< 420	< 410	< 420	< 420
Cresol (ortho)	510,000	190,000,000	< 420 < 420	< 410	< 420	< 420
Cresol, m & p	51,000	10,000,000		< 410 < 410	< 420 < 420	< 420
Diallate, Total	1,000	190,000,000 . 110,000	< 420 < 420			< 420
Dibenzo(a.h)anthracene	160,000	190,000,000	< 420	< 410 < 410		< 420
Dibenzofuran	100,000	, 150,000,000	< 420	1		43J
Diethylphthalate	500,000	10,000,000	< 420	< 410 < 410	< 420 < 420	< 420
Dimethoate	2,000	190,000,000	< 420	< 410	< 420	< 420 < 420
Dimethylphthalate	2,000	150,000,000	< 420	< 410		
Di-n-butylphthalate	4,100,000	10,000,000	< 420 < 420	< 410	< 420 < 420	
Di-n-octylphthalate	10,000,000	10,000,000	< 420	< 410	< 420	< 420 < 420
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)	700			1		
Disulfoton	78	190,000,000 8,700		•		< 420
Ethyl methanesulfonate	, o	0,100	< 420 < 420	< 410 < 410		< 420
Ethyl parathion (Parathion)	360,000	10,000,000	< 420 < 420	< 410 < 410	< 420 < 420	< 420
Famphur	200,000	10,000,000	< 420 < 420	< 410	< 420 < 420	< 420 < 420
Fluoranthene	3,200,000	190,000,000	< 420	< 410	< 420 < 420	
Fluorene	3,800,000	190,000,000	< 420	< 410	< 420	
Hexachiorobenzene	960	190,000,000	< 420	< 410	< 420	< 420 < 420
Hexachlorobutadiene	1,200	10,000,000	< 420	< 410	< 420	< 420
Hexachlorocyclopentadiene	91,000	10,000,000	< 420	< 410	< 420	< 420
Hexachloroethane	560	190,000,000	< 420	< 410	< 420	< 420
Hexachlorophene			< 220,000	< 210,000	< 220,000	< 220,00
Hexachloropropene			< 420	< 410	< 420	< 420
Indeno(1,2,3-cd)pyrene	28,000,000	190,000,000	< 420	< 410	< 420	291
Isophorone	10,000	10,000,000	< 420	< 410	< 420	< 420
Isosafrole		**	< 420	< 410	< 420	< 420
m-Dinitrobenzene	100	190,000,000	< 420	< 410	< 420	< 420
Methapyrilene		•	< 86,000	< 84,000	< 85,000	< 85,000
Methyl methanesulfonate	2,600	190,000,000	< 420	< 410	< 420	< 420
Methyl parathion	420	55,000	< 420	< 410	< 420	< 420
Naphthalene	25,000	190,000,000	490	120J	< 420	< 420
Nitrobenzene	5,100	10,000,000	< 420	< 410	< 420	< 420
N-Nitrosodiethylamine	1.3	44	< 420	< 410	< 420	< 420
N-Nitrosodimethylamine	1.3	130	< 420	< 410	< 420	< 420
N-Nitrosodi-n-butylamine	14	10,000,000	< 420	< 410	< 420	< 420
n-Nitrosodi-n-propylamine	37	10,000,000	< 420	< 410	< 420	< 420
N-Nitrosodiphenylamine	83,000	190,000,000	< 420	< 410	< 420	< 420
N-Nitrosomethylethylamine			< 420	< 410	< 420	< 420
N-Nitrosomorpholine	-		< 420	< 410	< 420	< 420
N-Nitrosopiperidine	-		< 420	< 410	< 420	< 420
N-Nitrosopyrrolidine			< 420	< 410	< 420	< 420
O,O,O-Triethyl phosphorothioate		_	< 420	< 410	< 420	< 420
o-Toluidine	1,200	10,000,000	< 420	< 410	< 420	< 420
p-(Dimethylamino)azobenzene	150	190,000,000	< 420	< 410	< 420	< 420
Pentachlorobenzene	660,000	190,000,000	< 420	< 410	< 420	< 420
Pentachloronitrobenzene	. 20,000	190,000,000	< 420	< 410	< 420	< 420
Pentachlorophenol	5,000	190,000,000	< 2,200	< 2,100	< 2,200	< 2,200
Phenacetin	120,000	190,000,000	< 420	< 410	< 420	< 420
Phenol	400,000	190,000,000	< 420	< 410	< 420	< 420
Phenanthrene	10,000,000	190,000,000	< 420	< 410	< 420	< 420
Phorate	880	43,000	< 420	< 410	< 420	< 420
Pronamide	5,000	190,000,000	< 420	< 410	< 420	< 420
Pyrene	2,200,000	190,000,000	< 420	< 410	< 420	< 420
Pyridine	2,000	210,000	< 420	< 410		< 420
		210,000	l .			< 420 < 420



•	Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	TF-	7 (5.5-7)	Т	F-8 (6-7.5)	UP	-1 (13.7-15.7)	UP-	2 (13.5-15.5)
	Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/	12/2003	1	2/12/2003		12/4/2003		12/4/2003
		Used Aquifers, TDS<2,500 mg/L	Subsurface Soil								
Parameter		Non-Residential	2 - 15 Feet			1					
Inorganics (mg/kg) ^(s)											
Antimony		27	190,000	<	2.4	<	. 2.4	<	2.4	<	2.4
Arsenic		150	190,000		7.6		14		9.6L		10L
Barium .		8,200	190,000		180	İ	130		120		120
Beryllium		320	190,000		0.82	ł	1		0.89		19.0
Cadmium		38	190,000	<	0.6	<	0.59	<	0.6	<	0.61
Chromium		190,000	190,000		21		22		17K		19K
Cobalt		200	190,000		11	1	13		15K		11K
Copper		36,000	190,000		18	1	24		23		23
Lead		450	190,000		12L	1	17L		15L		12L
Мегсигу		10	190,000		0.027		0.011J		0.028		U810.0
Nickel		650	190,000		31	1	26		26		25
Selenium		26	190,000	<	1.2	<	1.2	<	1.2R	<	1.2R
Sílver		84	190,000	<	1.2	<	1.2	<	1.2	<	1.2
Thallium		14	190,000	<	1.2L	<	1.2L	<	1.2L	<	1.2
Tin		6,100	190,000	ĺ	2.4B		2.2B	i	1.9B		1.8B
Vanadium		72,000	190,000	1	26		28		24		24
Zinc		12,000	190,000	1	60	1	69	1	66J		68J



arameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Soil to Groundwater Pathway Used Aquifers, TDS<2,500 mg/L Non-Residential	PADEP Act 2 MSCs (b) Direct Contact Subsurface Soil 2 - 15 Feet	UP-3 (15.3-17.3) 12/4/2003	UP-4 (9.6-11.6) 12/4/2003	UP-5 (6-8) 12/11/2003	UP-6 (10-1: 12/12/2003
olatile Organic Compounds (ug/kg) (a)							<u> </u>
1,1,1,2-Tetrachloroethane 1,1,1-Trichloroethane		18,000 20,000	190,000,000	< 190 < 190	< 520	< 5.7 < 5.7	< 5.4
1.1.2.2-Tetrachloroethane		. 30	10,000,000 33,000	< 190 < 190	< 520 < 520	< 5.7 < 5.7	< 5.4 < 5.4
1,1,2-Trichloroethane		500	120,000	< 190	< 520	< 5.7	< 5.4 < 5.4
1.1-Dichloroethane		11,000	1,200,000	< 190	< 520	< 5.7	< 5.4
1,1-Dichloroethene		190	38,000	< 190	< 520	< 5.7	< 5.4
1,2,3-Trichloropropane		400,000	950	< 190	< 520	< 5.7	< 5.4
1,2,4-Trimethylbenzene		20,000	360,000	2.400		1	
1,2-Dibromo-3-chloropropane		20,000	12,000	< 370	3,900 < 1,000	< 5.7 < 11	10 < 11
1,2-Dibromoethane (EDB)		5	8,600	< 190	< 520	< 5.7	< 5.4
1,2-Dichloroethane		500	73,000	< 190	< 520	< 5.7	< 5.4
1,2-Dichloropropane		500	180,000	< 190	< 520	< 5.7	< 5.4
• •			· ·	1			
1,3,5-Trimethylbenzene		6,200	360,000	1,600	1,200	< 5.7	12
2-Butanone (Methyl ethyl ketone)	•	580,000	10,000,000	< 930	< 2,600	< 28	< 27
2-Hexanone		_{(d)	_	< 930	< 2,600	< 28	< 27
3-Chloropropene (Allylchloride)		4,100	430,000	< 190	< 520	< 5.7	< 5.4
4-Methyl-2-pentanone (MIBK)		410,000	4,900,000	< 930	< 2,600	< 28	< 27
Acetone		1,000,000	10,000,000	740J	< 5,200	323	62
Acetonitrile		35,000	3,600,000	< 7,400	< 21,000	< 230	< 220
Acrolein (Propenal)		12	1,200	< 3,700	< 10,000	< 110	< 110
Acrylonitrile		270	28,000	< 3,700	< 10,000	< 110	< 110
Benzene		500	240,000	< 190	< 520	< 5.7	1.4B
Bromodichloromethane		10,000	51,000	< 190	< 520	< 5.7	< 5.4
Bromoform		10,000	1,700,000	< 190	< 520	< . 5.7	< 5.4
Bromomethane (Methyl Bromide)		1,000	300,000	< 190	< 520	< 5.7	< 5.4
Carbon disulfide		410,000	10,000,000	< 190	< 520	< 5.7	< 5.4
Carbon tetrachloride		500	120,000	< 190	< 520	< 5.7	< 5.4
Chlorobenzene		10,000	10,000,000	< 190	< \$20	< 5.7	< 5.4
Chloroethane		90,000	10,000,000	< 190	< 520	< 5.7	< 5.4
Chloroform		10,000	19,000	< 190	< 520	< 5.7	< 5.4
Chloromethane (Methyl Chloride)		300	1,000,000	< 190	< 520	< 5.7	< 5.4
Chloroprene		4,100	430,000	< 190	< 520	< 5.7	< 5.4
cis-1,2-Dichloroethene		7,000	2,100,000	< 190	< 520	< 5.7	< 5.4
cis-1,3-Dichloropropene ^(c)		2,600	470,000	< 190	< 520	< 5.7	< . 5.4
Dibromochloromethane				< 190	< 520	< 5.7	< 5.4
Dibromomethane (Methylene bromide)		20,000	2,100,000	< 190	< 520	< 5.7	< 5.4
Dichlorodifluoromethane		100,000	10,000,000	< 190	< 520.	< 5.7	< 5.4
Ethyl methacrylate		180,000	190,000,000	< 190	< 520	< 5.7	< 5.4
Ethylbenzene		70,000	10,000,000	1,300	3,600	< 5.7	5.2
odomethane (Methyl iodide)		_		< 190	< 520	< 5.7	< 5.4
sobutanol (Isobutyl alcohol)		610,000	10,000,000	< 7,400	< 21,000	< 230	< 220
Methacrylonitrile		410	43,000	< 3,700	< 10,000	< 110	< 110
Methyl methacrylate		410,000	10,000,000	< 190	< 520	< 5.7	< 5.4
Methylene chloride (Dichloromethane)		500	1,000,000	< 190	< 520	< 5.7	< 5.4
Pentachloroethane `	•			< 930	< 2,600	< 28	< 27
Propionitrile		-		< 3,700	< 10,000	< 110	< 110
Styrene		24,000	10,000,000	1,300	< 520	< 5.7	< 5.4
Tetrachloroethene		500	3,300,000	< 190	< 520	< 5.7	< 5.4
Toluene		100,000	10,000,000	140J	< 520	< 5.7	3.4.
rans-1,2-Dichloroethene		10,000	4,300,000	< 190	< 520	< 5.7	< 5.4
trans-1,3-Dichloropropene ^(c)		2,600	470,000	< 190	< 520	< 5.7	
rans-1,4-Dichloro-2-butene		7		1			< 5.4
Trichloroethene		500	190,000,000				< 11
Trichlorofiuoromethane		300	1,100,000	1	< 520	1	< .5.4
i richtoromethane Vinyl acetate		170.000	10,000,000	< 190	< 520	< 5.7	< 5.4
•		120,000	10,000,000	< 370	< 1,000	< 11	< i1
Vinyl chloride		200	220,000	< 190	< 520	< 5.7	< 5.4



· · · · · · · · · · · · · · · · · · ·						
Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	UP-3 (15.3-17.3)	UP-4 (9.6-11.6)	UP-5 (6-8)	UP-6 (10-12)
Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/4/2003	12/4/2003	12/11/2003	12/12/2003
. 1	Used Aquifers, TDS<2,500 mg/L	Subsurface Soil				1
Parameter	Non-Residential	2 - 15 Feet				
Semivolatile Organic Compounds (ug/kg)	14.000					
I,2,4,5-Tetrachlorobenzene	14,000	190,000,000 '	< 420	< 430	< 430	< 410
1,2,4-Trichlorobenzene	27,000	10,000,000	< 420	< 430	< 430	< 410
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000	10,000,000	< 420	< 430	< 430	< 410
1,3,5-Trinitrobenzene		-	< 420	< 430	< 430	< 410
1,3-Dichlorobenzene (m-Dichlorobenzene) 1,4-Dichlorobenzene (p-Dichlorobenzene)	61,000 10,000	10,000,000	< 420	< 430 < 430	< 430 < 430	< 410
1.4-Dioxane		190,000,000	< 420 < 420			< 410
1,4-Dioxane 1,4-Naphthoquinone	2,400	240,000	,	< 430 < 430	< 430 < 430	< 410
1,4-Phenylenediamine (p-Phenylenediamine)		- ,	< 420 < 2,200			< 410
1-Naphthylamine	1,100	190,000,000	< 420		_,	< 2,100
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000		< 420			< 410
2,3,4,6-Tetrachlorophenol	950,000	190,000	< 420			< 410
2,4,5-Trichlorophenol	6,100,000	190,000,000 190,000,000	< 420 < 420	< 430 < 430	< 430 < 430	< 410 < 410
2,4,6-Trichlorophenoi	8,900		< 420		1	
2,4-Dichlorophenol	2,000	190,000,000 190,000,000	< 420 < 420	< 430 < 430		< 410 < 410
2,4-Dimethylphenol	200,000	190,000,000	< 420	< 430	< 430 < 430	< 410 < 410
2,4-Dinitrophenol	4,100	190,000,000	< 2,200	< 2,200	< 2,200	
2,4-Dinitrotoluene	840	190,000,000	< 420	< 430	< 430	< 2,100 < 410
2,6-Dichlorophenol	-	130,000,000	< 420	< 430	< 430	< 410
2,6-Dinitrotoluene	10.000	190,000,000	< 420	< 430	< 430	< 410
2-Acetylaminofluorene	280	190,000,000	< 420	< 430	< 430	< 410
2-Chloronaphthalene	18,000,000	190,000,000	< 420	< 430	< 430	< 410
2-Chlorophenol	4,400	1,100,000	< 420	< 430	< 430	< 410
2-Methylnaphthalene	8,000,000	10,000,000	< 420	< 430	< 430	< 410
2-Naphthylamine	140	190,000,000	< 420	< 430	< 430	< 410
2-Nitroaniline (o-Nitroaniline)	580	190,000,000	< 2,200	< 2,200	< 2,200	< 2,100
2-Nitrophenol (o-Nitrophenol)	82,000	190,000,000	< 420	< 430	< 430	< 410
2-Picoline	_	_ ` <u>_</u>	< 420	< 430	< 430	< 410
3,3'-Dichlorobenzidine	32,000	190,000,000	< 840	< 860	< 870	< 820
3,3'-Dimethylbenzidine	1,500	10,000,000	< 2,200	< 2,200	< 2,200	< 2,100
3-Methylcholanthrene	_	_	< 420	< 430	< 430	< 410
3-Nitroaniline (m-Nitroaniline)	580	190,000,000	< 2,200	< 2,200	< 2,200	< 2,100
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	-	-	< 2,200	< 2,200	< 2,200	< 2,100
4-Aminobiphenyl	12	190,000,000	< 420	< 430	< 430	< 410
4-Bromophenylphenyl ether			< 420	< 430	< 430	< 410
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	10,000,000	< 420	< 430	< 430	< 410
4-Chloroaniline (p-Chloroaniline)	52,000	190,000,000	< 840	< 860	< 870	< 820
4-Chlorophenylphenyl ether			< 420	< 430	< 430	< 410
4-Nitroaniline (p-Nitroaniline)	580	190,000,000	< 2,200	< 2,200	< 2,200	< 2,100
4-Nitrophenol (p-Nitrophenol)	6,000	190,000,000	< 2,200	< 2,200	< 2,200	< 2,100
4-Nitroquinoline-1-oxide		-	< 4,200	< 4,300	< 4,300	< 4,100
5-Nitro-o-toluidine		-	< 420	< 430	< 430	< 410
7,12-Dimethylbenz(a)anthracene		-	420	< 430	< 430	< 410
Acenaphthene	4,700,000	190,000,000	< 420	< 430	< 430	< 410
Acenaphthylene	6,900,000	190,000,000	< 420	< 430	< 430	< 410
Acetophenone	. 1,000,000	10,000,000	< 420	< 430	< 430	< 410
alpha,alpha-Dimethylphenethylamine		-	< 85,000	< 87,000	< 88,000	< 84,000
Aniline	580	600,000	< 420	< 430	< 430	< 410
Anthracene	350,000	190,000,000	< 420	< 430	< 430	< 410
Aramite, Total		-	< 420	< 430 ·	< 430	< 410
Benzo(a)anthracene	320,000	190,000,000	< 420	< 430	48J	< 410
Benzo(a)pyrene	46,000	190,000,000	< 420	< 430	52J	< 410
Benzo(b)fluoranthene	170,000	190,000,000	< 420	< 430	881	< 410
Benzo(g,h,i)perylene	180,000	190,000,000	< 420	< 430	34J	< 410
Benzo(k)fluoranthene	610,000	190,000,000	< 420	< 430	< 430	< 410
Benzyl alcohol	3,100,000	10,000,000	< 420	< 430	< 430	< 410
bis(2-Chloroethoxy)methane bis(2-Chloroethyl)ether		-	< 420	< 430	< 430	< 410
DIST 2-1. DIOCOCIDAL METRET	55	5,700	< 420	< 430	< 430	< 410



•	Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	UP-3 (15.3-17.3)	UP-4 (9.6-11.6)	UP-5 (6-8)	UP-6 (10-1
•	Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/4/2003	12/4/2003	12/11/2003	12/12/200
D		Used Aquifers, TDS<2,500 mg/L	Subsurface Soil	·			
Parameter Semivolatile Organic Compounds (continued) (ug.	//ew)	Non-Residential	2 - 15 Feet				·
bis(2-Ethylhexyl)phthalate	(Kg)	130,000	10,000,000	< 420	< 430	·300J	14 410
Butylbenzylphthalate		10,000,000	10,000,000	< 420	< 430		< 410 < 410
Chrysene		230,000	190,000,000	< 420	< 430	< 430 68J	< 410 < 410
Cresol (ortho)		510,000	10,000,000	< 420	< 430	< 430	< 410
Cresol, m & p		51,000					
Diallate, Total		1,000	190,000,000 110,000	< 420 < 420			1
Dibenzo(a,h)anthracene		160,000	190,000,000		< 430 < 430	< 430 < 430	1
Dibenzofuran			130,000,000	< 420	< 430		1
Diethylphthalate		500,000	10,000,000	l			
Dimethoate		2,000	, ,				< 410
Dimethylphthalate	j	2,000	190,000,000	l		< 430	< 410
Di-n-butylphthalate		4,100,000	10 000 000		< 430 < 430	< 430 < 430	< 410
Di-n-octylphthalate			10,000,000				< 410
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		10,000,000	10,000,000	1	< 430	< 430	< 410
Disulfoton		. 700	190,000,000	< 420	< 430	< 430	< 410
Ethyl methanesulfonate	•	78	8,700	< 420	< 430	< 430	< 410
Ethyl parathion (Parathion)			10.000.000		< 430	< 430	< 410
Ethyr parathion (Parathion) Famphur		360,000	10,000,000	< 420	< 430	< 430	< 410
rampnur Fluoranthene		2 200 200		< 420	< 430	< 430	< .410
Fluorene		3,200,000	190,000,000	< 420	< 430	80J	< 410
		3,800,000	190,000,000	< 420	< 430	< 430	< 410
Hexachlorobenzene		960 .	190,000,000	< 420	< 430	< 430	< 410
Hexachiorobutadiene		1,200	10,000,000	< 420	< 430	< 430	< 410
Hexachlorocyclopentadiene		91,000	10,000,000	< 420	< 430	< 430	< 410
Hexachloroethane		560	190,000,000	< 420	< 430	< 430	< 410
Hexachlorophene				< 220,000	< 220,000	< 220,000	< 210,00
Hexachloropropene				< 420	< 430	< 430	< 410
Indeno(1,2,3-cd)pyrene		28,000,000	190,000,000	< 420	< 430	32J	< 410
Isophorone		10,000	10,000,000	< 420	< 430	< 430	< 410
Isosafrole			-	< 420	< 430	< 430	< 410
m-Dinitrabenzene		100	190,000,000	< 420	< 430	< 430	< 410
Methapyrilene		_	-	< 85,000	< 87,000	< 88,000	< 84,00
Methyl methanesulfonate		2,600	190,000,000	< 420	< 430	< 430	< 410
Methyl parathion		420	55,000	< 420	< 430	< 430	< 410
Naphthalene		25,000	190,000,000	350J	< 430	45B	< 410
Nitrobenzene		5,100	10,000,000	< 420	< 430	< 430	< 410
N-Nitrosodiethylamine		1.3	44	< 420	< 430	< 430	< 410
N-Nitrosodimethylamine		1.3	130	< 420	< 430	< 430	< 410
N-Nitrosodi-n-butylamine		14	10,000,000	< 420	< 430	< 430	< 410
n-Nitrosodi-n-propylamine		37	10,000,000	< 420	< 430	< 430	< 410
N-Nitrosodiphenylamine		83,000	190,000,000	< 420	< 430	< 430	< 410
N-Nitrosomethylethylamine			-	< 420	< 430	< 430	< 410
N-Nitrosomorpholine				< 420	< 430	< 430	< 410
N-Nitrosopiperidine		-	_	< 420	< 430	< 430	< 410
N-Nitrosopyrrolidine		_	_	< 420	< 430	< 430	< 410
O,O,O-Triethyl phosphorothioate		-	_	< 420	< 430	< 430	< 410
o-Toluidine		1,200	10,000,000	< 420	< 430	< 430	< 410
p-(Dimethylamino)azobenzene		150	190,000,000	< 420	< 430	< 430	< 410
Pentachlorobenzene		660,000	190,000,000	< 420	< 430	< 430	< 410
Pentachloronitrobenzene		20,000	190,000,000	< 420	< 430	< 430	< 410
Pentachlorophenol		5,000	190,000,000	< 2,200	< 2,200	< 2,200	< 2,100
Phenacetin		. 120,000	190,000,000	< 420	< 430	< 430	< 410
Phenol		400,000	190,000,000	< 420	< 430	< 430	< 410
Phenanthrene		10,000,000	190,000,000	< 420	< 430	< 430	< 410
Phorate		880	43,000	< 420	< 430	< 430	< 410
Pronamide		5,000	190,000,000	< 420	< 430	< 430	< 410
Ругепе		2,200,000	190,000,000	< 420	< 430	66J	< 410
Pyridine		2,000	210,000	< 420	< 430	< 430	< 410
Safrole			210,000	< 420	< 430	< 430	< 410
Sulfotepp (Tetraethyl dithiopyrophosphate)		1,500	110,000	< 420	< 430	< 430	< 410
Thionazin (o.o-Diethyl-O-pyrazinyl phosphorothi		,,555	110,000	< 420	< 430	< 430	< 410



· · · · · · · · · · · · · · · · · · ·	•					
Samp		PADEP Act 2 MSCs (b)	UP-3 (15.3-17.3)	UP-4 (9.6-11.6)	UP-5 (6-8)	UP-6 (10-12)
Sample	Date: Soil to Groundwater Pathway		12/4/2003	12/4/2003	12/11/2003	12/12/2003
	Used Aquifers, TDS<2,500 mg/I	Subsurface Soil			i	
Parameter	Non-Residential	2 - 15 Feet			1	
Inorganics (mg/kg) ^(v)						
Antimony	27	190,000	< 2.3	< 2.3	< 2.4	< 2.4
Arsenic	150	190,000	9.5L	8.9L	11K	9.6
Barium .	8,200	190,000	83	140	140	150
Beryllium	320	190,000	0.94	0.9	1.3	0.95
Cadmium	38	190,000	< 0.56	< 0.58	0.39J	< 0.59
Chromium	190,000	190,000	21K	20K	20	21
Cobalt	200	190,000	13K	13K	18	22
Copper ·	36,000	190,000	23	22	39	24
Lead	450	190,000	14L	15L	79L	16L
Mercury	10	190,000	0.025	0.021J	0.072	0.025
Nickel	650	190,000	26	28	21	28
Selenium	26	190,000	< 1.1R	< 1.2R	< 1.2L	< 1.2
Silver	84	190,000	< 1.1	< 1.2	< 1.2	< 1.2
Thallium	14	190,000	< 1.1L	< 1.2L	< 1.2	< 1.2L
Tin	6,100	190,000	1.8B	2B	3.7B	2.1B
Vanadium	72,000	190,000	28	25	28	29
Zinc	12,000	190,000	71J	68J	120	. 76



Parameter	Sample ID: Sample Date:	PADEP Act 2 MSCs (b) Soil to Groundwater Pathway Used Aquifers, TDS<2,500 mg/L Non-Residential	PADEP Act 2 MSCs (b) Direct Contact Subsurface Soil 2 - 15 Feet	UP-7 (14-16) 12/11/2003	UP-8 (14-16) 12/12/2003	UP-9 (16.5-18.5) 12/5/2003	V-1 (12.9-14.9) 12/5/2003
Volatile Organic Compounds (ug/kg) (a)							·
1.1.1.2-Tetrachloroethane		18,000	190,000,000	<5.2/<5.1	< 210	< 5.1	< 9,200
1,1,1-Trichloroethane		20,000	10,000,000	<5.2/<5.1	< 210	< 5.1	< 9,200
1,1,2,2-Tetrachloroethane		30	33,000	<5.2/<5.1	< 210	< 5.1	< 9,200
1,1,2-Trichloroethane		500	120,000	<5.2/<5.1	< 210	< 5.1	< 9,200
1,1-Dichloroethane		11,000	1,200,000	<5.2/<5.1	< 210	< 5.1	< 9,200
1,1-Dichloroethene		190	38,000	<5.2/<5.1	< 210	< 5.i	< 9,200
1,2,3-Trichloropropane		400,000	950	<5.2/<5.1	< 210	< 5.1	< 9,200
1,2,4-Trimethylbenzene		20,000	360,000	1.4J/1.6J	460 .	< 5.1	230,000
1,2-Dibromo-3-chloropropane		20	12,000	<10/<10	< 420	< 10	< 18,000
1,2-Dibromoethane (EDB)		5	8,600	<5.2/<5.1	< 210	< 5.1	< 9,200
1,2-Dichloroethane		500	73,000	<5.2/<5.1	< 210	< 5.1	< 9,200
I,2-Dichloropropane		500	180,000	<5.2/<5.1	< 210	< 5.1	< 9,200
1,3,5-Trimethylbenzene		6,200	360,000	2.3J/2.4J	490-	< 5.1	88,000
2-Butanone (Methyl ethyl ketone)		580,000	10,000,000	<26/<26	190J	< 26	< 46,000
2-Hexanone		(d)		<26/<26	< 1,000	< 26	< 46,000
3-Chloropropene (Allylchloride)		4,100	430,000	<5.2/<5.1	< 210	< 5.1	< 9,200
4-Methyl-2-pentanone (MIBK)		410,000	4,900,000	<26/<26	< 1,000	< 26	< 46,000
Acetone		1,000,000	10,000,000	193/<51	< 2,100	< 51	< 92,000
Acetonitrile		35,000	3,600,000	<210/<200	< 8,400	< 200	< 370,000
Acrolein (Propenal)		12	1,200	<100/<100	< 4,200	< 100	< 180,000
Acrylonitrile		270	28,000	<100/<100	< 4,200	< 100	< 180,000
Benzene		500	240,000	<5.2/<5.1	83B	< 5.1	9,200
Bromodichloromethane		10,000	51,000	<5.2/<5.1	< 210	< 5.1	< 9,200
Bromoform		10,000	1,700,000	<5.2/<5.1	< 210	< 5.1	< 9,200
Bromomethane (Methyl Bromide)		1,000	300,000	<5.2/<5.1	< 210	< 5.1	< 9,200
Carbon disulfide		410,000	10,000,000	<5.2/<5.1	< 210	< 5.1	< 9,200
Carbon tetrachloride Chlorobenzene		500	120,000	<5.2/<5.1	< 210	< 5.1	< 9,200
Chloroethane		10,000	10,000,000	<5.2/<5.1	< 210	< 5.1 < 5.1	< 9,200 < 9,200
Chloroform		90,000	10,000,000	<5.2/<5.1	< 210 < 210	< 5.1 < 5.1	1 '
Chloromethane (Methyl Chloride)		300	19,000 1,000,000	<5.2/<5.1 <5.2/<5.1	< 210	< 5.1	< 9,200 < 9,200
Chloroprene		4,100	430,000	<5.2/<5.1	< 210	< 5.1	< 9,200
cis-1,2-Dichloroethene		7,000	2,100,000	<5.2/<5.1	< 210	< 5.1	< 9,200
cis-1,3-Dichloropropene(c)		2,600	470,000	<5.2/<5.1	< 210	< 5.1	< . 9,200
Dibromochloromethane		2,000	470,000	<5.2/<5.1 <5.2/<5.1	< 210	< 5.1	< 9,200
Dibromomethane (Methylene bromide)		20,000	2,100,000	<5.2/<5.1	< 210	< 5.1	< 9,200
Dichlorodifluoromethane		100,000	10,000,000	<5.2/<5.1	< 210	< 5.ī	< 9,200
Ethyl methacrylate		180,000	190,000,000	<5.2/<5.1	< 210	< 5.1	< 9,200
Ethylbenzene		70,000	10,000,000	<5.2/<5.1	2,000	< 5.1	34.000
Iodomethane (Methyl iodide)		<u>-</u>	**	<5.2/<5.1	< 210	< 5.1	< 9,200
Isobutanol (Isobutyl alcohol)	•	610,000	10,000,000	<210/<200	< 8,400	< 200	< 370,000
Methacrylonitrile		410	43,000	<100/<100	< 4,200	< 100	< 180,000
Methyl methacrylate		410,000	10,000,000	<5.2/<5.1	< 210	< 5.1	< 9,200
Methylene chloride (Dichloromethane)	_	500	1,000,000	<5.2/<5.1	< 210	< 5.1	< 9,200
Pentachloroethane		_	-	<26/<26	< 1,000	< 26	< 46,000
Propionitrile			<u> </u>	<100/<100	< 4,200	< 100	< 180,000
Styrene		24,000	10,000,000	<5.2/<5.1	< 210	< 5.1	< 9,200
Tetrachloroethene		500	3,300,000	<5.2/<5.1	< 210	< 5.1	< 9,200
Toluene trans-1,2-Dichloroethene		100,000	10,000,000	<5.2/<5.1	< 210	< 5.1	< 9,200
		10,000	4,300,000	<5.2/<5.1	< 210	< 5.1	< 9,200
trans-1,3-Dichloropropene(c)		2,600	470,000	<5.2/<5.1	< 210	< 5.1	< 9,200
trans-1,4-Dichloro-2-butene		7	190,000,000	<10/<10	< 420	< 10	< 18,000
Trichloroethene		500	1,100,000	<5.2/<5.1	< 210	< 5.1	< 9,200
Trichlorofluoromethane				<5.2/<5.1	< 210	< 5.1	< 9,200
Vinyl acetate		120,000	10,000,000	<10/<10	< 420	< 10	< 18,000
Vinyl chloride		200	220,000	<5.2/<5.1	< 210	< 5.1	< 9,200



• • •			·····	· · · · · ·		
Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	UP-7 (14-16)	UP-8 (14-16)	UP-9 (16.5-18.5)	V-1 (12.9-14.9)
Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/11/2003	12/12/2003	12/5/2003	12/5/2003
	Used Aquifers, TDS<2,500 mg/L	Subsurface Soil			1	
Parameter	Non-Residential	2 - 15 Feet			L.,	<u> </u>
Semivolatile Organic Compounds (ug/kg)						-
1,2,4,5-Tetrachlorobenzene	14,000	190,000,000 '	<410/<410	< 420	< 410	< 380
1,2,4-Trichlorobenzene	27,000	10,000,000		< 420	< 410	< 380
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000	10,000,000	<410/<410	< 420	< 410	< 380
1,3,5-Trinitrobenzene	-		<410/<410	< 420	< 410	< 380
1,3-Dichlorobenzene (m-Dichlorobenzene)	61,000	10,000,000	<410/<410	< 420	< 410	< 380
1,4-Dichlorobenzene (p-Dichlorobenzene)	10,000	190,000,000	<410/<410	< 420	< 410	< 380
1,4-Dioxane	2,400	240,000	<410/<410	< 420	< 410 < 410	< 380 < 380
1.4-Naphthoquinone		-	<410/<410	< 420		
1,4-Phenylenediamine (p-Phenylenediamine)		l !	<2,100/<2,100	< 2,200	< 2,100	< 1,900
1-Naphthylamine	1,100	190,000,000	<410/<410	< 420	< 410	< 380
2.2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000	190,000	<410/<410	< 420	< 410	< 380 < 380
2,3,4,6-Tetrachlorophenol	950,000	190,000,000	<410/<410	< 420	< 410	
2,4,5-Trichlorophenol	6,100,000	190,000,000	<410/<410	< 420	< 410 < 410	
2,4,6-Trichlorophenol	8,900	190,000,000	<410/<410	< 420	1	< 380 < 380
2,4-Dichlorophenol	2,000	190,000,000	<410/<410	< 420	< 410	
2.4-Dimethylphenol	200,000	10,000,000	<410/<410	< 420	< 410 < 2,100	< 380 < 1,900
2,4-Dinitrophenol	4,100	190,000,000	<2,100/<2,100	< 2,200		
2,4-Dinitrotoluene	840	190,000,000	<410/<410	< 420		
2,6-Dichlorophenol	-	100 000 000	<410/<410	< 420 < 420	< 410 < 410	
2,6-Dinitrotoluene	10,000 280	190,000,000	<410/<410	< 420 < 420	< 410	< 380 < 380
2-Acetylaminofluorene	'	190,000,000	<410/<410	< 420	< 410	
2-Chloronaphthalene	18,000,000	190,000,000	<410/<410 <410/<410	< 420	< 410	< 380 < 380
2-Chlorophenol	4,400 8,000,000	1,100,000	<410/<410	< 420	< 410	< 380
2-Methylnaphthalene 2-Naphthylamine	140	190,000,000	<410/<410	< 420	< 410	< 380
2-Naphulylanine 2-Nitroaniline (o-Nitroaniline)	580	190,000,000	<2,100/<2,100	< 2,200	< 2,100	< 1,900
2-Nitrophenol (o-Nitrophenol)	82,000	190,000,000	<410/<410	< 420	< 410	< 380
2-Picoline	42,000	150,000,000	<410/<410	< 420	< 410	< 380
3,3'-Dichlorobenzidine	32,000	190,000,000	<820/<810	< 840	< 820	< 750
3,3'-Directly/ibenzidine	1,500	10,000,000	<2,100/<2,100	< 2,200	< 2,100	< 1,900
3-Methylcholanthrene		10,000,000	<410/<410	< 420	< 410	< 380
3-Nitroaniline (m-Nitroaniline)	580	190,000,000	<2,100/<2,100	< 2,200	< 2,100	< 1,900
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)		150,000,000	<2,100/<2,100	< 2,200	< 2,100	< 1,900
4-Aminobiphenyl	12	190,000,000	<410/<410	< 420	< 410	< 380
4-Bromophenylphenyl ether	<u> </u>		<410/<410	< 420	< 410	< 380
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	10,000,000	<410/<410	< 420	< 410	< 380
4-Chloroaniline (p-Chloroaniline)	52,000	190,000,000	<820/<810	< 840	< 820	< 750
4-Chlorophenylphenyl ether			<410/<410	< 420	< 410	< 380
4-Nitroaniline (p-Nitroaniline)	580	190,000,000	<2,100/<2,100	< 2,200	< 2,100	< 1,900
4-Nitrophenol (p-Nitrophenol)	6,000	190,000,000	<2,100/<2,100	< 2,200	< 2,100	< 1,900
4-Nitroquinoline-1-oxide	_	••	<4,100/<4,100	< 4,200	< 4,100	< 3,800
5-Nitro-o-toluidine	_	l	<410/<410	< 420	< 410	< 380
7,12-Dimethylbenz(a)anthracenc	_	l <u>.</u>	<410/<410	< 420	< 410	< 380
Acenaphthene	4,700,000	190,000,000	<410/<410	< 420	< 410	< 380
Acenaphthylene	6,900,000	190,000,000	<410/<410	< 420	< 410	< 380
Acetophenone	- 1,000,000	10,000,000	<410/<410	< 420	< 410	< 380
alpha,alpha-Dimethylphenethylamine			<84,000/<83,000	< 85,000	< 84,000	< 76,000
Aniline	580	600,000	<410/<410	< 420	< 410	< 380
Anthracene	350,000	190,000,000	<410/<410	< 420	< 410	< 380
Aramite, Total		-	<410/<410	< 420	< 410	< 380
Benzo(a)anthracene	320,000	190,000,000	<410/<410	< 420	< 410	82B
Benzo(a)pyrene	46,000	190,000,000	<410/<410	< 420	< 410	84J
Benzo(b)fluoranthene	170,000	190,000,000	<410/<410	< 420	< 410	993
Benzo(g,h.i)perylene	180,000	190,000,000	<410/<410	< 420	< 410	64J
Benzo(k)fluoranthene	610,000	190,000,000	<410/<410	< 420	< 410	< 380
Benzyl alcohol	3,100,000	10,000,000	<410/<410	< 420	< 410	< 380
bis(2-Chloroethoxy)methane	_		<410/<410	< 420	< 410	< 380
bis(2-Chloroethyl)ether	55	5,700	<410/<410	< 420	< 410	< 380



TABLE 8 SUMMARY OF SUBSURFACE SOIL ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED JEFFERSON PLANT

	JEFFERSON PLANT
WEST	ELIZABETH, PENNSYLVANIA

	Sample ID: Sample Date:	PADEP Act 2 MSCs (b) Soil to Groundwater Pathway	PADEP Act 2 MSCs (b) Direct Contact Subsurface Soil	UP-7 (14-16) 12/11/2003	UP-8 (14-16) 12/12/2003	UP-9 (16.5-18.5) 12/5/2003	V-1 (12.9-14 12/5/2003
Parameter		Used Aquifers, TDS<2,500 mg/L Non-Residential	2 - 15 Feet				1
Semivolatile Organic Compounds (continued) (ug/k	(g)		2-13700			<u> </u>	
bis(2-Ethylhexyl)phthalate	<i>D</i> -	130,000	10,000,000	200J/180J	< 420	< 410	< 380
Butylbenzylphthalate		10,000,000	10,000,000	<410/<410	< 420	< 410	< 380
Chrysene		230,000	190,000,000	<410/<410	< 420	< 410	
Cresol (ortho)		510,000	10,000,000	<410/<410	< 420	< 410	100B < 380
Cresol, m & p		51,000	190,000,000	<410/<410	< 420	< 410	< 380
Diallate, Total		1,000	110,000	<410/<410	< 420	< 410	< 380
Dibenzo(a,h)anthracene		160,000	190,000,000	<410/<410	< 420	< 410	< 380
Dibenzofuran			i'	<410/<410	< 420	< 410	< 380
Diethylphthalate		500,000	10,000,000	<410/<410	< 420 ·	< 410	< 380
Dimethoate		2,000	190,000,000	<410/<410	< 420	< 410	< 380
Dimethylphthalate			_	<410/<410	< 420	< 410	< 380
Di-n-butylphthalate		4,100,000	10,000,000	<410/<410	< 420	< 410	< 380
Di-n-octylphthalate		10,000,000	10,000,000	<410/<410	< 420	< 410	< 380
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		700	190,000,000	<410/<410	< 420	< 410	< 380
Disulfoton		78	8,700	<410/<410	< 420	< 410	< 380
Ethyl methanesulfonate			-	<410/<410	< 420	< 410	< 380
Ethyl parathion (Parathion)		360,000	10,000,000	<410/<410	< 420	< 410	< 380
Famphur		-		<410/<410	< 420	< 410	< 380
Fluoranthene		3,200,000	190,000,000	<410/<410	< 420	< 410	150
Fluorene		3,800,000	190,000,000	<410/<410	< 420	< 410	< 380
Hexachlorobenzene		960	190,000,000	<410/<410	< 420	< 410	< 380
Hexachlorobutadiene		1,200	10,000,000	<410/<410	< 420	< 410	< 380
Hexachlorocyclopentadiene	:	91,000	10,000,000	<410/<410	< 420	< 410	< 380
Hexachloroethane		560	190,000,000	<410/<410	< 420	< 410	< 380
Hexachlorophene		_	***	<210,000/<210,000	< 220,000	< 210,000	
Hexachloropropene				<410/<410	< 420	< 410	< 190,0 < 380
Indeno(1,2,3-cd)pyrene		28,000,000	190,000,000	<410/<410	< 420	< 410	483
Isophorone		10,000	10,000,000	<410/<410	< 420	< 410	
Isosafrole		-	10,000,000	<410/<410	< 420	< 410	< 380 < 380
m-Dinitrobenzene		100	190,000,000	<410/<410	< 420	< 410	
Methapyrilene		100	190,000,000	<84,000/<83,000	< 85,000	< 84,000	1
Methyl methanesulfonate		2,600	190,000,000	<410/<410		1	1 '
Methyl parathion		420	55,000				
Maghthalene		25,000	· ·	<410/<410		1	< 380
Nitrobenzene		5,100	190,000,000	<410/<410	190J	< 410 < 410	< 380
			10,000,000	<410/<410	< 420		< 380
N-Nitrosodiethylamine		1.3	44	<410/<410	< 420	< 410	< 380
N-Nitrosodimethylamine		1.3	130	<410/<410	< 420	< 410	< 380
N-Nitrosodi-n-butylamine		14	10,000,000	<410/<410	< 420	< 410	< 38
n-Nitrosodi-n-propylamine		37	10,000,000	<410/<410	< 420	< 410	< 38
N-Nitrosodiphenylamine		83,000	190,000,000	<410/<410	< 420	< 410	< 380
N-Nitrosomethylethylamine		_	-	<410/<410	< 420	< 410	< 380
N-Nitrosomorpholine		-	· 	<410/<410	< 420	< 410	< 380
N-Nitrosopiperidine		-	-	<410/<410	< 420	< 410	< 380
N-Nitrosopyrrolidine		_	-	<410/<410	< 420	< 410	< 380
O,O,O-Triethyl phosphorothioate		4.000		<410/<410	< 420	< 410	< 380
o-Toluidine		1,200	10,000,000	<410/<410	< 420	< 410	< 380
p-(Dimethylamino)azobenzene		150	190,000,000	<410/<410	< 420	< 410	< 380
Pentachlorobenzene		660,000	190,000,000	<410/<410	< 420	< 410	< 380
Pentachloronitrobenzene		20,000	190,000,000	<410/<410	< 420	< 410	< 38
Pentachlorophenol		5,000	190,000,000	<2,100/<2,100	< 2,200	< 2,100	< 1,90
Phenacetia		120,000	190,000,000	<410/<410	< 420	< 410	< 38
Phenol		400,000	190,000,000	<410/<410	< 420	< 410	< 38
Phenanthrene		10,000,000	190,000,000	<410/<410	< 420	< 410	75.
Phorate		880	43,000	<410/<410	< 420	< 410	< 38
Pronamide		5,000	190,000,000	<410/<410	< 420	< 410	< '386
Рутеле		2,200,000	190,000,000	<410/<410	< 420	< 410	130
Pyridine		2,000	210,000	<410/<410	< 420	< 410	< 380
Safrole		_		<410/<410	< 420	< 410	< 386
Sulfotepp (Tetraethyl dithiopyrophosphate)		1,500	110,000	<410/<410	< 420	< 410	< 38
Thionazin (o.o-Diethyl-O-pyrazinyl phosphorothioa	te\	••		<410/<410	< 420	< 410	<. 38



·										
•	Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	UP-7 (14-16)	UP	-8 (14-16)	UP-9	(16.5-18.5)	V-1	[12.9-14.9
•	Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/11/2003	12	/12/2003	12	/5/2003	13	/5/2003
		Used Aquifers, TDS<2,500 mg/L	Subsurface Soil							
Parameter	<u> </u>	Non-Residential	2 - 15 Feet							
Inorganics (mg/kg) ^(a)										
Antimony	-	27	190,000	<2.3/<2.4	<	2.3	<	2.4		0.76J
Arsenic		150	190,000	9.4K/10K		9.7	j	IIL		2!L
Barium .		8,200	190,000	160/120		140	1	110	l	110
Beryllium	•	320	190,000	0.86/0.88		0.95	1	0.89		1.4
Cadmium	•	38	190,000	<0.57/<0.59	<	0.56		0.24B		0.43B
Chromium	•	190,000	190,000	21/17		21		I7K		29K
Cobalt		200	190,000 -	10/13		14		15K	l	26K
Copper		36,000	190,000 .	20/21		25		21		48
Lead		450	190,000	13L/14L		16L		15L		19L
Mercury.		10	190,000	0.021/0.021		0.035		0.024		0.037
Nickel		650	190,000	24/27		29		25		42
Selenium		26	190,000	<1.1L/<1.2L	<	1.1	<	1.2R	<	1.1R
Silver		84	190,000	<1.1/<1.2	<	1.1	<	1.2	<	1.1
Thallium		14	190,000	<1.1/<1.2	<	1.1L	<	1.2L	<	LL
Tin		6,100	190,000	1.9B/2B	1	2.3B	1	4B		2.2B
Vanadium		72,000	190,000	21/20		30	1	23		32
Zinc		12,000	190,000	64/68		76		64		97



	iple ID: le Date:	PADEP Act 2 MSCs (b) Soil to Groundwater Pathway Used Aquifers, TDS<2,500 mg/L	PADEP Act 2 MSCs (b) Direct Contact Subsurface Soil		2 (17.5-19.5) 12/5/2003		(15-17) /5/2003
Parameter		Non-Residential	2 - 15 Feet				
Volatile Organic Compounds (ug/kg) (a)		, ton-secondarian	3-15100	T	· · · · · · · · ·		
1,1,1,2-Tetrachloroethane	<u> </u>	18,000	190,000,000	<	5.2	<	5.3
1,1,1-Trichloroethane		20,000	10,000,000	<	5.2	<	5.3
1,1,2,2-Tetrachloroethane		30	33,000	<	5.2	<	5.3
1,1,2-Trichloroethane		. 500	120,000	<	5.2	<	5.3
1.1-Dichloroethane		11,000	1,200,000	<	5.2	<	5.3
1.1-Dichloroethene		190	38,000	<	5.2	<	5.3
1,2,3-Trichloropropane		400,000	950	<	5.2	<	5.3
1,2,4-Trimethylbenzene		20,000	360,000	ŀ	3,700.	<	5.3
1,2-Dibromo-3-chloropropane		20,000	12,000	<	10	<	10
1,2-Dibromoethane (EDB)		5	8,600	<	5.2	<	5.3
1,2-Dichloroethane		500	73,000	<	5.2	~	5.3
1,2-Dichloropropane		500	180,000	<	5.2	<	5.3
• •			· ·	ľ		<	
1,3,5-Trimethylbenzene		6,200	360,000	l.	1,800		5.3
2-Butanone (Methyl ethyl ketone)		580,000	10,000,000	<	26	<	26
2-Hexanone		(ů)		<	26	<	26
3-Chloropropene (Allylchloride)		4,100	430,000	<	5.2	<	5.3
4-Methyl-2-pentanone (MIBK)		410,000	4,900,000	<	26	<	26
Acetone		1,000,000	10,000,000		42J		28J
Acetonitrile		35,000	3,600,000	<	210	<	210
Acrolein (Propenal)		12	1,200	<	100	<	100
Acrylonitrile		270	28,000	<	100	<	100
Benzene		500	240,000		89	i	2.7J
Bromodichloromethane		10,000	51,000	<	5.2	<	5.3
Bromoform		10,000	1,700,000	<	5.2	<	5.3
Bromomethane (Methyl Bromide)		1,000	300,000	<	5.2	<	5.3
Carbon disulfide		410,000	10,000,000	<	5.2	<	5.3
Carbon tetrachloride Chlorobenzene		500	120,000	<	5.2	<	5.3
Chloroethane		10,000 90,000	10,000,000	< <	5.2 5.2	<	5.3 5.3
Chloroform		10,000	10,000,000	2		<	5.3 5.3
Chloromethane (Methyl Chloride)		300	1,000,000	<	5.2 5.2	<	5.3
Chloroprene Chloroprene		4,100	430,000	<	5.2 5.2	~	5.3
cis-1,2-Dichloroethene		7,000	2,100,000	<	5.2	~	5.3
k -		ł ·		1			
cis-1,3-Dichloropropene ^(c)		2,600	470,000	<	5.2	<	5.3
Dibromochloromethane		70.000		< <	5.2	< <	5.3
Dibromomethane (Methylene bromide) Dichlorodifluoromethane		20,000	2,100,000	<	5.2 5.2	<	5.3
Ethyl methacrylate		100,000	10,000,000	\ \ \	5.2 5.2	<	5.3 5.3
Ethylbenzene		70,000		`	3.2 1,400	<	5.3 5.3
Iodomethane (Methyl iodide)		70,000	10,000,000	<	5.2	<	5.3
Isobutanol (Isobutyl alcohol)		610,000	10,000,000	<	210	<	210
Methacrylonitrile		410	43,000	<	100	<	100
Methyl methacrylate		410,000	10,000,000	<	5.2	<	5.3
Methylene chloride (Dichloromethane)		500	1,000,000	<	5.2	<	5.3
Pentachloroethane			1,000,000	[~	26	<	26
Propionitrile		_	100	<	100	<	100
Styrene		24,000	10,000,000	1	21	<	5.3
Tetrachloroethene		500	3,300,000	<	5.2	<	5.3
Toluene		100,000	10,000,000		20	<	5.3
trans-1,2-Dichloroethene		10,000	4,300,000	<	5.2	<	5.3
trans-1,3-Dichloropropene(c)		2,600	470,000	<	5.2	<	5.3
trans-1,4-Dichloro-2-butene		7	190,000,000	<	10	<	10
Trichloroethene		500	1,100,000	<	5.2	Γ	1.93
Trichlorofluoromethane		300	1,100,000	<	5.2 5.2	<	5.3
Vinyl acetate		120,000	10,000,000	<	10	<	. 10
Vinyl chloride		200	220,000	<	5.2	<	5.3
Xylenes, Total		1,000,000	10,000,000		530	~	10



•						
Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	V-2 (17.5-1	9.5)	V-3	(15-17)
Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/5/200		12/	5/2003
	Used Aquifers, TDS<2,500 mg/L	Subsurface Soll	1	- 1		
Parameter	Non-Residential	2 - 15 Feet				
Semivolatile Organic Compounds (ug/kg)		2 10 10 10 10 10 10 10 10 10 10 10 10 10				
1,2,4,5-Tetrachlorobenzene	14,000	190,000,000	< 420	1.	<	420
1,2,4-Trichlorobenzene	27,000	10,000,000	< 420		<	420
1,2-Dichlorobenzene (o-Dichlorobenzene)	60,000	10,000,000	< 420		<	420
1,3,5-Trinitrobenzene	_		< 420		<	420
1,3-Dichlorobenzene (m-Dichlorobenzene)	61,000	10,000,000	< 420		<	420
1,4-Dichlorobenzene (p-Dichlorobenzene)	10,000	190,000,000	< 420		<	420
1,4-Dioxane	2,400	240,000	< 420		<	420
1,4-Naphthoquinone		240,000	< 420		<	420
1,4-Phenylenediamine (p-Phenylenediamine)			< 2,200		<	2,200
I-Naphthylamine	1,100	190,000,000	< 420		<	420
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	30,000	190,000	< 420		~	420
2,3,4,6-Tetrachlorophenol	950,000	190,000,000	< 420		<	420
	6,100,000	190,000,000	< 420		<	420
2,4,5-Trichlorophenol			< 420		<	420
2,4,6-Trichlorophenol	8,900 2,000	190,000,000 190,000,000	< 420		<	420
2.4-Dichlorophenol			1		<	
2,4-Dimethylphenol	200,000	10,000,000	< 420 < 2,200		<	420 2,200
2,4-Dinitrophenol	4,100	190,000,000	, -,-		<	
2,4-Dinitrotoluene	840	190,000,000	< 420 < 420		< <	420 420
2,6-Dichlorophenol	10.000				<	
2,6-Dinitrotoluene	10,000	190,000,000	< 420			420
2-Acetylaminofluorene	280	190,000,000	< 420		<	420
2-Chloronaphthalene	18,000,000	190,000,000	< 420	- 1	<	420
2-Chlorophenol	4,400	1,100,000	< 420	- 1	<	420
2-Methylnaphthalene	8,000,000	10,000,000	150.		<	420
2-Naphthylamine	140	190,000,000	< 420		<	420
2-Nitroaniline (o-Nitroaniline)	580	190,000,000	< 2,20		<	2,200
2-Nitrophenol (o-Nitrophenol)	82,000	190,000,000	< 420		<	420
2-Picoline	-	-	< 420		<	420
3,3'-Dichlorobenzidine	32,000	190,000,000	< 840	- 1	<	840
3,3'-Dimethylbenzidine	1,500	10,000,000	< 2,20	- 1	<	2,200
3-Methylcholanthrene	` 	_	< 420		<	420
3-Nitroaniline (m-Nitroaniline)	580	190,000,000	< 2,20	0	<	2,200
4.6-Dinitro-2-methylphenol (4.6-Dinitro-o-cresol)	- -	-	< 2,20	0	<	2,200
4-Aminobiphenyl	12	190,000,000	< 420)	<	420
4-Bromophenylphenyl ether			< 420)	<	420
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	110,000	10,000,000	< 420)	<	420
4-Chloroaniline (p-Chloroaniline)	52,000	190,000,000	< 840)	<	840
4-Chlorophenylphenyl ether	ļ		< 420)	<	420
4-Nitroaniline (p-Nitroaniline)	580	190,000,000	< 2.20	10	<	2,200
4-Nitrophenol (p-Nitrophenol)	6,000	190,000,000	< 2,20	10	<	2,200
4-Nitroquinoline-1-oxide			< 4.20	ю	<	4,200
5-Nitro-o-toluidine			< 420)	<	420
7,12-Dimethylbenz(a)anthracene		i -	< 420)	<	420
Acenaphthene	4,700,000	190,000,000	< 420)	<	420
Acenaphthylene	6,900,000	190,000,000	< 420		<	420
Acetophenone	1,000,000	10,000,000	< 420		<	420
alpha,alpha-Dimethylphenethylamine			< 85,0		<	85,000
Aniline	580	600,000	< 420		<	420
Anthracene	350,000	190,000,000	< 420		<	420
Aramite, Total			< 420		<	420
Benzo(a)anthracene	320,000	190,000,000	< 420		-	420
Benzo(a)pyrene	46,000	190,000,000	< 420		-	420
Benzo(b)fluoranthene	170,000	190,000,000	< 420		-	420
Benzo(y,h,i)perylene	180,000	190,000,000	< 42		~	420
Benzo(k)fluoranthene	610,000	190,000,000	< 42		<	420
1 * *	3,100,000	10,000,000	< 42		<	420
Benzyl alcohol	3,100,000	10,000,000	< 42		[~	420
bis(2-Chloroethoxy)methane		£ 700	< 42		<	420
bis(2-Chloroethyl)ether	55	5,700	1~ 42	<u> </u>	1	420



Sample ID:	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	V-2 (17.5-19.5)	V-3 (15-17
Sample Date:	Soil to Groundwater Pathway	Direct Contact	12/5/2003	12/5/2003
arameter	Used Aquifers, TDS<2,500 mg/L Non-Residential	Subsurface Soil		
emivolatile Organic Compounds (continued) (ug/kg)	14011-Residential	2 - 15 Feet	·	
bis(2-Ethylhexyl)phthalate	130,000	10,000,000	< 420	< 420
Butylbenzylphthalate	10,000,000	10,000,000	< 420	< 420
Chrysene	230,000	190,000,000	< 420	< 420
Cresol (ortho)	510,000	10,000,000	< 420	< 420
Cresol, m & p	51,000	190,000,000	< 420	< 420
Diallate, Total	1,000	110,000	< 420	< 420
Dibenzo(a,h)anthracene	160,000	190,000,000	< 420	< 420
Dibenzofuran ·	150,000	190,000,000	< 420	< 420
Diethylphthalate	500,000	10.000.000	< 420	< 420
Dimethoate	2,000	10,000,000	< 420	< 420
Dimethylphthalate	2,000	190,000,000	II .	
Di-n-butylphthalate	4.100.000			
* *		10,000,000	I	
Di-n-octylphthalate	10,000,000	10,000,000	< 420	< 420
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)	700	190,000,000	< 420	< 420
Disulfoton	78	8,700	< 420	< 420
Ethyl methanesulfonate			< 420	< 420
Ethyl parathion (Parathion)	360,000	10,000,000	< 420	< 420
Famphur		_	< 420	< 420
Fluoranthene	3,200,000	190,000,000	< 420	< 420
Fluorene	3,800,000	190,000,000	< 420	< 420
Hexachlorobenzene	. 960	190,000,000	< 420	< 420
Hexachlorobutadiene	1,200	10,000,000	< 420	< 420
Hexachlorocyclopentadiene	91,000	10,000,000	< 420	< 420
Hexachloroethane	560	190,000,000	< 420	< 420
Hexachlorophene		l ' '	< 220,000	< 220,0
Hexachloropropene		l	< 420	< 420
Indeno(1,2,3-cd)pyrene	28,000,000	190,000,000	< 420	< 420
Isophorone	10,000	10,000,000	< 420	< 420
Isosafrole			< 420	< 420
m-Dinitrobenzene	100	190,000,000	< 420	< 420
Methapytilene		190,000,000	< 85,000	< 85,00
Methyl methanesulfonate	2,600	190,000,000	< 420	< 420
		1 ' '	1	1
Methyl parathion Naphthalene	420	55,000		
•	25,000	190,000,000	2,500	< 420
Nitrobenzene	5,100	10,000,000	< 420	< 420
N-Nitrosodiethylamine	1.3	44	< 420	< 420
N-Nitrosodimethylamine	1.3	130	< 420	< 420
N-Nitrosodi-n-butylamine	14	10,000,000	< 420	< 420
n-Nitrosodi-n-propylamine	37	10,000,000	< 420	< 420
N-Nitrosodiphenylamine	83,000	190,000,000	< 420	< 420
N-Nitrosomethylethylamine		-	< 420	< 420
N-Nitrosomorpholine		ļ -	< 420	< 420 < 420
N-Nitrosopiperidine	-] -	< 420	< 420
N-Nitrosopyrrolidine	-] 	< 420	< 420
O,O,O-Triethyl phosphorothioate		. -	< 420	< 420
o-Toluidine	1,200	10,000,000	< 420	< 420
p-(Dimethylamino)azobenzene	150	190,000,000	< 420	< 420
Pentachlorobenzene	660,000	190,000,000	< 420	< 420
Pentachloronitrobenzene	20,000	190,000,000	< 420	< 420
Pentachlorophenol	5,000	190,000,000	< 2,200	< 2,20
Phenacetin	120,000	190,000,000	< 420	< 420
Phenol	400,000	190,000,000	< 420	< 420
Phenanthrene				
	10,000,000	190,000,000	< 420	
Phorate	880 -	43,000	< 420	< 420
Pronamide	5,000	190,000,000	< 420	< 420
Pyrene	2,200,000	190,000,000	< 420	< 420
Pyridine	2,000	210,000	< 420	< 420
Safrole	_	-	< 420	< 420
Sulfotepp (Tetraethyl dithiopyrophosphate)	1,500	110,000	< 420	< 420
Thionazin (o.o-Diethyl-O-pyrazinyl phosphorothioate)			< 420	< 420



<u> </u>		•				
Sample 11	PADEP Act 2 MSCs (b)	PADEP Act 2 MSCs (b)	V-2	(17.5-19.5)	ν.	3 (15-17)
Sample Dat	e: Soil to Groundwater Pathway	Direct Contact	1.	2/5/2003	12	2/5/2003
	Used Aquifers, TDS<2,500 mg/L	Subsurface Soil	ì			
Parameter	Non-Residential	2 - 15 Feet				
Inorganics (mg/kg) ^(w)						
Antimony	27	190,000	<	2.3	<	2.2
Arsenic	150	190,000	1	7.3L	1	9.8L
Barium	8,200	190,000	ì	140	ļ	130
Beryllium	320	190,000]	0.86		0.87
Cadmium	38	190,000	1	0.25B	<	0.56
Chromium	190,000	190,000	1	17K		18K
Cobalt	200	190,000	1	15K		13K
Copper	36,000	190,000	1	22		22
Lead	450	190,000	1	15L		14L
Mercury	10	190,000	1	0.025		0.025
Nickel	650	190,000	1	27		25
Selenium	26	190,000	<	1.2R	<	1.1R
Silver	84	190,000	<	1.2	<	1.1
Thallium	. 14	190,000	<	1.2L	<	1.1L
Tin	6,100	190,000		2.2B		2.4B
Vanadium	72,000	190,000		25	l	25
Zinc ·	12.000	190.000		67	l	68



Notes:

- (a) "ug/kg" is micrograms per kilogram or parts per billion; "mg/kg" is milligrams per kilograms or parts per million.
- (b) PADEP statewide health MSCs for regulated substances in soil (Title 25, PA Code Chapter 250).
- (c) Medium specific concentration (MSC) is for 1,3-Dichloropropene.
- (d) "--" indicates a MSC does not exist for this compound.
- (e) "<x" indicates the result is less than the method detection limit (MDL).
- (f) Values shaded and shown in bold indicate an exceedance of the soil-to-groundwater MSC. There were no direct contact MSC exceedances for subsurface soils.
- (g) "B" indicates not detected substantially above the level reported in the laboratory or field blanks.
- (h) "J" indicates the value is estimated.
- (i) "L" indicates the reported value is biased low; actual value is expected to be higher.
- (j) "K" indicates the reported value may be biased high; actual value is expected to be lower.
- (k) "<x/<x" indicates a duplicate sample was collected at this location.
- (l) "R" indicates analyte may or may not be present in the sample.

TABLE 9 SUMMARY OF ANALYTICAL RESULTS OF DETECTED CONSTITUENTS IN GROUNDWATER ARCADIS GERAGHTY AND MILLER (2000) HERCULES INCORPORATED JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

Ranalyte PADEF MSC (*) TDS <2,500 mg/L E-4 E-24 E-27 E-29 E-33 E-34 E-35 I172/000 10/30/2000 10/31/2000 10/301/2000 10/301/2000 10/301/2000 10/301/2000 10/301/2000 10/301/2000 10/301/2000 10/301/2000 10/301/2000 10/301/2000 10/301/2000 10/301/2000 10/301/2000 10/	<14.0 293 3140 293 4.1 B 29371 526 722 504 1.1 1190 <10.0 <5.0 <14.2 <500 725 2,240 <4.2 <5.0 <5.0 <5.0 <5.0 <14.5 <5.0 <7.2 <7.2 <7.2 <7.2 <7.2 <7.2 <7.2 <7.2	E-38 10/31/2000 <2.7 <10.0 246 <0.12 3.3 B 22.7 6.6 B 5.1 B <5.2 <0.11 9.7 B <10.0 2.4 B <20.0 <100 <50 <31.1
TDS < 1,500 mg/L 11/2/00 10/30/00 10/31/2000 10/31/2000 11/3/2000 10/31/2000 10/	0 11/3/2000 <14.0 293 3140 4.1 B 937/1 526 722 504 1.1 1190 <10.0 <5.0 <14.2 <500 725 2240 <4.2 <5.0 <5.0 <5.0	10/31/2000 <2.7 <10.0 246 <0.12 3.3 B 22.7 6.6 B 5.1 B <5.2 <0.11 9.7 B <10.0 2.4 B <20.0 <100 <50 <31.1
Inorganics (Total)(µg/L)	<14.0 293 3140 293 4.1 B 937/1 526 722 504 1.1 1190 <10.0 <5.0 <14.2 <500 725 2,240 <4.2 <5.0 <5.0 <5.0 <5.0	<2.7 <10.0 246 <0.12 3.3 B 22.7 6.6 B 5.1 B <5.2 <0.11 9.7 B <10.0 2.4 B <20.0 <100 <50 <31.1
Antimony Arsenic 50 410.0 410.0 56 B 7.7 B 7.0 B 410.0 14.1 Barium 2,000 16.2 B 40.3 B/39.6 B 93.1 B 105 B 368 94.2 B 834 834 834 834 834 834 834 83	293 3140 229 4.1 B 9371 526 722 504 1.1 1190 <10.0 <5.0 <14.2 <500 725 2,240 <4.2 <5.0 <5.0 <5.0	<10.0 246 <0.12 3.3 B 22.7 6.6 B 5.1 B <5.2 <0.11 9.7 B <10.0 2.4 B <20.0 <100 <50 <31.1
Barium	3140 29 4.1 B 937 526 722 504 1.1 1190 <10.0 <5.0 <14.2 <500 725 2,240 <4.2 <5.0 <5.0 <5.0	246 <0.12 3.3 B 22.7 6.6 B 5.1 B <5.2 <0.11 9.7 B <10.0 2.4 B <20.0 <100 <50 <31.1
Beryllium	4.1 B 93/11 526 722 504 1.1 (10.0 <5.0 <14.2 <500 725 2240 <4.2 <5.0 <5.0 <5.0	<0.12 3.3 B 22.7 6.6 B 5.1 B <5.2 <0.11 9.7 B <10.0 2.4 B <20.0 <100 <50 <31.1
Cadmium 5 <5.0 0.71 B/0.76 B 1.8 B <5.0 0.67 B 0.67 B 1172 Chromium 100(b) 16.7 J <5.4	4.1 B 9371 526 722 504 1130 <10.0 <5.0 <14.2 <500 725 2,240 <4.2 <5.0 <5.0 <5.0	3.3 B 22.7 6.6 B 5.1 B <5.2 <0.11 9.7 B <10.0 2.4 B <20.0 <100 <50 <31.1
Chromium	526 722 504 1.1 1190 <10.0 <5.0 <14.2 <500 725 2240 <4.2 <5.0 <5.0	22.7 6.6 B 5.1 B <5.2 <0.11 5.10.0 2.4 B <20.0 <100 <50 <31.1
Cobalt Copper Cobalt Copper	526 722 504 1.1 1190 <10.0 <5.0 <14.2 <500 725 2240 <4.2 <5.0 <5.0	6.6 B 5.1 B <5.2 <0.11 9.7 B <10.0 2.4 B <20.0 <100 <50 <31.1
Copper	722 504 1.1 1190 <10.0 <5.0 <14.2 <500 725 +2,240 <4.2 <5.0 <5.0 <5.0 <5.0	5.1 B <5.2 <0.11 9.7 B <10.0 2.4 B <20.0 <100 <50 <31.1
Lead 5 5.2 2.6 B/3.1 14.8 10.4 <5.5 <4.9 94.	1.1 1.100 <10.0 <5.0 <14.2 <500 725 =2.240 <4.2 <5.0 <5.0 <4.2	<5.2 <0.11 9.7 B <10.0 2.4 B <20.0 <100 <50 <31.1
Mercury 2 <0.20 <0.065 <0.073 <0.20 <0.19 <0.25 Nickel 100 51.5 44.7/47.9 95.6 16.6 B 9.4 B <17.6 756 Selenium 50 3.3 B 2.6 B <5.0 <5.0 <5.0 <25.0 <5.0 Silver 100 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 Thallium 2 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 Variadium 720 <50.0 <5.0 <4.5 B <7.0 <5.0 <4.5 B Zinc 2.000 <96.4 32.2/33.1 85.6 55.5 <28.0 <120 398 Volatile Organics (μg/L) Acetone 5,800 <5.0 <5.0 <5.0 <20.0 <20.0 <35 <5.0 2.Butanone 5,800 <5.0 <5.0 <5.0 <20.0 <20.0 <20.0 <20.0 <20.0 Carbon Disulfide 4,100 <5.0 <120 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 1,1-Dichloroethane 110 <5.0 70011600 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.	1.1 11190 <10.0 <5.0 <14.2 <500 725 2240 <4.2 <5.0 <5.0	<0.11 9.7 B <10.0 2.4 B <20.0 <100 <50 <31.1
Nicke 100 51.5 44.7147.9 95.6 16.6 B 9.4 B <17.6 3156 Selenium 50 3.3 B 2.6 B <5.0 <5.0 <25.0 <5.0 12.8 Silver 100 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 Thallium 2 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 Vanadium 720 <50.0 <50.0 <5.5 <5.5 <5.0 <5.0 <5.0 Vanadium 720 <50.0 <50.0 <24.5 B <17.5 <50.0 <6.4 B 98.2 Zinc 2.000 <96.4 32.2733.1 85.6 55.5 <28.0 <120 398 Volatile Organics (µg/L) Acetone 10,000 <4.6 <500 <20.0 <20.0 <35 <5.3 <20.0 Benzene 5 <5.0 <50 <50 <20.0 <20.0 <25.0 <5.0 <50.0 Lation 2.000 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 Carbon Disulfide 4,100 <5.0 <500 <20.0 <50.0 <50.0 <50.0 Lation 100 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <	1150 <10.0 <5.0 <14.2 <500 725 +2.240 <4.2 <5.0 <5.0	9.7 B <10.0 2.4 B <20.0 <100 <50 <31.1
Selenium S0 3.3 B 2.6 B <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.	<pre><10.0 <5.0 <14.2 <500 725</pre>	<10.0 2.4 B <20.0 <100 <50 <31.1
Silver 100 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0	<5.0 <14.2 <500 725 2,240 <4.2 <5.0 <5.0	2.4 B <20.0 <100 <50 <31.1
Thallium 2 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0	<14.2 <500 725 2,240 <4.2 <5.0 <5.0	<20.0 <100 <50 <31.1
Tin	<500 725 2,240 <4.2 <5.0 <5.0	<100 <50 <31.1
Vanadium 720 <50.0 <50.0 24.5 B <17.5 <50.0 6.4 B 98.2 Zinc 2,000 <96.4 32.2/33.1 85.6 55.5 <28.0 <120 398 Volatile Organics (µg/L)	725 - 2,240 - <4,2 - <5.0 - <5.0	<50 <31.1
Volatile Organics (µg/L)	<4.2 <5.0 <5.0	`
Acetone 10,000 <4.6 <500 <20.0 <20.0 <35 <5.3 <20.0	<5.0 <5.0	<40.0
Benzene 5 <5.0 <120 160 <5.0 <25.0 <5.0 <5.0 <5.0 <25.0 <5.0 <5.0 <25.0 <5.0 <25.0 <5.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <25.0 <2	<5.0 <5.0	<40.0
2-Butanone 5,800 <5.0 <500 <20 <20 <100 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0 <20.0	<5.0	
Carbon Disulfide		<10.0
Chloroform 100 <200 <120 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0		<40.0
1,1-Dichloroethane 110 <5.0 7.001600 <5.0 <5.0 <5.0 <5.0 <5.0	<5.0	<10.0
	<5.0 <5.0	<10.0 <10.0
cis-1,2-Dichloroethene	<2.5	<5.0
Ethylbergene 700 2.71 <120 <5.0 <5.0 1.6 J <5.0	<5.0	170
Styrene 100 1.91 <120 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0	<5.0	<10.0
Tetrachloroethene 5 <5.0 <120 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0	<5.0	<10.0
Toluene 1,000 < 5.0 <120 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <5.0 <	<5.0	<10.0
Trichloroethene 5 <5.0 <120 <5.0 5	<5.0	<10.0
Trichlorofluoromethane 2,000 <10.0 <250 <10.0 <10.0 <50.0 <10.0 <10.0	<10.0	<20.0
Vinyi Chloride . 2 <10.0 360/300 <10.0 <10.0 <50.0 <10.0 <10.0	<10.0	<20.0
m-Xylene & p- Xylene 10,000 ^(c) 3.6 J <120 <5.0 <5.0 210 2.0 J <5.0	<5.0	<10.0
o-Xylene 10,000 ^(c) 2.9 <62.0 <2.5 <2.5 160 <2.5 <2.5	<2.5	<5.0
Semivolatile Organics (µg/L)		
Acetophenone 10,000 <10.0 <10.0 12 <10.0 35 12 <10.0	<10.0	<10.0
Bis (2-Ethylhexyl) phthalate 6 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0	1	<10.0
Butyl benzyl phthalate 2,700 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10	<10.0 <10.0	<10.0 <10.0
2-Methylnaphthalene 2,000 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.	3.2 J	<10.0
Naphthalane 100 <10.0 <10.0 <10.0 <10.0 <10.0 45 3.8 J <10.0	<10.0	6.4 J
Phenol 4,000 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0 <10.0	<10.0	<10.0
Pesticides/Herbicides (µg/L)		
Aldrin	<0.050	<0.050
alpha-BHC		<0.050
beta-BHC		<0.050
delta-BHC 61 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0		<0.050
4,4'DDD 2.7 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050		<0.050
4,4'-DDE	<0.050 <4.0	<0.050
2,4-D 70 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <4.0 <	I	<4.0 <0.60
Diedrin 0.16 <0.050 <0.050 <0.050 <0.073 I <0.050 <0.050		<0.050
Endosulfan 1 500 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050		<0.050
Endosulfan II 450 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050		<0.050
Endosulfan sulfate 120 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <	<0.050	<0.050
Endrin aldehyde NL ^(d) <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050	<0.050	<0.050
Heptachlor 0.4 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050		
Heptachlor epoxide 0.2 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050	1	
Methoxychlor		<0.10
2,4,5-TP (Silvex) 50 <1.0 <1.0 0.223 <1.0 0.17J <1.0 <1.0	<1.0	<1.0
2.4.5-T 70 <1.0 <1.0 <1.0 <1.0 0.076 <1.0 <1.0	<1.0	<1.0
Polychlorinated Biphenyls (ug/L) 0.5 None Detected		
Other (mg/L unless noted otherwise) pH (standard units) 5.7 5.7 1 5.5 1 7.0 1 6.3 1 6.8 7.9	6.6	6.6 J
PH (standard units) 5.7 5.7 J 5.5 J 7.0 J 6.3 J 6.8 7.9 Ammonia Nitrogen 0.24 <0.10/0.11 <0.10 <0.14 0.59 0.1 1.2	1.1	3.9
	182	444
70		
Fluoride 2,000 ⁽⁶⁾ 0.29 0.088/0.088 0.21 0.26 0.54 0.12 0.33		0.14
Nitrate 1,000 <0.050 <0.050 <0.078 1.9 <0.050 <0.050 <0.078		<0.050
Nitrite 1,000 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0	4	
Sulfate 500,000 337 102/103 168 150 27.1 102 135	187	5.7
Total Dissolved Solids - 785 613/581 647 506 1,460 930 691	596 2	1,110
Total Organic Carbon	1	8.7 <1.0
Total Sulfide		<46.0
Hydrocarbons as GRO (µg/L) <100 1,500/260 430 110 8,100 <100 <10		7,100
Hydrocarbons as DRO (µg/L) - 290 <100 UJ 350 J <100 UJ 3,300 J 730 570	1	3,300 J



TABLE 9 SUMMARY OF ANALYTICAL RESULTS OF DETECTED CONSTITUENTS IN GROUNDWATER ARCADIS GERACHTY AND MILLER (2000) HERCULES INCORPORATED JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

			LIZABETH,		SB-F1/	SB-F2/	SB-F3/	SB-F4/	SB-F5/	SB-F6/
Analyte	PADEP MSC(*)	E-43	E-46	MW-3	MW-F1	MW-F2	MW-F3	MWD-F1	MW-F4	MW-F5
·	TDS <2,500 mg/L	10/31/2000	10/31/2000	11/2/2000	10/31/2000	11/1/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000
Inorganics (Total)(ug/L)										
Antimony	6	<1.7	<2.8	<10.0	<2.6	<10.0	<10.0	<2.3	<10.0	<10.0
Arsenic Barium	50 2,000	<10.0 34,6 B	<10.0 95.9 B	<10.0 69.8 B	5.2 B 92.5 B	<10.0 137 B	<10.0	2.8 B 429	4.6 B	4.6 B
Beryilium	4 .	<0.12	<5.0	<0.14	<0.50	<0.17	533 <0.46	0.93 B	153 B <0.12	228 <0.080
Cadmium	5	<5.0	<5.0	<5.0	<5.0	<5.0	4.5 B	<5.0	<5.0	<5.0
Chromium	100 ^(b)	1.8 B	1,400	6.5 J	17.3	66,3	5,2	6.2	12.8	8.1
Cobalt	2.000	8.8 B	6.0 B	<50.0	7,5 B	5.4 B	63.6	14.6 B	5.9 B	4.8 B
Copper	1,000	3.0 B	9.2 B	17.9 B	10.9 B	<10.7	16.9 B	25.2	2.3 B	4.4 B
Lead	5 .	<2.4	<3.0	2.0 B	<7.6	5.7	3.3	7.9	3.5	2.1 B
Mercury .	2	<0.20	<0.12	<0.12	<0.20	<0.20	<0.046	<0.22	<0.075	<0.20
Nickel	100	15.9 B	3 172	<40.0	23.8 B	49.8	101	<17.8	<40.0	<12.5
Selenium Silver	50 100	2.3 B <5.0	<5.0	3.2 B	<5.0	3.3 B	2.1 B	<5.0	<10.0	<5.0
Thallium	2	<10.0	<5.0 <10.0	<5.0 <10.0	<5.0 <10.0	1.0 B <10.0	<5.0 <10.0	<5.0 <10.0	1.5 B <20.0	<5.0 <10.0
Tin	61,000	<100	<100	<100	25.1 B	<100	<100	25.1 B	<100	<10.0
Vanadium	720	<50.0	<8.5	5.0 B	<15.6	<3.5	4.3 B	8.5 B	<50.0	4.6 B
Zinc	2,000	<15.3	<20.3	<23.6	52.2	<29.4	1,530	<33.7	<42	<24.1
Volatile Organics (µg/L)										
Acetone	10,000	<1,000	<20.0	<5.4	<20.0	<30	<59	<6.3	<120	58 J
Benzene 3. Butesone	. 5	<250	<5.0	<5.0	<5.0	<5.0	1.9 J	<5.0	680	110
2-Butanone Carbon Disulfide	5,800 4,100	<1,000 <250	<20.0 <5.0	<20.0 <5.0	<20.0	<20.0	3.1 J	<200	<500	<200
Chloroform	100	<250 <250	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	<5.0 <5.0	<5.0 2.3 J	<5.0 <5,0 UJ	<5.0 <120 UJ	<50.0 <50.0 U
1,1-Dichloroethane	110	<250 <250	3.6 J	<5.0	<5.0	<5.0	<5.0	<5.0	<120 03	<50.0
cis-1,2-Dichloroethene	70	<120	3.3	<2.5	<2.5	<2.5	<2.5	<2.5	<62.0	<25.0
Ethylbenzene	700	790	<5.0	<5.0	<5.0	<5.0	34	<5.0	2,500	1,200
Styrene	100	460	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	غ 2,300ء	<50.0
Tetrachloroethene	5	<250	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<120	<50.0
Toluene Trichloroethene	1,000 5	<250 <250	21	<5.0	<5.0	<5.0	12	<5.0	1,400	<50.0
Trichlorofluoromethane	2,000	<500	<5.0 <10.0	<5.0 <10.0	<5.0 <10.0	<5.0 <10.0	<5.0 <10.0	<5.0 <10.0	<120 <250	<50.0
Vinyl Chloride	2,500	<500	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<250	<100.0 <100.0
m-Xylene & p- Xylene	10,000 ^(c)	1,900	<5.0	<5.0	<5.0	<5.0	18	<5.0	3,000	600
o-Xylene	10,000 ^(e)	1,100	<2.5	<2.5						
Semivolatile Organics (µg/L)	10,000	1,100	<2.3	<u> <2.3</u>	<2.5	8.2	61	<2.5	2,900	85
Acetophenone	10,000	1,700 E/1,600	<10.0	<10.0	. <10	<10	8.5 J	<10.0	<500	20
Bis (2-Ethyihexyl) phthalate	6	<50	<10.0	<10.0	<10	<10	6.9J	<10.0	<500	<10.0
Butyl benzyl phthalate	2,700	<50	<10.0	<10.0	<10	<10	<10.0	<10.0	<500	<10.0
1,4-Dichlorobenzene	75	<50	<10.0	<10.0	<10	<10	<10.0	<10.0	<500	<10.0
2-Methylnaphthalene	2,000	<50	<10.0	<10.0	<10	<10	<10.0	<10.0	<500	<10.0
Naphthalene Phenol	100 4,000	270/240 J ∷ 54	<10.0	5.3 J	<10	<10	<10.0	<10.0	1,200	28
Pesticides/Herbicides (µg/L)	4,000	34	<10.0	<10.0	<10	<10	<10.0	<10.0	<500	<10.0
Aldrin	0.037	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
alpha-BHC	0.41	0.0030 J	< 0.050	<0.050	<0.050	<0.050	0.0022 J	<0.050	0.0141	0.0029 3
beta-BHC	1.4	0.0081 J	<0.050	<0.050	<0.050	0.0086 J	<0.050	<0.050	<0.050	<0.050
delta-BHC	61	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0,050	<0.050
4,4'-DDD	2.7	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
4,41-DDE 2,4-D	7.6	0.0079 J	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dinoseb	70 7	<20 <3.0	<4,0 <0.60	<4.0 <0.60	<4.0 <0.60	<4.0 <0.60	<4.0 <0.60	<4.0 <0.60	1.6 J	<4.0
Dieldrin	0.16	<0.050	<0.050	<0.60	<0.050	<0.050	<0.050	<0.60	0.20 J <0.050	<0.60 <0.050
Endosulfan I	500	<0.050	<0.050	<0.050	<0.050	0.011 J	<0.050	<0.050	<0.050	<0.050
Endosulfan II	450	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Endosulfan sulfate	120	0,023 J	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Endrin aldehyde	NL ^(d)	<0.050	<0.050	<0.050	<0.050	0.019 J	<0.050	<0,050	<0,050	<0.050
Heptachlor	0.4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Heptachlor epoxide	0.2	<0.050	<0.050	<0.050	<0.050	0.039 J	<0.050	<0.050	<0.050	<0.050
Methoxychlor	40	<0.10	<0.10	<0.10	<0.10	0.054 J	<0.10	<0.10	<0.10	<0.10
2,4,5-TP (Silvex)	50 .	<5.0	<1.0	<1.0	<1.0	0.17 J	<1.0	<1.0	0.086 J	<1.0
2,4,5-T Polychlorinated Biphenyls (µg/L)	70 0.5	<5.0	<1.0	<1.0	<1.0	1.3	<1.0	1.0	<1.0	<1.0
Other (mg/L unless noted otherwise)	0.5			Γ.	Ne	one Detected		Г	I	
pH (standard units)	••	6.0 J	8.O J	6.5	6.6 J	6.8	6.0	6.9	6.4	6.1
Ammonia Nitrogen		< 0.13	<0.2	0.17	<0.10	<0.10	0.29	0.59	0.30	0.14
Chloride	250,000 ^(c)	34.8	450	91.6	254	276	295	120	58.2	66.7
Total Cyanide (µg/L)	200 ^(f)	<10.0	56.9	28 J	18.6	<10.0	<10.0 UJ	<10.0 UJ	18.6 3	<10.0 U
Fluoride	2,000(=)	0.2	0.27	0,94	1				t	i .
Nitrate	1,000	3.9	0.27 <0.050	6.8	0.31 3.7	0.27 <0.050	0.13 0.22	0.21 <0.050	0.15 <0.050	0.52 <0.050
Nitrite	1,000	0.86	<0.050	<0.050	0.16	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	500,000	120	273	179	149	148	33.4	84.2	133	23.8
Total Dissolved Solids		317	1,400	759	829	951	691	611	553	564
Total Organic Carbon		36.4	2.0	12.1	<1.8	12.0	2.1	2.5	18.4	3.2
Total Petroleum Hydrocarbons	- `	14.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.7	1.3
Total Sulfide	· - ·	. <47.6	<32.6	<1.4 .	<37.3	<39.7	<9.3	<12.4	<14.8	<9.3
Hydrocarbons as GRO (µg/L)	-	63,000	<100	260	<100	270	740	<100	37,000	6,600
Hydrocarbons as DRO (μg/L)		5,9000 J	<100 UJ	3,600	<100 UJ	4,400 J	970	370	28,000	1,200



TABLE 9 SUMMARY OF ANALYTICAL RESULTS OF DETECTED CONSTITUENTS IN GROUNDWATER ARCADIS GERAGHTY AND MILLER (2000) HERCULES INCORPORATED JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

		WEST E	LIZABETI	I, PENNSYI	.VANIA					
	PADEP MSC(*)	SB-F7	SB-F8	SB-F9	SB-F10	SB-F11	SB-F12	SB-F13	SB-F14	SB-F15
Analyte	TDS <2,500 mg/L				11/2/2000	11/2/2000	11/2/2000	11/1/2000	11/1/2000	11/1/2000
Inorganics (Total)(µg/L)		10/31/2000	10/31/2000	10/31/2000	11/2/2000	11/2/2000	11/2/2000	11/1/2000	11/1/2000	11/1/2000
Antimony	6	<4.0	<1.5	<10	<10.0	<1.6	<10.0	<10.0	<10.0	<1.7
Arsenic	50	57.5	<10.0	13.6	4.0 B	<10.0	<10.0	40.3	18.9	38.6
Barium	2,000	483	138 B	205	125 B	39.1 B	48.8 B	323	156 B	319
Beryllium	4	2 . 5.2	<0.24	1.3 B	<0.56	<0.080	<0.080	3.4 B	1.5 B	3.7 B
Cadmium	5	<5.0	0.57 B	<5.0 protestate to por	0.60 B	<5.0	<5.0	0.83 B	2.8 B	<5,0
Chromium	100 ^(b)	839 cm	57.1	316	6.1	2.3 B	1.8 B	690 _{.551}	329	649
Cobalt	2,000	93.8	18.2 B	57.9	7.0 B	<50.0	<50.0	96.4	24.3 B	72.2
Copper .	1,000	152	16.9 B	57.4	11.8 B	<25,0	<25.0	103	35.5	97.6
Lead	5	73.1	10.6	30.5	8.8	<3,0	2.4 B	56.9	214	66.4
Mercury	2	<0.26	<0.097	<0.045	<0.13	<0.050	<0.20	<0.10	<0.20	<0.14
Nickel	100	658	61.8	269	<19.1	<40.0	<40.0	592	391	461
Selenium Silver	- 50 100	<5.0 <5.0	<5.0 0.99 B	<25.0 2.9 B	2.1 B <5.0	6.4 <5.0	<5.0 <5.0	8.7 6.7	<5.0 <5.0	7.1 4.1 B
Thallium	2	<10.0	<10.0	<50.0	.<10.0	<10.0	<6.1	<10.0	<10.0	<10.0
Tin	61,000	24.2 B	<100	<100	<100	<100	<100	<100	<100	<100
Vanadium	720	140	<5.4	30,6 B	6.4 B	4.0 B	4.8 B	86.5	32.7 B	99.3
Zinc	2,000	401	64.0	318	<44.4	<9.5	<297	335	324	310
Volatile Organics (µg/L)	•									
Acetone	10,000	<20.0	<13	<20	<6.3	<6.5	<5.6	<8.5	<6.5	<6.2
Benzene	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone	5,800	<20	<20	· <20	<20	<20.0	<20	<20	<20	<20
Carbon Disulfide	4,100	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chloroform	100	<5.0	<5.0	<5.0	<5.0 UJ	<5.0 UJ	<5.0 UJ	<5.0	<5.0	<5.0
1,1-Dichloroethane cis-1,2-Dichloroethene	110 70	<5.0 <2.5	<5.0 <2.5	11 84	<5.0 <2.5	<5.0 <2.5	<5.0 <2.5	1.7 J <2.5	<5.0 <2.5	<5.0 <2.5
Ethylbenzene	70 700	<2.5 <5.0	<2.5 <5.0	<5.0	1.4 J	<2.5 <5.0	<2.5 <5.0	<2.5 <5.0	<2.3 <5.0	<2.3 <5.0
Styrene	100	<5.0	<5.0	<5.0	1.4 1	<5.0 <5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	5	<5.0	<5.0	3.01	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Toluene	1,000	<5.0	<5.0	<5.0	1.7 J	<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	5	<5.0	7711	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichlorofluoromethane	2,000	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10,0
Vinyl Chloride	2	<10.0	<10.0	2.4 J	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
m-Xylene & p- Xylene	· 10,000 ^(c)	<5.0	<5.0	<5.0	6.1	<5.0	<5.0	<5.0	<5.0	<5.0
o-Xylene	10,000 ^(c)	<2.5	<2.5	<2.5	34	<2.5	<2.5	<2.5	<2.5	<2.5
Semivolatile Organics (µg/L)		 	1						 	
Acetophenone	10,000	18	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Bis (2-Ethylhexyl) phthalate	6	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	· <10.0	<10.0
Butyl benzyl phthalate	2,700	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
1,4-Dichlorobenzene	75	<10.0	<10,0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2-Methylnaphthalene	2,000	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Naphthalene	100	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Phenol Pesticides/Herbicides (µg/L)	4,000	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Aldrin	0.037	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
alpha-BHC	0.41	<0.050	<0.050	<0.050	0.014 J	<0.050	<0.050	<0.050	<0.050	<0.050
beta-BHC	1.4	0.013 J	<0.050	<0.050	0.0044 J	<0.050	<0.050	<0.050	<0,050	<0.050
delta-BHC	61	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
4,4'-DDD	2.7	<0.050	<0.050	<0,050	<0.050	<0.050	<0.050	<0.050	<0,050	<0.050
4,4'-DDE	7.6	<0.050	<0.050	< 0.050	<0.050	<0.050	< 0.050	<0.050	<0.050	<0.050
2,4-D	70	<4.0	<4.0	3.5 1	<4.0	0.20 J	<4.0	<4.0	<4.0	<4.0
Dinoseb	. 7	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60
Dieldrin	0.16	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Endosulfan I	500	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0,050	<0.050
Endosulfan II	450	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Endosullan sulfate	120	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Endrin aldehyde	NL ^(d)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Heptachlor	0.4	<0.050	<0.050	<0.050	<0.050	<0,050	<0.050	<0.050	<0.050	<0.050
Heptachlor epoxide	0.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methoxychlor 2,4,5-TP (Silvex)	40 50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
2,4,5-1P (Silvex) 2,4,5-T	50 70	<1.0 <1.0	0.080 J <1.0	<1.0 <1.0	0.10 J	<1.0 <1.0	<1.0 <1.0	<1.0 <1.0	<1.0 <1.0	<1.0 <1.0
Polychlorinated Biphenyls (µg/L)	. 0.5	1 -1.0	1 -1.0	-1.0		None Detect		1 ~1.0	1 -1.0	1 -1.0
Other (mg/L unless noted otherwise)		1			T		ī	T	T	
pH (standard units)		6.6 J	6 J	6.0	6.8	6.7	6.8	5.8	5.5	8.0
Ammonia Nitrogen		<0.10	<0.2	<1.8	0.38	<0.10	0.12	<0.16	<0.1	<0.12
Chloride	250,000 ^(c)	364	151	125	59.6	42.9	31.0	156	410	129
Total Cyanide (µg/L)	200 ⁽¹⁾	22.2	<10.0	11.9	<10.0 UJ	33.9 J	<10.0 UJ	<10.0	<10.0	<10.0
1	2,000 ^(e)		1		1		1	Į.	1	Į
Fluoride		0.17	0.11	0.13	0.18	1.1	0.25	0.21	0.34	0.74
Nitrate Nitrate	1,000	1.8	0.85	<0.38	<0.050	3.1	1.8	<0.26	5.9	<0.34
Nitrite Sulfate	1,000 500,000	0.30 249	0.12 131	0.091 319	<0.050 185	0.051 232	<0.050 110	0.10 324	<0.050 189	<0.050 192
Total Dissolved Solids		1,040	504	661	512	474	356	758	1,220	968
Total Organic Carbon		2.8	2.9	8.2	9.2	2.2	<0.70	<1.1	<0.47	2.3
Total Petroleum Hydrocarbons		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
				1 -4.0	1 -10	1				
Total Sulfide		<37.3	<44.4	<43.6	<14.8	<16.3	<10	<42.8	<42.8	<34.9
		<37.3 <100	<44.4 <100	<43.6 <100	<i4.8 1,100</i4.8 	<16.3 <100	<10 <100	<42.8 <100	<42.8 <100	<34.9 <100



TABLE 9 SUMMARY OF ANALYTICAL RESULTS OF DETECTED CONSTITUENTS IN GROUNDWATER ARCADIS GERACHTY AND MILLER (2000) HERCULES INCORPORATED JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

			ME21 EUL	ZABETH, PEN	NSYLVAN	IA.					
1	PADEP MSC(*)	SB-F16	SB-F17	SB-F18	SB-F19	SB-F21	SB-F22	SB-F23	W-1A	W-2A	W-15
Analyte	TD\$ <2,500 mg/L	11/1/2000	11/1/2000	11/1/2000	11/1/00	10/31/00	11/1/00	11/2/00	11/2/00	11/2/00	11/3/00
Inorganics (Total)(µg/L)		11/1/2000	11/1/2000	************		10:01:00	7,,,,,,		2314-11		
Antimony	6	<7.7	<10.0	<1.8	<2.3	<7.9	<3.0	<2.0	<10.0	<10.0	<2.0
Arsenic	50	. 168	45.1	22.4	30.5	140	29.7	16.1	<10.0	<10.0	6.0 B
Barium	2,000	1,930	458	377	449	1,850	509	421	19.3 B	195 B	172 B
Beryllium	4	18.0	<0.38	1.5 B	3.1 B <5.0	*: 14.0 <5.0	2.4 B <5.0	0.83 B 1.4 B	<5.0 <5.0	<0.12 <5.0	<0.22 <5.0
Cadmium	5 100 ^(b)	1.6 B	<5.0	<5.0		77 77 78 78 78 78 78 78 78 78 78 78 78 7				1	
Chromium			14 117 (P)	163	79.2	.523	89.6	20.1 J 22.4 B	4.4 J 3.9 B	2.0 J 7.7 B	24 J 101
Cobalt	2,000	298	50.4	27.6 B	48.3 B 67.7	245 386	72.9 75.5	22.4 B 14.4 B	3.9 B 4.0 B	7.7 B <25.0	21.7B
Copper	1,000	467	, <t7.8< td=""><td>39.3</td><td>AND THE RESIDENCE</td><td>207</td><td>49.8</td><td>26.8</td><td>4.0 5</td><td>₹3.0</td><td><9.2</td></t7.8<>	39.3	AND THE RESIDENCE	207	49.8	26.8	4.0 5	₹3.0	<9.2
Lead	5	259	3.2	45.2° <0.20	45.8 <0.082	<0.55	<0.17	<0.14	<0.080	<0.069	<0.14
Mercury	2 100	0.64 779	<0.20 64.2	122	<0.082 80.8	566	96.9	42.1	<40.0	<40.0	<13.7
Nickel Selenium	50	<10.0	14.2	3.9 B	3.2 B	<10.0	15.0 B	2.8 B	2.4 B	<5.0	<50.0
Silver	100	<5.0	10.5	1.3 B	<5.0	<5.0	4.0 B	<5.0	<5.0	<5.0	9.3
Thallium	2	<20.0	<10.0	<10.0	<10.0	<20.0	<50.0	<10.0	<10.0	<10.0	<100
Tin	61,000	<200	<100	<100	<100	<200	<100	<100	<100	<100	<100
Vanadium	720	496	<8.7	40,4 B	87.7	381	68.8	11.1 B	<50.0	<50.0	<50.0
Zinc	2,000	1,500	35.6	126	222	1,130	227	<93.5	<127	<260	<56.2
Volatile Organics (µg/L)											
Acetone	10,000	<6.7	<8.7	56 J.B	<4.9	<20.0	170 J.B	<9.8	<6.4	<7.3	800 B
Benzene	5 .	<5.0	<5.0	17195	<5.0	<5.0	730	<5.0	<5.0	23	6,200
2-Butanone	5,800	<20	. <20	<100	<20	<20.0	<600	<20.0	<20.0	<20,0	<500
Carbon Disulfide	4,100	<5.0	<5.0	<25	<5.0	<5.0	<150	5.1 <5.0	<5.0 <5.0	<5.0 <5.0	<120 <120
Chloroform	100 110	<5.0 <5.0	<5.0 <5.0	<25 <25	<5.0 <5.0	<5.0 <5.0	<150 <150	<5.0 <5.0	<5.0 <5.0	<5.0	<120 <120
1,1-Dichloroethane	70	<2.5	<2.5	<12 <12	<2.5	<2.5	<175	<2.5	<2.5	<2.5	<62.0
cis-1,2-Dichloroethene Ethylbenzene	70 700	<5.0	<5.0	530	<5.0	<5.0	3,600	3.6 J	<5.0	79	19,000
Styrene	100	<5.0	<5.0	<25	<5.0	<5.0	<150	<5.0	<5.0	<5.0	<120
Tetrachloroethene	5	<5.0	<5.0	<25	<5.0	<5.0	<150	<5.0	<5.0	<5.0	<120
Toluene	1,000	<5.0	<5.0	<25	<5.0	<5.0	940	<5.0	<5.0	<5.0	820
Trichloroethene	5	<5.0	<5.0	<25	<5.0	<5.0	<150	<5.0	<5.0	<5.0	<120
Trichlorofluoromethane	2,000	<10.0	<10.0	<50	<10.0	<10.0	<300	<10.0	<10.0	<10.0	7,100
Vinyl Chloride	2	<10.0	<10	<50	<10	<10.0	<300	<10.0	<10.0	<10.0	<250
m-Xylene & p- Xylene	10,000 ^(c)	<5.0	<5.0	<25	<5.0	<5.0	3,600	3.8 J	<5,0	<5.0	10,000
o-Xylene	10,000 ^(c)	<2.5	<2.5	360	<2.5	<2.5	3,200	3	<2.5	9	15,000
Semivolatile Organics (µg/L)						<u> </u>					
Acetophenone	10,000	<10.0	<10.0	<10.0	<10.0 -	<18.0	NA	<10.0	<10.0	<10.0	<200
Bis (2-Ethylhexyl) phthalate	6	<10.0	<10.0	<10.0	<10.0	<18.0	NA	<10.0	<10.0	<10.0	<200
Butyl benzyl phthalate	2,700	<10.0	<10.0	<10.0	<10.0	<18.0	NA	<10.0	<10.0	4.4 J	<200
1,4-Dichlorobenzene	75	<10.0	5.5 J	<10.0	<10.0	<18.0	NA NA	<10.0	<10.0	<10.0 30	<200 90 J
2-Methylnaphthalene	2,000	<10.0	<10.0 <10.0	34 410 E/1,100	<10.0 <10.0	<18.0 <18.0	NA NA	<10.0 5.4 J	<10,0 9,8 J	420 E/750	1,500
Naphthalene Dhosel	100 4,000	<10.0 <10.0	<10.0	<10.0	<10.0	<18.0	NA NA	<10.0	<10.0	6.7 J	<200
Phenol Pesticides/Herbicides (µg/L)	4,000	V10.0	10.0	10.0	410.0	410.0	144	1,0.0	-10.0	- 	1200
Aldrin	0.037	<0.050	<0.050	<0.050	0.00331	<0.050	NA.	<0.050	<0.050	.0.0033 J	<0.050
aloha-BHC	0.41	<0.050	<0.050	0.0067 J	0.0037 J	<0,050	NA	<0.050	<0.050	0.0027 J	<0,050
beta-BHC	1.4	< 0.050	<0.050	<0.050	<0.050	< 0.050	NA	<0.050	<0.050	<0.050	<0.050
delta-BHC	61	<0.050	<0.050	<0.050	0.0054 J	<0.050	NA	<0.050	<0.050	<0.050	<0,050
4,4'-DDD	2.7	<0.050	<0.050	<0.050	<0.050	<0.050	NA	<0.050	<0.050	0,0093 J	<0.050
4,4'-DDE	7.6	<0.050	<0.050	<0.050	<0.050	<0.050	NA	<0.050	<0.050	<0.050	0.014 J
2,4-D	70	<4.0	<4.0	<4.0	3.7 J	<4.0	NA	<4.0	<4.0	0.68 J	<4.0
Dinoseb	7	< 0.60	<0.60	<0.60	<0.60	<0.60	NA	<0.60	<0.60	<0.60	0.24 J
Dieldrin	0.16 500	<0.050 <0.050	<0.050 <0.050	<0.050 <0.050	<0.050 <0.050	<0.050 <0.050	NA NA	<0.050 <0.050	<0.050 <0.050	<0.050 <0.050	<0.050 <0.050
Endosulfan I Endosulfan II	450	<0.050	<0.050	<0.050	<0.050	<0.050	NA NA	<0.050	<0.050	<0.050	0.031 J
Endosultan II Endosultan sulfate	430 120	<0.050	<0.050	<0.050	<0.050	<0.050	NA NA	<0.050	<0.050	<0.050	<0.050
1	NL ^(d)	1	1	1	ŀ	<0.050	NA NA	<0.050	<0.050	<0.050	<0.050
Endrin aldehyde		<0.050	<0.050	<0.050	<0.050	<0.050	NA NA	<0.050	<0.050	<0.050	0.019 J
Heptachlor	0.4 0.2	<0.050 <0.050	<0.050 <0.050	<0.050 <0.050	0.050	<0.050	NA NA	<0.050	<0.050	<0.050	<0.050
Heptachlor epoxide Methoxychlor	0.2 40	<0.10	<0.10	<0.10	<0.10	<0.10	NA NA	<0.10	<0.10	<0.00	<0.10
2,4,5-TP (Silvex)	50	· <1.0	<1.0	0.17 J	0.16 J	<1.0	NA NA	<1.0	<1.0	<1.0	0.29 J
2,4,5-T	70 .	<1.0	<1.0	0.078 J	15	<1.0	NA	<1.0	<1.0	<1.0	0.59 J
Polychlorinated Biphenyls (µg/L)	0.5	1	·				Detected				
Other (mg/L unless noted otherwise)			1			1		1			
pH (standard units)		7.2	7.3	6.8	6.8	7.0 1	NA	6.2	7.0	6.6	6.3
Ammonia Nitrogen		<0.47	57.9	<2.7	<0.11	<0.37	NA	5.1	0.96	3.7	0.6
Chloride	250,000 ^(c)	26.3	96.9	111	119	172	118	38.7	<1.0	46.9	1,260
Total Cyanide (µg/L)	200 ^(f)	10.0	<10.0	<10.0	<10.0	24.6	<10.0	39.5 1	24.2 J	<10.0 U	22.9 J
Fluoride	2,000 ^(c)	0.21	2.6	0.67	0.36	0.29	0.33	0,22	0.33	0.31	0.16
Nitrate	1,000	9.7	<0.050	<0.050	0.30	2.0	<0.050	<0.050	0.085	<0.050	<0.050
Nitrite	1,000	<0.050	<0.050	<0.050	<0.050	0.34	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	500,000	123	82.5	53.7	132	176	94.9	57.9	9.8	1.1	132
Total Dissolved Solids		443	364	576	708	769	814	403	54.0	387	2,910
Total Organic Carbon	••	1.4	3.0	17.1	6.0	<0.77	74.1	9.2	4.0	21.7	2.2
Total Petroleum Hydrocarbons		<1.0	<1.0	19.8	<1.0	<1.0	NA	<1.0	<1.0	3,8	. 5.2
Total Sulfide	••	<36.5	<37.3	<39.7	<38.9	<41.2	NA	<10.0	<2.2	<4.0	<6.1
Hydrocarbons as GRO (µg/L)		<100	<100	13,000	<100	<100	44,000	<100	<100	4,900	22,000
Hydrocarbons as DRO (µg/L)	••	<100 UJ	750 3	17,000 J	2,600 J	<100 UJ	NA NA	660	2,000	16,000	25,000



TABLE 9

SUMMARY OF ANALYTICAL RESULTS OF DETECTED CONSTITUENTS IN GROUNDWATER ARCADIS GERAGHTY AND MILLER (2000)

HERCULES INCORPORATED JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

Notes:

- (a) PADEP medium specific concentration (MSC), non-residential, used aquifer (Pennsylvania Bulletin, Volume 31, No. 47, November 24, 2001)
- (b) Total chromium MSC.
- (c) MSC for total xylenes.
- (d) A MSC does not exist for this constituent.
- (e) Secondary MCL.
- (f) Value Based on Free Cyanide.
- (g) Shaded values indicate an exceedance of corresponding MSC.

Legend:

- < = Less than (constituent was not detected above the sample-specific detection limit shown).
- B = Metals: estimated result; result is less than n mg/L = milligrams per liter

 Organics: analyte detected in an associated blank.
- E = Metals: the value is estimated because of the presence of interference.
 Organics: compound exceeds the calibration range of the GC/MS instrument.
- J = Estimated result.
- UJ = Analyzed but not detected; estimated.
- NA = Not analyzed.
- mg/L = Milligrams per liter.
- ug/L = Micrograms per liter.

TABLE 10

SUMMARY OF ANALYTICAL RESULTS OF DETECTED CONSTITUENTS IN GROUNDWATER SAMPLES KU RESOURCES (2000)

HERCULES INCORPORATED JEFFERSON PLANT

WEST ELIZABETH, PENNSYLVANIA

Donomatana	PADEP MSC ^(a)			Sam	ple ID		
Parameters	TDS<2,500 mg/L	E28D	E31	E37 ^(b)	E38	E39A	W2A
Volatile Organic Compoun	ds (ug/L) ^(c)						
Benzene	5 .	<1	<2	<1	<50	<1	51.7 ^(d)
n-Butylbenzene	4,100	<1	26.3	<1	<50	<1	<2
sec-Butylbenzene	4,100	<1	<2	<1	<50	<1	<2.
Ethylbenzene	700	<1	417	<1	172	3.7	327
Isopropylbenzene	2,300	<1	253	<1	415	4.6	158
p-Isopropyltoluene	NL	<1	37.8	<1	<50	3	<2
Napthalene	100	<1	528	<1	169	23	978
n-Propylbenzene	4,100	<1	532	<1	1,230	5.9	191
Toluene	1,000	<1	46.5	<1	<50	3.7	<2
1,2,4-Trimethylbenzene	35	<1	2,410	<1	2,940	38.8	1,610
1,3,5-Trimethylbenzene	35	<1	588	<1	81.2	11.9	107
Xylenes, Total	10,000	<3	701	<3	<150	11.6	262
m,p-Xylenes	NL	<2	160	<2	<100	5.7	262
o-Xylene	NL	<1	541	<1	<50	5.9	<2
Semivolatile Organic Comp	ounds (ug/L)						
Anthracene	66	<10	<10	<10	<10	<10	<10
1,4-Dichlorobenzene	75	<10	30	<10	<10	<10	<10
Phenanthrene	1,100	<10	<10	<10	<10	<10	<10
2-Methylnapthalene	2,000	<10	<10	<10	<10	<10	50
PCBs (µg/L)	0.5			one Detect	·		
Others				one Belock	-		
Total dissolved solids (m	g/L)	1,084	1,871	6,765	1,178	2,439	627.4
Inorganics (Total) (ug/L)						· · · · · · · · · · · · · · · · · · ·	
Arsenic	50	<5	50	405	8	<5	<5
Barium	2,000	460	440	1,100	490	90	310
Chromium (total)	100 ^(e)	20	30	210	40	10	30
Lead	5	20	<10	160	20	<10	<10
Mercury	2	<0.5	<0.5	1.4	<0.5	<0.5	0.8
Selenium	50	<5	6	<5	5	8	<5
Silver	100	<10	<10	<10	10	10	<10
Copper	1,000	40	10	550	120	<10	80
Nickel	100	<10	20	400	30	<10	50
Zinc	2,000	60	80	690	140	40	3,390
Aluminum	200 ^(f)	1,700	2,980	79,500	5,340	630	1,600
Calcium	NL ^(g)	169,000	229,000	96,000			
Cobalt	2,000	20	<10	170	115,000 50	65,800 <10	85,200
Iron	300 ^(f)	1					10
Potassium		23,300	9,640	208,000	84,900	780	90,500
Magnesium	NL NL	1,440	18,700	11,800	4,890	12,200	6,400
_		25,500	18,300	47,900	11,200	8,380	14,000
Manganese	50 ^(g)	1,450	2,290	9,090	17,800	460	3,010
Sodium	NL	99,100	250,000	81,700	139,000	547,000	31,900
Antimony Vanadium	6	<5 10	<5	13	<5 20	<5	<5
v anaulum	720	10	20	180	30	<10	10

Notes:

- (a) PADEP medium-specific concentration (MSC), non-residential used aquifer (Pennsylvania Bulletin, Volume 31, No. 47, November 24, 2001).
- (b) TDS value >2500 mg/L.
- (c) "ug/L" is micrograms per liter or parts per billion.
- (d) Values shaded indicate a MSC exceedance.
- (e) MSC for total chromium.
- (f) Represents secondary maximum contaminant level and a MSC does not exist for this constituent.
- (g) A MSC does not exist for this constituent.



Parameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS≤2,500 Non Panidostic			3-3AD 29/2004	1/	E- 30/2004	-8D 3/2	2/2004	1/	E-12 26/2004	17:	E- 27/2004	13D 3/1	/2004		E-14 9/2004		E-15 26/2004
Volatile Organic Compounds (ug/L) (*)		Non-Residential	ــــــــــــــــــــــــــــــــــــــ							٠						1		Ь	
			-,					, -		- ₁									
1,1,1,2-Tetrachioroethane		70	<	1(4)	<]/<1 ^(*)	<	1	<	1	<	1	<	1	<	1	<	1	<	1
1,1,1-Trichloroethane		200	<	1	<1/<1	<	t	<	1	<	1	<	1	<	1	<	1	<	1
1,1,2,2-Tetrachloroethane		0.3	<	1	<1/<1	<	1.	<	1	<	1	<	1	<	1	<	1	<	1
1,1,2-Trichloroethane		. 5	<	1	<1/<1	<	٠. [<	1	<	1	<	1	<	1	<	1	<	1
1,1-Dichloroethane		110	<	1	<1/<1		0.68B	<	1		0.5 LJ	<	1	<	1	<	1	<	1
1,1-Dichloroethene		7	<	1	<1/<1	<	i	<	1	<	1	<	1	<	1	<	1	<	ı
1,2-Dibromo-3-chloropropane		0.2 .	<	1	<1/<1	<	1	<	1	<	1	<	1	<	1	<	1	<	1
1,2-Dibromoethane (EDB)		0.05	<	1	<1/<1	<	1	<	1	<	1	<	1	<	1	<	1	<	ī
1,2-Dichloroethane		5	<	1	<1/<1	 <	1	<	1	<	1	<	1	<	1	 <	1	<	1
1,2-Dichloropropane		5	<	1	<1/<1	<	1	<	1	<	1	<	1	l<	1	<	1	<	i
1.2.3-Trichleropropane		40	<	1	<1/<1	<	1	<	i	<	i	<	ī	<	i	<	i	<	i
1,2,4-Trimethylbenzene		35	l l	0.52J ⁽¹⁾	0.45B(s)/0.48B	L	1	<		1.		1		I.	-	1		1	
1,3,5-Trimethylbenzene		35 35		1			1	<	1	 	1		0.76B	 <	1	١.	14		0.49
2-Butanone (Methyl ethyl ketone)			1		0.33J/0.33J	<		t .	1	 	1	١.	0.24J	<	1	 <	1	<	1
, , , ,		5,800	1	1.8J	<10/<10	<	10	 <	10	<	10	<	10	<	10	<	10	<	10
2-Hexanone		(c)	<	10	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
3-Chloropropene (Allylchloride)		41	<	1	<1/<1	<	1	<	1	<	1	<	1	<	ı	<	ŧ	<	1
4-Methyl-2-pentanone (MIBK)		410	<	10	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Acetone		10,000	<	25	<25/<25	<	25	<	25	<	25	<	25	<	25	<	25	<	25
Acetonitrile		350	<	40	<40/<40	<	40	<	40	} <	40	<	40	<	40	<	40	<	40
Acrolein (Propenal)		0.12	<	20	<20/<20	<	20	<	20	<	20	<	20	<	20	<	20	<	20
Acrylonitrile		2.7	<	20	<20/<20	<	20	<	20	<	20	<	20	<	20	<	20	<	20
Benzene		S	<	1	<1/<1	<	i	<	1	<	1	<	1	<	1	< .	1	<	1
Bromodichloromethane		100	<	i	<1/<1	<	i	<	i	-	i	<	ī	ļ.	i	-	i	<	i
Bromoform		100	<	i	<1/<1	<	i	<	i	<	i	<	i	-	i	-	i	<	î
Bromomethane (Methyl Bromide)		10	<	i	<1/<1	<	i	<	i	<	i	<	i	<	i	<	i	<	l
Carbon disultide		4,100	<	i	<1/<1	<	i	<	i	~	i	~	i	2	i	<	i	<	i
Carbon tetrachioride		5	~	i	/<1</td <td><</td> <td>î</td> <td><</td> <td>i</td> <td><</td> <td>i</td> <td>~</td> <td>i</td> <td>~</td> <td>;</td> <td><</td> <td>ì</td> <td>></td> <td>i</td>	<	î	<	i	<	i	~	i	~	;	<	ì	>	i
Chlorobenzene		100	~	. i	<1/<1	<	í	<	i	<	i	~	ì	2	;	<	i	~	i
Chloroethane		. 900	<	1	<1/<1	~	1	<	i	-	,	~	i	<	1	<		<	-
Chloroform		100	~	1	<1/<1	<	1	1 '	•	2	-		-		•	<	!		ı
Chloromethane (Methyl Chloride)		3	2	1		<		<	1		ı	<	1	<	1		ı	<	1
Chloroprene		_	<	•	<1/<1		1	 <	1	 <	1	<	1	<	1	<	1	<	1
cis-1,2-Dichloroethene		41		1	<1/<1	<	1	<	ì	<	1	<	1	<	1	<	1	<	1
		70	<	1	<1/<1		0.83J	<	1	<	1	<	1	<	1	<	1	<	1
cis-1,3-Dichloropropene		26	<	1	<1/<1	<	1	<	1	<	1	<	1	<	1	<	1	<	1
Dibromochloromethane		 _	<	1	<1/<1	<	ı	<	1	<	1	<	1	<	1	<	1	<	1
Dibromomethane (Methylene bromide)		200	<	1	<1/<1	<	ι	<	1	<	1	<	1	<	1	<	1	<	1
Dichlorodifluoromethane		1,000	<	1	<1/<1	<	. 1	<	1	 <	1	<	1	<	1	<	1	<	1
Ethyl methacrylate		1,800	<	1	<1/<1	<	ĩ	 <	1	<	1	<	1	<	I	<	1	<	1
Ethylbenzene		700	<	1	<1/<1	<	1	<	1	<	1	<	1	 <	1	<	1	<	1
lodomethane (Methyl iodide)			<	ı	<1/<1	<	1	<	1	<	1	<	1	<	1	 <	1	<	1
lsobutanol (Isobutyl alcohol)		6,100	<	40	<40/<40	<	40	<	40	<	40	<	40	<	40	<	40	<	40
Methacrylonitrile		4.1	<	20	<20/<20	<	20	<	20	<	20	<	20	<	20	<	20	<	20
Methyl methacrylate		4,100	<	1	<1/<1	<	1	<	1	<	1	<	1	<	1	<	ı	<	1
Methylene chloride (Dichloromethane)		5	<	5	<5/<5	<	5	<	5	<	5	<	5	<	5	<	5	<	5
Pentachloroethane			<	5	<5/<5	<	5	<	5	<	5	<	5	<	5	<	5	<	5
Propionitrile			<	20	<20/<20	<	20	<	20	<	20	<	20	<	20	<	20	<	20
Styrene		100	<	1	<1/<1	<	1	<	ï	<	1	<	1	<	1	<	1	<	ī
Tetrackloroethene		5	<	ī	<1/<1	<	i	<	i	<	i	<	î	<	i	<	i	[2	i
Toluene		1,000	<	1	<1/<1	<	i	<	i	-	i	<	î	<	î	\ \ \	í	[i
trans-1,2-Dichloroethene		100	<	i	<1/<1	<	i	<	1	<	1	<	î	<	1	<	1	<	i
trans-1,3-Dichloropropene		26	<	1	<1/<1	~	1	~	1	1	1	<	i	<	1	~	1	<	1
trans-1,4-Dichloro-2-butene		0.069	[. 2	Ø/Q	<	2	2	2	~	2	2	2	2	2	<	-	<	-
Trichloroethene		0.069	<			<											2		2
Trichlorofluoromethane		э	\ <u>{</u>	•	<1/<1		1	<	1	\ <u>`</u>	ı	<	į	<	1	<	1	<	1
		1 200	1 -	ı	<1/<1	<	1	<	1	<	t	<	1	<	1	<	I	<	1
Vinyl acetate		1,200	<	2	<	<	2	<	2	<	2	<	2	<	2	<	2	<	2
Vinyl chloride		2	<	1	<1/<1	<	1	<	1	<	1	<	1	k	1	<	1	<	1



Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS_2,500			3-3AD 29/2004	1/	E- 30/2004	-8D 3/2/	2004	E-1/26/3		1/27/2	E-1	3D 3/1/2004		E-14 29/2004	1/	E-15 /26/200
rameter	Non-Residential	┸-							L		L	<u>,</u>		丄		<u>L.</u>	
nivolațile Organic Compounds (ug/l) 1,2,4-Trichlorobenzene	70	 <	. 10	<10/<10	<	10	<	10	<	10	< 10		< 10	<	10	7	10
1,2,4,5-Tetrachlorobenzene	31	<	10	<10/<10	<	10	<	10		10	< 10		< 10	<	10	<	10
,2-Dichlorobenzene (o-Dichlorobenzene)	600	<	10	<10/<10	<	10	<	10		10	< 1		< 10	<	10	<	10
1,3,5-Trinitrobenzene		<	10	<10/<10	<	10	<	10		10	< i		< 10	\ <u>`</u>	10	<	10
,3-Dichlorobenzene (m-Dichlorobenzene)	600	<	10	<10/<10	<	10	<	10		10	< i		< 10	<	10	<	10
1,4-Dichlorobenzene (p-Dichlorobenzene)	75	<	10	<10/<10	<	10	<	10	:	10	< 1		< 10	<	10	<	10
,4-Dioxane	24	<	10	<10/<10	<	10	<	10	<	10	< 1		< 10	<	10	< 1	10
,4-Naphthoquinone	_	<	10	<10/<10	<	10	<	10	<	10	< 10)	< 10	<	10	<	10
,4-Phenylenediamine (p-Phenylenediamine)		<	2,000	<2,000/<2,000	<	2,000	< 2	.,000	< 2,	000	< 2,0	DO	< 2,000	<	2,000	<	2,00
i-Naphthylamine	1.4	<	10	<10/<10	<	10	<	10	<	10	< 1)	< 10	<	10	<	10
2,2 -Oxybis(1-chloropropane)[bis(2-Chloroisopropyi)ether]	300	<	10	<10/<10	<	10	<	10		10	< 1)	< 10	<	10	<	10
2,3,4,6-Tetrachlorophenol	610	<	10	<10/<10	<	10	<	10		10	< 1		< 10	<	10	<	10
2,4,5-Trichlorophenol	10,000	<	10	<10/<10	<	10	<	10		10	< 1		< 10	<	10	<	10
1,4,6-Trichlorophenol	31	<	10	<10/<10	<	10	<	10		10	< 1		< 10	<	10	<	16
2.4-Dichlorophenol	20	<	10	<10/<10	<	10	<	10		10	< t		< 10	<	10	<	10
2,4-Dimethylphenol	2,000	<	10	<10/<10	<	10	<	10		10	< 1		< 10	<	10	<	10
t,4-Dinitrophenol	41	<	50	<50/<50	<	50	[<	50		50	< 5		< 50	<	50	<	50
2,4-Dinitrotoluene	8.4	\ <u>{</u>	10	<10/<10	<	10	<	10		10	< 1		< 10	<	10	<	10
I,6-Dichlorophenol	100	<	10	<10/<10	<	10	<	10		10	< 1		< 10	<	10	<	10
l,6-Dinitrotoluene !-Acetylaminofluorene	100 0.68	< <	10 10	<10/<10	< <	10 10	\ <u></u>	10		01	< 1 < 1		< 10	<	10	<	10
Acesysznanornaorene !-Chloronaphthalene	8,200	<	10,	<10/<10 <10/<10	2	10	<	10 10		10 10	< 1 < 1		< 10 < 10	< <	10 10	<	10
-Chlorophenol	8,200 40	<	10.	<10/<10	<	10	>	10	L	10 10	< 1		< 10	<	10	<	10 10
-Methylnaphthalene	2,000	-	10	<10/<10	~	10	<	10	•	10	< 1		< 10	<	10	<	10
-Naphthylamine	1.4	[<	10	<10/<10	~	10	2	10		10	\ i		< 10	Ž	10	<	10
-Nitroaniline (o-Nitroaniline)	5.8	<	50	<50/<50	<	50	-	50		50	< 5		< 50	~	50	<	50
-Nitrophenol (o-Nitrophenol)	820	<	10	<10/<10	<	10	<	10		10	< 1		< 10	<	10	<	10
-Picoline		<	10	<10/<10	<	30	<	10		10	< i		< 10	~	10	<	10
,3'-Dichlorobenzidine	5.8	<	20	<20/<20	<	20	<	20	< :	20	< 2	0	< 20	<	20	<	20
,3'-Dimethylbenzidine	0.28	<	20	<20/<20	<	20	<	20	< :	20	< 2	3	< 20	<	20	[<	20
-Methylcholanthrene	_	<	10	<10/<10	<	10	<	10	<	10	< 1	0	< 10	<	10	<	10
-Nitroauline (m-Nitroauline)	5.8	ļ<	50	<50/<50	<	50	<	50	< .	50	< 5	D.	< 50	<	50	<	50
,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	-	<	50	<50/<50	<	50	<	50	<	50	< 5	₽	< 50	<	50	<	50
-Aminobiphenyl	0.12	<	10	<10/<10	<	10	<	10		10	< i		< 10	<	10	<	10
Bromophenylphenyl ether	_	<	10	<10/<10	<	10	<	10		10	< 1		< 10	<	10	<	10
-Chioro-3-methylphenol (p-Chloro-m-cresol)	510	<	10	<10/<10	<	10	<	10		10	< 1		< 10	<	10	<	10
-Chloroaniline (p-Chloroaniline)	410	<	20	<20/<20	<	20	<	20		20	< 2		< 20	<	20	<	20
-Chlorophenylphenyl ether	-	<	10	<10/<10	<	10	<	10		01	< 1		< 10	<	10	<	10
-Nitroaniline (p-Nitroaniline)	5.8	<	50	<50/<50	<	50	<	50		50	< 5		< 50	<	50	<	- 50
-Nitrophenol (p-Nitrophenol)	60	\ <u><</u>	50	<50/<50	<	50	<	50		50	< 5		< 50	<	50	<	50
-Nitroquinoline-1-oxide -Nitro-o-toluidine	•	<	20	<20/<20	<	20 10	<	20		20	< 2 < 1		< 20 < 10	<	20	 	20
.12-Dimethylbenz(a)anthracene	-	<	10 10	<10/<10 <10/<10	<	10	<	10 10		10 10	< 1 < 1		< 10 < 10	< <	10 10	< <	10
Acenaphthene	3,800	<	10	<10/<10	<	10	<	10	l .	10	< 1		< 10	<	10	<	10
Acenaphthylene	6,100	<	10	<10/<10	<	10	<	10		10	< 1		< 10	<	10	~	10 10
keelophenone	10,000	<	10	<10/<10	2	10	-	10		10			< 10	~	10	`	8.4
lpha.alpha-Dimethylphenethylamine	-	<	2,000	<2,000/<2,000	+	2,000		2,000		,000	< 2,0		< 2,000	<	2,000	<	2,00
niline	5.8	<	20	<20/<20	<	20	<	20		20	< 2		< 20	<	20	<	. 20
inthracene	66	<	10	<10/<10	<	10	<	10		10	< 1		< 10	<	10	<	10
uramite, Total		<	10	<10/<10	<	10 .	<	10		10	- i		< 10	<	10	<	10
lenzo(a)anthracene	3.6	<	10	<10/<10	<	10	<	10	<	10		G	< 10	<	10	<	10
lenzo(a)pyrene	0.2	<	10	<10/<10	<	10	<	10		10		0	< 10	<	10	<	10
enzo(b)fluoranthene	1.2	<	10	<10/<10	<	10	<	10	<	10	< 1	0	< 10	<	10	<	1
enzo(g.h,i)perylene	0.26	<	10	<10/<10	<	10	<	10		10		0	< 10	<	10	<	10
enzo(k)fluoranthene	0.55	<	01	<10/<10	<	10	<	10		10		0	< 10	<	10	<	10
enzyl alcohoi	31,000	<	10	<10/<10	<	10	<	10		10		0	< 10	<	10	<	16
s(2-Chloroethoxy)methane	•	<	10	<10/<10	<	10	<	10		10		0	< 10	<	10	<	.10
s(2-Chloroethyl)ether	0.55	<	10	<10/<10	<	10	<	10	<	10		0	< 10	<	10	<	H
s(2-Ethylhexyl)phthalate	6	<	10	<10/<10	}	3.4J	<	10	<	10	8.1	(b)	< 10	<	10	<	10
utyibenzylphihalate	2,700	<	10	<10/<10	<	10	<	10		10		0	< 10	<	10	<	11
hrysene	1.9	<	10	<10/<10	<	10	<	10		10		0	< 10	<	10	<	10
resol (ortho)	5,100	<	10	<10/<10	<	10	<	10		10		Ó	< 10	<	10	<	10
resol, m & p	510	<	10	<10/<10	<	10	<	10	<	10		0	< 10	<	10	<	1
allate, Total	10	<	10	<10/<10	<	10	<	10		10		0	< 10	<	10	<	1
benzo(a,h)anthracene	0.36	 <	10	<10/<10	\ <u>`</u>	10	 <	10		10		0	< 10	<	10	<	1
benzofuran etkulahthalara	 6 000	1	10	<10/<10	\ <u>`</u>	10	<	10	<	10		0	< 10	<	10	<	1
ethylphthalate	5,000	<	10	<10/<10	\ <u>`</u>	10	\ <u>`</u>	10	<	10		0	< 10	<	10	<	
methoate methylphthalate	20	<	10	<10/<10	_	10	\ <u>`</u>	10	<	10		0	< 10	<	10	<	
-n-butyiphthalate	10,000	< <	10 10	<10/<10	<	10	< <	10	<	10		0 .	< 10	<	10	<	1
-n-outylphthalate	2,000	<	10	<10/<10 <10/<10	ļ,	10 10	<	10 10	< <	10 10		0	< 10 < 10	<	10	<	ì
i-n-octyiphthatate inoseb (2-sec-Butyl-4,6-dinitrophenol)	7	<	10			10	\ <u>`</u>					0	1	<	10	<	3
inoseo (2-sec-Butyt-4,6-cumtrophenot) isulfoton	0,3	<	10	<10/<10 <10/<10	<	10	<	10 10	< <	.10 10		0	< 10 < 10	<	10 10	5	. !
hyl methanesulfonate	U.3 	<	10	<10/<10	\ <u>`</u>	10	<	10	< .	10 10		0	< 10	<	10 10	< <	1
thyl parathion (Parathion)	610	~	10	<10/<10	~	10	<	10	<	10		0	< 10	<	10	~	1
mphur	010 ~-	~	10	<10/<10	2	10	~	10	<	10		0	< 10	<	10	[i.
uoranthene -	260	<	10	<10/<10	{	10	<	10	<	10		0	< 10	<	10		10
luorene	1,900	<	10	<10/<10	~	10	<	10	<	10		0	< 10	<	. 10	~	11
exachlorobenzene	1,500	<	10	<10/<10	<	10	<	10	<	10		0	< 10	<	10	<	10
exachlorobutadiene	i	<	10	<10/<10	<	10	<	10	<	10		0	< 10	~	10	~	10
exachlorocyclopentadiene	50	<	10	<10/<10	~	10	-	10	<	10		0	< 10	2	10	<	10
					1 -	10	-	01	1 '			-					

Samp Sample Parameter	ole ID: PADEP Act 2 MSCs ^(b) Date: Used Aquifers, TDS <u><</u> 2,500 Non-Residential	İ		29/2004	1.	E- /30/2004	8D 3	/2/2004		E-12 26/2004	1/	E- 27/2004	13D 3/1/	2004		E-14 19/2004		E-15 26/2004
Semivolatile Organic Compounds con'd. (ug/l)	Homeseasi				ــــــــــــــــــــــــــــــــــــــ		_											
Hexachlorophene	_	<	5,000	<5,000/<5,000	Te-	5,000	<	5,000	<	5,000	<	5,000	< 4	,000	<	5,000	<	5,000
Hexachloropropene	_	~	10	<10/<10	<	10	<		~	10	<	10	ζ.		· <	10	'	10
Indeno(1,2,3-ed)pyrene	3.6	<	01	<10/<10	~	10	<		2	10	~	10	~		<	10	<	10
Isophorane	100	{	10	<10/<10	-	10	<		~	10	~	10	<		2	10	<	10
Isosafrole	100	<	10	<10/<10	2	10	<		ζ.		<	10	<		<	10	'	10
m-Dinitrobenzene	ī	<	10	<10/<10	2	10	<	10	2	10	<	10	<	10	<	10	/ v	10
Methapyrilene	•	~	2,000	<2,000/<2,000		2,000	<		<		<	2,000			2	2,000	/ v	2,000
Methyl methanesulfonate	26	<	10	<10/<10	1	10	~	10	ξ.	10	2	10	2 1		>	10	~	10
Methyl parathion	20 2	<	10	<10/<10	1	10	~			10	~	10	<		[10	~	
Naphthalene	100		3.25		-	10	1				٧		1		~			10
		١.		<10/<10	1.		<	10	<	10		10	<	10		10	<	10
Nitrobenzene	51	<	10	<10/<10	 <	10	<		<	10	<	10	<		<	10	<	10
N-Nitrosodiethylamine	0.0043	<	10	<10/<10	<	10	<		<	10	<	10	<		<	10	<	10
N-Nitrosodimethylamine	0.013	<	10	<10/<10	<	10	<		<	10	<	10	<		<	10	<	10
N-Nitrosodi-n-butylamine	0,11	<	10	<10/<10	<	10	<		<	10	<	10	<		<	10	<	10
n-Nitrosodi-n-propylamine	0.37	<	10	<10/<10	<	10	<	10	<	10	<	10	<		<	10	<	10
N-Nitrosodiphenylamine	530	<	10	<10/<10	<	10	<	to	<	10	<	10	<		<	10	<	10
N-Nitrosomethylethylamine	_	<	10	<10/<10	<	. 10	<	10	<	10	<	10	<		<	10	<	10
N-Nitrosomorpholine	-	<	10	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
N-Nitrosopiperidine	_	<	10	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
N-Nitrosopyrrolidine	_	<	10	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
O,O,O-Triethyl phosphorothioate	-	<	10	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
o-Toluidine	11	<	10	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
p-(Dimethylamino)azobenzene	0.57	<	10	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Pentachlorobenzene	82	<	10	<10/<10	<	10	<	10	<	10	<	10	<		<	10	<	10
Pentachloronitrobenzene	10	<	10	<10/<10	<	10	<	10	l<	10	<	10	<	10	 <	10	<	10
Pentachlorophenol	1	<	50	<\$0/<50	<	50	<	50	 <	50	<	50	<	50	<	50	<	50
Phenacetin	1,200	<	10	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10	<	01
Phenanthrene	1,100	<	10	<10/<10	<	10	<	10	<	10	<	10	 <		<	10	<	10
Phenoi	4,000	<	10	<10/<10	<	10	<	10	<	10	<	10	 <		<	10	<	10
Phorate	4.1	<	10	<10/<10	<	10	<	10	<	10	<	10	\ <u></u>		<	10	<	10
Pronamide	50	<	10	<10/<10	<	10	<	10	<	10	<	10	<		<	10	<	10
Pyrene	130	<	10	<10/<10	1<	10	<	10	Į.	10	<	10	<		Į-	10	<	10
Pyridine	20	<	50	<50/<50	<	50	<	50	2	50	<	50	<	50	-	50	2	50
, Safrole	1	<	10	<10/<10	<	10	<	10	2	10	<	10	<	10	<	10	7	10
Sulfotepp (Tetraethyl dithiopyrophosphate)	10	<	01	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
. Thionazin (0,0-Diethyl-O-pyrazinyl phosphorothioate)	10	<	10	<10/<10	<	10	~	10	[2	10	~	10	<	10	<	10	>	10
Dissolved Metals (ug/l)			10	~(U/~)U	-	- 10	-	10	١٠.	10	۲.	ĮŪ.	15	10	<u> </u>	10	١٠	10
		_	(0		$\overline{}$		-		_		_				_			
Antimony (Dissolved)	6	<	20L ⁽¹⁾	<20/<20	<	20	<	20	<	20	<	20	 <	20	<	20	<	20
Arsenic, (Dissolved)	50	1	21K [©]	29L/28L		14L	i	15L	<	10	<	10		5.8L	<	IOL	<	10
Barium, (Dissolved)	2,000		660	680/670		83	1	85	ı	72		110	!	240		290	ł	59
Beryllium (Dissolved)	4	<	4	<4/<4	<	4	<	4	<	4	<	4	<	4		0.51J	<	4
Cadmium (Dissolved)	5	<	5	<5/<5	<	5	<	5	ı	2.31	<	5	<	5		2.23	<	5
Chromium, (Dissolved)	100	<	10	1.5B/<10	<	10	<	10	ı	3B	<	10	<	10	<	10		3.2B
Cobalt (Dissolved)	2,000	<	10	<10/<10	<	10	<	10	ı	84	<	10	<	10		10		14
Copper, Dissolved	1,000	<	20	<20/<20	<	20	<	20	ı	7.1J	<	20	<	20		2.71		3.13
Lead, (Dissolved)	5	<	5	4B/<5L	[<	\$L	<	5L	<	SL	<	5L	<	5L	<	SL	<	5L
Mercury (Dissolved)	2	<	0.2	<0.21/<0.21	<		<	0.2L	<	0.2	<	0.2	<	0.2	<	0.2	<	0.2
Nickel, (Dissolved)	100	<	40	<40/<40	<	40	<	40	250	110	<	40	<	40		77	1	16J
Selenium (Dissolved)	50	<	10	<10L/<10L	~	10	<	10L	<	10	<	10	<	10L	<	10	<	10
Silver (Dissolved)	100	<	10	<10/<10	<	10	<	10	1	10L	<	IOL	<	10	<	10	<	101
Thallium (Dissolved)	2	~	10	<10L/<10L	<		.[~	101	~	10L	~	10L	~	10	<	10L	<	IOL
Tin (Dissolved)	61.000	{	50	<50/<50	<	50	-	50	~	50	<	50	<	50	~	50	<	50
Vanadium (Dissolved)	720	<	10	0.91B/<10	<	10	Γ	1.2B		10	<	30 10	2	10	~	10	2	
Zinc. (Dissolved)	2,000		3.8日	4.6B/5.9B	`	175		3.3B	1	130	`	7.2B	1	4.3B	1	58	<u> </u>	10 6.4B
					+				+		1_		+		ــــــــــــــــــــــــــــــــــــــ		<u> </u>	
Total Dissolved Solids (ug/l)		-	520	NA	1	570_		NA	1_	640		500	1	NA		610		670



	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS≤2,500	1/3	E 30/2004	-17D 3	/1/2004	3	E-21 /[/2004		-23 //2004	E-24 1/30/2004	E-27 2/4/2004	١,	E- /5/2004	28D 3/	1/2004		E-29 /2/2004
Parameter	-	Non-Residential	1 "	20,2001	-	. 112001	~	7174004	""	72004	1/30/2004	2412004	-	7372004	31	1/2004	"	272004
Valatile Organic Compounds (ug/L) (s)			1						'					-			_	
1,1,2-Tetrachloroethane	•	70	<	ı	- <	1	<	1	<	1	< 20	< 5	<	1	<		<	1
1,1,1-Trichloroethane		200	<	i	<	î	<	i	<	i	41	< 5	<	1	<	1	~	
1.1,2.2-Tetrachloroethane		0.3	-	i	<	î	<	i	<	1	< 20	< 5	<	1	<	1	~	1
1,1,2-Trichloroethane		5	-	i	<	î	~	î	[i	< 20	< 5	<	1	<	1	<	-
1,1-Dichloroethane		110	2	i	<	i	1	1.6	[2	1	1,400			1	<	_		1
1,1-Dichloroethene		7	<	1	~	i	<	1.0	<	i		-	< <	1	2	1	<	1
1,2-Dibromo-3-chloropropage		0.2	-	i	<	1	1	- 1	<	1	67 < 20		<	-	<	ı.	\ <u></u>	1
1,2-Dibromoethane (EDB)	1	0.05	<	1	<	1	~	- ;	[1		ı	 <	1
1.2-Dichloroethane	i	5	2	1	<		2	-	\ <u>{</u>	1	< 20	< 5	<	1	<	ļ.	<	1
1,2-Dichloropropane	i	5	<	1	<	1 1		i	1.	1	< 20	< 5	<	1	<	1	<	1
1,2,3-Trichloropropane		3 40	ζ.	-		-	<	ı	<	1	< 20	< 5	<	1	<	1	<	1
• •		**	Ι'	1	<	1	<	i	<	1	< 20	< 5	<	1	<	τ	<	1
1,2,4-Trimethylbenzene		35	<	1	<	. 1		0.671	0).21B	< 20	43	ì	5.6	<	1	<	1
1,3,5-Trimethylbenzene		35	 <	1	<	1	1	0.371	<	1	< 20	23	1	2.6	<	1	<	1
2-Butanone (Methyl ethyl ketone)		5,800	<	10	<	10	<	10	<	10	< 200	< 50	<	10	<	10	<	10
2-Hexanone		(e)	<.	10	<	10	<	16	<	10	< 200	< 50	<	10	<	10	<	10
3-Chloropropene (Allylchloride)		41	<	1	<	i	<	1	<	1		< 5	2	1	~	1	~	ì
4-Methyl-2-pentanone (MIBK)		410	<	10	<	10	<	10	<	10	< 200	< 50	<	10	<	10	~	10
Acetone	Į	10,000	<	25	<	25	<	25	ζ.	25		< 120	~	25	~	25		25
Acetonitrile	ŀ	350	<	40	<	40	\ <	40	Į.	40		< 200	<	40	<	4D	~	40
Acrolein (Propenal)		0.12	<	20	<	20	<	20	\ \	20		< 100	2	20	~	20	-	20
Acrylonitrile		2.7	<	20	<	20	<	20	<	20	< 400	< 100	~	20	~	20		
Benzene		5	<	1	<	1	<	1	~	1	100	140	~	1	~	1	<	20
Bromodichloromethane		100	[2	í	<	i	<	1	2	1	< 20			1	<	-	 ^	1
Bremeform		100	<	i	<	1	<	1	[1		< 5 ·	< <	-	<	1	1^{5}	1
Bromomethane (Methyl Bromide)		100	<	j	~	1	<	1	<					1		1	< ~	, 1
Carbon disulfide		4,100	2	,	~	1	<		<	1		< 5	<	1	<	1	<	1
Carbon tetrachloride		4,100 5	-	1	<		<	1		1		< 5	<	1	<	1.	<	1
Chlorobenzene	ł	100	2	-	<	1		1	 <	1		< 5	<	1	<	1	·]<	1
Chloroethane	i			1		1	<	1	<	1	< 20	< 5	<	1	<	. 1	<	1
Chloroform	!	900	<	1	<	1	<	1	<	1		< 5	<	1	<	1	<	1
Chloromethane (Methyl Chloride)	į.	100	<	I	<	1	<	1	 <	1		< 5	<	1	<	1	<	1
Chloroprene	Í	3	<	l	<	1	<	1	<	l	< 20	< 5	<	1	<	1	<	1
cis-1,2-Dichloroethene		41	<	1	<	1	<	1	<	1	< 20	< 5	<	1	<	1	<	1
cis-1,3-Dichloropropene		70	<	ı	<	1	<	1	<	1	-a-minotenaire	< 5	<	1	<	1	<	1
Dibromochloromethane		26	<	ı	<	1	<	1	<	1	< 20	< 5	<	1	<	ı	<	1
		**	<	1	<	1	<	1	<	1	< 20	< 5	<	1	<	ı	<	ı
Dibromomethane (Methylene bromide) Dichlorodi fluoromethane		200	<	1	<	1	<	1	<	1		< 5	<	1	<	ı	<	1
		1,000	<	1	<	1	<	1	<	1	< 20	< 5	<	1	<	1	<	1
Ethyl methacrylate Ethylbenzene		1,800	<	1	<	1	<	1	<	1		< 5	<	1	<	1	<	t
		700	<	1	<	1	<	1	<	1	< 20	19		0.42J	<	ı	<	1
Iodomethane (Methyl iodide)			<	1	<	1	<	1	<	1	< 20	< 5	<	1	<	ı	<	ſ
Isobutanol (Isobutyl alcohol)		6,100	<	40	<	40	<	40	<	40		< 200	<	40	<	40	<	40
Methacrylonitrile		4.1	<	20	<	20	<	20	<	20		< 100	<	20	<	20	<	20
Methyl methacrylate		4,100	<	ı	<	1	<	1	<	1	< 20	< 5	<	1	<	1	<	1
Methylene chloride (Dichloromethane)		5	<	5	<	5	<	5	<	5		< 25	<	5	<	5]<	5
Pentachloroethane		-	<	5	<	5	<	5	<	5	< 100	< 25	<	5	<	5	<	5
Propionitrile	l	-	<	20	<	20	<	20	<	20	< 400	< 100	<	20	< .	20	<	26
Styrene	I	100	<	1	<	1	<	ı	<	1	< 20	< 5	<	1	<	1	<	1
Tetrachloroethene	l	5	<	1	<	1	<	1	<	1	20	< 5	<	1	<	1	<	ī
Toluene	I	1,000	<	1	<	1	<	E	<	1	< 20	43	<	1	<	ī	<	ī
trans-1,2-Dichloroethene	l	100	<	1	<	1	<	ı	<	1	16J	< 5	<	1	<	1	<	ī
trans-1,3-Dichloropropene	l	26	<	1	<	1 -	<		<	1	< 20	< 5	<	1	<	i	<	i
trans-1,4-Dichloro-2-butene	I	0.069	<	2	<	2	<	2	<	2	< 40	< 10	<	2	<	2	<	2
Trichloroethene	l	5	<	1	<	1	<	1	<	1	722	< 5	<	1	<	ī	177	. 33
Trichlorofluoromethane	I	-	<	1	<	1	<	i	<	1	< 20	< 5	<	í	<	i	5	1
Vinyl acetate	ļ	1,200	<	2	<	2	<	2	<	2	< 40	< 10	<	2	<	2	<	2
Vinyl chloride	!	2	<	1	<	1	<	ī	<	ī	370.	< 5	<	ī	<	ĩ	<	î
Xylenes, Total	1	10,000	<	7	1-	2	<	,	سا	,	< 40	68		1.33	<	ż	-	;



Parameter Semivolarile Organic Compounds (wg/l) 1,2,4-Trichlorobenzene 1,2,4,5-Tetrachlorobenzene 1,2-Dichlorobenzene (o-Dichlorobenzene) 1,3,5-Trinitrobenzene	imple Date: Used Aquifers, TDS<2,	(b) ,500	1/30/200	E-17D 4 :) 3/1/2004		E-21 1/2004	E-23 1/27/2004	E-24 1/30/2004	2	E-27 /4/2004	2/5/2004	-28D 3/1/2004	E-29 2/2/2004
1,2,4-Trichlorobenzene 1,2,4,5-Tetrachlorobenzene 1,2-Dichlorobenzene (o-Dichlorobenzene)	Non-Residential					J		L '	<u> </u>	١.		L		
1,2,4,5-Tetrachlorobenzene 1,2-Dichlorobenzene (o-Dichlorobenzene)	70		10	-12-	10	72	10	3.0	I- 10	12	••	Ja 10	- 10	10 10
1,2-Dichlorobenzene (o-Dichlorobenzene)	31	ζ.		<	10 10	<	10 10	< 10	< 10 < 10	<	10 10	< 10	< 10 < 10	< 10 < 10
		ζ.		<				1		<				
	600				10	<	10	< 10	< 10		10		< 10	< 10
		<		<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
1,3-Dichlorobenzene (m-Dichlorobenzene)	600	-		<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
1,4-Dichlorobenzene (p-Dichlorobenzene)	75	<		<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
1,4-Dioxane	24	<	• -	<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
1,4-Naphthoquinone] -	<	•	<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
1,4-Phenylenediamine (p-Phenylenediamine)	-	<	-,		2,000	<	2,000	< 2,000	< 2,000	<	2,000	< 2,000	< 2,000	< 2,000
1-Naphthylamine	1,4	<	10	[<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisoprop	yl)ether] 300	<	10	<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
2,3,4,6-Tetrachiorophenol	610	<	10	<	10	<	10	< 10	< 01	<	10	< 10	< 10	< 10
2,4,5-Trichlorophenol	10,000	<	10	<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
2,4,6-Trichlorophenol] 31	<	10	<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
2,4-Dichlorophenol	20	<	10	<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
2,4-Dimethylphenol	2,000	<	10	<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
2,4-Dinitrophenol	41	<		<		<	50	< 50	< 50	<	50	< 50	< 50	< 50
2,4-Dinitrotoluene	8,4	<		<		<	10	< 10	< 10	~	10	< 10	< 10	< 10
2,6-Dichlorophenol	4,4			<		<				<				1
2,6-Dinitrotoluene	100				10		10	< 10	< 10		10	< 10		< 10
	100			<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
2-Acetylaminofluorene	0.68	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
2-Chloronaphthalene	8,200	<		<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
2-Chlorophenol	40	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
2-Methylnaphthalene	2,000	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
2-Naphthylamine	i.4	<		<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
2-Nitroaniline (o-Nitroaniline)	5.8	<	50	<	50	<	50	< 50	< 50	<	50	< 50	< 50	< 50
2-Nitrophenol (o-Nitrophenol)	820	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
2-Picoline		<		<		<	01	< 10	< 10	<	10	< 10	< 10	< 10
3,3'-Dichlorobenzidine	5.8	<		<		<	20	< 20	< 20	<	20	< 20	< 20	< 20
3,3'-Dimethylbenzidine	0.28	<		<		<	20	< 20	< 20	<	20	< 20	< 20	< 20
3-Methylcholanthrene		{		<		~	10	< 10	< 10	<	10	< 10	< 10	< 10
3-Nitroaniline (tn-Nitroaniline)	. 5.8	<		<		<	50			<				
	. 2.6								< 50		50	< 50		< 50
4,6-Dinitro-2-methylphenoi (4,6-Dinitro-o-cresoi)	1	<		<		<	50	< 50	< 50	<	50	< 50	< 50	< 50
4-Aminobiphenyl	0.12	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
4-Bromophenylphenyl ether	_ -	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	510	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
4-Chloroaniline (p-Chloroaniline)	410	<		<		<	20	< 20	< 20	<	20	< 20	< 20	< 20
4-Chlorophenylphenyl ether	_	<	10	<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
4-Nitroaniline (p-Nitroaniline)	5.8	<	50	<	50	<	50	< 50	< 50	<	50	< 50	< 50	< 50
4-Nitrophenol (p-Nitrophenol)	60	<	50	<	50	<	50	< 50	< 50	<	50	< 50	< 50	< 50
4-Nitroquinoline-1-oxide	_	<	20	<	20	<	20	< 20	< 20	<	20	< 20	< 20	< 20
5-Nitro-o-toluidine	_	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
7,12-Dimethylbenz(a)anthracene		{		<		<	10	< 10	< 10	-	10	< 10	< 10	< 10
Acenaphthene	3,800	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
Acenaphthylene	6,100			<		<				<				
	, ·						10	< 10			10	< 10		< 10
Acetophenone	10,000	\		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
alpha,alpha-Dimethylphenethylamine		<				<	2,000	< 2,000	< 2,000	<	2,000	< 2,000	< 2,000	< 2,000
Aniline	5.8	<		<		<	20	< 20	< 20	<	20	< 20	< 20	< 20
Anthracene	66	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
Aramite, Total	-	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
Benzo(a)anthracene	3.6	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
Benzo(a)pyrene	0.2	<	10	<	10	<	10	< 10	< 10	<	£0	< 10	< 10	< 10
Benzo(b) fluoranthene	1.2	<	10	<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
Benzo(g.h.i)perylene	0.26	<	: 10	<	10	<	10	< 10	< 10	<	10	< 10	10.91	< 10
Benzo(k)fluoranthene	0.55	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
Benzyl alcohol	31,000	<	: 10	<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
bis(2-Chloroethoxy)methane	1 -	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
bis(2-Chloroethyl)ether	0.55	<		<		<	10	l< 10	< 10	<	10	< 10	< 10	< 10
bis(2-Ethylhexyl)phthalate	6		-	<		<	10	1		[1	
Butylbenzylphthalate						1.		1 -	< 10		10		< 10	< 10
	2,700	[5				 <	10	< 10	< 10	<	10	< 10	< 10	< 10
Chrysene	1.9	<		<		<	10	< 10	< 10	<	10	< 10	< 10	 < 10
Cresol (artho)	5,100		-	<		<	10	< 10	< 10	<	10	< 10	< 10	 < 10
Cresol, m & p	510	<		<		<	10	< 10	< 10	<	10	< 10	< 10	< 10
Diallate, Total	10	<	: 10	<	10	<	10	< 10	< 10	<	10	< 10	< 10	< 10
Dibenzo(a,h)anthracene	0.36	<	10	<		<	10	< 10	< 10	<	10	< 10	0.821	
Dibenzofuran	"	<		<		<	10	< 10	< 10	<		< 10	< 10	< 10
	. 5,000	<		<		<	10	< 10	< 10	<		< 10	< 10	< 10
Diethylphthalate	20			<		-	10	< 10	< 10	<		< 10	< !0	< 10
Diethylphthalate Dimethoate	20	[3		~		<	10	< 10	< 10	`		< 10	< 10	
Dimethoate	10,000			~		<	10			<		< 10		
Dimethoate Dimethylphthalate													< 10	< 10
Dimethoate Dimethylphthalate Di-n-burylphthalate	2,000	1		<		<	10	< 10	< 10	<		< 10	< 10	< 10
Dimethoate Dimethylphthalate Di-n-butylphthalate Di-n-ocylphthalate		·		<		<	10	< 10	< 10	<		< 10	< 10	< 10
Dimethoate Dimethylphthalate Di-n-burylphthalate Di-n-ocsylphthalate Di-nocsylphthalate Dinoseb (2-sec-Butyl-4,6-dinitrophenol)	7			<	: 10	<	10	< 10	< 10					
Dimethoate Dimethylphthalate Di-n-butylphthalate Di-n-octylphthalate Dimoseb (2-sec-Butyl-4,6-dimitrophenol) Disulfoton		<								<		< 10	 < 10	< 10
Dimethoate Dimethylphthalate Di-n-butylphthalate Di-n-octylphthalate Di-n-octylphthalate Dinoseb (2-sec-Butyl-4,6-dimitrophenol) Disulfoton Ethyl methanesulfonate	7			<		<	10	< 10	< 10	<		< 10	< 10 < 10	< 10 < 10
Dimethoate Dimethylphthalate Di-n-butylphthalate Di-n-octylphthalate Dimoseb (2-sec-Butyl-4,6-dimitrophenol) Disulfoton	7 0,3		: 10			< <	10 10				10		< 10	
Dimethoate Dimethylphthalate Di-n-butylphthalate Di-n-octylphthalate Di-n-octylphthalate Dinoseb (2-sec-Butyl-4,6-dimitrophenol) Disulfoton Ethyl methanesulfonate	7 0,3 —	<	: 10 : 10	<	10		10	< 10 < 10	< 10 < 10	<	10 10	< 10 < 10	< 10 < 10	< 10 < 10
Dimethoate Dimethylphthalate Dim-butylphthalate Dim-octylphthalate Dimoseb (2-sec-Butyl-4,6-dimitrophenol) Disulfoton Ethyl methanesulfonate Ethyl parathion (Parathion) Pamphur	7 0.3 — 610	<	10 10	< < <	10 10	< <	10 10	< 10 < 10 < 10	< 10 < 10 < 10	VVV	10 10 1 0	< 10 < 10 < 10	< 10 < 10 < 10	< 10 < 10 < 10
Dimethoate Dimethylphthalate Di-n-butylphthalate Di-n-bocylphthalate Di-n-occylphthalate Dinoseb (2-sec-Butyl-4,6-dimitrophenol) Disulfoton Ethyl methanesulfonate Ethyl parathion (Parathion) Famphur Fluoranthene	7 0.3 610 260	< < <	10 10 10	< < <	10 10 10	·	10 10 10	< 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10	V V V V	10 10 10 10	< 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10
Dimethoate Dimethylphthalate Di-n-buylphthalate Di-n-buylphthalate Di-n-bocylphthalate Dinoseb (2-sec-Butyl-4,6-dinitrophenol) Disulfoton Ethyl methanesulfonate Ethyl parathion (Parathion) Pamphur Fluoranthene Fluorene	7 0,3 610 260 1,900	< < < < <	10 10 10 10	< < < <	10 10 10 10	V V V	10 10 10	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10	V V V V V	10 10 10 10	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10
Dimethoate Dimethoate Dimethylphthalate Di-n-butylphthalate Di-n-octylphthalate Dinoseb (2-sec-Butyl-4,6-dimitrophenol) Disulfoton Ethyl methanesulfonate Ethyl parathion (Parathion) Pamphur Flooranthene Fluorene Hexachlorobenzene	7 0.3 — 610 — 260 1,900	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	10 10 10 10 10	V V V V V	: 10 : 10 : 10 : 10	, v v v v	10 10 10 10	< 10 < 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10 < 10	V V V V V	10 10 10 10 10	< 10 < 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10 < 10
Dimethoate Dimethylphthalate Di-n-buylphthalate Di-n-buylphthalate Di-n-bocylphthalate Dinoseb (2-sec-Butyl-4,6-dinitrophenol) Disulfoton Ethyl methanesulfonate Ethyl parathion (Parathion) Pamphur Fluoranthene Fluorene	7 0,3 610 260 1,900	< < < < <	10 10 10 10 10 10	< < < <	: 10 : 10 : 10 : 10 : 10	V V V	10 10 10	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10	V V V V V	10 10 10 10 10 10	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10	< 10 < 10 < 10 < 10 < 10

 $R^{\scriptscriptstyle UMMINGS}$

Page 5 of 22

	iple ID: PADEP Act 2 MSCs ^(b) le Date: Used Aquifers, TDS≤2,50	, ,	E 30/2004/	~17E) 3/1/2004	3	E-21 3/1/2004	1,	E-23 27/2004		E-24 30/2004	<u>,</u>	E-27 /4/2004	2	E-: /5/2004	28D 3.	/1/2004	١,	E-29 2/2/200
Parameter	Non-Residential					1 -		1 "				-		~		-		ľ	
Semivolatile Organic Compounds con'd. (ug/l)		\top						_				_							
Hexachlorophene			5,000	T<	5,000	<	5,000	1<	5,000	<	5,000	<	5,000	<	5,000	1<	5,000	7	5,00
Hexachioropropene		<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Indeno(1,2,3-cd)pyrene	3.6	<	10	<	10	<	10	-	10	<	10	<	10	<	10	~	10	-	10
Isophorone	100	`	10	<	10	<	10	1	10	<	10	<	01	<	10	<	10	2	Į.
Isosafrole	'''	<	10	<	10	[10	1	10	<	10	<	10	<	10	<	10	<	11
m-Dinitrobenzene		<	10	<	10	<	10	<	10	~	10	<	10	<	10	<			
Methapyvilene	'	~	2,000	~	2.000	1	2.000	<									10	<	I
Methyl methanesulfonate	26	[~	10	~		<			2,000	<	2,000	<	2,000	<	2,000	<	2,000	<	2,0
Methyl parathion					10		10	 <	10	<	10	<	10	<	10	<	10	 <	1
Naphthalene	2	<	10	<	10	<	10	! <	10	<	10	<	10	<	10	<	10	<	1
	100	<	10	<	10	<	10	<	10	<	10	i	1.61	<	10	<	10	<	1
Nitrobenzene	51	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	14
N-Nitrosodiethylamine	0.0043	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	16
N-Nitrosodimethylamine	0.013	<	10	<		<	10	<	10	<	10	<	10	<	10	<	10	 <	10
N-Nitrosodi-n-butylamine	0.11	<	10	<	01	<	10	<	10	<	10	<	LO.	<	10	<	10	<	10
n-Nitrosodi-n-propylamine	. 0.37	<	10	<		<	10	<	10	<	10	<	10	<	10	<	10	<	10
N-Nitrosodiphenylamine	530	<	10	<	01	<	10	<	10	<	10	<	10	<	10	<	10	<	10
N-Nitrosomethylethylamine	1 -	<	10	<	- 10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
N-Nitrosomorpholine	-	<	10	<	10	<	10	<	10	<	10	 <	10	<	10	<	10	l<	1
N-Nitrosopiperidine	i	<	10	<	10	<	10	<	01	<	10	 <	10	<	10	<	10	<	1
N-Nitrosopyrrolidine	-	<	10	<	10	<	01	<	10	<	10	<	10	<	10	<	10	<	10
O,O,O-Triethyl phosphorothioate	i –	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	1
o-Toluidine	11	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
p-(Dimethylamino)azobenzene	0,57	<	10	<	10	<	01	<	10	<	10		10	<	10	<	10	<	10
Pentachlorobenzene	82	<	10	<	10	<	01	<	01	<	01	<	10	<	10	<	10	<	1
Pentachloronitrobenzene	10	<	10	<	10	<	10	-	10	<	10	<	10	<	10	<	10	{	10
Pentachlorophenol	l i	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50	[51
Phenacetin	1,200	<	10	<	10	<	10	<	10	<	10	-	10	<	10	<	10	-	10
Phenanthrene	1.100	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	-	11
Phenol	4,000	{	10	<	10	2	10	[~	10	<	10	2	10	<	10	<	. 10		-
Phorate	4.1	_ ا	10	<	10	~	01	[<	10	<	10	2	10	<	10	<	10		11
Pronamide	50	<	10	<	10	<	01	<	10	~								 <	10
Pyrene	130	{	10	~	10	<		<			10	<	10	<	10	<	10	<	10
Pyridine	20	`	50	~	50	2	10 50	1	10	<	10		10	<	10	<	10	<	10
Safrole	20	``	10	~	10	ζ.		~	50	<	50	<	50	<	50	<	50	۱<	\$1
Sulfotepp (Tetraethyl dithiopyrophosphate)	10	~		<			10		10	<	10	 <	10	<	10	<	10	<	10
Thionazin (0,0-Diethyl-O-pyrazinyl phosphorothicate)	10	\ \ \	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Dissolved Metals (ug/l)		~	10	<	10	<	10	<	10	<	10	<	10	<_	10	<	10	<_	1
	·	+		_		_		_		_		_		-		,			
Antimony (Dissolved)	6	<	20	<	20	<	20	<	20	<	20	<	20	<	20L	<	20	<	20
Arsenic, (Dissolved)	50	<	10L	-	5.2L	ſ	5,6L	<	10	<	10L	<	IOL		5.4K	<	10L	 <	10
Barium, (Dissolved)	2,000		34	1	40	1	420	1	69		38	ı	44		390	1	400	1	4
Beryllium (Dissolved)	4	<	4	<	4	<	4	<	4	<	4	<	4	<	4	<	4	k	4
Cadmium (Dissolved)	5	<	5	<	5	<	5	1	1.8J	<	5	<	5	<	5	<	5	<	4
Chromium, (Dissolved)	100	<	10	<	10	1	1.9B	1	1.2B	<	10	ı	1.4B	<	10	<	10	<	10
Cobalt (Dissolved)	2,000		5.81		73	1	2.41	1	10	1	7.5J	1	75	<	10	<	10	-	i
Copper, Dissolved	1,000	¿	20	<	20	<	20	<	20	<	20	<	20	<	20	<	20	~	2
Lead, (Dissolved)	5	<	5L	<	šī.	~	5L	<	5L	~	5L	2	5L	<	5L	<	5L	<	5
Mercury (Dissolved)	2	-	0.2	<		2	0.2	-	0.2	~	0.2	2	0.2	2	0.2	~	0.2	<	0.
Nickel, (Dissolved)	100	1	28J		24J	1	3.2J	1	48	1	46		92	<	40	`			-
Sclenium (Dissolved)	50	<	10	<	10L	<	10L	<	10	<	10	L	10	<	10	<	2.7J	\ <u>`</u>	4
Silver (Dissolved)	100	<	10	<	101.	~	10L 10			1		1					10L	<	1
Thallium (Dissolved)	2	ı						<	10L	<	10	[10	<	10	<	10	<	1
Tin (Dissolved)	61,000	< <	10L	<	10	<	10	<	101.	<	10L	 	IOL	<	10L	<	10	<	10
Vanadium (Dissolved)		ξ.	50	<		 <	50	<	50	<	50	<	50	<	50	<	50	١<	5
Zinc, (Dissolved)	720	۱۲	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	. !
	2,000		41	-	173	+	3.3B	4	38	1	44	 	57	↓_	8.2B	1	8.3B	_	4.
otal Dissolved Solids (ug/l)	í –	ŀ	500		NA	1	9,100	1	420	ł	720	1	730	1	750	1	NA	1	58



	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS≤2,500	E-31 1/27/2004	E-33 1/27/20			34 2004	E-1/28/			E-37 8/2004		B-40 2/2004	E-43 1/26/20	
Parameter	i	Non-Residential		<u></u>		·									
Volatile Organic Compounds (ug/L) (a)															
1,1,1,2-Tetrachloroethane		70	<2/<50	< 1		<	1	<	ı	<	ı	<	1	< 2	
1,1,1-Trichloroethane		200	<2/<50	< 1		<	1	<	1	<	1	<	1	< 2	
1,1,2,2-Tetrachloroethane		0.3	<2/<50	< 1		<	1	<	1	<	i	<	1	< 2	
1,1,2-Trichloroethane		5	<2/<50	< · i		<	1	<	i	<	i	<	i	< 2	
1.1-Dichloroethane		110	<2/<50	< i		<	1	<	i	 <	i	<	i	< 2	
1,1-Dichloroethene		7	<2/<50	< 1		<	1	<	1	<	1	<	1	< 2	
1,2-Dibromo-3-chloropropane		0.2	<2/<50	< 1		<	1	<	1	<	1	<	1	< 2	
1,2-Dibromoethane (EDB)		0.05	<2/<50	< i		<	i	<	i	<	1	<	ī	< 2	
1.2-Dichloroethane		5	<2/<50	< i		<	i i	<	ī	<	1	<	1	< 2	
1,2-Dichleropropane		5	<2/<50	< i		<	i	<	i	<	i	<	ī	< 2	
1,2,3-Trichloropropane		40	<2/<50	< i		<	1	<	ī	<	1	<	ī	< 2	-
1,2,4-Trimethylbenzene		35	THE PROPERTY OF THE PARTY OF TH	CONTRACTOR AND ADDRESS OF THE PARTY OF THE P	777	<	1	\ -	1	<		<		∵/:62	7/35
1,3,5-Trimethylbenzene		35 35	1,300/1,500	9.		<	•	ζ.		<	1	2	1		
			<2/25]	29			1		1		1		1		0.
2-Butanone (Methyl ethyl ketone)		5,800	<20/<500	< 10	1	i	1.8J	ı	10	<	10	<	10	< 2	
2-Hexanone	l	(e)	<20/<500	< 10		<	10		10	 <	10	<	10	< 24	
3-Chloropropene (Allylchloride)		41	<2/<50	< 1		<	1	<	ì	<	1	<	ı	< 2	2
4-Methyl-2-pentanone (MIBK)	l	410	<20/<500	< 10			IJ		10	<	10	<	10	< 2	
Accione		10,000	<50/<1,200	7.2	2J		8.6J	<	25	<	25	<	25	12	2J
Acetonitrile		350	<80/<2,000	< 40	0	<	40	<	40	<	40	<	40	8	.0
Acrolein (Propenal)		0.12	<40/<1,000	< 20	0	<	20	<	20	<	20	<	20	< 4·	0
Acrylonitrile		2.7	<40/<1,000	< 20	0	<	20	[<	20	<	20	<	20	< 4	0
Benzene		5	18/<50	< 1	ı	<	ŧ	<	1	<	1	<	ι	< - 2	2
Bromodichloromethane	1	160	<2/<50]< t	1	<	1	<	1	<	1	<	t		2
Bromoform		100	<2/<50	< 1	1	<	1	<	1	<	1	<	1		2
Bromomethane (Methyl Bromide)		10	<2/<50	< 1	ı	<	1	<	ı	<	1	<	1	< 2	2
Carbon disulfide		4,100	<2/<50	< 1	1	<	1	<	1	<	1	<	1		2
Carbon tetrachloride		5	<2/<50	< 1	١.	<	1	<	1	<	1	<	1		2
Chlorobenzene		100	14/<50	< 1	ı	<	1	<	1	<	1	<	1		2
Chloroethane	,	900	<2/<50	< 1	ı	<	1	<	1	<	- 1	<	1		2
Chloroform		100	<2/<50	< 1		<	1	l<	1	<	1	<	1		2
Chloromethane (Methyl Chloride)		3	<2/<50	- i	i	<	ī	<	1	<	i	<	ì		2
Chloroprene		41	<2/<50	< i	i	<	•	<	1	<	i	<	1		2
cis-1,2-Dichloroethene		70	<2/<50	< 1		<	1	<	i	<	i	<	1		2
cis-1,3-Dichloropropene		26	<2/<50	< 1		<	1	<	i	<	ī	<	1		2
Dibromochloromethane			<2/<50	< 1	1	<	1	l<	i	<	i	<	i		2
Dibromomethane (Methylene bromide)		200	<2/<50	< i	1	<	ì	<	i	<	î	<	ī		2
Dichlorodifluoromethane		1,000	<2/<>	< 1	1	<	1	<	•	<	1	<	1		2
Ethyl methacrylate		1,800	<2/<50	< 1		<	1	<	1	<	1	<	1		2
Ethylbenzene		700	370/360	l i		<	i	\ <u>`</u>	i	<	i	-	i		22
Iodomethane (Methyl iodide)		••	<2/<50	< î		<	i	<	í	<	i	<	i	1 -	2
Isobutanol (Isobutyl alcohol)		6,100	<80/<2,000	< 4		<	40	-	40	<	40	<	40		30
Methacrylonitrile		4.1	<40/<1,000	< 2		<	20	<	20	<	20	<	20		10
Methyl methacrylate		4,100	<2/<50	< 1		<	1	2	1	<	1	<	1		2
Methylene chloride (Dichloromethane)	+	5	<10/<250	× 5		<	5	-	5	<	5	-	5		10
Pentachloroethane		-	<10/<250	< 5		ζ,	5	<	5	<	5	<	5		10
Propionitrile .			<40/<1,000		.D	<	20	<	20	<	20	<	20		10
Styrene		100	<2/<50	<		<	1	<	ĭ	<	1 .	-	1		i.9
Tetrachloroethene		5	<2/<50	 		-	i	\ \ \	i	1	i ``	12	i		2
Toluene		1,000	27/28J	0.8		<	í	\ \	i	~	- 1	ļ.	i		2
trans-1,2-Dichloroethene		. 100	<2/<50	< .		<	i	<	i	~	i	<	1		2
trans-1,3-Dichloropropene		26	<2/<50	< 1		<	i	<	i	<	i	<	i		2
trans-1,4-Dichloro-2-butene		0.069	<4/<100	< 2		<	2	~	2	<	2		2		4
Trichloroethene		5	<2/<50	< 1		<	1	2	1	<	1	2	1		2
Trichlorofluoromethane			Q/<50	< 1		<	i	~	i	<	1	<	1		2
Vinyl acetate		1,200	<4/<100		2	<	2	<	2	<	2	<	2		4
Vinyl chloride		1,200	<2/<50		2 1	2	1	[1	<	1	<	1	1	4
									_						2 40
Xylenes, Total		10,000	610/610	1 3.	.6	<	2	<u> <</u>	2	<	2		2	1- 1-	4



Sample ID: Sample Date: ameter	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS≤2,500 Non-Residential	E-31 1/27/2004	E-33 1/27/2004	E-34 2/2/2004	E-35 1/28/2004	E-37 1/28/2004	E-40 2/2/2004	E-43 1/26/200
nivolatile Organic Compounds (ug/l)			<u>' </u>			<u>'</u>		
,2,4-Trichlorobenzene	70	<10/<10	< 10	< , 10	< 10	< 10	< 10	< 10
,2,4,5-Tetrachlorobenzene	. 31	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
,2-Dichlorobenzene (o-Dichlorobenzene)	600	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
,3,5-Trinitrobenzene	_	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
3-Dichlorobenzene (m-Dichlorobenzene)	600	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
,4-Dichlorobenzene (p-Dichlorobenzene)	75	8.83/11	< 10	< 10	< 10	< 10	< 10	< 10
4-Dioxane	24	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
,4-Naphthoquinone ,4-Phenylenediamine (p-Phenylenediamine)	_	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
-Naphthylamine	1.4	<2,000/<2,000 <10/<10	< 2,000 < [0	< 2,000 < 10	< 2,000 < 10	< 2,000 < 10	< 2,000 < 10	< 2,00
,2'-Oxybis(1-chioropropane)[bis(2-Chloroisopropyl)ether]	300	<10/<10	< 10	< 10				
3,4,6-Tetrachlorophenol	610	<10/<10	< 10	< 10	< 10 < 10	< 10 < 10	< 10 < 10	< 10
4,5-Trichlorophenol	10,000	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
4,6-Trichlorophenol	31	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
,4-Dichlorophenol	20	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
4-Dimethylphenol	2,000	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
4-Dinitrophenol	41	<50/<50	< 50	< 50	< 50	< 50	< 50	< 50
4-Dinitrotoluene	8.4	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
6-Dichlorophenol	-	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
6-Dinitrotoluene	100	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
Acetylaminofluorene	0.68	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
Chloronaphthalene	8,200	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
Chlorophenol	40	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
Methylnaphthalene	2,000	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthylamine	1.4	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
Nitroaniline (o-Nitroaniline)	5.8	<\$0/<50	< 50	< 50	< 50	< 50	< 50	< 50
Nitrophenol (o-Nitrophenol)	820	<10/<10	< 10	< 10	< 10	< 10	< 10	3.8
Picoline		<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
3'-Diehlorobenzidine	5.8	<20/<20	< 20	< 20	< 20	< 20	< 20	< 20
3'-Dimethylbenzidine	0.28	<20/<20	< 20	< 20	< 20	< 20	< 20	< 20
-Methylcholanthrene	_	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
Nitroaniline (m-Nitroaniline)	5.8	<50/<50	< 50	< 50	< 50	< 50	< 50	< 50
6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	=	<50/<50	< 50	< 50	< 50	< 50	< 50	< 50
-Aminobiphenyl	0.12	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
Bromophenylphenyl ether		<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
Chloro-3-methylphenol (p-Chloro-m-cresol)	510	<10/<10	< 10	< 10	< 10	< 10	< 10	< 16
Chloroaniline (p-Chloroaniline)	410	<20/<20	< 20	< 20	< 20	< 20	< 20	< 20
-Chlorophenylphenyl ether		<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
Nitroaniline (p-Nitroaniline)	5.8	<50/<50	< 50	< 50	< 50	< 50	< 50	< 50
-Nitrophenol (p-Nitrophenol)	60	<50/<\$0	< 50	< 50	< 50	< 50	< 50	< 50
-Nitroquinoline-I-oxide		<20/<20	< 20	< 20	< 20	< 20	< 20	< 20
-Nitro-o-toluidine		<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
12-Dimethylbenz(a)anthracene		<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
cenaphthene .	3,800	<10/<16	< 10	< 10	 < 10	< 10	< 10	< 10
cenaphthylene	6,100	<10/<10	< 10	< 10	< 10	< 10	< 10	 < 10
cetophenone	10,000	67/82	20	< 10	< 10	< 10	< 10	6,2
pha,alpha-Dimethylphenethylamine		<2,000/<2,000	< 2,000	< 2,000	< 2,000	< 2,000	< 2,000	< 2,0
niline	5.8	<20/<20	< 20	< 20	< 20	< 20	< 20	< 2
nthracene	66	<10/<10	< 10	< 10	< 10	< 10	< 10	< 10
ramite, Total	<u></u>	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1·
enzo(a)anthracene	3.6	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
enzo(a)pyrene	0,2	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1·
enzo(b)fluoranthene enzo(g,h,i)perylene	1.2	<10/<10	< 10	< 10	< 10	< 10	< 10	· !
enzo(g,n,1)peryiene enzo(k)fluoranthene	0.26	<10/<10	< 10	< 10	< 10	< 10	< 10	'
enzo(k)riuorantnene enzyl alcohol	0.55	<10/<10 <10/<10	< 10 < 10	< 10	< 10	< 10	< 10	< 1
is(2-Chloroethoxy)methane	31,000	<10/<10	< 10	< 10 < 10	< 10 < 10	< 10 < 10	< 10	<u> </u>
s(2-Chloroethyl)ether	0.55	<10/<10	< 10				< 10 < 10	< I
		1	1		1	1	1	· 1
s(2-Ethylhexyl)phthalate	6	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
utylbenzylphthalate	2,700	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
hrysene	1.9	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
resol (ortho)	5,100	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
resol, m & p ialiaie, Total	510	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
iauaie, 10tai ibenzo(a.h)anthracene	10	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
	0.36	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
ibenzofuran istadiahatak		<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
iethylphthalate imethoate	5,000	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
	20	<10/<10	< 10	< 10	< 10	< 10	< 10]< 1
imethyiphthalate	10.000	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1 ¹
i-n-butylphthalate i-n-octylphthalate	10,000	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
	2,000	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1º
inoseb (2-sec-Butyl-4,6-dinitrophenol)	7	<10/<10	< 10	< 10	< 10	< 10	< 10	· < 1
isulfoton	0.3	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
thyl methanesulfonate	-	<10/<10	< 10	< 10	< 10 .	< 10	< 10	 < 1
thyl parathion (Parathion)	610	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1
amphur		<10/<10	< 10	< 10	< 10	< 10	< 10	< 1·
uoranthene	260	<10/<10	< 10	< 10	F.13	1.33	< 10	< 1
uorene	1,900	<10/<10	< 10	< 10	< 10	< 10	< 10	< 1º
exachlorobenzene	1	<10/<10	< 10	< .10	< 10	< 10	< 10	< 10
		1						
exachlorobutadiene exachlorocyclopentadiene	1 50	<10/<10 <10/<10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10



	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS <u><</u> 2,500	E-31 1/27/2004	1,	E-33 /27/2004	2/	E-34 /2/2004	1/	E-35 28/2004	1/	E-37 28/2004		E-40 2/2004		E-43 26/2004
Parameter	ļ	Non-Residential	l ·			•		ŧ		ļ					
Semivolatile Organic Compounds con'd. (ug/l)															
Hexachlorophene		_	<5,000/<5,000	<	5,000	<	5,000	<	5,000	<	5,000	<	5,000	<	5,000
Hexachloropropene		-	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10
Indeno(1,2,3-ed)pyrene		3.6	<10/<10	<	10	<	01	<	10	<	10	<	10	<	10
Isophorone		100	<10/<10	<	10	<	10	<	01	<	10	<	10	<	10
Isosafrole			<10/<10	<	10	<	10	<	10	<	10	<	10	<	10
m-Dinitrobenzene		:	<10/<10	 <	10	<	10	<	10	<	10	<	10	<	10
Methapyrilene			<2,000/<2,000	<	2,000	<	2,000	<	2,000	<	2,000	<	2,000	<	2,000
Methyl methanesulfonate		26	<10/<10	<		<	10	<	10	<	10	<	10	<	10
Methyl parathion		2	<10/<10	<		<	10	<	10	<	10	<	10	<	10
Naphthalene		100	180/220			<	10	<	10	<	10	<	10	O.Z	- 180
Nitrobenzene		51	<10/<10	1<		<	10	<	10	<	10	<	10	SINEZ/	10
N-Nitrosodiethylamine		0.0043	<10/<10	<		<		-	10	<	10	<	10	[10
N-Nitrosodimethylamine		0.013	<10/<10	<	10	~	10	<	10	<	10	<	10	<	10
N-Nitrosodi-n-butylamine		0.013	<10/<10	~	10	<	10	(10	~	01	<	10	<	10
n-Nitrosodi-n-propylamine		0.11		2					•		• • •				
N-Nitrosodiphenylamine		530	<10/<10	<		<	10	<	10	<	10	<	10	<	10
N-Nitrosomethylethylamine			<10/<10		10	<	10	<	10	<	10	<	10	 <	01
	ļ	-	<10/<10	<		<	10	<	10	<	10	<	10	<u> </u>	10
N-Nitrosomorpholine		-	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10
N-Nitrosopiperidine			<10/<10	<	10	<	10	<	10	<	10	<	10	<	10
N-Nitrosopyrrolidine		-	<10/<10	<		<	10	<	10	<	10	<	(0	<	10
O,O,O-Triethyl phosphorothicate	1		<10/<10	<	10	<	10	<	10	<	10	<	10	<	10
o-Toluidine		11	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10
p-(Dimethylamino)azobenzene		0.57	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10
Pentachlorobenzene		82	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10
Pentachloronitrobenzene		. 10	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10
Pentachlorophenol		1	<50/<50	<	50	<	50	<	50	<	50	 <	50	<	50
Phenacetin		1,200	<10/<10	<	10	<	10	<	10	<	10	i <	10	<	10
Phenanthrene		1,100	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10
Phenol		4,000	<10/<10	<	10	<	10	<	10	<	10	<	10		140
Phorate		4.1	<10/<10	<	10	<	10	<	10	<	-10	<	10	<	10
Pronamide		50	<10/<10	<	10	<	10	<	10	<	10	<	10	<	10
Рутепе		130	<10/<10	<	10	<	10	<	10	<	10	۱۷	10	 <	10
Pyridine		20	<50/<50	<	50	<	50	<	50	<	50	<	50	<	50
Safrole			<10/<10	<	10	<	10	<	10	<	10	<	10	<	10
Sulfatepp (Tetraethyl dithiopyrophosphate)		10	<10/<10	<	10	<	10	<	10	<	01	<	10	<	10
Thionazin (0.0-Diethyl-O-pyrazinyl phosphore	sthioate)	<u> </u>	<10/<10	<	10	Į-	10	-	10	~	10	-	10	-	10
Dissolved Metals (ug/l)			10.10	<u> </u>		-		1.		-		1.:		12.	10
Antimony (Dissolved)		6	<20/<20	<	20	<	20	<	20	<	20	<	20	<	20
• • •	1			1						1		۱۲		1	
Arsenic, (Dissolved)	,	50	7.5]/<[0	1	32 %	<	10L	<	10	<	10	1	6.81.	<	10
Barium, (Dissolved)		2,000	140/130	1	380		630	1	100	1	72	1	370	1	54
Beryllium (Dissolved)		4	<4/<4	<	4	<	4	<	4	<	4	<	4	<	4
Cadmium (Dissolved)		5	<5/<5	1	1.31,	í	3.33	<	5	<	5	1	1.83	<	5
Chromium, (Dissolved)		100	1.8B/1.5B	1	3.7B-	<	10	<	10		1.6B	l	28	1	i.lB
Cobalt (Dissolved)		2,000	<10/<10	<	10	1	28	1	4.6J	<	10	1	2.13	1	1.43
Copper, Dissolved		1,000	<20/<20	<	20	1	131	<	20	<	20	<	20	<	20
Lead, (Dissolved)		5	<5L/<5L	<	51,	<	5L	<	5L	<	5L	<	5L	<	5L
Mercury (Dissolved)		2	<0.2/<0.2	<	0.2	<	0.2	<	0.2	<	0.2	1	0.23	<	0.2
Nickel, (Dissolved)		100	<40/2.2B	1	2.8B	1	221	1	3.2B		8.3B	<	40	1	9.58
Selenium (Dissolved)		50	<10/<10	<	10 "	<	10	<	10	<	10	<	10	<	10
Silver (Dissolved)		100	<10L/<10L	<	10L	-	10	-	IOL	1	10L	Į.	10	<	10L
Thallium (Dissolved)		2	<10L/<10L	<	10L	<	10L	[~	10L	<	10L	~	10L	<	10L
Tin (Dissolved)		61,000	<50/<50	<	50]~	50	<	50	~	50	~	50	<	50
Vanadium (Dissolved)		720	<10/<10	<	10	2	10	(10	2	10	2	10	<	10
Zinc, (Dissolved)		2,000	2.6B/3.3B		98	1	140	1	10 3.2B		103	ľ	78	1	32
				+		+		+-		+		-		+	
Total Dissolved Solids (ug/l)			880/840		7,400	上	6,500	1	580	1_	520	L	470	1	360



	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS≤2,500	1/3	E- 0/2004	45D 3/	/1/2004	1/2	E- 9/2004	46D 3/1	/2004	2/4	E-4 4/2004	47D 3/1	/2004	2	E-48 /2/2004		E-49 27/2004	1/2	E-51 /30/2004
Parameter		Non-Residential					<u> </u>								L		ட	-	Ļ.,	
Volatile Organic Compounds (ug/L) (1)					-															
1,1,1,2-Tetrachloroethane		70 .	<	1 .	<	1	<	1	<	1	٧	1	Ī< ¯	. 1	<	1	<	i	<	1
1,1,1-Trichloroethane		200	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1
1,1,2,2-Tetrachloroethane		0.3	<	1	<	1	<	1	<	1	<	1	<	i	<	ī	<	1	<	1
1.1.2-Trichloroethane		5	<	1	<	1	<	1	 <	1	<	1	<	1	<		<	1	i <	1
1.1-Dichloroethane		110	 <	1	1	0.821	<	1		2.5	<	1	<	1	<	1	<	1		1.3B
1,1-Dichloroethene		. 7	<	i	<	.1	<	i	<	1	<	i	<	1	<	1	<	i	l<	1
1,2-Dibromo-3-chloropropane		0.2	<	1	<	ī	<	i	<	i	<	i	<	1	<	1	<	i	<	í
1,2-Dibromoethane (EDB)		0.05	<	1	<	i	<	i	<	i	<	1	-	i	<	î.	<	ij	<	i
1.2-Dichloroethane		5	-	ì	<	i	<	i	2	i	<	i	[2	i	2	î	<	i	<	i
1,2-Dichloropropane		5	~	i	<	i	~	1	<	1	<	i	2	1	-	i	<	i	<	1
			<		<		~	1	<	_	~		-	_	2				<	1
1,2,3-Trichloropropane		40	t	1	-	1	1	-		1	`	1		í	١٠	1	`	1		-
1,2,4-Trimethylbenzene		35	<	1	1 .	0.27J	<	ı	<	1		0.331	<	1	1	0.341		0.27B	1	0.34
1,3,5-Trimethylbenzene		35	j<	1	<	1	<	1	<	I	<	1	<	3	<	1	<	1	<	1
2-Butanone (Methyl ethyl ketone)		. 5,800	<	10	1	2.7J	<	16	<	10	<	10	<	10	<	10	1	2.43	<	10
2-Hexanone		_(c)	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
3-Chloropropene (Allylchloride)		4!	-	1	<	i	<	1	-	1	<	1	-	1	1	1	<	ĩ	~	i
4-Methyl-2-pentanone (MIBK)		410	<	10	<	10	<	10	<	10	<	10	<	10	1	10	<	10	1	ij
Acetone		10,000	<	25	<	25	<	25	2	25	<	25	<	25	<	25	1	101	<	25
Acetonitrile		350	~	40	<	40	~	40	<	40	<	40	~	40	<	40	1	40	[40
Acrolein (Propenal)		0.12	~	20	<	20	~	20	~	20	<	20	2	20	~	20	W.	712J	1	20
			<														-670		*4	
Acrylonitrile		2.7		20	<	20	<	20	<	20	<	20	<	20	<	20	<	20	 	20
Benzene		5	<	ı	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1
Bromodichloromethane		100	<	ı	<	ī	<	1	<	E	<	1	<	1	<	1	<	1	 <	1
Bremoform		100	<	ı	<	1	<	1	<	ı	<	1	<	1	<	1	, <	ı	<	1
Bromomethane (Methyl Bromide)		10	<	1	<	1	<	ı	<	1	<	I	<	1	<	1	<	1	<	1
Carbon disulfide		4,190	<	1	<	1	<	1	<	1	<	ı	<	1	 <	i	<	1.	<	1
Carbon tetrachloride		5	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	ı
Chlorobenzene		100	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1	[<	1
Chloroethane		900	<	1	<	1	<	1	<	1	<	1	<	ı	<	1	<	1	<	1
Chloroform		100	<	E	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1
Chloromethane (Methyl Chloride)		3	<	1	<	1	<	1	<	1	<	i	<	1	<	1	<	1	<-	1
Chloroprene		41	<	i	<	i	<	ī	<	i	<	i	<	i	<	ī	<	t	<	ī
cis-1,2-Dichloroethene		70	<	1	1	0.55J	<	i	1	3	<	i	<	i	<	i	<	i	T.	i
cis-1.3-Dichloropropene		26	<	i	<	1	<	i	<	1	<	i	<	i	<	i	<	i	<	i
Dibromochloromethane		1 20	~	1	~	î	<	í	-	1	<	í	<	1	<	í	<	i	1	;
Dibromomethane (Methylene bromide)		200	-	1	<	i	<	1	<	i	<	-	<	1	<	1	<	í	[1
Dichlorodifluoromethane		1,000	2	i	~	i	2	1	-	i	<	1	-	ì	<	1	2	1	<	
			,	_	<	-	-	-		_		1		_		_	~	-		i
Ethyl methacrylate		1,800	\<	1	<	1	2	1	<	l	<	1	<	1	<	1		1	<	1
Ethylbenzene		700	<	1		1		1	<	I	<	_	<	1	<	1	<	1	<	1
Iodomethane (Methyl iodide)			<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1
Isobutanol (Isobutyl alcohol)		6,100	<	40	<	40	<	40	<	40	<	40	<	40	<	40	<	40	<	40
Methacrylonitrile		4.1	<	20	<	20	<	20	<	20	<	20	<	20	<	20	<	20	<	
Methyl methacrylate		4,100	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	:
Methylene chloride (Dichloromethane)		5	<	5	<	5	<	5	<	5	<	5	<	- 5	<	5	<	5	<	
Pentachloroethane		\ <u>-</u>	<	5	<	5	<	5	<	5	<	5	<	5	<	5	<	5	<	5
Propionitrile		-	<	20	<	20	<	20	 <	20	<	20	<	20	<	20	<	20	<	2
Styrene		100	<	1	<	1	<	t	<	1	<	1	<	1	<	1	<	1	<	1
Tetrachloroethene		5	<	ı	<	1	<	1	<	1	<	1	1	1.2	<	1	<	1	<	1
Toluene		1,000	<	1	1	198.0	<	i	<	. i	<	1	<	1	<	ī	<	1	<	_
trans-1,2-Dichloroethene		100	<	i	<	1	<	i	<	· î	<	i	<	i	<	i	<	i	<	
trans-1,3-Dichloropropene		26	<	i	<	i	<	1	<	i	<	i	<	1	<	i	<	i	<	
trans-1,4-Dichloro-2-butene		0.069	~	2	<	2	<	2	<	2	<	2	<	2	1	2	~	2	[<	
Trichloroethene		0.069	<	1	<	1		1	~	1	<			1	<	1	1	1	1	-
Trichlorofluoromethane		1	\ <	1	<		<		<		Š	1	<		<	1	<	1	<	
i riciaoromitonemenane		. .		_	{	1 2	\ <	1 2	<	1	- 1	1		1	<	_	ζ.		\<	-
161																				
Vinyl acetate Vinyl chloride		1,200	Y	2 1	<		<	1	<	2 1	< <	2 1	\ <	2 [<	2 1	<	2 1	<	



Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS≤2,500	E- 1/30/2004	45D 3/1/2004	E- 1/29/2004	46D 3/1/2004	E-47D 2/4/2004 3/1/2004	E-48 2/2/2004	E-49 1/27/2604	E-51 1/30/2004
'arameter'	Non-Residential				'	l	<u> </u>		
emivolatile Organic Compounds (ug/l)		 	1- 10	1	1	l. 10 l. 10	1. 10	1	T
1,2,4-Trichlorobenzene 1,2,4,5-Tetrachlorobenzene	70	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10	< 10 < 10 < 10 < 10	< 10	< 10 < 10	< 10 < 10
	31								,
1,2-Dichlorobenzene (o-Dichlorobenzene)	600	< 10 < 10	1				< 10		
1,3,5-Trinitrobenzene	-		< 10 < 10	< 10 < 10			< 10	< 10 < 10	< 10
1,3-Dichlorobenzene (m-Dichlorobenzene)	600 75	1	< 10	< 10 < 10	1		< 10	< 10	< 10 < 10
1,4-Dichlorobenzene (p-Dichlorobenzene)									
1,4-Dioxane	24	< 10	< 10		< 10	< 10 < 10 < 10 < 10		< 10	< 10
1,4-Naphthoquinone	· ••	< 10	< 10	< 10			< 10 < 2,000		< 10
1,4-Phenylenediamine (p-Phenylenediamine)	 .	1 -,				_,		, -,	< 2,000
1-Naphthylamine	1.4 300	< 10				< 10 < 10		< 10 < 10	< 10
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]			-	< 10		< 10 < 10	< 10		< 10
2,3,4,6-Tetrachlorophenol	610	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
2,4,5-Trichlorophenol	10,000	< 10 < 10	< 10 < 10	< 10 < 10	< 10	< 10 < 10 < 10 < 10	< 10	< 10 < 10	< 10
2,4,6-Trichlorophenol	31		1		< 10		< 10		< 10
2,4-Dichlorophenol	29	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
2,4-Dimethylphenol	2,000	< 10	<. 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
2,4-Dinitrophenol	41	< 50	< 50	< 50	< 50	< 50 < 50	< 50	< 50	< 50
2,4-Dinitrotoluene	8.4	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
2,6-Dichlorophenol	<u>.=.</u>	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
2,6-Dinitrotoluene	100	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
2-Acetylaminofluorene	0.68	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
2-Chloronaphthalene	8,200	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
2-Chlorophenol	40	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
2-Methylnaphthalene	2,000	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
2-Naphthylamine	1.4	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
2-Nitroaniline (o-Nitroaniline)	5.8	< 50	< 50	< 50	< 50	< 50 < 50	< 50	< 50	< 50
2-Nitrophenol (o-Nitrophenol)	820	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
2-Picoline		< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
3,3'-Dichlorobenzidine	5.8	< 20	< 20	< 20	< 20	< 20 < 20	< 20	< 20	< 20
3,3'-Dimethylbenzidine	0.28	< 20	< 20	< 20	< 20	< 20 < 20	< 20	< 20	< 20
3-Methylcholanthrene	_	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
3-Nitroattiline (m-Nitroaniline)	5.8	< 50	< 50	< 50	< 50	< 50 < 50	< 50	< 50	< 50
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)		< 50	< 50	< 50	< 50	< 50 < 50	< 50	< 50	< 50
4-Aminobiphenyl	0.12	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
4-Bromophenylphenyl ether		< 10	< 10	< 10 ·	< 10	< 10 < 10	< 10	< 10	< 10
4-Chloro-3-methylpheno! (p-Chloro-m-creso!)	510	< 10	< 10	01 >	< 10	< 10 < 10	< 10	< 10	< 10
4-Chloroaniline (p-Chloroaniline)	410	< 20	< 20	< 20	< 20	< 20 < 20	< 20	< 20	< 20
4-Chlorophenylphenyl ether	-	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
4-Nitroaniline (p-Nitroaniline)	5.8	< 50	< 50	< 50	< 50	< 50 < 50	< 50	< 50	< 50
4-Nitrophenol (p-Nitrophenol)	60	< 50	< 50	< 50	< 50	< 50 < 50	< 50	< 50	< 50
4-Nitroquinoline-1-oxide	-	< 20	< 20	< 20	< 20	< 20 < 20	< 20	< 20	< 20
5-Nitro-o-toluidine	-	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
7,12-Dimethylbenz(a)anthracene		< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Acenaphthene	3,800	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Acenaphthylene	6,100	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Acetophenone	10,000	< 10	1.8J	< 10	< 10	< 10 < 10	< 10	< 10	< 10
alpha,alpha-Dimethyiphenethylamine		< 2,000	< 2,000	< 2,000	< 2,000	< 2,000 < 2,000	< 2,000	< 2,000	< 2,00
Aniline	5.8	< 20	< 20	< 20	< 20	< 20 < 20	< 20	< 20	< 20
Anthracene	66	< 10	< 10	< 10	< 10	< 10 < 10	< 10	0.583	< 10
Aramite, Total		< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 50	< 10
Benzo(a)anthracene	3.6	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Вепло(з)ругене	0.2	0.7J	Č< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Benzo(b) fluoranthene	1.2	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Benzo(g,h,i)perylene	0.26	0.997	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Benzo(k)fluoranthene	0.55	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Benzyl alcohol	31,000	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
bis(2-Chloroethoxy)methane	1	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
bis(2-Chloroethyl)ether	0.55	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
•	1 77			٠,٠		1 1			٠,٠
bis(2-Ethylhexyl)phthalate	1 25	41	< 10	S 10	< 10	< 10 < 10	< 10	< 10	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Butylbenzylphthalate	2,700	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Chrysene	1.9	< 10	< 10	< 10	< 10	< 10 < 10	< 10	0.831	
Cresol (ortho)	5,100	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Cresol, m & p	510	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	S 10
Dialiate, Total	10	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Dibenzo(a,h)anthracene	0.36	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Dibenzofuran	I . .	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Diethylphthalate	5,000	< 10	< 10	< 10	< 10	< 10 < 10	< 10	2.7J	< 10
Dimethoate	20	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Dimethylphthalate	-	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Di-n-butylphthalate	10,000	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Di-n-octylphthalate	2,000	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)	7	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Disulfoton	0.3	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 1
Ethyl methanesulfonate	·	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< i
Ethyl parathion (Parathion)	610	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	
Famphur	""	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< i
Figoranthene	260	0.971	1	< 10	< 10	< 10 < 10	< 10	2.21	< 10
Fluorene	1,900	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 1
Hexachlorobenzene	1,500	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 19
Hexachlorobutadiene	l i	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10
Hexachiorocyclopentadiene	50	< 10	< 10	< 10	< 10	< 10 < 10	< 10	< 10	< 10



Sample ID:	PADEP Act 2 MSCs(b)	[E	45D		Π	E	46D			F-4	47D		_	E-48	Ī	E-49		E-51
Sample Date:		1/	30/2004		/1/2004	1/	29/2004		/1/2004	2/	4/2004		1/2004	2	/2/2004	1/	27/2004		30/2004
Parameter	Non-Residential					-		_		_									
Semivolatile Organic Compounds con'd. (ug/l)		1												_					
Hexachlorophene		<	5,000	<	5,000	<	5,000	 <	5,000	Ĭ~	5,000	i <	5,000	<	5,000	<	5,000	<	5,000
Hexachloropropene		<	10	<	10	<	10	<	10	<	10	<	10	<	10	k	10	<	10
Indeno(1,2,3-cd)pyrene	3.6	<	10	<	10	<	10	<	10	<	10	<	01	<	10	<	10	<	10
Isophorone	100	 <	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Isosafrole	l	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
m-Dinitrobenzene	1	 <	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	to
Methapyrilene	_	 <	2,000	<	2,000	<	2,000	<	2.000	<	2,000	<	2.000	<	2,000	<	2,000	<	2.000
Methyl methanesulfonate	26	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Methyl parathion	2	<	10	<	10	<	10	i <	10	<	10	<	10	<	10	<	10	<	10
Naphthalene	100	<	10	<	10	<	10	<	10	<	10	<	10	<	10	~	10	<	10
Nitrobenzene	51	l<	10	<	10	<	10	<	10	<	10	<	10	-	10	<	10	<	10
N-Nitrosodiethylamine	0.0043	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
N-Nitrosodimethylamine	0.013	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
N-Nitrosodi-n-butylamine	0.11	1	10	<	10	<	10	-	10	~	10	<	10	<	10	~	10	<	10
n-Nitrosodi-n-propylamine	0.37	/~	10	~	10	<	10	-	10	<	10	~	10		10	~	10	<	10
N-Nitrosodiphenylamine	530	<	10	~	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
N-Nitrosomethylethylamine] 330	[10	2	10	<	10	1	10	<	10	<	10	<	10	~	10	<	
N-Nitrosomorpholine	I	-	10	~	10	~	10	-	10	2		~		2	10	~			10
N-Nitrosopiperidine		-	10	~	10	>	10	<			10	<	10	ζ.	-	2	10	<	10
N-Nitrosopytrolidine	- -	<	10	~	10	~	10		10 10	<	10		10		10	<	10	<	10
O,O,O-Triethyl phosphorothioste	· ·	-	10	~	10	<	10	< <		< .	10	<	10	<	10	<	10	<	10
o-Toluidine		-	10			<			10		10	<	10	<	10		10	<	10
p-(Dimethylamino)azobenzene	0.57			۷.۷	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Pentachlorobenzene	1	 <	10		10		10	<	10	<	10	<	10	<	10	<	10	<	10
	82	 <	10	<	. 10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Pentachloronitrobenzene	10	 <	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Pentachlorophenol	1	١<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50
Phenacetin	1,200	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10.	<	10
Phenanthrene	1,100	<	10	<	10	<	10	<	10	<	10	<	10	<	10		1.31	<	10
Phenol	4,000	 <	10	<	10	<	10	<	10	<	10	<	10	<	10	<	. 10	<	10
Phorate	4.1	١	10	<	10	<	10	<	10	<	10	<	10	 <	10	<	10	<	10
Pronamide	50	 <	10	<	10	<	10	<	10	<	10	<	10	 <	10	<	10	<	10
Рутене	130	ł	1.1 J	<	10	<	10	<	10	<	10	<	10	<	10	1	1.83	<	10
Pyridine	20	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50
Satrole		<	10	<	01	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Sulfotepp (Tetraethyl dithiopyrophosphate)	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Thionazin (0.0-Diethyl-O-pyrazinyl phosphorothicate)		<	10	<	10	<	10	<_	10	<	10	<	10	<_	10	<u> </u>	10	<	10
dissolved Metals (ug/l)																			
Antimony (Dissolved)	6	<	20	<	20	<	20	٧	20	٧	20	٧	20	<	20	٧	20	<	20
Arsenic, (Dissolved)	50	<	10L	<	10L	<	IDL	<	102.		5.2L	<	10L	<	10L	<	10	۷.	10L
Barium, (Dissolved)	2,000	1	440	Ι-	450	`	92]	81		83		72	Γ.	34	`	43	`	24
Beryllium (Dissolved)	4	<	4	<	4	<	4	<	4	<	4		0.45]	<	4	<	4		4
Cadmium (Dissolved)	5	<	5	~	5	<	5	-	5	<	5	<	5	2	5	<	5	2	5
Chromium, (Dissolved)	100	2	10	<	10	`	2.8B	`	8)	~	10	<	10	<	10	~	10	>	10
Cobalt (Dissolved)	2.000	1	53		3.6J		2.91	1	1.73	~	10	2	10	2	10	Γ.	3.31	`	
Copper, Dissolved	1,000	1	2.8J	1	3.03 3.1	<	20	<	20	~	20	`	117	{	20	_		۱_	3.5J
Lead, (Dissolved)	5	1	3.2L	-	5L			<				١.				<	20	<	20
Mercury (Dissolved)	2	L	0.2	< <	0.2	<	5L 0.2		5L 0.2	<	5L	<	SL.	<	5L	١.	2.8L	<	\$L
Nickel, (Dissolved)	100	ľ		-		77.7	140	<		15	0.2	≤	0.2	١٢	0.2	< `	0.2	<	0.2
Selenium (Dissolved)		٦	143	1_	9.6B	A.S.		thir?	110		87	122	2,000	١.	15J	1.	24J	١.	16
	50	 <	10	<	10L	 <	10	<	JOL.	<	10	<	10L	<	10	<	10	<	10
Silver (Dissolved)	100	 <	10	<	10	<	10	<	- 10	<	10	<	10	<	10	<	10L	<	10
Thallium (Dissolved) Tin (Dissolved)	2	<	10L	<	10	<	IOL	<	10	<	10L	<	10	<	10L	<	10L	<	10L
		l<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50
	61,000				7.5														
Vanadium (Dissolved)	720	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	.10
					10 6.7B											<		۲	.10 22



	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS <u><</u> 2,500		E-52 26/2004	,	E-53 2/3/200	14	E-54 1/30/2004		E-55 1/30/2004	E-56 2/3/2004	E-57 1/29/2004	E-58 1/26/20	04	 1/27/2004	-59 4	3/1/2004
Parameter	. <u> </u>	Non-Residential	Ļ						1	·				<u>_i</u>			
Volatile Organic Compounds (ug/L) (*)																	
1,1,1,2-Tetrachloroethane		70	<	1	<	: 1	ŀ	< 1	<	1	< 5	< 1	< 1	<	1	₹	1
1,1,1-Trichloroethane		200		2.3	<	: 1	ŀ	< 1	<	1	< 5	< 1	< 1	<	1	<	1
1,1,2,2-Tetrachloroethane		0.3	<	1	<	: 1	_ ·	< ì.	<	1	< 5	< 1	< 1	<	. 1	<	i
1,1,2-Trichloroethane		. 5	<	1	- <	: 1	ŀ	< 1	<	1	< 5	< 1	< ;	<	1	<	1
1,1-Dichloroethane		110	<	1	<			< 1	<		< 5	< 1	< 1	<	1	<	1
1,1-Dichloroethene		7	<	ı	<			< 1	<		< 5	< 1	< 1	<	1	<	1
1,2-Dibromo-3-chloropropane		0.2	<	1	<			< 1	<		< 5	< 1	< 1	<	1	<	1
1,2-Dibromoethane (EDB)	•	0.05	<	1	<			< 1	<		< 5	< 1	< 1	<		<	1
1,2-Dichloroethane		5	<	1	<			< 1	<		< 5	< 1	< 1	<	-	<	1
1,2-Dichloropropane		5	<	1	<		- 1	< 1	<		< 5	< 1	< 1	<	•	<	1
1,2,3-Trichloropropane		40	<	1	<		l'	< 1	<	•	< 5	 < 1	< 1	<	1	<	1
1,2,4-Trimethylbenzene		35	<	1	<			< 1	<		960	23	< 1		0.72B	<	1
1,3,5-Trimethylbenzene		35	<	1	<			< 1	<		< 5	11	< 1		0.321	<	1
2-Butanone (Methyl ethyl ketone)		5,800	<	10	<	: 10	ŀ	< 10	<	10	< 50	j< 10	< 10	<	10	<	10
2-Hexanone		(¢)	<	10	<	. 10	Į.	< 10	<	10	< 50	< 10	< 10	<	10	<	10
3-Chloropropene (Allylchloride)		41	<	1	<	: 1	Į.	< 1	<	t	< 5	< 1	< 1	<		<	1
4-Methyl-2-pentanone (MIBK)		410	<	10	<			< 10	<		< 50	< 10	< 10	<		<	10
Acetone		10,000	<	25	<			< 25	<		< 120	< 25	< 25	<	25	<	25
Acetonitrile		350	<	40	<			< 40	<		< 200	< 40	< 40	<	40	<	40
Acrolein (Propenal)		0.12	<	20	<			< 20	<		< 100	< 20	< 20	<		<	20
Acrylonitrile		2.7	<	20	<			< 20	<		< 100	< 20	< 20	<		<	20
Benzene		5	<	1	<			< j	<		11	< 1	< 1	[<		<	1
Bromodichloromethane		100	<	1	<			< j	<		< 5	< 1	< 1	_{<		<	1
Bromoform	i	100	<	ı	<			< 1	<	_	< 5	< 1	< 1	[<	-	<	1
Bromomethane (Methyl Bromide)		10	<	1	<			< I	<	-	< 5	< 1	< 1	<		<	1
Carbon disulfide		4,100	<	1	<			< 1	<	-	< 5	< 1	< 1	<	-	<	I
Carbon tetrachloride		.s	<	I	<			< !	<		< 5	< 1	< 1			<	I
Chlorobenzene Chloroethane		100 900	<	1				< 1	<		< 5	< 1	< 1	1		<	1
Chloroform	1	900 190	<	i L	<			< 1	< <		< 5 < 5	< 1	< 1		•	<	1
Chloromethane (Methyl Chloride)		100	ζ.	1	5			< 1 < 1	<		< 5 < 5	< 1 < 1	< 1			<	1
Chloropreue (Methyl Chloride)		41	2	1	<			< 1	<	-	< 5	< 1 < 1	< 1			<	1
cis-1,2-Dichloroethene		70	2					< 1	<	-	< 5	< i	< 1	[< <	1
cis-1,3-Dichloropropene	1	26	~	ì		-		< 1	(-	< 5	< 1	< 1		•	<	1
Dibromochioromethane			~	i	<			< 1	1	-	< 5	2 1	< i	[-	i
Dibromomethane (Methylene bromide)	1	200	~	i	<			< 1	<		< 5	< 1	< 1	[~	i
Dichlorodilluoromethane		1,000	<	i	<			< 1	<		< 5	< i	< 1			<	i
Ethyl methacrylate		1,800	<	i			- 1	< i	<		< 5	< i	< i	[<		<	1
Ethylbenzene		700	<	i	<			< 1	<		430	1.3	< i]<		<	i
Iodomethane (Methyl iodide)		_	<	1	<	: 1	- [.	< 1	<	1	< 5	< 1	< i			<	i
Isobutanol (Isobutyl alcohol)		6,100	<	40	<	: 40	. J.	< 40	<	40	< 200	< 40	< 40			<	40
Methacrylonitrile		4.1	<	20	<	20	·	< 20	<	20	< 100	< 20	< 20		20	1	20
Methyl methacrylate		4,100	<	3	<	: 1	- 1	< 1	<		< 5	< 1	< 1	-	: 1	<	1
Methylene chloride (Dichloromethane)		5	<	5	<			< 5	<		< 25	< 5	< 5	<	: 5	<	5
Pentachloroethane		-	<	5	<			< 5	<		< 25	< 5	< 5	<	: 5	<	5
Propionitrile			<	20	<			< 20	<		< 100	< 20	< 20			<	20
Styrene		100	<	1	<	-		< 1	<		< 5	3.6	< i			<	1
Tetrachlomethene		5	<	1	<	-		< i	<		< 5	< 1	< 1	<		<	1
Toluene	·	1,000	<	1	<			< 1	<		< 5	< 1	< 1	-		<	1
trans-1,2-Dichloroethene		100	<	1	<			< 1	<		< 5	< 1	< 1	ا ا		<	1
trans-1,3-Dichloropropene		26	<	1	<	_		< 1	<		< 5	< 1	< 1			<	1
trans-1,4-Dichloro-2-butene		0.069	<	2	<			< 2	<	_	< 10	< 2	< 2	<		<	2
Trichloroethene		5	<	1	<			< 1	<		< 5	< 1	< 1			<	1
Trichlorofluoromethane Vinyl acetate		-	<	1	<			< 1	<		< 5	< 1	< 1	١		<	1
Vinyl acetate Vinyl chloride		1,200	<	2				< 2	<	_	< 10	< 2	< 2		_	<	2
		2		1	<			< 1	<		< 5	< 1	< 1			<	1
Xylenes, Total		0,00,01	<	2	<	: 2	_	< 2	<u> </u>	2	34	9.8	< 2	k	2	<	2



Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS<2,500	E-52 1/26/20		E-53 2/3/2004		-54 /2004	E-55 1/30/2004	E-56 2/3/2004		-57 1/2004	E-58 1/26/2004		E- 1/27/2004	3/1/20
rameter	Non-Residential	├					<u> </u>					丄		
nivolatile Organic Compounds (ug/l) 2,4-Trichlorobenzene	70	< 10		< 10	<	10	< 10	< 10	١,,	10	< 10	_		10
,2,4,5-Tetrachlorobenzene	31	< 10		< 10	2	10			< <	10		<	10	< 10
,2-Dichlorobenzene (o-Dichlorobenzene)					<					10	< 10		10	< 10
.3.5-Trinitrobenzene	600			< 10		10	< 10	< 10	<	10	< 10	 	10	< 10
		< 10		< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
,3-Dichlorobenzene (m-Dichlorobenzene)	600	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
,4-Dichlorobenzene (p-Dichlorobenzene)	75	< 10		< 10	<	10	4.2.1	< 10	<	10	< 10	<	10	< 10
,4-Dioxane	24	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
,4-Naphthoquinone	· –	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
,4-Phenylenediamine (p-Phenylenediamine)	-	< 2,00		< 2,000		2,000	< 2,000	< 2,000		2,000	< 2,000	<	2,000	< 2,000
-Naphthylamine	1.4	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	300	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
,3,4,6-Tetrachlorophenol	610	< 10		< 10	<	10	< 10	< 10	<	01	< 10	<	10	< 10
,4,5-Trichlorophenol	10,600	< 10		< 10	<	10	< 10 .	< 10	<	10	< 10	<	10	< 10
.4,6-Trichlorophenol	31	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
,4-Dichlorophenol	20	< 10		< 10	<	10	< 10	< 10	<	10	< 10	(<	10	< 10
.4-Dimethylphenol	2,000	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
.4-Dinitropheno!	41 '	< 50)	< 50	<	50	< 50	< 50	<	50	< 50	<	50	< 50
,4-Dinitrotoluene	8.4	< 10)	< 10	<	10	< 10	< 10	<	16	< 10	<	10	< 10
,6-Dichlorophenol		< 10) [< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
,6-Dinitrotoluene	100	< 10	,	< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
-Acetylaminofluorene	0.68	< 10	ا ر	< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
-Chioronaphthalene	8,200	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
-Chlorophenol	40	< 10		< 10	<	10	< 10	< 10	~	10	< 10	<		< 10
-Methylnaphthalene	2,000	< 10		< 10	<	10	< 10	< 10	~	10	< 10	<		< 10
-Naphthylamine	1.4	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
-Nitroaniline (o-Nitroaniline)	5.8	< 50		< 50	<	50	< 50	< 50	<	50	< 50	<		< 50
-Nitrophenol (a-Nitrophenol)	820	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
-Picoline		< 10		< 10	<	01	< 10	< 10	[~	10	< 10	<		< 10
,3'-Dichlorobenzidine	5.8	< 20		< 20	<	20	< 20	< 20	<			<		
,3'-Dimethylbenzidine	0.28	< 20		< 20	<	20				20				< 20
-Methylcholanthrene					-			< 20	<	20	< 20	<		< 20
		< 10 < 50				10	< 10	< 10	 <	10	< 10	<		< 10
-Nitroaniline (m-Nitroaniline)	5.8			< 50	<	50	< 50	< 50	<	50	< 50	<		< 50
,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)		< 50		< 50	< .	50	< 50	< 50	<	50	< 50	<		< 50
-Aminobiphenyl	0.12	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
-Bromophenylphenyl ether	I	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
-Chloro-3-methylphenol (p-Chloro-m-cresol)	\$10	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
-Chloroaniline (p-Chloroaniline)	410	< 20		< 20	 <	20	< 20	< 20	<	20	< 20	<		< 20
-Chlorophenylphenyl ether		< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
-Nitroaniline (p-Nitroaniline)	5.8	< 50		< 50	<	50	< 50	< 50	<	50	< 50	<		< 50
-Nitrophenol (p-Nitrophenol)	60	< 50		< 50	<	50	< 50	< 50	<	50	< 50	<	\$0	< 50
-Nitroquinoline-1-oxide	-	< 20	j	< 20	<	20	< 20	< 20	<	20	< 20	<	20	< 20
-Nitro-o-toluidine	[< 10	o	< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
,12-Dimethylbenz(a)anthracene	ļ -	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
Acenaphthene .	3,800	< 10	a	< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
icenaphthylene	6,100	< 10	3	< 10	<	10	< 10	< 10	<	- 10	< 10	<	10	< 10
cetophenone	10,000	< 10	0	< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
lpha,alpha-Dimethylphenethylamine	-	< 2,00	00	< 2,000	< 2	2,000	< 2,000	< 2,000	<	2,000	< 2,000	 <-		< 2,00
miline	5.8	< 20	0	< 20	<	20	< 20	< 20	<	20	< 20	<		< 20
Anthracene	66	< 10	0	< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
tramite, Total	l	< 10	0	< 10	<	01	< 10	< 10	<	10	< 10	<		< 10
Benzo(a)anthracene	3.6	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
Зепго(а)рутеле	0.2	< 10		< 10	<	10	< 10	< 10	-	10	< 10	<		< 10
Benzo(b)fluoranthene	1.2	< 10		< 10	<	10	< 10	< 10	-	10	< 10	<		< 10
enzo(g,h,i)perylene	0.26	< 10		< 10	<	10	< 10	< 10	-	10	< 10	<		0.9
Benzo(k)fluoranthene	0.55	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
lenzyl alcohol	31,000	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
is(2-Chloroethoxy)methane		< 10		< 10	<	10	< 10	< 10	~	10	< 10	~		< 11
is(2-Chloroethyl)ether	0.55	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
· ·		-			1		1		1		1	- 1		
is(2-Ethylhexyl)phthalate	6	< 10	_	< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
lutyibenzylphthalate	2,700	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
hrysene	1.9	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
Cresol (ortho)	5,100	< 10	0	< 10	<	10	< 10	< 10	 <	10	< 10	<	10	< 10
iresol, m & p	510	< 10	0	< 10	<	10	< 10	< 10	<	10	< 10	<	10	< 10
riallate, Total	10	< 10	0	< 10	<	10	< 10	< 10	<	10	< 10	<		< 1
ribenzo(a,h)anthracene	0.36	< 10	0	< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
ibenzofuran	-	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 1
iethylphthalate	5,000	< 10	0	< 10	<	10	< 10	< 10	<	10	< 10	<		< i
rimelhoate	20	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 1
limethylphthalate	I ==	< 10		< 10	<	10	< 10	< 10	<	10	< 10	<		< 1
li-n-butylphthalate	10,000	< 10		< 10	-	10	< 10	< 10	<	10	< 10	1		< 1
i-n-octylphthalate	2,000	< 10		< 10	<	10	< 10	< 10	·[``	10	< 10			< 1
inoseb (2-sec-Butyl-4,6-dinitrophenol)	7	< 10		< 10	<	10						- 1		
omoseo (2-sec-muyi-4,6-cunurophenoi) Disulfoton				< 10				< 10	\ <u>`</u>	10	< 10	\		< 1
	0.3		-		<	10	< 10	< 10	<	10	< 10	<		< 1
thyl methanesulfonate		< 10		< 10	 <	10	< 10	< 10		10	< 10	<		< 1
thyl parathion (Parathion)	610	< 16		< 10	<	10	< 10	< 10	<	10	< 10	<		< 1
amphur		< 1		< 10	<	10	< 10	< 10	<	10	< 10	<	•	< 10
luoranthene	260	< 10	٥	< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
luorene	1,900	< 10	0	< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
the contract of the contract o	1	_		< 10	<	10	< 10	< 10	<	10	< 10	<		< 10
(exach)orobenzene	1	~ I												
		< 19	-			10			<					_
lexachlorobenzene lexachlorobutadiene lexachlorocyclopentadiene	E .	< t	-		< <.	10 10		< 10 < 10	< <	10 10	< 10	<	10	< 1 < 1



Sample ID	PADEP Act 2 MSCs(b)	Т	E-52	Г	E-53	Γ	E-54	Г	E-55	E-56		E-57	Т	E-58		F	-59	
Sample Date		1/	26/2004	2	/3/2004	1/	/30/2004		30/2004	2/3/200	4 l	1/29/2004	1	/26/2004	1	/27/2004		3/1/200
Parameter	Non-Residential	1 "		1 -		1 "			,		`		^		1			37 17200
Semivolatile Organic Compounds con'd. (ug/l)		1		_		_		-					_		_			
Hexachlorophene	-	<	5,000	<	5,000	<	5,000	<	5.000	< 5,00	٥١	< 5,000	<	5,000	<	5,000	l<	5,000
Hexachloropropene		<	10	<	10	<	10	<	10	< 10		< 10	<	01	<	10	<	10
Indeno(1,2,3-cd)pyrene	3.6	<	10	<	10	<	10	<	10	< 10		< 10	<	10	<	10	~	01
Isophorone	100	<	10	<	10	<	10	<	10	< 10	- 1	< 10	-	10	<	10	-	10
Isosafrole	1	<	10	<	10	<	10	<	10	< 10		< 10	<	10	<	10	<	10
m-Dinitrobenzene	l t	<	10	<	10	<	10	<	10	< 10		< 10	<	10	<	10	<	10
Methapyrilene	1	<	2,000	<	2,000	<		<	2.000	< 2.00		< 2,000	<	2,000	~	2.000		2.000
Methyl methanesulfonate	26	اج	10	~	10	~		١ <u>.</u>	10	< 10		< 10	~	10	2	10	2	10
Methyl parathion	2	<	10	<	10	<	10	-	10	< 10		< 10	<	10	<	10	<	10
Naphthalene	100	<	10	~	10	<	10	<	10	18		< 10	<	10	~	10	~	10
Nitrobenzene	51	-	10	2	10	~	10	[10	< 10		< 10	~	10	~	10	2	10
N-Nitrosodiethylamine	0.0043	-	10	-	10	<		{	10	< 10		< 10	~	10	[10	2	10
N-Nitrosodimethylamine	0.013	<	10	2	10	<		k	10	< 10		< 10	~	10	<	10	~	
N-Nitrosodi-n-butylamine	0.61	-	10	<	10	<	10	<	10	< 10		< 10	<	10	<	10	[10
n-Nitrosodi-n-propylamine	0.37	[2	10	~	10	~	10	2	10	< 10		< 10 < 10	<	10	<			10
N-Nitrosodiphenylamine	S30	\ <u>.</u>	10	~	. 10	~	10	2	10	< 10		< 10 < 10	<	10	<	10	<	10
N-Nitrosomethylethylamine	550		10	~	10	~	10	[10		- 1		<	-	<	10	<u> </u>	10
N-Nitrosomorphotine		2	10	<	10	<	10	<	10			< 10 < 10		10	<	10	<	10
N-Nitrosopiperidine	-	2	10	~	10	~	10	{	10			• -	<	10		01	<	10
N-Nitrosopymolidine	-	k	10	~	10	~		2		< 10		< 10	<	10	<	10	<	10
O ₂ O ₃ O-Triethyl phosphorothioate	_	~					10		10	< 10		< 10	<	10	<	10	<	10
o-Toluidine	111	<	10	<	10	<	10	<u> </u>	10	< 10		< 10	<	10	<	10	<	10
p-(Dimethylamino)azobenzene			10		10	<	10	<	10	< 10		< 10	<	10	<	10	<	10
Pentachiorobenzene	0.57	 <	10	<	10	<	LO	<	10	< 10		< 10	<	10	<	. 10	<	10
Pentachioronitrobenzene	82	<	10	<	10	<	t0	<	10	< 10		< 10	<	10	<	10	<	10
	10	<	10	<	10	<	10	<	10	< 10		< 10	<	10	<	10	<	01
Pentachlorophenol Phenacetin	1	<	50	<	50	<	50	<	50	< 50		< 50	 <	50	<	50	<	50
Phenanthrene	1,200	<	10	 <	10	<	10	<	10	< 10		< 10	<	10	<	10	<	10
	1,100	<	10	<	10	<	10	<	10	< 10		< 10	<	10	<	10	<	10
Phenol	4,000	<	10	<	10	<	10	<	10	< 10		< 10	<	10	<	10	<	10
Phorate	4.1	 <	10	<	10	<	10	<	10	< 10		< 10	<	10	<	TO	<	10
Pronamide	\$0	<	10	<	10	<	10	<	10	< 10		< 10	<	10	<	10	<	10
Pyrene	130	<	10	<	10	<	10	<	10	< 10		< 10	<	10	<	10	<	10
Pyridine	20	<	50	<	50	<	50	<	50	< 50		< 50	<	50	<	50	<	50
Safrole	1 -	<	10	<	10	<	10	<	10	< 10		< 10	<	10	<	10	<	10
Sulfotepp (Tetraethyl dithiopyrophosphate)	10	<	10	<	10.	<	10	<	10	< 10		< 10	<	01	<	10	<	10
Thionazin (0,0-Diethyl-O-pyrazinyl phosphorothioate)	<u></u>	<	10	<	10	<	10	<_	10	< 10		< 10	<u> </u> <	10	<	10	<	10
Dissolved Metals (ug/l)		丄						1										
Antimony (Dissolved)	6	<	20	<	20	<	20	 	20	< 20		< 20	<	20	<u>_</u>	20	<u> </u> <	20
Arsenic, (Dissolved)	50	<	10	<	10L	<	10	1	47L	< 101	- 1	< 10L	<	10	<	10		5.6L
Barium, (Dissolved)	2,000	1	41	1	39	ľ	37	1	270	350		110	`	66	Γ.	190	ĺ	200
Beryllium (Dissolved)	4	-	4	<	4	<	4		4	< 4	Ί	< 4	<	4	<	4	<	
Cadmium (Dissolved)	5	ĮŽ.	5	2	5	~	5	<	5	< 5		< 5	~	5	~			4
Chromium, (Dissolved)	100	-	10	<	10	~	10	-	10	1.61		< 10	<	10	١^	5 1.7B	 <	5
Cobalt (Dissolved)	2,000		3.7J	<	10	<	10	<	10	< 10		< 10	~				<	10
Copper, Dissolved	1,000	1	43	<	20	<	20	<	20	< 20		< 20	<	10	L	17	١	1.73
Lead, (Dissolved)	5	1	3.2L	<	5L		3.91	-	5L ·	< 5L				20	<	20	 	20
Mercury (Dissolved)	2		3.2L 0.2	<	0.2	<	3.9i., 0.2	\ -					<	5L	<	SL	 <	5L
Nickel, (Dissolved)	100	1~	56	ľ	0.2 2.7J	1		١٩	0.2			< 0.2	<	0.2	<	0.2	 <	0.2
Selenium (Dissolved)	50	l,		<		L	19.2	L	3.2J			3.91	<	40	<	40	<	40
Silver (Dissolved)	100	1.	101		10	\ <u>`</u>	10	 <	10	< 10		< 10	<	10	<	10	<	101
Thallium (Dissolved)		< <	IOL	<	10	<	10	<	10	< 10		< 10	<	10L	<	10L	<	10
Tin (Dissolved)	2.		IOL	<	10L	<	10L	<	101	< 101		< 10L	<	10L	<	10L	<	10
Vanadium (Dissolved)	61,000	 <	50	<	50	<	50	<	50	< 50		< \$0	<	50	<	50	<	50
	720	<	10	<	10	<	10	<	10	< 10		< 10	1	0.87B	<	10	<	10
Zinc, (Dissolved)	2,000	+	25	\vdash	6.3B	ـ	7.78	Ļ	2.8B	2.81	3	6.8B	1	6.2B	↓_	_3.1B		9.65
otal Dissolved Solids (ug/l)	l	1	1,100	1	1,100	1	430	Į.	470	2,20	oΙ	650	1	460	1	720	1	NA.



	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS≤2,500	1/2	E 27/2004	E-60 3	/1/2004	1/	E 28/2004	-61 3/:	2/2004	1/	E- /29/2004	-62 3/	2/2004		E 1/26/2004	-63	3/2/2004		MW-F1 1/4/2004
Parameter		Non-Residential	<u> </u>				Ц.,				L_				<u> </u>					
Volatile Organic Compounds (ug/L) (a)			1																	
1,1,1,2-Tetrachloroethane		70	<	1 -	<	ŧ	<	1	<	1	<	1	<	i	٧	1	<	1	<	1
1,1,1-Trichloroethane		200	 <	1	<	ı	<	1	<	1	<	1	<	1	<	1	<	1	<	1
1,1,2,2-Tetrachloroethane		0.3	 <	1	<	L L	<	1	<	1	<	1	<	1	<	1	<	1	<	i
1,1,2-Trichloroethane		5	<	1	<	1	<	1	< ·	1	<	1	<	ŧ	<	1	<	i	<	i
1,1-Dichloroethane	ļ	110	<	1	<	ı	<	1	<	1	<		<	1	 <		<	i	<	ì
1,1-Dichloroethene	!	7	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	i.
1,2-Dibromo-3-chloropropane	1	0.2	l<	1	<	i	<	1	<	1	<	ī	<	i	<	- 1	-	i	<	1
1,2-Dibromoethane (EDB)		0,05	<	1	<	2	<	1	 <	1	<	1	<	i	<		<	i	~	i
1,2-Dichloroethane	1	5	<	1	<	i	<	1	<	1	<	i	<	i	 <		l<	i	\ <u></u>	i
1,2-Dichloropropane		5	<	1	<	i	<	1	 <	1	<	ì	<	i	<		<	i	<	i
1,2,3-Trichloropropane		40	l<	1	<	1	<	ì	<	ī	<	i	<	i	1		۷	i	<	í
1,2,4-Trimethylbenzene	į.	35		10		0.723		0.8B	<	1		0.521	l	0.23B	1	0.4B		B12.0	1	-
1,3,5-Trimethylbenzene		35	ŀ	6.8		0.593		0.23J	[2	1		0.38J	l_		<		<		1	0.76J
2-Butanone (Methyl ethyl ketone)		5,800	1	11	<	10		10	<	10		0.38J 2.6J	<	1 01	1		<	10	L	0.28J
2-Hexanone		(c)	١.				1						Į.		1			10	 <	10
			 <	10	<	10	<	10	<	10	<	10	<	10	<		<	10	<	10
3-Chloropropene (Allylchloride)		41	<	1	<	1	<	1	<	1	<	1	<	1	<		<	1	<	1
4-Methyl-2-pentanone (MIBK)		410	<	01	<	01	<	10	<	10	<	10	<	10	<		<	10	<	10
Acetone		10,000 .	<	25	<	25	<	25	<	25	<	25	<	25	<		<	25	<	25
Acetonitrile		350	<	40	<	40	<	40	<	40	<	40	<	40	<		<	40	<	40
Acrolein (Propenal)		0.12	<	20	<	20	<	20	<	20	<	20	<	20	<		<	20	<	20
Acrykonitrile		2.7	<	20	<	20	<	20	<	20	<	20	<	20	<	20	<	20	<	20
Benzene	J	5	<	1	<	1	<	1	<	1	<	1	<	1	<		<	1	<	1
Bromodichloromethane		100	<	1	<	1	<	1	<	1	<	1	<	1	<		<	1	<	1
Bromoform	ļ	100	<	ŧ	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1
Bromomethane (Methyl Bromide)	1	10	<	ı	<	1	<	1	<	1	<	1	<	1	<		<	1	<	E
Carbon disulfide	1	4,100	<	1	<	1	<	1	<	1	<	1	<	1	<		<	1.] <	
Carbon tetrachloride	'	5	<	i	<	1	<	1	<	1	<	1	<	1	<	i	<	1 .	<	1
Chlorobenzene		100	<	1	<	1	<	1	<	1	<	1	<	1	<		<	. 1	<	1
Chloroethane		900	<	1	<	1	<	1	<	1	<	1	<	1	<	l l	<	1	<	1
Chloroform		100	<	I	<	1	<	1	<	1	<	1	<	1		2.9	<	1	<	1
Chloromethane (Methyl Chloride)		3	<	1	<	1	<	1	<	1	<	1	<	1	<	1 1	<	1	<	1
Chloroprene		41	<	E	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1
cis-1,2-Dichloroethene		70	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1
cis-1,3-Dichloropropene		26	<	ł	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1
Dibromochloromethane			<	I .	<	L	<	1	<	1	<	1	<	1	<	1	<	1	<	1
Dibromomethane (Methylene bromide)		200	<	ł	<	ı	<	1	<	1	<	1	<	1	<	1	<	1	<	1
Dichlorodifluoromethane		1,000	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1
Ethyl methacrylate		1,800	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1	<	1
Ethylbenzene		700	1	1.4		0,771	<	1	<	1	<	1	<	1			<	1	<	1
Iodomethane (Methyl iodide)			<	1	<	1	<	1	<	1	<	1	<	1	<		<	1	<	1
Isobutanol (Isobutyi alcohol)		6,100	<	40	<	40	<	40	<	40	<	40	<	40	<		<	40	<	40
Methacrylonitrile		4.1	<	20	<	20	<	20	<	20	<	20	<	20	<		<	20	<	20
Methyl methacrylate		4,100	<	1	<	1	<	1	<	1	<	1	<	1	<		<	1	<	1
Methylene chloride (Dichloromethane)	1	5	<	5	<	5	<	5	<	5	<	5	<	5	<		<	5	<	5
Pentachloroethane		••	<	5	<	5	<	5	<	5	<	5	<	5	<		<	5	<	5
Propionitrile			<	20	<	20	<	20	<	20	<	20	<	20	<		< .	20	<	20
Styrene		100	<	1	<	1	<	1	<	1	<	i	<	i	 <		<	1	<	1
Tetrachloroethene		5	<	i	<	ı	<	1	<	1	<	I	<	ì	<		<	1	<	1
Toluene		000,1	<	1	<	ı	<	1	<	1	<	ı	<	1	1		<	1	<	1
trans-1,2-Dichloroethene		100	<	1	<	ı	<	1	<	1	<	1	<	ŧ	<	-	<	1	<	1
trans-1,3-Dichloropropene	1	26	<	ı	<	1 -	<	1	<	1	<	1	<	1	<		<	1	<	1
trans-1,4-Dichloro-2-butene		0.069	<	2	<	2	<	2	<	2	<	2	<	2	<		<	2	<	2
Trichloroethene		5	<	1	<	1	<	1	<	1	<	1	<	1	<		<	. 1	<	1
Trichiorofluoromethane			<	1	<	2	<	1	<	1	<	1	<	1	<		<	1	<	1
Vinyl acetate		1,200	<	2	<	2	<	2	<	2	<	2	<	2	<		<	2	<	2
	1		<			1	<			1		1		1	<		<	1	<	1
Vinyl chloride Xylenes, Total		2 10,000	<	1 1.8J	< <	i 2		1 1,4J	< <	1 2	<	1 2	< <	! 2	<		< <		< <	



Sample ID: Sample Date: Parameter	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS≤2,500 Non-Residential	1/2	1 27/2004	E-60 3	/1/2004	1/2	E 28/2004	-61 3/	/2/2004	1/2	E 29/2004	-62 3/	2/2004	1	1/26/200	E-63 4	3/2/2004		MW-F1 2/4/2004
Semivolatile Organic Compounds (ug/l)	Transcount .	士				<u>-</u>				—			• • • •	_					
1,2,4-Trichlombenzene	70	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
1,2,4,5-Tetrachlorobenzene	31	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
1,2-Dichlorobenzene (o-Dichlorobenzene)	600	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
1,3,5-Trinitrobenzene		<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
1,3-Dichlorobenzene (m-Dichlorobenzene)	600	<	10	<	10	<	ιó	<	30	<	10	<	10	<	10	<	10	<	10
1,4-Dichlorobenzene (p-Dichlorobenzene)	75	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
1,4-Dioxane	24	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
1,4-Naphthoquinone	_	<	10	<	10	<	10	<.	10	<	10	<	10	<	10	<	10	<	10
1,4-Phenylenediamine (p-Phenylenediamine)		<	2,000	<	2,000	<	2,000	<	2,000	<	2,000	<	2,000	<	2,000	<	2,000	<	2,000
1-Naphthylamine	1.4	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	300	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	~	10
2,3,4,6-Tetrachlorophenol	610	-	10	<	01	[<	10	<	10	<	10	2	10	2	10	~	10	<	10
2,4,5-Trichlorophenol	10,000	<	10	<	10	<	10	<	10	<	10	<	10	1	10	<			
2,4,6-Trichlorophenol	31	- -	10	<	10	<	10	<	10	<		<		<		~	10	 <	10
		<									10		10	,	10		10	<	10
2,4-Dichlorophenol	20		10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
2.4-Dimethylphenol	2,000	<	10	۲.	- 10	<	10	<	10	<	10	<	ŧ0	<	10	<	10	<	10
2.4-Dinitrophenol	41	<	50	<	50	<	50	<	50	<	50	<	\$0	<	50	<	50	<	50
2,4-Dinitrotoluene	8.4	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	01
2,6-Dichlorophenol	_	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
2,6-Dinitrotoluene	100	<	10	<	10	<	10	<	10	<	10	<	10	<	01	<	10	<	10
2-Acetylaminofluorene	0.68	<	10	<	10	<	10	 <	10	<	10	<	10	<	10	<	10	<	10
2-Chloronaphthalene	8,200	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
2-Chlorophenol	40	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
2-Methylnaphthalene	2,000	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
2-Naphthylamine	1.4	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
2-Nitroaniline (o-Nitroaniline)	5.8	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50
2-Nitrophenol (o-Nitrophenol)	820	<	10	<	10	<	10	-	10	<	10	<	10	<	10	<	10	<	10
2-Picoline		<	10	<	10	~	10	~	10	<	10	<	10	<	10	<	10	<	
3,3'-Dichlorobenzidine	5.8	<	20	<	20	~	20	<	20	<	20	<	20	<	20	<	20		10
3,3'-Dimethylbenzidine	0.28	<	20	<	20	<	20	<	20	<	20	<	20	<	20	<		<	20
	U,28																20	<	20
3-Methylcholanthrene	Ι	<	10	<	10	<	10	<	10	<	10	<	10	<	01	<	10	<	10
3-Nitroaniline (m-Nitroaniline)	5.8	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)		<	50	<	50	<	50	<	50	<	50	<	50	~	50	<	50	<	50
4-Aminobiphenyl	0.12	<	10	<	10	 <	10	<	10	<	10	<	10	<	10	<	10	<	10
4-Bromophenylphenyl ether		<	10	<	01	<	10	<	10	<	10	<	10	<	10	<	10	<	10
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	510	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
4-Chloroaniline (p-Chloroaniline)	410	<	20	<	20	<	20	<	20	<	20	<	20	<	20	<	20	<	20
4-Chlorophenylphenyl ether		<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
4-Nitroaniline (p-Nitroaniline)	5.8	<	50	<	50	<	50	<	50	<	50	<	50	1	50	<	50	~	50
4-Nitrophenol (p-Nitrophenol)	60	~	50	~	50	<	50	<	50	<	50	<	50	[<	50	<	50		
4-Nitroquinoline-1-oxide		~		~		<				<								<	50
	-		20		20		20	<	20		20	<	20	<	20	<	20	<	20
5-Nitro-o-toluidine		 <	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
7,12-Dimethylbenz(a)anthracene	•	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Acenaphthene	3,800	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Acenaphthylene	6,100	<	10	<	10	< ·	10	<	10	<	10	<	10	<	10	<	10	<	10
Acetophenone	10,000	<	10	<	10	<	10	<	10	<	10	<	10	<	01	<	10	<	10
alpha,alpha-Dimethylphenethylamine	-	<	2,000	<	2,000	<	2,000	<	2,000	<	2,000	<	2,000	<	2,000	<	2,000	<	2,000
Aniline	5.8	<	20	<	20	<	20	<	20	<	20	<	20	<	20	<	20	<	20
Anthracene	66	<	10	<	10	<	10	<	10	1	0.55J	<	10	<	10	<	10	<	10
Aramite, Total	••	<	10	<	10	<	10	<	10	<	10	<	01	<	10	<	10	<	10
Benzo(a)anthracene	3.6	<	10	<	10	<	10	<	10	1	0.81J	<	10	<	10	<	10	<	10
Benzo(a)pyrene	0.2	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Benzo(b)fluoranthene	1.2	~	10	<	10	<	10	-	10	~	10	2	10	~	10	~	10		
Benzo(g,h,i)perylene	0.26	~	10	<	10		10	<	10	~	10	<		<	10	<		5	10
													10				10	\ <u></u>	10
Benzo(k)fluoranthene	0.55	\ <u><</u>	10	<	10	\ <u></u>	60	<	10	<	10	<	10	<	10	<	10	<	10
Benzyl alcohol	31,000	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<u><</u>	10	<	10
bis(2-Chloroethoxy)methane	_ _ _	<	10	<	10	<	10	<	10	<	10	<	10	<	10		10	<	10
bis(2-Chloroethyl)ether	0.55	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	01	<	10
bis(2-Ethylhexyl)phthalate	6	<	10	<	10	<	10	<	10	<	10	<	10	<	01	<	10	<	10
Butylbenzylphthalate	2,700	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Chrysene	1.9	<	10	<	10	<	10	<	10	1	0.781	<	10	<	10	<	10	<	10
Cresol (ortho)	5,100	<	10	<	10	<	10	-	10	<	10	<	10	<	10	<	10	<	10
Cresol, m & p	510	<	10	2	10	<	10	<	10	<	10	~	10	<	10	2	10	<	10
Dialtate, Total	10	<	10	~	10	<	10	<	10	<	10	<	10	<	10	<			
																	10	<	10
Dibenzo(a,h)anthracene	0.36	 <	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Dibenzoluran	<u>. . .</u> .	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	01	<	10
Diethylphthalate	5,000	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Dimethoate	20	<	10	<	10	[<	10	<	10	<	10	<	10	<	10	<	10	<	10
Dimethylphthalate	-	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Di-n-butyiphthalate	10,000	<	10	<	10	<	10	<	10	<	10	<	01	<	10	<	10	<	10
Di-n-octylphthalate	2,000	<	10	<	10	<	10	<	10	<	10	<	01	<	10	<	10	~	10
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)	7	<	10	<	10	<	10	. 2	10	<	10	<	10	<	10	<	10	<	
Disulfaton	0.3	<	10	<	10	<	10	~	10	<	10	<	10	<	10	<			
Ethyl methanesulfonate																	10	<	10 .
		<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Ethyl parathion (Parathion)	610	<	10	<	10	<	10	<	10	<	10	<	10	<	10	 < ,	10	<	10
Famphur	-	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Fluoranthene	260	<	10	<	10	ſ	1.51	<	10		0.651	<	10	<	10	<	10	<	10
Fluorene	1,900	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Hexachiorobenzene	1	<	10	<	10	<	10	14	10	<	10	-	10	1<	10	<	10	~	10
				1 .		1.1		4 1				1.5		4 -		1 -			
	1	le l	10	· ·	10	e	I ID	100	10	4	ıń	اح ا	10	-	10	-	10	-	10
Hexachlorobutadiene Hexachlorocyclopentadiene	1 50	< <	10 10	< <	10 10	< <	10 10	< <	10 10	< <	10 10	<	10 10	< <	10 10	<.	10	<	10 10



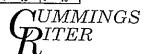
	Sample ID:	PADEP Act 2 MSCs(b)		5	-60		Į.	E	-61			E	-62			Ε	-6 3		1	MW-F
	sample Date:	Used Aquifers, TDS≤2,500	1/	27/2004	3	3/1/2004	1/2	28/2004	3	3/2/2004	17	29/2004	3	/2/2004	1	1/26/2004		3/2/2004	2	2/4/200
Parameter		Non-Residential	┞								_								<u>_</u>	
Semivolatile Organic Compounds con'd. (ug/l)			 		1.		Ι.												_	
Hexachlorophene Hexachloropropene			<	5,000	<	5,000	<	5,000	<	5,000	٧	5,000	<	5,000	<	5,000	<	5,000	<	5,0
Indeno(1,2,3-cd)pyrene		-	<	10	<	10	< <	10	 	10	٧.	10	<	10	<	10	<	10	<	10
		3.6	2	10		10		10	<	10	<	10	<	10	<	10	<	10	<	10
Isophorone		100	17	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
Isoszfrole		.	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	К
m-Dinitrobenzene		I	<	10	<	1,0	<	10	<	10	<	10	<	10	<	10	<	10	<	- 14
Methapyrilene		Ξ.	<	2,000	<	2,000	<	2,000	<	2,000	>	2,000	<	2,000	<	2,000	<	2,000	<	2,0
Methyl methanesulfonate		· 26	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	- 1
Methyl parathion		2	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	1
Naphthalene		001	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	1
Nitrobenzene		5i	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	1
N-Nitrosodiethylamine		0.0043	<	10	<	10	<	01	<	10	<	10	<	10	<	10	<	10	<	1
N-Nitrosodimethylamine		0.013	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10
N-Nitrosodi-n-butylamine		0.11	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	1
n-Nitrosodi-n-propylamine		. 0.37	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	1
N-Nitrosodiphenylamine		530	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	1
N-Nitrosomethylethylamine		~	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	1
N-Nitrosomorpholine			<	10	<	10	<	10	<		<	10	<	10	<	10	<	10	<	1
N-Nitrosopiperidine			<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	1
N-Nitrosopyrrolidine		-	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	1
O,O,O-Triethyl phosphorothioate			<	LO.	<	10	<	10	 <	10	<	10	<	10	<	10	<	10	<	1
o-Toluidine		11	<	10	<	10	<	10	<	10	<	10	<	01	<	10	<	10	<	1
p-(Dimethylamino)azobenzene		0.57	<	01	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	1
Pentachiorobenzene		82	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	 <	1
Pentachloronitrobenzene		10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	k	1
Pentachiorophenol		1	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	5
Phenacetin		1,200	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10.	<	1
Phenanthrene		1,100	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	1
Phenol		4,000	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	io	<	1
Phorate		4.1	<	10	<	10	<	10	<	10	 	10	<	10	<	10	<	10	<	1
Pronamide		50	<	10	<	10	<	01	1<	10	<	10	<	10	<	10	<	10	<	1
Pyrene		130	<	10	<	10		1.3J	<	10	<	10	<	10	<	10	<	10	<	i
Pyridine		20	<	50	<	50	<	50	<	50	<	50	<	50	-	50	<	50	<	5
Satrole			<	10	<	10	<	10	<	10	<	10	<	10	-	10	<	10	<	1
Sulfotepp (Tetraethyl dithiopyrophosphate)		10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	i
Thionazin (0.0-Diethyl-O-pyrazinyl phosphorothic	ate)		<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	10	<	i
Dissolved Metals (ug/l)			T				•		<u> </u>		_				_		_		-	
Antimony (Dissolved)		6	₹	20	1<	20	<	20	Т	3.9K	<	20	Т	4.3K	<	20	<	20	<	24
Arsenic, (Dissolved)		50	<			101		10		23L			350	CONTRACTOR STATE	ĮŽ.					
Barium, (Dissolved)		2,000	1	10 370	15	10L 480	<			23L 840	ļ	35L	ANG.	5iL	١٢	10		25L	<	10
Beryllium (Dissolved)		4	-		<		<	410	١.			590	1.	690	١.	830	١.	620	١.	8
Cadmium (Dissolved)			Ę	4	1 -	4		4		4	<	4	<	4	<	4	<	4	١	4
Chromium (Dissolved)		5	1	5	<	\$	<	5	<	5	<	5	<	5	<	5	<	5	 <	
Cobalt (Dissolved)		100	1	2B	<	10		10	<	10	<	10	<	10	١.	2.8B	<	10	<	1
		2,000	1.	11	١.	3.43	١.	1.6J	<	. 10	<	10	<	10	<	10	<	10	<	1
Copper, Dissolved		1,000	 	20	<	20	<	20	<	20	<	20	<	20	<	20	<	20	<	2
Lead, (Dissolved)		5	 <	5L	<	5L	1.	2.71	<	5L	<	5L	1.	2.8B	<	5L	1 .	3.3B	<	5
Mercury (Dissolved)		2	<	0.2	<	0.2	<	0.2	<	0.2L	<	0.2	<	0.2L	١<	0.2	<	0.2L	<	0
Nickel (Dissolved)		100		3.3B	1	31	<	40	<	40	<	40	<	40	1	3.1B	<	40	1	Į.
Selenium (Dissolved)		50	<	10	<	10L	<	10	<	10L	<	10	<	10L	<	10	<	10L	<	-
Silver (Dissolved)		100	<	101	<	10	<	10L	<	-10	<	10	<	10	<	JOL	<	10	<	
Thallium (Dissolved)		. 2	<	101.	<	10	<	10L	<	10L	<	10L	<	10L	<	IOL	<	10L	<	10
Tin (Dissolved)		61,000	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	50	<	5
Vanadium (Dissolved)		720	<	10	<	10	<	10		0.93B	<	01	<	10	1	1.5B	<	10	<	1
Zinc, (Dissolved)		2,000	_	3.4B		6.3B		111		3.1B		l2J		7.1B	┖	3.4B	1	6.2B	L	9.
Total Dissolved Solids (ug/l)			1	630		NA		610	1	NA	Ι .	290		NA	1_	7,500		NA		68



Parameter	Sample ID: Sample Date:	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS≤2,500 Non-Residential	MW-F2 2/4/2004	MW-F3 1/30/2004	MW-5 2/4/2004	W-1A 3/1/2004	W-2A 2/3/2004	W-7 3/1/2004	W-15 1/29/2004
Volatile Organic Compounds (ug/L) (*)		Non-Residendal	-	l			<u> </u>	<u> </u>	J
		·							
1,1,1,2-Tetrachloroethane		70	< 1	< 1	<1/<1	< 1	<1/<1	< 5	< 100
1,1,1-Trichloroethane		200	< 1	< i	<1/<1	< 1	<1/<1	< 5	< 100
1,1,2,2-Tetrachloroethane		0.3	< 1	< i	<1/<1	< ;	<1/<1	< 5	< 100
1,1,2-Trichloroethane		5	< 1	< i ·	<1/<1	< 1	<1/<1	< 5	< 100
1,1-Dichloroethane		110	< 1	< 1	<1/<1	< 1	<1/<	< 5	< 100
I,I-Dichloroethene		7	< 1	<	<1/<1	< 1	<1/<1	< 5	< 100
1,2-Dibromo-3-chloropropane		0.2	< 1	< i	<1/<1	< 1	<1/ <i< td=""><td>< 5</td><td>< 100</td></i<>	< 5	< 100
1,2-Dibromoethane (EDB)	·	0.05	< 1	< 1	<1/<1	< 1	<1/ <i< td=""><td>< 5</td><td>< 100</td></i<>	< 5	< 100
1,2-Dichloroethane		5	< 1	< 1	<1/<1	< 1	<1/ </td <td>< 5</td> <td>< 100</td>	< 5	< 100
1,2-Dichloropropane	-	5	< 1	< 1	<1/<1	< 1	<1/<	< 5	< 100
1,2,3-Trichloropropane		40	< 1	< 1	<1/<1	< 1	<1/<1	< 5	< 100
1,2,4-Trimethylbenzene		35	84	< 1	0.87J/1.2	< 1	18/14	870	al: 2,000
1,3,5-Trimethylbenzene		35	< 1	< 1	0.32J/0.35J	< 1	<1/<1	370	900
2-Butanone (Methyl ethyl ketone)	-	5,800	< 10	< 10	<10/<10	< 10	<10/<10	< 50	< 1,000
2-Hexanone		(e)	< . 10	< 10	<10/<10	< 10	<10/<10	< 50	< 1,000
3-Chloropropene (Allyichloride)		41	< 1	< 1	<1/<1	< 1	<1/<1	< 5	< 100
4-Methyl-2-pentanone (MIBK)	1	410	< 10	< 10	<10/<10	< 10	<10/<10	< 50	< 1,000
Acetone	-	10,000	< 25	< 25	6.13/5.33	< 25	<25/<25	< 120	< 2,500
Acetonitrile		350	< 40	< 40	<40/<40	< 40	<40/<40	< 200	< 4,000
Acrolein (Propenal)		0.12	< 20	< 20	<20/<20	< 20	<20/<20	< 100	< 2,000
Acrylonitrile	+	2.7	< 20	< 20	<20/<20	< 20	<20/<20	< 100	< 2,000
Benzene	1	5	3 14	< 1	1.6/2.1	< 1	<1/<1	74	470
Bromodichloromethane		100	< 1	< 1	<1/<1	< 1	<1/<1	< 5	< 100
Bromoform		- 100	< t	< 1	<1/<1	< 1	<1/<1	< 5	< 100
Bromomethane (Methyl Bromide)		01	< 1	< 1	<1/<1	< 1	<1/<1	< 5	< 100
Carbon disulfide		4,100	< 1	< 1	<1/<	< 1	<1/<1	< 5	< 100
Carbon tetrachloride		5	< 1	< 1	<1/<1	< 1	<1/<1	< 5	< 100
Chlorobenzene		100	< 1	< l	<1/<1	< 1	<1/<1	<. 5	< 100
Chloroethane		900	< 1	< 1	<1/<1	< ı	<1/ </td <td>< 5</td> <td>< 100</td>	< 5	< 100
Chloroform		100	< 1	< 1	<1/<1	< i	<1/<1	< 5	< 100
Chloromethane (Methyl Chloride)		3	< 1	< 1	<1/<1	< }	<1/<	< 5	< 100
Chloroprene		41	< 1	< 1	<1/<1	< 1	<1/ </td <td>j< 5</td> <td>< 100</td>	j< 5	< 100
cis-1,2-Dichloroethene		70	< 1	< 1	<1/<1	< 1	<1/ <l< td=""><td>< 5</td><td>< 100</td></l<>	< 5	< 100
cis-1,3-Dichloropropene		26	< 1	< 1	<1/<1	< 1	<1/ </td <td>< 5</td> <td>< 100</td>	< 5	< 100
Dibromochloromethane		-	< 1	< 1	<1/<1	< 1	<1/<1	< 5	< 100
Dibromomethane (Methylene bromide)		200	< 1	< 1	<1/<1	< 1	<1/<1	< 5	< 100
Dichlorodifluoromethane		1,000	< 1	< 1	<1/<1	< 1	<1/<1	< 5	< 100
Ethyl methacrylate		1,800	< 1	< 1	<1/<1	< 1	<1/<1	< 5	< 100
Ethylbenzene		700	56	<]	2.5/3.2	< 1	2/1.2	370	2,200
Indomethane (Methyl iodide)		••	< 1	< 1	<1/<1	< 1	<1/ <i< td=""><td>< 5</td><td>< 100</td></i<>	< 5	< 100
Isobutanol (Isobutyl alcohol)		6,100	< 40	< 40	<40/<40	< 40	<40/<40	< 200	< 4,000
Methacrylonitrile		4.1	< 20	< 20	<20/<20	< 20	<20/<20	< 100	< 2,000
Methyl methacrylate		4,100	< t	< 1	<1/<1	< 1	<1/<1	< 5	< 100
Methylene chloride (Dichloromethane)		5	< 5	< 5	<5/<5	< \$	<5/<5	< 25	< 500
Pentachloroethane		••	< 5	< 5	<5/<5	< 5	<5/<5	< 25	< 500
Propionitrile		**	< 20	< 20	<20/<20	< 20	<20/<20	< 100	< 2,000
Styrene		100	< 1	< 1	/<!</td <td>< ı</td> <td><1/<1</td> <td>< 5</td> <td>< 100</td>	< ı	<1/<1	< 5	< 100
Tetrachloroethene		\$	< 1	< 1	<1/<1	< 1	<1/<1	< 5	< 100
Toluene		1,000	6.7	< 1	<1/<1	< L	<i <1<="" td=""><td>12</td><td>< 100</td></i>	12	< 100
trans-1,2-Dichloroethene		100	< 1	< 1	<:/ </td <td>< 1</td> <td><1/<1</td> <td>< 5</td> <td>< 100</td>	< 1	<1/<1	< 5	< 100
trans-1,3-Dichloropropene		26	< 1	< 1	<1/<	< i	<1/<1	< 5	< 100
trans-1,4-Dichloro-2-butene		0.069	< 2	< 2	<2/<>	< 2	<2/⊲	< 10	< 200
Trichloroethene		5	< 1	< 1	<1/<	< 1	<1/<1	< 5	< 100
Trichlorofluoromethane		. .	< 1	< 1	<1/<]	< 1	<1/<1	< 5	650
		1,200	[< 2	< 2	<2/<>	< 2	2/2	< 10	< 200
Vinyl acetate Vinyl chloride		2	< 1	< ī	<1/<1	< i	<1/<1	< 5	< 100



Sample ID: Sample Date: rameter		MW-F2 2/4/2004	MW-F3 1/30/2004	MW-5 2/4/2004	W-1A 3/1/2004	W-2A 2/3/2004	W-7 3/1/2004	W-15 1/29/20
nivolatile Organic Compounds (ug/l)	1408-AESIDERIUM		I		·	1		<u> </u>
,2,4-Trichlorobenzene	70	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
,2,4,5-Tetrachlorobenzene	31	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
,2-Dichlorobenzene (o-Dichlorobenzene)	600	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
,3,5-Trinitrobenzene	1	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
,3-Dichlorobenzene (m-Dichlorobenzene) ,4-Dichlorobenzene (p-Dichlorobenzene)	600	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
,4-Dioxane	75 24	< 10 < 10	< 10 < 10	<10/<10	< 10	<10/<10	< 10	< 10
,4-Naphthoquinone	24 	< 10	< 10 < 10	<10/<10 <10/<10	< 10 < 10	<10/<10	< 10 < 10	26
,4-Phenylenediamine (p-Phenylenediamine)		< 2,000	< 2.000	<2,000/<2,000		<10/<10 <2,000/<2,000		< 10 < 2,00
-Naphthylamine	1.4	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropy])ether]	300	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
3,4,6-Tetrachlorophenol	610	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
4,5-Trichlorophenol	10,000	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
,4,6-Trichlorophenol	31	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
,4-Dichlorophenol	20	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
,4-Dimethylphenol	2,000	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
,4-Dinitrophenol	41	< 50	< 50	<50/<50	< 50	<50/<50	< 50	< 50
,4-Dinitrotoluene	8.4	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
,6-Dichlorophenof ,6-Dinitrotoluene	-	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
-,a-Dinigrotoriume -Acetylaminofluorene	100	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
-Chloronaphthalene	0,68 8,200	< 10 < 10	< 10 < 10	<10/<10	< 10	<10/<10	< 10	< 10
-Chlorophenot	8,200 40	< 10	< 10 < 10	<10/<10 <10/<10	< 10 < 10	<10/<10	< 10	< 10
-Methylnaphthalene	2,000	< 10	< 10	<10/<10	< 10 < 10	<10/<10	< 10 < 10	< 10
-Naphthylamine	1.4	< 10	< 10	<10/<10	< 10	<10/<10 <10/<10	< 10 < 10	< 10
-Nitrozniline (o-Nitrozniline)	5.8	< 50	< 50	<50/<50	< 50	<0/> <0/<0	< 50	< 50
-Nitrophenol (o-Nitrophenol)	820	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
-Picoline	-	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
,3'-Dichlorobenzidine	5.8	< 20	< 20	<20/<20	< 20	<20/<20	< 20	< 20
,3'-Dimethylbenzidine	0.28	< 20	< 20	<20/<20	< 20	<20/<20	< 20	< 20
-Methylcholanthrene	_	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
-Nitroaniline (m-Nitroaniline)	5.8	< 50	< 50	<50/<50	< 50	<50/<50	< 50	< 50
6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)		< 50	< 50	<50/<50	< 50	<50/<50	< 50	< 50
-Aminobiphenyl	0.12	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
Bromophenylphenyl ether	i –	< 10	< 10	<10/<10	< 10	<10/<10	3.53	< 16
-Chloro-3-methylphenol (p-Chloro-m-cresol)	510	< 10	j< 10	<10/<10	< 10	<10/<10	< 10	< i(
-Chloroaniline (p-Chloroaniline)	410	< 20	< 20	<20/<20	< 20	<20/<20	< 20	< 20
-Chlorophenylphenyl ether	-	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 10
-Nitroaniline (p-Nitroaniline)	5,8	< 50	< 50	<50/<50	< 50	<50/<50	< 50	< 50
-Nitrophenal (p-Nitrophenal)	60	< 50	< 50	<50/<50	< 50	<50/<50	< 50	< 50
-Nitroquinoline-1-oxide -Nitro-o-toluidine	-	< 20	< 20	<20/<20	< 20	<0/<20	< 20	< 2t
,12-Dimethylbenz(a)anthracene	-	< 10 < 10	< 10 < 10	<10/<10	< 10	<10/<10	< 10	< 10
scenaphthene	3,800	< 10	< 10	<10/<10 <10/<10	< 10 < 10	<10/<10 <10/<10	< 10 < 10	< 10
scenaphthylene	6,100	< 10	< 10	<10/<10	< 10	<10/<10	< 10 < 10	< 10 < 16
cetophenone	10,000	< 10	< 10	<10/<10	2.43	<10/<10	< 10	2
lpha,alpha-Dimethylphenethylamine	15,555	< 2,000	< 2,000	<2,000/<2,000		<2,000/<2,000	1	< 2,0
niline	5.8	< 20	< 20	<20/<20	< 20	<20/⊲20	< 20	< 2,0
nthracene	66	< 10	< 10	<10/<10	< 10	<10/<10	< 10	- î
ramite, Total		< 10	< 10	<10/<10	< 10	<10/<10	< 10	√ i
enzo(a)anthracene	3.6	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< i
ienzo(a)pyrene	0.2	< 10	< 10	<10/<10	< 10	Sc10/0.7215	< 10	第20.9
enzo(b)fluoranthene	1.2	< 10	< 10	<10/<10	< 10	<10/<10		< 1
enzo(g,h,i)perylene	0.26	< 10	< 10	<10/<10	< 10	是[0/25]景	< 10	
enzo(k)fluoranthene	0.55	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 1
enzyl alcohol	31,000	< 10	< I0	<10/<10	< 10	<10/<10	< 10	< 1
s(2-Chloroethoxy)methane		< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 1
s(2-Chloroethyl)ether	0.55	< 10	< 10	<10/<10	< 10	<10/<10	< 10	 <
s(2-Ethylhexyl)phthalate	6	< 10	< 10	43/3.13	< 10	<10/<10	< 10	< 1
utylbenzylphthalate	2,700	< 10	< 10	<10/<10	< 10	1.93/9.63	< 10	< 1
hrysene	1.9	< 10	< 10	<10/<10	< 10	<10/13	< 10	< 1
resol (ortho)	5,100	< 10	< 10	<10/<10	< 10	1.93/<10	< 10	< 1
resol, m & p	510	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 1
ialiate, Total	10 .	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 1 ************************************
ibenzo(a,h)anthracene	0,36	< 10	< 10	<10/<10	< 10	\$102.IJI		层盖03
ibenzofuran ethylphthalate	5,000	< 10	< 10	<10/<10	< 10	<10/<10	< 10	
imethoste	5,000	< 10	< 10	<10/<10	< 10	<10/<10	< 10	<u> </u>
imetholie imethylphthalate	20	< 10 < 10	< 10 < 10	<10/<10	< 10	<10/<10	< 10	<
in-butylohthalate	10,000	< 10 < 10	< 10 < 10	<10/<10 <10/<10	< 10	<10/<10	< 10	\ !
i-n-outylphthalate	2,000	< 10	< 10	<10/<10	< 10 < 10	<10/<10	< 10	< 1
inoseb (2-sec-Butyl-4,6-dinitrophenol)	7	< 10	< 10	<10/<10	< 10 < 10	<10/<10	< 10	< 1
isulfoton	0.3	< 10	< 10	<10/<10	< 10	<10/<10 <10/<10	< 10 < 10	< 1 < 1
thyl methanesulfonate		< 10	< 10	<10/<10	< 10	<10/<10	< 10	
thyl parathion (Parathion)	610	< 10	< 10	<10/<10	< 10	<10/<10	< 10	
mily harmon (s granton)		< 10	< 10	<10/<10	< 10	<10/<10	< 10	
luoranthene	260	< 10	< 10	<10/<10	< 10	<10/<10	0.913	< I
luorene	1,900	< 10	< 10	<10/<10	< 10	<10/<10	< 10	
exachlorobenzene	1,700	< 10	< 10	<10/<10	< 10	<10/<10	< 10	< 1 < 1
exachlorobutadiene	l i	< 10	< 10	<10/<10	< 10	<10/<10	< 10	\ \ \ \ \
exachlorocyclopentadiene	50	< 10	< 10	<10/<10	< 10	<10/<10	< 10	\ \ \
texacino ocyclopentacine								



	Sample ID; Sample Date:	PADEP Act 2 MSCs ^(b) Used Aquifers, TDS≤2,500		SW-F2 4/2004		/W-F3 30/2004	MW-5 2/4/2004		W-1 A /1/2004	W-2A 2/3/2004		W-7 1/2004		W-15 29/2004
Rrameter Communication Communi		Non-Residential					•						L	
Semivolatile Organic Compounds con'd. (ug/l)		<u>, </u>												
Hexachlorophene		-	<	5,000	<	5,000	<5,000/<5,000		5,000	<5000/633	٧	5,000	<	5,000
Hexachloropropene		_	<	10	<	10	<10/<10	<	10	<10/<10	<	10	<	10
Indeno(1,2,3-cd)pyrene		3.6	<	LO .	<	10	<10/<10	<	LD	<10/2J	<	10	l	1.13
Isophorone		100	<	LO-	<	10 '	<10/<10	<	10	<10/<10	<	10	<	10
Isosafrole			<	10	<	10	<10/<10	٧.	01	<10/<10	<	10	<	01
m-Dinitrobenzene		1	<	10	<	10	<10/<10	<	01	<10/<10	<	10	<	10
Methapyrilene	- 1		<	2,000	<	2,000			2,000	<2,000/<2,000		2,000	<	2,000
Methyl methanesulfonate		26	<	10	<	10	<10/<10	<	10	<10/<10	<	10	<	10
Methyl parathion		. 2	<	-01	<	10	<10/<10	۷.	01	<10/<10	<	10		01
Naphthalene		100		17	<	10	<10/<10	ν.	10	10/<10	~	10		3840
Nitrobenzene	1	51	<	10	<	10	<10/<10	~	10	<10/<10	~	10	- XXX	10
N-Nitrosodiethylamine	- 1	0.0043	<	10	<	10	<10/<10	~	10	<10/<10	~	10	~	
N-Nitrosodimethylamine	- 1	0.013	~	10	<	10	<10/<10	٧	10	<10/<10	۷	10	<	10
N-Nitrosodi-n-butylamine	ì	0.11	<	10	<	10	<10/<10	/ V	10	<10/<10	۷			10
n-Nitrosodi-n-propylamine		0.37	~	10	~	10	<10/<10	٧				10	<	10
N-Nitrosodiphenylamine	i	530	~	10		10			10	<10/<10	<	10	<	10
N-Nitrosomethylethylamine			ζ.				<10/<10	<	10	<10/<10	<	10	١	10
N-Nitrosomorpholine		-	~	10	<	10	<10/<10	٧	10	<10/<10	<	10	<	10
N-Nitrosopiperidine	İ	-		10	<	10	<10/<10	<	10	<10/<10	<	10	<	10
N-Nitrosopyrrolidine		-	<	10	<	10	<10/<10	<	10	<10/<10	<	10	<	10
O,O,O-Triethyl phosphorothioate		-	<	10	<	10	<10/<10	<	10	<10/<10	<	10	 <	10
o-Toluidine		Ξ.	<	10	<	10	<10/<10	<	10	<10/<10	<	10	<	. 10
	Ī		<	10	<	10	<10/<10	<	10	<10/<10	<	10	<	10
p-(Dimethylamine)azobenzene		0.57	<	01	<	10	<10/<10	<	10	<10/<10	<	10	<	10
Pentachlorobenzene		82	<	10	<	10	<10/<10	<	10	<10/<10	<	10	<	10
Pentachloronitrobenzene		10	<	10 ·	<	10	<10/<10	<	10	<10/<10	<	10	<	10
Pentachlorophenol		1	<	50	<	50	<50/<50	<	50	<50/5.6J	<	50	<	50
Phenacetin		1,200	<	10	<	01	<10/<10	<	10	<10/<10	<	10	 <	10
Phenanthrene		1,100	<	10	<	to	<10/<10	<	10	<10/<10	<	10	۱<	10
Phenol		4,000	<	10	ļ<	01	<10/<10	<	10	<10/<10	<	10	<	10
Phorate	.	4.1	<	10	! <	01	<10/<10	<	10	<10/<10	<	10	<	10
Pronamide		50	<	10	<	10	<10/<10	<	10	<10/<10	<	10	<	10
Рутспе		130	<	10	<	10	<10/<10	<	10	<10/<10	Ι.	10	Į.	10
Pyridine		20	<	50	<	50	<50/<50	<	50	<50/<50		50	Į,	50
Safrole			<	10	l<	10	<10/<10	<	10	<10/<10	<	10	<	01
Sulfotepp (Tetraethyl dithiopyrophosphate)		10	<	10	<	10	<10/<10	<	10	<10/<10	<	10	<	10
Thionazin (o.o-Diethyl-O-pyrazinyl phosphorothi	ioate)	=	<	10	<	10	<10/<10	-	10	<10/<10	~	10		10
hissolved Metals (ug/l)	· · · · · · · · · · · · · · · · · · ·		<u> </u>		-	- 10	4707470	ـــــا		~10/~10	_	10	1	10
Antimony (Disselved)		6	~	20	<	20	<20/<20	7		201.40	1.		_	
Arsenic (Dissolved)			l		ı			ı	20	<20/<20	<	20	<	20
Barium, (Dissolved)		· 50	<	10L	<	101	<10L/<10L	<	IOL	<10L/<10L		14L	<	10L
Beryllium (Dissolved)		2,000		150	l	470	170/160		10	100/100	1	310	ı	120
		4	<	4	<u> </u>	0,53J	<4/<4	<u> </u>	4	<4/<4	<	4	<	4
Cadmium (Dissolved)		5	<	5	1	9	ব/ব	蓬	95	<5/<5	<	5	<	5
Chromium, (Dissolved)		100	<	10	<	10	<10/<10	<	10	<10/<10		1.3B	Į.	4.8
Cobalt (Dissolved)		2,000	<	10	l	63	<10/<10	<	10	<10/<10	<	10		19
Copper, Dissolved		1,000	<	20	l	2.9J	<20/<20	ı	5.91	<20/<20	<	20	<	20
Lead, (Dissolved)		5	ŀ	3L	l	3.6L	ସମସମ	l	2.5B	くひくくひし	<	5L	1	3.2
Mercury (Dissolved)		2	<	0.2	<	0.2	<0.2/<0,2	<	0.2	<0:2/<0.2	<	0.2	<	0.2
Nickel, (Dissolved)		100	<	40	떒	130 法	<40/<40	l	3.8J	<40/<40	<	40	1	2.5
Selenium (Dissolved)		50	<	10	<	10	<10/<10	<	10L	<10/<10	<	101	<	10
Silver (Dissolved)		100	<	10	<	10	<10/<10	-	10	<10/<10	<	10	2	10
Thallium (Dissolved)		. 2	<	10L	鬱	gair s	<10L/<10L	~	10	<10L/<10L	~	10	{	
Tin (Dissolved)		61,000	<	50	<	50	<50/<50	~	50	<00/<00 <00/<00	<	50	ζ.	101
Vanadium (Dissolved)		720	~	10	2	10	<10/<10	ξ.	10	<10/<10	<	10	{	50
Zinc, (Dissolved)		2,000	1	2.3B	Γ.	130	78/76	٦.	26	<10/<10 5.2B/2.8B	`	10 3.3B	 	10
otal Dissolved Solids (ug/l)		2,000				130	1 10/10	L	20	J.4D/4.8B	1	3.38		6,2



- (a) "ug/l" is micrograms per kilogram or parts per billion.
- (b) PADEP statewide health medium specific concentrations (MSCs) for regulated substances in groundwater (Title 25, PA Code Chapter 250).
- (c) "--" indicates no MSC has been promulgated under Act2.
- (d) "<x" indicates result is below method detection limit, x.
- (e) "x/x" indicates a duplicate sample was collected at this location.
- (f) "J" indicates value is estimated.
- (g) "B" indicates value is not detected substantially above the level reported in the laboratory or field blanks.
- (h) Values shaded and in bold indicate an exceedance of the corresponding MSC.
- (i) "L" indicates reported value may be biased low. Actual value is expected to be higher.
- (j) "K" indicates reported value may be biased high. Actual value is expected to be lower.

TABLE 12 SUMMARY OF SURFACE WATER ANALYTICAL RESULTS CUMMINGS/RITER (2004)

HERCULES INCORPORATED JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

	Sample ID:	PADEP	1	W-1		W-2		V-3		SW-4	SW-5	EC	QB-I
	Sample Date:	Statewide Surface Water	12/	8/2003	12/8	3/2003	12/8	/2003	12	/8/2003	12/8/2003	12/8	8/200
Parameter (a)		Title 25, Chapter 16 ^(b)	<u>L</u> .										
olatile Organic Compounds (ug/l) (a)													
1,1,1,2-Tetrachloroethane		0.17	<	1 ^(d)	<	1	<	1	<	200	<200/<200 ^(e)	<	1
1,1,1-Trichloroethane		610	<	1 , `	<	1	<	1	<	200	<200/<200	<	
1,1,2,2-Tetrachloroethane		0.17	<	. 1	<	1	<	1	<	200	<200/<200	<	
1,1,2-Trichloroethane		0.6	<	I	<	1	<	1	<	200	<200/<200	<	
1,1-Dichloroethane		(c)	<	1	<.	1	<	1	<	200	<200/<200	<	
1,1-Dichloroethene		0,057	<	1	<	3	<	1	<	200	<200/<200	<	
1,2,3-Trichloropropane		210	<	1	<	1	<	1	<	200	<200/<200	<	
1,2,4-Trimethylbenzene			<	1	<	1		63	ļ	180J ^(f)	92J/86J	<	
1,2-Dibromo-3-chloropropane			<	1	<	1	<	1	<	200	<200/<200	<	
1,2-Dibromoethane (EDB)			<	1	<	1	<	1	<	200	<200/<200	<	
1,2-Dichloroethane		0.38	<	1	<	1	<	1	<	200	<200/<200	<	
1,2-Dichloropropane		2200	<	1	<	1	<	1	<	200	<200/<200	<	
1,3,5-Trimethylbenzene		_	<	1	<	1		19		140J	62J/64J	<	
2-Butanone (Methyl ethyl ketone) 2-Hexanone		21000	<	10	<	10	<	10	<	2,000		<	
3-Chloropropene (Allylchloride)		4,300	< <	10	< <	10	<	10	<	2,000	<2,000/<2,000	1	
4-Methyl-2-pentanone (MIBK)		5,000		1 10	<	1 10	<	I 10	<	200 2,000	<200/<200	<	
Acetone		3,500	< <	25	~	25	~	25	<	5,000	<2,000/<2,000 <5,000/<5,000		:
Acetonitrile			<	40	<	40	~	40	<	8,000	<8,000/<3,000 <8,000/<8,000		
Acrolein (Propenal)		1	<	20	<	20	~	20	<	4,000	<4,000/<4,000		
Acrylonitrile		0,059	<	20	<	20	<	20	<	4,000	<4,000/<4,000	ı	
Benzene	,	1,2	<	1		1		1.7 ⁽⁸⁾		200	<200/<200	l	
Bromodichloromethane		1,2 —	<	l	<	1	<	1.7	<	200	<200/<200 <200/<200	<	
Bromoform		4.3	<	1	<	ì	~	1	<	200	<200/<200	\ <	
Bromomethane (Methyl Bromide)		48	~	i	<	1	~	i	~	200	<200/<200	[
Carbon disulfide		- -	<	i	<	î :	<	î	<	200	<200/<200		
Carbon tetrachloride		0.25	<	1	<	1	<	1	<	200	<200/<200	<	
Chlorobenzene		240	<	1	<	1	<	i	<	200	<200/<200	<	
Chloroethane		_	<	1	<	1	<	1	<	200	<200/<200	<	
Chloroform		5.7	<	1	<	1	<	1	<	200	<200/<200	<	
Chloromethane (Methyl Chloride)		5,500	<	1	<	1	<	1	<	200	<200/<200	<	
Chloroprene		-	<	1	<	1	<	1	<	200	<200/<200	<	
cis-1,2-Dichloroethene			<	1	<	1	<	1	<	200	<200/<200	<	
cis-1,3-Dichloropropene		10 ^(h)	<	1	<	1	<	1	<	200	<200/<200	<	
Dibromochloromethane .			<	1	<	i	<	1	<	200	<200/<200	<	
Dibromomethane (Methylene bromide)		_	<	1 .	<	1	<	1	<	200	<200/<200	<	
Dichlorodifluoromethane		-	<	1	<	1	<	1	<	200	<200/<200	<	
Ethyl methacrylate		-	 <	1	<	1	<	1	<	200	<200/<200	<	
Ethylbenzene		580	<	I	<	1		28		110J	<200/<200	<	
Iodomethane (Methyl iodide)		_	<	1	<	1	<	1	<	200	<200/<200	<	
Isobutanol (Isobutyl alcohol)		_	<	40	<	40	<	40	<	8,000	<8,000/<8,000		
Methacrylonitrile Methyl methacrylate		_	<	20	<	20	\ <	20	 	4,000	<4,000/<4,000		
Methylene chloride (Dichloromethane)			<	1 5	< <	1 5	< <	1 5	<	200	<200/<200 <1,000/<1,000	<	
Pentachloroethane		5,500	<	5		5	~	5	<	1,000 1,000	<1,000/<1,000		
Propionitrile		-	<	20	<	20	<	20	<	4,000	<4,000/<1,000		
Styrene		 	<	1	<	1	<	1	~	200	<200/<200	<	
Tetrachloroethene	,	0.8	<	1	<	1	<	1	<	200	<200/<200	<	
Toluene		330	<	1	<	1	ļ `	0.82J	•	19,000	8,500/8,100	<	
trans-1,2-Dichloroethene		700	<	1	<	1	<	1	<	200	<200/<200	<	
trans-1,3-Dichloropropene		10 ^(h)	<	1	<	1	<	ì		200	<200/<200	[
trans-1,4-Dichloro-2-butene			<	2	<	2	<	2	<	400	<400/<400	<	
Trichloroethene		2.7	<	1	<	1	<	1	<	200	<200/<200	~	
Trichlorofluoromethane			<	1	<	1	~	1	<	200	<200/<200	<	
Vinyl acetate			<	2	<	2	<	2	<	400	<400/<400	<	
Vinyl chloride		2	<	1	<	1	<	1	<	200	<200/<200	<	
Xylenes, Total		210		2	<	2		35	1	2001	<400/<400	<	



<400/<400

200 200J

Vinyl chloride Xylenes, Total

TABLE 12 SUMMARY OF SURFACE WATER ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED JEFFERSON PLANT

WEST ELIZABETH, PENNSYLVANIA

Sample ID:	PADEP	S	W-1	S	W-2	SV	V-3	-	SW-4	SW-5	I	EQB-1
Sample Date:	Statewide Surface Water	12/	8/2003	12/	8/2003	12/8	/2003	12	2/8/2003	12/8/2003		/8/2003
Parameter	Title 25, Chapter 16(b)	1			İ							
Semivolatile Organic Compounds (ug/l)				_	'					· <u> -</u>	_	
1,2,4,5-Tetrachlorobenzene		<	10	<	10	<	10	<	10	<10/<10	<	10
I,2,4-Trichlorobenzene	26	<	10	<	10	<	10	<	10	<10/<10	<	10
1,2-Dichlorobenzene (o-Dichlorobenzene)	160	<	10	<	.10	<	10	<	10	<10/<10	<	10
1,3,5-Trinitrobenzene		<	10	<	10	<	10	<	10	<10/<10	<	10
1,3-Dichlorobenzene (m-Dichlorobenzene)	69	<	10	<	10	<	10	<	10	<10/<10	<	10
1,4-Dichlorobenzene (p-Dichlorobenzene)	150	<	10	<	10	<	10	<	10	<10/<10	<	10
1,4-Dioxane	_	<	10	<	10	<	10	<	10	<10/<10	<	10
1,4-Naphthoquinone	_	<	10	<	10	<	10	<	10	<10/<10	<	10
1,4-Phenylenediamine (p-Phenylenediamine)	- .	<	2,000	<	2,000	<	2,000	<	2,000	<2,000/<2,000	<	2,00
1-Naphthylamine	- `	<	10	<	10	<	10	<	10		<	10
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	1,400	<	10	<	10	<	10	<	10	<10/<10	<	10
2,3,4,6-Tetrachlorophenol		<	10	<	10	<	10	<	10	<10/<10	<	10
2,4,5-Trichlorophenol	_	<	10	<	10	<	10	<	10	<10/<10	<	10
2,4,6-Trichlorophenol	2.1	<	10	<	10	<	10	<	10	<10/<10	<	10
2,4-Dichlorophenol	93	<	10	<	10	<	10	<	10	<10/<10	l<	10
2,4-Dimethylphenol	130	<	10	<	10	<	10	<	10	<10/<10	<	10
2,4-Dinitrophenol	70	<	50	<	50	<	50	<	50	<50/<50	<	50
2,4-Dinitrotoluene	0.05	<	10	<	10	<	10	<	10	<10/<10	<	10
2,6-Dichlorophenol		<	10	<	10	<	10	<	10	<10/<10	<	10
2,6-Dinitrotoluene	0.05	<	10	<	10	<	10	<	10	<10/<10	<	10
2-Acetylaminofluorene		<	10	<	10	<	10	<	10	<10/<10	<	10
2-Chloronaphthalene	1,700	<	10	<	10	<	10	<	10	<10/<10	<	10
2-Chlorophenol	110	<	10	<	10	<	10	<	10	<10/<10	<	10
2-Methylnaphthalene		<	10	<	10	<	10	<	10	<10/<10	<	10
2-Naphthylamine	_	<	10	<	10	<	10	<	10	<10/<10	<	10
2-Nitroaniline (o-Nitroaniline)		<	50	<	50	<	50	<	50	<50/<50	<	50
2-Nitrophenol (o-Nitrophenol)	1,600	<	10	<	10	<	10	<	10	<10/<10	<	10
2-Picoline		<	10	<	10	<	10	<	10	<10/<10	<	10
3,3'-Dichlorobenzidine	0.04	<	20	<	20	<	20	<	20	<20/<20	<	20
3,3'-Dimethylbenzidine		<	20	<	20	<	20	<	20	<20/<20	<	20
3-Methylcholanthrene	_	<	10	<	10	<	10	<	10	<10/<10	<	10
3-Nitroaniline (m-Nitroaniline)		<	50	<	50	<	50	<	50	<50/<50	<	50
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	13.4	<	50	<	50	<	50	<	50	<50/<50	<	50
4-Aminobiphenyl	_	<	10	<	10	<	10	<	10	<10/<10	<	10
4-Bromophenylphenyl ether		<	10	<	10	<	10	<	10	<10/<10	<	10
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	30	<	10	<	10	<	10	<	10	<10/<10	<	10
4-Chloroaniline (p-Chloroaniline)	<u> </u>	<	20	<	20	<	20	<	20	<20/<20	<	20
4-Chlorophenylphenyl ether	1 –	<	10	<	10	<	10	<	10	<10/<10	<	10
4-Nitroaniline (p-Nitroaniline)		<	50	<	50	<	50	<	50	<50/<50	<	50
4-Nitrophenol (p-Nitrophenol)	470	<	50	<	50	<	50	<	50	<50/<50	<	50
4-Nitroquinoline-1-oxide	_	<	20	<	20	<	20	<	20	<20/<20	<	20
5-Nitro-o-toluidine		<	10	<	10	<	10	<	10	<10/<10	<	10
7,12-Dimethylbenz(a)anthracene		<	10	<	10	<	10	<	10	<10/<10	<	10
Acenaphthene	17	<	10	<	10	<	10	<	10	<10/<10	<	10
Acenaphthylene		<	10	<	10	<	10	<	10	<10/<10	<	10
Acetophenone	l	<	10	<	10	<	10	<	10	<10/<10] <	10
alpha,alpha-Dimethylphenethylamine		<	2,000	<	2,000	<	2,000	<	2,000	<2,000/<2,000	<	2,0
Aniline		<	20	<	20	<	20	<	20	<20/<20	<	20
Anthracene	9600	<	10	<	10	<	10	<	10	<10/<10	<	10
Aramite, Total		<	10	<	10	<	10	<	10	<10/<10	<	10
Benzo(a)anthracene	0.0044	<	10	<	10	<	10	<	10	<10/<10	<	1
Benzo(a)pyrene	0.0044	<	10	<	10	<	10	<		<10/<10	<	1
Benzo(b)fluoranthene	_	<	10	<	10	<	10	<		<10/<10	<	1
Benzo(g,h,i)perylene	_	<	10	<	10	<	10	<		<10/<10	<	i
Benzo(k)fluoranthene	0,0044	<	10	<	10] <	10	<		<10/<10	<	I
Benzyl alcohol		<	10	<	10	<	10	[<		<10/<10	<	1
bis(2-Chloroethoxy)methane		<	10	<	10	<	10	<		<10/<10	<	1
bis(2-Chloroethyl)ether	0.031	<	10	<	10	<	10			<10/<10	<	1
bis(2-Ethylhexyl)phthalate	1.8	<	10	<	10	<	10	<		<10/<10	<	1
	1.0	1.	10	<	10	٠,	20	<		1 -10/-10	1~	1,



TABLE 12 SUMMARY OF SURFACE WATER ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED

JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

···- 	Sample ID:	PADEP	SI	W-1	S	W-2	S	W-3		SW-4	SW-5	E	QB-1
	Sample Date:	Statewide Surface Water	1	/2003		8/2003		3/2003		2/8/2003	12/8/2003		/8/2003
Parameter		Title 25, Chapter 16 ^(b)			١.								
Semivolatile Organic Compounds cont'd. (u	g/I) ^(a)		-		_	1							
Chrysene		0.0044	<	10	<	10	<	10	<	10	<10/<10	<	10
Cresol (ortho)			<		<	10	<	10		140	120/110	<	10
Cresol, m & p		160 [©]	l<	10	<	10	<	10		37	25/24	<	10
Dialiate, Total			<	10	<	10	<	10	<	10	<10/<10	~	10
Dibenzo(a,h)anthracene		0.0044	<	10	<	10	<	10	<	10		ζ.	10
Dibenzofuran			<		<	10	<	10	<	10	<10/<10	<	10
Diethylphthalate		800	<	10	<	10	<	10	<	10		<	10
Dimethoate		-	<	10	<	10	<	10	<	10	<10/<10	<	10
Dimethylphthalate		500	<	10	<	10	<	10	<	10	<10/<10	<	10
Di-n-butylphthalate		. 21	<	10	<	10	<	10	<	10	<10/<10	<	10
Di-n-octylphthalate		•••	<	10	<	10	<	10	<	10	<10/<10	<	10
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		-	<	10	<	10	<	10	<	10	<10/<10	<	1
Disulfoton		· –	<	10	<	10	<	10	<	10	<10/<10	<	10
Ethyl methanesulfonate			<	10	<	10	<	10	<	10	<10/<10	<	10
Ethyl parathion (Parathion)		_	<	10	<	10	<	10	<	10	<10/<10	<	10
Famphur		_	<	10	<	10	<	10	<	10	<10/<10	<	10
Fluoranthene		40	<	10	<	10	<	10	<	10	<10/<10	<	1
Fluorene		1,300	<	10	<	10	<	10	<	10	<10/<10	<	10
Hexachlorobenzene		0.00075	<	10	<	10	<	10	<	10	<10/<10	<	1
Hexachlorobutadiene		0.44	<	10	<	10	<	10	<	10	<10/<10	<	1
Hexachlorocyclopentadiene		1	<	10	<	10	<	10	<	10	<10/<10	<	1
Hexachloroethane	•	1.9	<		<	10	<	10	<	10	<10/<10	<	1
Hexachlorophene		, –		5,000	<	5,000		5,000		5,000	<5,000/<5,000	<	5,0
Hexachloropropene	ŀ		<		<	10	<	10	<	10	h e	<	1
Indeno(1,2,3-cd)pyrene		0.0044	<	10	<	10	<	10	<	10	<10/<10	<	1
Isophorone		36	<	10	<	10	<	10	<	10		<	1
Isosafrole m-Dinitrobenzene			<	10	<	10	<	10	<	10		<	1
Methapyrilene	ŀ	_	 <	10	<	10	<	10	<	10		<	10
Methyl methanesulfonate				2,000	<	2,000		2,000		2,000	<2,000/<2,000	•	2,0
Methyl parathion		_	<		<	10	<	10	<	10	h l	<	14
Naphthalene		42	<	10	<	10	<	10	<	10		<	1
Nitrobenzene		43 17	< <		<	10	<	10	١.	26	17/17	<	1
N-Nitrosodiethylamine		0.00069	<	10	<	10	<	10	<	10	<10/<10	<	1
N-Nitrosodimethylamine		0.00069	<	10	< <	10	<	10	<	10	1	<	1
N-Nitrosodi-n-butylamine			<	10 10	<	10	<	10	<	10	1	<	1
n-Nitrosodi-n-propylamine		0,005	<	10	<	10 10	<	10 10	<	10	<10/<10	<	10
N-Nitrosodiphenylamine		5	<		<	10	<	10	<	10 10	1	<	1
N-Nitrosomethylethylamine	•		<	10	-	10	<	10	<	10	<10/<10 <10/<10	< <	11
N-Nitrosomorpholine			<	10	<	10	<	10	<	10	<10/<10	<	19
N-Nitrosopiperidine			<	10	<	10	<	10	<	10		<	19
N-Nitrosopyrrolidine			<	10	<	10	<	10	<	10	<10/<10	<	19
O,O,O-Triethyl phosphorothioate			<	10	<	10	<	10	<	10		~	19
o-Toluidine		_	<	10	<	10		10	~	10		~	19
p-(Dimethylamino)azobenzene			<		<	10	<		<	10		<	10
Pentachlorobenzene		_	<	10	<	10	<		<	10	<10/<10	<	I
Pentachloronitrobenzene		_	<	10	<	10	<	10	<	10	<10/<10	\ <	I.
Pentachlorophenol		0.28	<	50	<	50	<	50	<	50	<50/<50	\ <	5
Phenacetin		-	<	10	<	10	<	10	<	10	<10/<10	<	1
Phenanthrene		1	<	10	<	10	<	10	<	10	<10/<10	<	1
Phenol		21,000	<	10	<	10	<	10	<	10	<10/<10	'	1
Phorate		,	<		<	10	<	10	<	10	<10/<10	\ <	1
Pronamide	ŀ	_	<		<	10	<	10	<	10	<10/<10	'	1
Pyrene		960	<		<	10	<	10	<	10	<10/<10	` <	1
Pyridine		=	<		-	50	<	50	<	50	<50/<50	\ <	51
Safrole		·	<		<	10	<	10	<	10	<10/<10	` <	10
Sulfotepp (Tetraethyl dithiopyrophosphate)	##	<		<	10	<	10	<	10	<10/<10	<](
Thionazin (0,0-Diethyl-O-pyrazinyl phosph			<	10		10	<	10	<	10	<10/<10	<	1



TABLE 12 SUMMARY OF SURFACE WATER ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED

JEFFERSON PLANT

WEST ELIZABETH, PENNSYLVANIA

	Sample ID:	PADEP	П	SW-1	1	SW-2	S	W-3		SW-4	SW-5	E	QB-1
	Sample Date:	Statewide Surface Water	12	2/8/2003	12,	/8/2003	12/8	3/2003	12	2/8/2003	12/8/2003		/8/2003
Parameter		Title 25, Chapter 16 ^(b)											
Inorganics (ug/l)			•		_							<u>'</u>	• • •
Antimony		14	<	20	<	20	<	20	<	20	<20/<20	<	20.
Arsenic		50	<	10L [©]	<	10L	<	10L	<	10L	<10L/<10L	<	10L
Barium '		2,400	l	47		57		62		76	66/66	l	2.1J
Beryllium		· -	<	4	<	4	<	4	<	4	<4/<4	<	4
Cadmium		2.2	<	5	<	5	<	5	<	5	<5/<5	<	5
Chromium		74	ĺ	1.4B(k)	l	1.IB		1.2B		2B	2.1B/1.6B	<	10
Cobalt		19	<	10	<	10	<	10	<	10	<10/<10	<	10
Copper		9	<	20	<	20	<	20		3.33	<20/<20	<	20
Lead		2.5	<	5L	<	5L	<	5L	<	5L	<5L/<5L	<	5
Mercury		0.05	<	0.2	<	0.2	<	0.2	<	0.2	<0.2/<0.2	<	0.2
Nickel		52		11J		7.9J		3.4J		3.7J	2.8J/3.1J	<	40
Selenium		4.6	<	10R ⁰⁾	<	10R	<	10R	<	10R	<10R/<10R	<	10
Silver		75 0	<	10	<	10	<	10	<	10	<10/<10	<	10
Thallium		1.7	<	10L	<	10L	<	10L	<	10L	<10L/<10L	<	10
Tin			<	50	<	50	<	50	<	50	<50/<50	<	50
Vanadium		100	1	0.92B	<	10		1.7B]	2.3B	1.6B/1.5B	<	10
Zinc .		120		I4B		10B		16B	1	42	25/26		9.1J

TABLE 12 SUMMARY OF SURFACE WATER ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED JEFFERSON PLANT

WEST ELIZABETH, PENNSYLVANIA

- (a) "ug/l" is micrograms per liter.
- (b) Surface water samples were compared to the most stringent Surface Water Criteria (as defined by Title 25, Chapter 16, Appendix A, Table 1, November 18, 2000).
- (c) "--" denotes a standard for this compound does not exist.
- (d) "<x" indicates value less than method detection limit (MDL).
- (e) "x/x" indicates a duplicate sample was collected at this location.
- (f) "J" indicates an estimated value that is less than the reporting limit, but greater than instrument detection limit.
- (g) Bold value exceeds the corresponding PADEP statewide Surface Water Criteria.
- (h) Reported value is for total 1, 3-Dichloropropene
- (i) Reported value is for p-Cresol.
- (j) "L" indicates that the reported value may be biased low. Actual value is expected to be higher.
- (k) "B" indicates not detected substantially above the level reported in the laboratory or field blanks.
- (1) "R" indicates analyte may or may not be present in the sample.



•	Sample ID:		SD-1	Γ.	SD-2	_	SD-3	SD-4		SD-5
Parameter	Sample Date:	E	2/8/2003	'	12/8/2003	1:	2/8/2003	12/8/2003	12	2/8/200
Volatile Organic Compounds (ug/kg) (a)				_	-				Ь	
1,1,1,2-Tetrachloroethane		<	4.7 ^(b)	<	9,2	<	240	<10,000/<11,000 ^(e)	<	140
1,1,1-Trichloroethane		<	4.7	<		<	240	<10,000/<11,000	<	140
1,1,2,2-Tetrachloroethane		<	4.7	<	9.2	<	240	<10,000/<11,000	<	140
1,1,2-Trichloroethane		<	4.7	<	9.2	<	240	<10,000/<11,000	<	140
1,1-Dichloroethane		<	4.7	<	9.2	<	240	<10,000/<11,000	<	140
1,1-Dichloroethene		<	4.7	<	9.2	<	240	<10,000/<11,000	<	140
1,2,3-Trichloropropane		<	4.7	<	9.2	<	240	<10,000/<11,000	<	140
1,2,4-Trimethylbenzene			1.1J ^(d)	<	9.2		9,000	10,000/18,000		400
1,2-Dibromo-3-chloropropane		<	9.4	k	18	<	470	<20,000/<22,000	<	270
1,2-Dibromoethane (EDB)		<	4.7	<	9.2	<`	240	<10,000/<11,000	<	140
1,2-Dichloroethane		<	4.7	<	9.2	<	240	<10,000/<11,000	<	140
1,2-Dichloropropane		<	4.7	<	9.2	<	240	<10,000/<11,000	<	140
1,3,5-Trimethylbenzene		<	4.7	<	9.2	l	4,000	<10,000/<11,000		190
2-Butanone (Methyl ethyl ketone)		<	23	1	14J	<	1,200	<51,000/<56,000	<	680
2-Hexanone		<	23	<		<	1,200	<51,000/<56,000	<	680
3-Chloropropene (Allylchloride)		<	4.7	<		<	240	<10,000/<11,000	<	140
4-Methyl-2-pentanone (MIBK)		<	23	<		<	1,200	<51,000/<56,000	<	680
Acetone			79	ı	140	<	2,400	<100,000/<110,000	<	1,40
Acctonitrile		 	190	<		<	9,400	<410,000/<450,000	<	5,40
Acrolein (Propenal) Acrylonitrile		<	94	<		<	4,700	<200,000/<220,000	<	2,70
Benzene		<	94	<		<	4,700	<200,000/<220,000	<	2,70
Bromodichloromethane		_	4.8	L	3.2J	_	42J	<10,000/<11,000	<	140
Bromoform		<	4.7 4.7	<		<	240	<10,000/<11,000	<	140
Bromomethane (Methyl Bromide)		<	4.7	<		<	240	<10,000/<11,000	<	140
Carbon disulfide		`	41	`	9.2 80	<	240 240	<10,000/<11,000	< <	140
Carbon tetrachloride		<	4.7	<		~	240	<10,000/<11,000	<	140
Chlorobenzene		<	4.7	>		<	240	<10,000/<11,000	<	140
Chloroethane		<	4.7	<		<	240	<10,000/<11,000 <10,000/<11,000	<	140
Chloroform		<	4.7	-		<	240	<10,000/<11,000	<	140 140
Chloromethane (Methyl Chloride)		<	4.7	<		<	240	<10,000/<11,000	<	140
Chloroprene		<	4.7	<		<	240	<10,000/<11,000	<	140
cis-1,2-Dichloroethene		<	4.7	<		<	240	<10,000/<11,000	<	140
cis-1,3-Dichloropropene		<	4.7	<		<	240	<10,000/<11,000	<	140
Dibromochloromethane		<	4.7	<		<	240	<10,000/<11,000	<	140
Dibromomethane (Methylene bromide)		<	4.7	<	9,2	<	240	<10,000/<11,000	<	140
Dichlorodifluoromethane		<	4.7	<	9.2	<	240	<10,000/<11,000	<	140
Ethyl methacrylate		<	4.7	<	9.2	<	240	<10,000/<11,000	<	140
Ethylbenzene		l	1.5J	<	9.2		980	1,900J/2,400J	1	1,30
Iodomethane (Methyl iodide)		<	4.7	<	9.2	<	240	<10,000/<11,000	<	140
Isobutanol (Isobutyl alcohol)		<	190	<	370	<	9,400	<410,000/<450,000	<	5,40
Methacrylonitrile		<	94	<		<	4,700	<200,000/<220,000	<	2,70
Methyl methacrylate		<	4.7	<		<	240	<10,000/<11,000	<	140
Methylene chloride (Dichloromethane)		<	4.7	<		<	240	<10,000/<11,000	<	140
Pentachloroethane		<	23	<		<	1,200	<51,000/<56,000	<	680
Propionitrile		<	94	 <		<	4,700	<200,000/<220,000	 <	2,70
Styrene Tetrachloroethene		<	4.7	 			150J	<10,000/<11,000	<	140
Toluene		<	4.7	<		<	240	<10,000/<11,000	<	140
trans-1,2-Dichloroethene			4.7	<		_	100J	310,000/430,000		1,20
trans-1,3-Dichloropropene		<	4.7	<		<	240	<10,000/<11,000	<	140
trans-1,4-Dichloro-2-butene		<	4.7	<		<	240	<10,000/<11,000	<	140
Trichloroethene		<	9.4	<		<	470	<20,000/<22,000	<	270
Trichlorofluoromethane		<	4.7	\ <u></u>		<	240	<10,000/<11,000	<	140
Vinyl acetate		<	4.7 9.4	\ <		<	240	<10,000/<11,000	<u> </u>	
Vinyl chloride		>	9.4 4.7	<		<	470 240	<20,000/<22,000	< <	270
Xylenes, Total		-	9.4	<		1	24U	<10,000/<11,000 <20,000/3,200J	15	140 140



Sample ID:		SD-1		SD-2		SD-3	SD-4		SD-5
Sample Date: Parameter] 1	2/8/2003	1	2/8/2003		12/8/2003	12/8/2003	1:	2/8/2003
Semivolatile Organic Compounds (ug/kg)	_		_						
1,2,4,5-Tetrachlorobenzene	 	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
1,2,4-Trichlorobenzene	<	4,300	<	5,700	<		<4,500/<4,600	<	440
1,2-Dichlorobenzene (o-Dichlorobenzene)	<	4,300	<	5,700	<	,	<4,500/<4,600	<	440
1,3,5-Trinitrobenzene	<	4,300	<	5,700	<	•	<4,500/<4,600	<	440
1,3-Dichlorobenzene (m-Dichlorobenzene)	<	4,300	<	5,700	<		<4,500/<4,600	<	440
1,4-Dichlorobenzene (p-Dichlorobenzene)	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
1,4-Dioxane	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
1,4-Naphthoquinone	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
1,4-Phenylenediamine (p-Phenylenediamine)	<	22,000	<	29,000	<		<23,000/<24,000	<	2,300
1-Naphthylamine	 <	4,300	<	5,700	<		<4,500/<4,600	<	440
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	<	4,300	<	5,700	<		<4,500/<4,600	<	440
2,3,4,6-Tetrachlorophenol	<	4;300	<	5,700	<	-	<4,500/<4,600	<	440
2,4,5-Trichlorophenol	<	4,300	<	5,700	<	•	<4,500/<4,600	<	440
2,4,6-Trichlorophenol	<u> </u>	4,300	<	5,700	<	•	<4,500/<4,600	<	440
2,4-Dichlorophenol 2,4-Dimethylphenol	 	4,300	<	5,700	<	•	<4,500/<4,600	<	440
2,4-Dinitrophenol		4,300	<	5,700	<	,	<4,500/<4,600	<	440
2,4-Dinitrotoluene	< <	22,000 4,300	< <	29,000	<	,	<23,000/<24,000	<	2,300
2,6-Dichlorophenol	~	4,300	~	5,700 5,700	<		<4,500/<4,600	<	440
2,6-Dinitrotoluene	2	4,300	<	5,700	<	•	<4,500/<4,600	<	440
2-Acetylaminofluorene	{	4,300	~	5,700	<	•	<4,500/<4,600 <4,500/<4,600	<	440
2-Chloronaphthalene		4,300	~	5,700	<	,	<4,500/<4,600		440 440
2-Chlorophenol	{	4,300	~	5,700	<	,	<4,500/<4,600	<	440
2-Methylnaphthalene	<	4,300	~	5,700	<	•	<4,500/<4,600	<	440
2-Naphthylamine	<	4,300	<	5,700	<	, .	<4,500/<4,600	~	440
2-Nitroaniline (o-Nitroaniline)	<	22,000	<	29,000	<		<23,000/<24,000	<	2,300
2-Nitrophenol (o-Nitrophenol)	<	4,300	<	5,700	<		<4,500/<4,600	~	440
2-Picoline	<	4,300	<	5,700	<		<4,500/<4,600	<	440
3,3'-Dichlorobenzidine	<	8,700	<	11,000	<		<9,000/<9,200	<	890
3,3'-Dimethylbenzidine	<	22,000	<	29,000	<	,	<23,000/<24,000	<	2,300
3-Methylcholanthrene	<	4,300	<	5,700	<		<4,500/<4,600	<	440
3-Nitroaniline (m-Nitroaniline)	<	22,000	<	29,000	<	-	<23,000/<24,000	<	2,300
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	<	22,000	<	29,000	<		<23,000/<24,000	<	2,300
4-Aminobiphenyl	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
4-Bromophenylphenyl ether	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
4-Chloroaniline (p-Chloroaniline)	<	8,700	<	11,000	<	7,800	<9,000/<9,2000	<	890
4-Chlorophenylphenyl ether	<	4,300	<	5,700	<	•	<4,500/<4,600	<	440
4-Nitroaniline (p-Nitroaniline)	<	22,000	<	29,000	<		<23,000/<24,000	<	2,300
4-Nitrophenol (p-Nitrophenol)	<	22,000	<	29,000	<	•	<23,000/<24,000	<	2,300
4-Nitroquinoline-1-oxide	<	43,000	<	57,000	<	,	<45,000/<46,000	<	4,400
5-Nitro-o-toluidine	 	4,300	<	5,700	<	,	<4,500/<4,600	<	440
7,12-Dimethylbenz(a)anthracene	 	4,300	<	5,700	<	* .	<4,500/<4,600	<	440
Acenaphthene Acenaphthylene	ľ.	4,300	<	5,700	<		<4,500/<4,600	<	440
Acetophenone		4,300	<	5,700	<		<4,500/<4,600	<	440
alpha,alpha-Dimethylphenethylamine	 	4,300	<	5,700	<		<4,500/<4,600	<	440
Aniline	1	880,000		1,200,000			<920,000/<930,000	 	90,00
Anthracene	< <	4,300	< <	5,700	<		<4,500/<4,600	<	440
Aramite, Total		4,300 4,300	<	5,700	<	•	<4,500/<4,600	<	440
Benzo(a)anthracene	`	4,300 660J		5,700 620J	`		<4,500/<4,600	<	440
Benzo(a)pyrene	1	610J	<	5,700		1,400J 1,400J	560J/<4,600	`	440
Benzo(b)fluoranthene		490J	1	5,700 650J		1,400J 1,600J	560J/<4,600		57J
Benzo(g,h,i)perylene	-	490J 410J		490J		1,000J	<4,500/<4,600	_	56J
Benzo(k)fluoranthene		520J	<		1	960J	3903/380J		440
Benzyl alcohol	<	4,300	<	5,700	<		390J/<4,600 <4,500/<4,600		31J
bis(2-Chloroethoxy)methane		4,300	<	5,700	<		<4,500/<4,600 <4,500/<4,600	<	440 440
bis(2-Chloroethyl)ether	<	4,300	<	5,700	<	-	<4,500/<4,600 <4,500/<4,600	<	440
bis(2-Ethylhexyl)phthalate	<	4,300	<	5,700	<	•	<4,500/<4,600	`	410E
Butylbenzylphthalate	<	4,300	<	5,700	<	·	<4,500/<4,600	<	440



	Sample ID:		SD-1	Γ	SD-2		SD-3	SD-4 .	Г	SD-5
_	Sample Date:	12	/8/2003		2/8/2003	1	2/8/2003	12/8/2003	1	2/8/2003
Parameter				L						
Semivolatile Organic Compounds cont'd. (ug/kg)	·					_				
Chrysene	·		730J		610J		1500J	560J/<4,600	<	440
Cresol (ortho)		<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Cresol, m & p Diallate, Total	1	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Dibenzo(a,h)anthracene		< <	4,300	[5,700	<	3,900	<4,500/<4,600	<	440
Dibenzofuran		<	4,300 4,300	< <	5,700	_	400J	<4,500/<4,600	<	440
Diethylphthalate		<	4,300		5,700	< <	3,900	<4,500/<4,600	<	440
Dimethoate		<	4,300	/	5,700 5,700	٧	3,900 3,900	<4,500/<4,600	< <	440
Dimethylphthalate		<	4,300	<	5,700	/ \	3,900	<4,500/<4,600 <4,500/<4,600	<	440 440
Di-n-butylphthalate		<	4,300	`	5,700	<	3,900	<4,500/<4,600	<	440
Di-n-octylphthalate		<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)		<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Disulfoton		<	4,300	<	5,700	'	3,900	<4,500/<4,600	<	440
Ethyl methanesulfonate		<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Ethyl parathion (Parathion)	-	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Famphur	-	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Fluoranthene			1,200J		1,000J		2,100J	960J/520J	<	440
Fluorene	-	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Hexachlorobenzene	-	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Hexachlorobutadiene	-	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440.
Hexachlorocyclopentadiene	-	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Hexachloroethane		<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Hexachlorophene	-	< 2	,200,000	<	2,900,000	<	2,000,000	<2,300,000/<2,400,000	<	200,00
Hexachloropropene	-	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Indeno(1,2,3-cd)pyrene			430J		460J		9 7 0J	370J/330J		27
Isophorone		<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Isosafrole		<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
m-Dinitrobenzene		<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Methapyrilene					1,200,000			<920,000/<930,000	<	90,000
Methyl methanesulfonate		<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Methyl parathion		<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Naphthalene Nitrobenzene		<	4,300	<	5,700	<	3,900	710J/900J	<	440
N-Nitrosodiethylamine		<	4,300	<u>ا</u> <	5,700	<	3,900	<4,500/<4,600	<	440
N-Nitrosodiethylamine		<	4,300	 <	5,700	<	3,900	<4,500/<4,600	<	440
N-Nitrosodi-n-butylamine		<	4,300	<u>ا</u> ح	5,700	<	3,900	<4,500/<4,600	<	440
n-Nitrosodi-n-propylamine		< <	4,300	[]	5,700	<	3,900	<4,500/<4,600	<	440
N-Nitrosodiphenylamine		<	4,300 4,300	< <	5,700	۲	3,900	<4,500/<4,600	<	440
N-Nitrosomethylethylamine		<	4,300	~	5,700	٧	3,900	<4,500/<4,600	<	440
N-Nitrosomorpholine	- 1	<	4,300	<	5,700 5,700	<i>'</i>	3,900 3,900	<4,500/<4,600 <4,500/<4,600	<	440
N-Nitrosopiperidine		<	4,300	<	5,700	'	3,900	<4,500/<4,600 <4,500/<4,600	<	440 440
N-Nitrosopyrrolidine		<	4,300	<	5,700	<	3,900	<4,500/<4,600 <4,500/<4,600	<	440
O,O,O-Triethyl phosphorothioate		<	4,300	`	5,700	'	3,900	<4,500/<4,600 <4,500/<4,600	>	440
o-Toluidine		<	4,300	<	5,700	\ <	3,900	<4,500/<4,600 <4,500/<4,600	<	440
p-(Dimethylamino)azobenzene		<	4,300	~	5,700	<	3,900	<4,500/<4,600 <4,500/<4,600		440
Pentachlorobenzene		<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Pentachloronitrobenzene		<	4,300	<	5,700	<	3,900	<4,500/<4,600	>	440
Pentachlorophenol		<	-	<		<	20,000	<23,000/<24,000	<	2,300
Phenacetin		<	4,300	<		<	3,900	<4,500/<4,600	~	440
Phenanthrene			650J	<			480J	720J/<4,600	<	440
Phenol	.	<	4,300	<		<	3,900	<4,500/<4,600	<	440
Phorate		<	4,300	<		<	3,900	<4,500/<4,600	<	440
Pronamide		<	4,300	<		<	3,900	<4,500/<4,600	<	440
Pyrene	ŀ		1,100J		970J		2,200J	900J/500J		25J
Pyridine	[.	<	4,300	<		<	3,900	<4,500/<4,600	<	440
Safrole	l l	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440
Sulfotepp (Tetraethyl dithiopyrophosphate)		<	4,300	<		<	3,900	<4,500/<4,600	<	440
Thionazin (0,0-Diethyl-O-pyrazinyl phosphoroth	inate)	<	4,300	<	5,700	<	3,900	<4,500/<4,600	<	440



	Sample ID:	SD-1		SD-2	SD-3	SD-4		SD-5
_	Sample Date:	12/8/2003	1.7	2/8/2003	12/8/2003	12/8/2003	1:	2/8/2003
Parameter							1	
Inorganics (mg/kg) ^(e)				•				
Antimony ·		< 2.5	<	3.4R ^(f)	< 2.3	<2.4/<2.5	<	2.5
Arsenic		6.8L ^(g)	1	7.7L	10L	6.7L/4.6L		8.3L
Barium		270		180	460	210/140		130
Beryllium		2		1.8	2.1	1,1/1,5		1.1
Cadmium		0.2J	1	0.12J	< 0.57	<0.61/<0.63	<	0.61
Chromium		58K ^(h)		48K	60K	27K/8.9K		24K
Cobalt		14K		18K	12K	11K/6.1K		15K
Copper		23	ŀ	51L	33	35/13		28N
Lead		31L	1	37L	29	41L/8.9L		24L
Mercury		0.035		0.11	0.077	0.13/0.13		0.051
Nickel	·	. 34	ŀ	55	29	26/11		27
Selenium Silver		< 1.2R	<	1.7R	< 2.3	<1.2R/<1.3R	<	1.2R
Thallium		< 1.2	<	1.7	< 1.1	<1.2/<1.3	<	1.2
*****	-	< 1.2L	<	1.7L	< 2.3L	<1.2L/<1.3L	<	1.2L
Tin	,	2.6B ⁽ⁱ⁾		4.8B	2.3B	4.7B/2.6B		2.6B
Vanadium		37		33	52	23/7.6		31
Zinc		140		210K	160	180/65	1	110

- (a) "ug/kg" is micrograms per kilogram or parts per billion.
- (b) "<x" indicates value less than method detection limit (MDL).
- (c) "x/x" indicates a duplicate sample was collected at this location.
- (d) "J" indicates an estimated value that is less than the reporting limit, but greater than instrument detection limit.
- (e) "mg/kg" is milligrams per kilogram or parts per million.
- (f) "R" indicates analyte may or may not be present in the sample.
- (g) "L" indicates that the reported value may be biased low. Actual value is expected to be higher.
- (h) "K" indicates reported value may be biased high. Actual value is expected to be lower.
- (i) "B" indicates not detected substantially above the level reported in the laboratory or field blanks.

Sample ID:	OSHA ^(b)	Sample ID: OSHA ^(b) W W Poly ^(c)	MP Poly	Pilot Plant	C-5 Warehouse	V-8 Control Building	Field Blank ^(d)
Sample Date:	PELS	1/8/2004	1/8/2004	1/8/2004	1/8/2004	1/9/2004	1/8/2004
Parameter (mg/m³) ^(a)							
Ethylbenzene	435	0.14	0.29	<0.074	<0.062/<0.064 ^(g)	<0.072	0.069
Toluene	754	0.32	0.29	0.34	0.22/0.23	1.1	0.29
Naphthalene	50	<0.072 ^(f)	<0.064	<0.074	<0.062/<0.064	<0.072	<0.084
Benzene	3.19	<0.072	<0.064	<0.074	<0.062/<0.064	<0.072	<0.064
Xylenes(total) ^(e)	435	0.47	1.4	0.18	<0.12/<0.13	<0.14	0.264
Styrene	426	0.43	0.97	0.17	<0.062/<0.064	<0.072	0.073
PID ^(h) Readings (ppm) ⁽ⁱ⁾							
Inside Building	-	200	10	0.3	. 0	0	ŀ
Outside Building	;	0	1.6	0	0	0	!

- (a) "mg/m3" is milligrams per cubic meter.
- (b) Occupational Safety and Health Administration (OSHA) permissable exposure limits (PELs).
- (c) Indoor air samples were collected over an eight-hour period using Summa canisters and flow controllers.
- (d) Field Blank is an ambient air field blank sample that was collected outside of the MP Poly building.
 - (e) Xylenes(total) concentration was obtained by adding m&p-xylene and o-xylene concentrations.
 - (f) "<x" indicates value less than method detection limit (MDL).
- "--/--" indicates a duplicate sample was collected at this location.
 - (h) Photoionization Detector (PID) 10.2 electron volt lamp.
 - (i) "ppm" is parts per million.
- (j) PID readings were measured prior to canister deployment, at sample collection time mid-point (4 hours), and just prior to end of the sampling interval.
 - Value reported is the highest of the three PID readings measured at the respective location.

TABLE 15 SUMMARY OF WATER LEVELS AND DRAWDOWN VALUES UNDER CREEK INTERCEPTOR TRENCH HERCULES INCORPORTATED JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

Signite Water Level Water Level Drawdown Water Level Drawdown Time (Rest, TOR) Gleaf						2	2/26/2004	4				
Time (Rect, TOR) ⁹ Time (Rect, TOR) ⁹ Time (Rect, TOR) ⁹ Time (Rect, TOR) ⁹ Time Tim			Static Water Level		Water Level			1	Drawdown		Water Level	Drawdown
824 648 1031 7.02 0.54 1157 7.23 0.85 1329 810 9.95 1034 10.59 0.64 12.01 10.84 0.89 1320 816 9.95 1034 10.59 0.64 12.01 10.04 0.89 1320 821 9.15 1045 9.78 0.63 1216 10.04 0.89 1320 824 4.13 1030 4.13 0.00 1207 15.03 0.12 1340 856 1.581 1042 1.877 0.00 1207 12.74 0.01 1328 848 1.2.73 1043 18.78 0.00 1211 14.99 0.02 134 848 1.2.46 1040 9.64 0.00 1209 14.90 0.03 134 848 1.2.46 1040 9.64 0.00 1209 14.90 0.00 134 870 1.100 1.044	Well/Piezometer	Time	(feet,	Time	(feet, TOR)	(feet) ^(b)	Time	(feet, TOR)	(feet)	Time	(feet, TOR)	(feet)
810 9.95 1034 10.59 0.64 12.01 10.84 0.89 1332 816 7.39 1051 8.02 0.65 1215 8.26 0.87 1530 821 9.15 1061 8.02 0.65 1215 8.26 0.87 1530 824 4.13 1062 1.587 0.00 1158 4.13 0.00 1328 856 15.81 1043 1.272 -0.01 1209 12.74 0.01 1341 858 12.73 1043 1.272 -0.01 1209 12.74 0.01 1342 852 118.78 1044 118.78 0.00 1219 14.90 0.02 1341 842 14.95 1041 14.95 0.00 1209 14.20 0.02 1342 843 15.81 1044 18.78 0.00 1209 14.90 0.00 1342 840 10.24 0.00	MH-A	824	6.48	1031	7.02	0.54	1157	7.33	0.85	1329	7.56	1.08
816 739 1051 8.02 0.63 1215 8.26 0.87 1350 821 9.15 1045 9.78 0.65 1210 1004 0.89 1344 824 4.13 1030 4.13 0.00 1158 4.13 0.00 1328 826 15.81 1043 15.87 0.00 1274 0.00 1328 828 12.73 1043 21.51 0.00 12.74 0.02 1341 849 21.51 1043 21.52 0.00 1212 18.80 0.02 1342 842 18.78 1044 18.78 0.00 1219 12.74 0.02 1343 833 2.56 1049 18.78 0.00 1210 1340 1341 848 12.46 18.78 0.00 1205 1490 0.00 1320 1430 0.01 1349 848 12.46 1044 18.74 <td< td=""><td>MH-B</td><td>810</td><td>9.95</td><td>1034</td><td>10.59</td><td>0.64</td><td>12.01</td><td>10.84</td><td>0.89</td><td>1332</td><td>11.12</td><td>1.17</td></td<>	MH-B	810	9.95	1034	10.59	0.64	12.01	10.84	0.89	1332	11.12	1.17
821 9.15 1045 9.78 0.65 1210 10.04 0.89 1344 824 4.13 1030 4.13 0.00 1158 4.13 0.00 1328 826 15.81 1042 15.87 0.00 1159 0.12 1441 828 15.73 1043 12.72 0.01 12.74 0.01 1342 849 21.51 1043 21.51 0.00 12.14 0.02 1343 849 21.51 1040 18.78 0.00 12.14 0.02 1345 849 21.51 1040 18.78 0.00 12.14 0.02 1345 848 2.56 1041 14.95 0.00 1201 14.90 0.03 1345 831 0.54 0.00 1201 12.99 0.00 1338 0.00 1348 0.00 1348 0.00 1348 0.00 1348 0.00 1348 0.00	МН-С	816	7.39	1051	8.02	0.63	1215	8.26	0.87	1350	8.53	1.14
824 4.13 1030 4.13 0.00 1158 4.13 0.00 1328 856 15.81 1042 15.87 0.06 1274 15.93 0.12 1341 858 12.73 1043 12.72 -0.01 12.74 0.01 1342 889 21.51 1043 21.51 0.00 12.14 0.01 1343 889 21.51 1043 21.51 0.00 1212 18.80 0.02 1343 882 18.78 1044 18.78 0.00 1212 18.80 0.02 1343 882 18.29 1049 18.78 0.00 120 18.90 0.00 1349 1341 833 5.56 1040 12.40 0.00 120 12.40 0.01 1303 1342 848 12.46 1040 12.49 0.00 120 12.60 0.01 1334 900 17.20 10.14	MH-D	821	9.15	1045	9.78	0.63	1210	10.04	0.89	1344	10.31	1.16
856 15.81 1042 15.87 0.06 12.9 15.93 0.12 1342 858 12.73 1043 12.72 -0.01 12.74 0.01 1342 859 21.51 1043 12.72 -0.01 12.74 0.01 1342 849 21.51 1043 12.51 0.00 121 18.80 0.02 1343 822 18.78 1041 18.78 0.00 121 18.80 0.02 1345 832 18.29 1041 14.95 0.00 1202 14.90 0.02 1341 833 9.64 1040 9.64 0.00 1205 18.80 0.07 1326 848 12.46 1040 9.64 0.00 1205 1324 1334 900 1720 12.00 12.00 12.00 1342 1402 848 11.00 11.04 0.00 120 12.20 0.04 134	Stream ^(c)	824		1030	4.13	0.00	1158	4.13	0.00	1328	4.13	0.00
888 12.73 1043 12.72 -0.01 12.04 0.00 12.14 0.00 13.45 849 21.51 1043 21.51 0.00 1214 0.00 1349 0.00	E-8D	856	15.81	1042	15.87	0.06	1207	15.93	0.12	1341	15.93	0.12
849 21.51 1043 21.51 0.00 1211 21.49 -0.02 1345 852 18.78 1044 18.78 0.00 1212 18.80 0.00 1345 842 14.95 1041 14.95 0.00 1209 14.90 -0.05 1341 843 5.56 1036 5.56 0.00 1203 15.91 1334 843 5.56 1038 10.81 0.00 1205 15.98 0.00 1334 848 12.46 1040 9.64 0.00 1205 15.98 0.00 1334 900 17.20 1051 17.21 0.00 1205 15.26 0.00 1336 900 17.20 1051 17.21 0.00 12.26 0.00 1336 900 17.20 1040 18.43 0.00 12.26 1.25 0.00 1348 902 4.65 1101 8.17 0.00	E-9	828	12.73	1043	12.72	-0.01	1209	12,74	0.01	1342	12.74	0.01
852 18.78 0.00 1212 18.86 0.02 1345 842 14.95 1041 14.95 0.00 1209 14.90 0.00 139 1341 833 5.56 1036 5.56 0.00 1203 5.57 0.01 1334 834 19.81 0.00 1205 19.88 0.07 1336 900 172.06 1040 9.64 0.00 12.60 9.61 0.03 1336 900 172.0 1036 12.49 0.03 12.60 9.61 1.033 1336 900 172.0 1040 17.21 0.01 12.20 0.03 1326 1405 1405 1405 1405 1405 1405 1405 1405 1104 0.00 1220 17.21 0.01 1318 1405 1405 1104 1104 0.00 1220 8.20 0.03 1318 1405 1405 1405 1405 1405 <td>E-13D</td> <td>849</td> <td>21.51</td> <td>1043</td> <td>21.51</td> <td>0.00</td> <td>1211</td> <td>21.49</td> <td>-0.02</td> <td>1343</td> <td>21.49</td> <td>-0.02</td>	E-13D	849	21.51	1043	21.51	0.00	1211	21.49	-0.02	1343	21.49	-0.02
842 14.95 1041 1495 0.00 1209 1490 -0.05 134 833 5.56 1036 5.56 0.00 1203 5.57 0.01 1334 835 19.81 10.38 19.81 0.00 1203 5.57 0.01 1334 838 9.64 10.40 9.64 0.00 1206 9.61 0.03 1339 900 17.20 10.34 0.03 1202 12.50 0.04 1336 902 17.20 10.5 17.21 0.01 12.5 0.04 1336 834 4.65 1101 8.17 0.02 12.20 8.20 0.04 1405 834 8.15 1101 8.17 0.02 12.21 4.89 0.24 1405 853 11.00 11.04 0.00 12.22 8.20 0.04 133 854 16.54 1040 11.04 0.00 12.24 <	E-14	852	18.78	1044	18.78	00:0	1212	18.80	0.02	1345	18.80	0.02
833 5.56 1036 5.56 0.00 1203 5.57 0.01 1334 835 19.81 10.81 10.81 10.81 10.00 1205 19.88 0.07 137 838 9.64 10.40 9.64 0.00 1206 9.61 0.03 1305 1339 900 17.20 10.24 10.24 0.03 1202 12.50 0.04 1336 902 17.20 10.24 0.03 12.02 12.50 0.04 1336 903 17.20 10.24 0.03 12.25 4.89 0.24 1336 834 8.15 1101 8.17 0.02 12.23 8.89 0.24 1405 853 11.00 11.04 0.02 12.21 12.24 0.00 1347 873 116.54 10.44 16.54 0.00 12.24 15.24 0.00 134 874 10.24 10.24 10.24 </td <td>E-15</td> <td>842</td> <td>14.95</td> <td>1041</td> <td>14.95</td> <td>0.00</td> <td>1209</td> <td>14.90</td> <td>-0.05</td> <td>1341</td> <td>14.89</td> <td>-0.06</td>	E-15	842	14.95	1041	14.95	0.00	1209	14.90	-0.05	1341	14.89	-0.06
835 19.81 10.88 0.00 1208 19.88 0.07 1337 838 9.64 1040 9.64 0.00 1206 9.61 -0.03 139 139 848 12.46 1036 12.49 0.03 1202 12.50 0.04 1336 900 172.0 1051 17.21 0.01 1216 17.21 0.01 1351 902 4.65 1107 4.89 0.24 1232 4.89 0.24 1405 834 8.15 1101 8.17 0.02 1229 8.20 0.05 1405 853 11.00 1040 11.04 0.02 1229 8.20 0.05 134 853 16.54 1040 0.04 123 8.20 0.05 134 850 16.54 1040 16.54 0.00 121 10.40 1338 853 20.17 1053 13.24 10.24 1	E-16	833		1036	5.56	0.00	1203	5.57	0.01	1334	5.57	0.01
838 9,64 1040 9,64 0.00 1206 9,61 -0.03 139 848 12.46 1036 12.49 0.00 12.50 0.04 1336 900 17.20 1051 17.21 0.01 17.21 0.01 1351 902 4.65 1107 4.89 0.24 1232 4.89 0.24 132 834 8.15 1101 8.17 0.02 12.29 4.89 0.24 1405 834 11.00 11.04 0.02 12.22 4.89 0.24 1405 857 11.60 11.04 0.00 12.18 16.54 0.00 134 877 16.54 1047 16.54 0.00 12.14 0.00 134 879 20.17 1050 20.17 0.00 1221 20.26 0.00 1348 879 15.55 1056 17.75 0.00 12.27 13.42 0.00	E-17D	835	18.61	1038	19.81	0.00	1205	19.88	0.07	1337	19.90	0.09
848 12.46 1036 12.49 0.03 12.50 0.04 1336 900 1720 1051 17.21 0.01 1216 17.21 0.01 1351 905 4.65 1107 4.89 0.24 1232 4.89 0.24 1301 834 8.15 1101 8.17 0.02 1229 8.20 0.05 1402 835 11.00 1040 11.04 0.04 1205 11.04 0.04 1338 907 19.24 1047 16.54 0.00 1224 19.24 0.00 1347 859 20.17 1050 20.17 0.00 1221 20.26 0.09 1348 859 17.75 1056 17.75 0.00 1221 20.26 0.09 1348 837 113.32 1058 13.35 0.00 1226 17.73 0.02 1369 84 14.59 1049 14.59	E-18	838	9.64	1040	9.64	00.00	1206	9.61	-0.03	1339	9.58	-0.06
900 17.20 1051 17.21 0.01 13.15 0.01 13.21 0.01 13.21 0.01 13.21 0.024 13.22 4.89 0.24 13.22 4.89 0.24 13.22 4.89 0.24 1405 1405 1405 1405 1405 1405 1405 1405 1405 1405 1405 1405 1405 15.24 0.00 12.13 15.24 0.00 13.44 0.00 13.47 0.00 13.47 0.00 13.48 13.47 0.00 13.44 0.00 13.48 13.45 0.00 13.48 13.45 0.00 13.42 0.00 13.42 0.00 13.48 13.48 13.48 13.48 13.48 13.48 13.48 13.48 13.48 13.48 13.42 0.00 13.42 0.00 13.48 13.48 13.48 13.48 13.48 13.48 13.48 13.48 13.48 14.40 14.40 14.40 14.40 14.40 14.40	E-26	848	12.46	1036	12.49	0.03	1202	12.50	0.04	1336	12.49	0.03
905 4.65 1107 4.89 0.24 1232 4.89 0.24 1405 1402 834 8.15 1101 8.17 0.02 1229 8.20 0.05 1402 853 11.00 1040 11.04 0.04 1203 11.04 0.04 1338 857 16.54 1047 16.54 0.00 1224 0.00 1347 859 20.17 1050 20.17 0.00 1221 20.26 0.09 1348 859 17.75 1050 20.17 0.00 1221 20.26 0.09 1348 890 17.75 1056 17.75 0.00 1226 17.73 -0.02 1348 817 15.55 1058 13.35 0.03 1227 13.42 0.00 1400 81 15.55 0.00 1228 15.62 0.07 1400 844 9.55 1049 14.59 0.00	E-29	900	17.20	1021	17.21	0.01	1216	17.21	0.01	1351	17.20	0.00
834 8.15 1101 8.17 0.02 1229 8.20 0.05 1402 853 11.00 1040 11.04 0.04 1205 11.04 0.04 1338 857 16.54 1047 16.54 0.00 1218 16.54 0.00 1347 907 19.24 1053 19.24 0.00 1221 20.26 0.09 1348 839 20.17 1050 17.75 0.00 1226 17.73 0.00 1348 837 113.32 1058 13.35 0.00 1228 17.73 0.00 136 915 15.55 1058 13.35 0.00 1228 13.42 0.10 1400 916 14.59 14.59 0.00 1228 13.62 0.01 1400 916 14.59 1045 0.00 121 1228 0.01 1400 916 14.59 0.00 1218 9.92	E-32	905	4.65	1107	4.89	0.24	1232	4.89	0.24	1405	4.89	0.24
853 11.00 11.04 0.04 1205 11.04 0.04 1205 11.04 0.04 1218 11.04 0.04 138 138 138 138 138 138 138 138 137 137 137 0.00 1218 16.54 0.00 134 0.00 134 0.00 134 0.00 135 0.00 1354 0.00 1354 0.00 1354 0.00 1348 1348 1348 1348 1348 1348 1400	E-33	834		1011	8.17	0.02	1229	8.20	0.05	1402	8.25	0.10
857 16.54 1047 16.54 0.00 1218 16.54 0.00 1318 16.54 0.00 1347 907 19.24 1053 19.24 0.00 1224 0.00 1324 0.00 1324 0.00 1348 859 20.17 1056 17.75 0.00 1221 20.26 0.09 1348 915 13.32 1058 13.35 0.03 1227 13.42 0.10 1400 902 3.63 1105 3.62 -0.01 1228 15.62 0.07 1400 902 14.59 1049 14.59 0.00 1218 3.62 -0.01 1404 -0.01 1404 844 9.55 1054 9.85 0.30 1218 9.92 0.04 1348 840 12.99 1103 13.05 0.06 121 0.09 13.08 0.09 1358	E-35	853	8	1040	11.04	0.04	1205	11.04	0.04	1338	11.05	0.05
907 19.24 1053 19.24 0.00 1224 19.24 0.00 1354 859 20.17 1050 20.17 0.00 1221 20.26 0.09 1348 837 11.32 1056 17.75 0.00 1226 17.73 -0.02 1356 915 15.55 1058 13.35 0.00 1228 15.62 0.07 1400 902 3.63 1105 3.62 -0.01 1230 3.62 -0.01 14.63 0.04 1348 844 9.55 1054 14.59 0.06 1218 9.92 0.04 1348 840 12.99 1103 13.05 0.06 1225 13.08 0.09 1358	E-40	857	16.54	1047	16.54	00.00	1218	16.54	0.00	1347	16.54	0.00
859 20.17 1050 20.17 0.00 1221 20.26 0.09 13.8 909 17.75 1056 17.75 0.00 1226 17.73 -0.02 13.56 915 15.55 1058 13.35 0.00 1228 15.62 0.07 1400 902 3.63 1069 14.55 0.00 1213 14.63 0.04 1348 9 16 14.59 1054 9.85 0.30 1213 9.92 0.04 1348 840 9.55 103 9.85 0.30 1218 9.92 0.37 1353 840 12.99 1103 13.05 0.06 1225 13.08 0.09 1358	E-43	200		1053	19.24	00.00	1224	19.24	0.00	1354	19.24	0.00
909 17.75 1056 17.75 0.00 1226 17.73 -0.02 13.6 837 13.32 1058 13.35 0.03 1227 13.42 0.10 1400 915 15.55 1058 15.55 0.00 1228 15.62 0.07 1400 916 14.59 1049 14.59 0.00 1213 14.63 0.04 1348 844 9.55 1054 9.85 0.30 1218 9.92 0.37 1353 840 12.99 1103 13.05 0.06 1225 13.08 0.09 1358	E-47D	859	20.17	1050	20.17	0.00	1221	20.26	0.09	1348	20.25	80.0
837 13.32 1058 13.35 0.03 1227 13.42 0.10 1400 915 15.55 1058 15.55 0.00 1228 15.62 0.07 1400 902 3.63 1105 3.62 -0.01 1230 3.62 -0.01 1404 916 14.59 1049 14.59 0.00 1213 14.63 0.04 1348 844 9.55 1054 9.85 0.30 1218 9.92 0.37 1353 840 12.99 1103 13.05 0.06 1225 13.08 0.09 1358	E-54	606	17.75	1056	17.75	00.00	1226	17.73	-0.02	1356	17.69	-0.06
915 15.55 1058 15.55 0.00 1228 15.62 0.07 1400 902 3.63 1105 3.62 -0.01 1230 3.62 -0.01 1404 1404 916 14.59 1049 14.59 0.00 1213 14.63 0.04 1348 840 9.55 1054 9.85 0.30 1218 9.92 0.37 1353 840 12.99 1103 13.05 0.06 1225 13.08 0.09 1358	E-60	837	13.32	1058	13.35	0.03	1227	13.42	0.10	1400	13.42	0.10
902 3.63 1105 3.62 -0.01 1230 3.62 -0.01 14.63 -0.01 14.63 -0.01 14.63 -0.04 1348 844 9.55 1054 9.85 0.30 1218 9.92 0.37 1353 840 12.99 1103 13.05 0.06 1225 13.08 0.09 1358	E-61	915	15.55	1058	15.55	00.0	1228	15.62	0.07	1400	15.62	0.07
916 14.59 16.49 14.59 0.00 1213 14.63 0.04 13.48 844 9.55 1054 9.85 0.30 1218 9.92 0.37 1353 840 12.99 1103 13.05 0.06 1225 13.08 0.09 1358	W-10	905		1105	3.62	-0.01	1230	3.62	-0.01	1404	. 3.63	0.00
844 9.55 1054 9.85 0.30 1218 9.92 0.37 1353 840 12.99 1103 13.05 0.06 1225 13.08 0.09 1388	W-21A	916	14.59	1049	14.59	0.00	1213	14.63	0.04	1348	14.67	80.08
840 12.99 1103 13.05 0.06 1225 13.08 0.09 1358	LP-2	844	9.55	1054	9.85	0.30	1218	9.92	0.37	1353	96'6	0.41
	LP-5	840	12.99	1103	13.05	90.0	1225	. 13.08	0.09	1358	13.10	0.117



TABLE 15 SUMMARY OF WATER LEVELS AND BRAWDOWN VALUES UNDER CREEK INTERCEPTOR TRENCH HERCULES INCORPORTATED JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

		2/26/2004				2/2	2/27/2004		
WolliDiazamater	Time	Water Level	Drawdown	, i	Water Level	Drawdown	Ē	Water Level	Drawdown
ACIT A	3,111		(1001)	3116	ı	(leel)		(leet, 1OK)	(leet)
W.H-A	1430	1.11	1.29	819	7.10	0.62	1307	8.10	1.62
MH-B	1458	11.34	1.39	811	11.52	1.57	1308	11.52	1.57
MH-C	1515	8.76	1.37	802	8.90	1.51	1310	8.90	1.51
MH-D	1510	10.55	1.40	802	10.71	1.56	1311	10.71	1.56
Stream ^(e)	IJ	}	1	745	4.13	0.00	1305	4.13	0.00
E-8D	1506	15.99.	0.18	804	15.81	0.00	1312	15.81	0.00
E-9	1508	12.78	0.05	803	12.73	0.00	1313	12.73	0.00
E-13D	1508	21.49	-0.02	838	21.53	0.02	1341	21.53	0.02
E-14	1510	18.78	0.00	839	19.80	1.02	1342	19.80	1.02
E-15	1507	14.89	-0.06	837	15.96	1.01	1340	15.96	1.01
E-16	1501	5.56	0.00	755	5.64	0.08	1335	5.64	0.08
E-17D	1503	19.89	0.08	832	19.91	0.10	1336	19.91	0.10
E-18	1505	9.54	-0.10	833	9.61	-0.03	1338	9.61	-0.03
E-26	1501	12.51	0.05	826.	12.71	0.25	1355	12.71	0.25
E-29	1512	17.19	-0.01	841	17.27	0.07	1348	17.24	0.04
E-32	1528	4.89	0.24	824	4.85	0.20	1330	4.85	0.20
E-33	1524	8.28	0.13	820	8.41	0.26	1325	8.41	0.26
E-35	1505	11.09	0.09	908	11.00	0.00	1315	11.00	0.00
E-40	1516	16.50	-0.04	848	16.50	-0.04	1317	16.50	-0.04
E-43	1519	19.20	-0.04	921	19.28	0.04	1350	19.28	0.04
E-47D	1517	20.13	-0.04	849	20.19	0.02	1345	20.19	0.02
E-54	1522	17.73	-0.02	920	17.80	0.05	1352	17.79	0.04
E-60	1522	13.46	0.14	917	15.58	2.26	1322	15.58	2.26
E-61	1527	15.63	0.08	917	15.58	0.03	1353	15.57	0.02
W-10	1526	3.63	0.00	823	3.55	-0.08	1346	3.55	-0.08
W-21A	1513	14.76	0.17	758	14.99	0.40	1318	14.99	0.40
LP-2	1518	9.94	0.39	950	9.98	0.43	1320	86.6	0.43
LP-5	1520	13.11	0.12	826	13.20	0.21	1321	13.20	0.21
	Notes-								

- (a) "feet, TOR" is water level measured in reference to the top of riser.
- (b) Drawdown is calculated by subtracting the static water level from the assessment water level. Positive drawdown indicates the lowering of the water level.
- (c) Stream level was monitored next to MH-A during the assessment.

Page 1 of 1

TABÜË 16 SUMMARY OF WATER LEVELS AND DRAWDOWN VALUES LOWER PLANT INTERCEPTOR TRENCH HERCULES INCORPORTATED JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

~	т —	•		_			_	_	_		_		_				_		_					
	Drawdown	0.05	68'0	4.86	0.36	0.01	00'0	0,05	-0.37	-0.26	0.03	0.08	-0.11	-2.55	0,18	-0.35	0.13	0.18	0.18	0.12	0.00	0.07	-0.10	0.09
	Water Level	11 01	17.86	24.02	20.10	18.27	1.82	4.54	18.15	7.05	5.62	3.74	7.10	0.74	15.70	12.04	4.53	10.20	12.72	2.25	5.01	9.45	3,14	12.40
2110/07		1045	1042	1040	1037	1034	1005	1016	1003	1030	1017	1001	8101	1022	1002	1028	0101	6001	1012	1020	1026	1000	1014	1024
	Drawdown	0.05	68'0	4.86	0.37	0,01	0.00	0.05	-0.37	-0.26	0.03	80.0	-0.11	-2.55	0.18	-0.35	0.13	0.18	81.0	0.12	0.00	. 0.07	-0.10	0.09
	Water Level	11.01	17.86	24.02	20.11	18.27	1.82	4.54	18.15	7.05	5.62	3.74	7.10	0.74	15.70	12.04	4.53	10.20	12.72	2.25	5.01	9.45	3.14	12.40
		817	840	815	811	810	800	828	804	845	628	820	830	839	813	832	824	822	825	834	837	817	826	842
	Drawdown	0.05	0.00	4,03	0.56	0.00	-0.01	-0.02	0.05	NA .	-0.04	0.05	0.01	0.31	0.04	-0.04	-0.02	-0.07	0.01	-0.02	0.01	0.02	0.02.	10:0
	Water Level	11.01	16.91	23.19	20.30	18.26	181	4.47	18.57	NA	5.55	3.71	7.22	3.60	15.56	12.35	4.38	9.95	12.55	2.11	5.02	9.40	3.26	12.32
	i.i.	1645	1642	1640	1637	1634	1605	9191	1603	1630	1617	1607	1618	1622	1602	1628	1610	1609	1612	1620	1626	1600	1614	1624
	Drawdown (feet)	0.05	0.00	4.07	0.56	0.00	-0.01	-0.03	0.02	-0.38	-0.04	0.04	00'0	0.27	0.04	-0.04	-0.05	-0.07	0.01	-0.02	10.0	0.02	0.02	0.01
,04	Water Level (feet, TOR)	11.01	16.97	23.23	20.30	18.26	1.81	4.46	18.57	6.93	5.55	3.70	7,21	3,56	15.56	12.35	4.35	9.95	12.55	2.11	5.02	9.40	3.26	12.32
2/18/0	Time	1416	1411	1407	1403	1400	1401	1413	1400	1420	1414	1405	1415	1420	1357	1425	1408	1407	1409	1416	1418	1355	1411	1422
	Drawdown (feet) ^(h)	90.0	-0.01	77.0	0.54	0,01	-0.02	0.02	0.04	-0.30	0.00	-0.06	0.00	80.0	00'0	-0.09	0.00	-0.08	-0.01	0.02	0.00	10:0	0.01	0.01
	Water Level (feet, TOR)	11.02	16.96	19.93	20.28	18.27	1.80	4.51	18.56	7.01	5.59	3.60	7.21	3.37	15.52	12.30	4.40	9.94	12.53	2.15	5.01	9.39	3,25	12.32
	Тітс	1035	1030	1024	1018	1015	1017	1029	1015	1040	1030	1020	1031	1041	1013	1039	1027	1022	1025	1032	1033	1010	1027	1046
	Static Water Level (ft., TOR) ⁽¹⁾	10.96	16.97	19.16	19.74	18,26	1.82	4.49	18,52	7.31	5.59	3.66	7.21	3.29	15.52	12.39	4.40	10.02	12.54	2.13	5.01	9.38	3.24	12.31
	Time	839	835	812	817	823	832	852	830	842	854	836	857	006	815	158	838	840	842	845	857	814	850	808
	Well Plezometer	MH-1	MH-2	MH-3	MH-4	MH-5	B-21	E-32	E-28D	B-30	B-31	E-34	E-59	W-IA	W-2A	W-7	W-15	MW-F3	P-6	LP-7	LP-8	LP-9	W-10	X-0 ^(c)

- (a) "feet, TOR" is water level measured in reference to the top of riser.
- (b) Drawdown is calculated by subtracting the static water level from the assessment water level. Positive drawdown indicates the lowering of the water level.
 - (c) X-0 is a staff gauge location was used to measure the water level in the Monongahela River during the assessment.

YV and an address	Sample Description: Sample Date/Time:	PADEP Statewide Surface Water		Pipe Influent 3/2/2004	Oı	n-Site Culvert 3/2/2004	36"	Pipe Effluen 3/2/2004
Parameter (9)		Title 25, Chapter 16(b)	<u> </u>					
Volatile Organic Compounds (ug/l) (2)								
1,1,1,2-Tetrachloroethane		0.17	<	I ^(c)	<	I	<	1
1,1,1-Trichloroethane	•	610	<	1	<	1	<	1
1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane		0.17	<	1	<	i	<	1
		0.6	<	. 1	<	1	<	1
1,1-Dichloroethane		(d)	<	1	<	1	<	1
1,1-Dichloroethene		0.057	<	1	<	1	<	1
1,2,3-Trichloropropane		210	<	1	<	1	<	1
1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane		-	<	1		38		4.5
1,2-Dibromoethane (EDB)			<	1	<	1	<	1
1,2-Dichloroethane		0.38	< <	1	<	1	< <	1
1,2-Dichloropropane		2200	<	1 1	<	1	<	1
1,3,5-Trimethylbenzene		2200		1	`	1 21	`	1
-			1				ĺ	1.6
2-Butanone (Methyl ethyl ketone) 2-Hexanone		21000	<	10		3.7J ^(c)	<	10
3-Chloropropene (Allylchloride)		4,300	<	10	<	10	<	10
4-Methyl-2-pentanone (MIBK)		5 000	<	1	<	1	<	1
Acetone		5,000	<	10	<	10	<	10
Acetonitrile		3,500	< <	25		24J	<	25
Acrolein (Propenal)		1	<	40	<	40	<	40
Acrylonitrile		0.059	<	20 20	< <	20	<	20
Benzene		1.2	<		<	20	< <	20
Bromodichloromethane			<	1	<	1	<	i
Bromoform		4.3	<	1	<	1	<	1
Bromomethane (Methyl Bromide)		48		1	<	1	<	1
Carbon disulfide		40	<	1	<	1	<	I
Carbon tetrachloride		0.25	<	1	<	1 1	<	1
Chlorobenzene		240	<	1	<		<	1
Chloroethane		240	<	1	<	1	<	1 1
Chloroform	i	5.7	<	1	<	1	<	1
Chloromethane (Methyl Chloride)		5,500	<	1	<	1	<	1
Chloroprene		3,500	<	1	<	1	<	1
cis-1,2-Dichloroethene		••	<	i	<	1	<	1
cis-1,3-Dichloropropene		10 ^(h)	l		i		l	
Dibromochloromethane		10.	<	1	<	1	<	1
Dibromomethane (Methylene bromide)			<	1	<	1	< <	1
Dichlorodifluoromethane			<	1	_	1	<	1
Ethyl methacrylate		<u>-</u>	~	1	<	1	<	1
Ethylbenzene		580	<	1		120	`	1
Iodomethane (Methyl iodide)		700 ,		1	<	1	<	5
Isobutanol (Isobutyl alcohol)			<	40		40	< .	1
Methacrylonitrile		_	<	20	<	20	<	40 20
Methyl methacrylate				20 1		1		
Methylene chloride (Dichloromethane)		5,500	<	5 .	<	5	<	5
Pentachloroethane			~	5	~	5	<	5
Propionitrile			<	20	<	20	<	20
Styrene			<	1	`	87		0.79J
Tetrachloroethene		0.8	<	i	<	1	<	1
Toluene		330	<	1	Ī	3.3	<	1
trans-1,2-Dichloroethene		700	<	1	<).5 l	<	' 1
trans-1,3-Dichloropropene		10 ^(h)		1	<		<	
trans-1,4-Dichloro-2-butene			<	2	<	1	< <	1
Trichloroethene		2.7	< ·	1	<	2 1	< <	2
Trichlorofluoromethane		4.1	<	1	<		<	1
Vinyl acetate	•		<	2	\ <u>`</u>	1 2	<	1
Vinyl chloride		2	<	- 1	<	1	<	. 2
Xylenes, Total		210	<	2	`	19	l`	1 2.4



Sample Description : Sample Date/Time :	PADEP Statewide Surface Water	36"	Pipe Influent 3/2/2004	O	n-Site Culvert 3/2/2004	361	' Pipe Efflue 3/2/2004
arameter	Title 25, Chapter 16(b)						·
emivolatile Organic Compounds (ug/l)							
1,2,4,5-Tetrachlorobenzene		<	10	<	10	<	10
1,2,4-Trichlorobenzene	26	<	10	<	10	<	10
1,2-Dichlorobenzene (o-Dichlorobenzene)	160	<	10	<	10	<	10
1,3,5-Trinitrobenzene		<	10	<	10	<	10
1,3-Dichlorobenzene (m-Dichlorobenzene)	69	<	10	<	10		10
1,4-Dichlorobenzene (p-Dichlorobenzene)	150	<	10	<	10	< <	10
I,4-Dioxane		<	10	<	10	<	
1,4-Naphthoquinone		<	10	<		<	. 10
1,4-Phenylenediamine (p-Phenylenediamine)		<		<	10		10
1-Naphthylamine	-	•	2,000		2,000	<	2,000
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	1.400	 <	10	<	10	<	10
	1,400	<	10	<	10	<	10
2,3,4,6-Tetrachlorophenol		<	10	<	10	<	10
2,4,5-Trichlorophenol		<	10	<	10	<	10
2,4,6-Trichlorophenol	2.1	<	10 .	<	10	<	10
2,4-Dichlorophenol	93	<	10	<	10	<	10
2,4-Dimethylphenol	130	<	10	<	10	<	10
2,4-Dinitrophenol	70	<	50	<	50	<	50
2,4-Dinitrotoluene	0.05	<	10	<	10	<	10
2,6-Dichlorophenol		<	10	<	10	<	10
2,6-Dinitrotoluene	0.05	<	10	<	10	<	
2-Acetylaminofluorene		<	10	<		<	10
2-Chloronaphthalene		ŀ			10	1	10
2-Chlorophenol	1,700	<	10	<	10	<	10
2-Methylnaphthalene	110	<	10	<	10	<	10
•		<	10	<	10	<	10
2-Naphthylamine		<	10	<	10	<	10
2-Nitroaniline (o-Nitroaniline)	_	<	50	<	50	<	50
2-Nitrophenol (o-Nitrophenol)	1,600	<	10	<	10	<	10
2-Picoline	-	<	10	<	10	<	10
3,3'-Dichlorobenzidine	0.04	<	20	<	20	<	20
3,3'-Dimethylbenzidine		<	20	<	20	<	20
3-Methylcholanthrene		<	-	<	10	<	10
3-Nitroaniline (m-Nitroaniline)		<	50	<	50	` <	50
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	13.4	<		<	50	<	50
1-Aminobiphenyl		<		<	10	\ \	
-Bromophenylphenyl ether		<		<		<i>\</i>	10
l-Chloro-3-methylphenol (p-Chloro-m-cresol)		ı			10		10
-Chloroaniline (p-Chloroaniline)	30	<		<	10	<	10
-Chlorophenylphenyl ether	_	<		<	20	<	20
		<		<	10	<	10
-Nitroaniline (p-Nitroaniline)	 '	<	50	<	50	<	50
-Nitrophenol (p-Nitrophenol)	470	<	50	<	50	<	50
-Nitroquinoline-1-oxide	-	<	20	<	20	<	20
-Nitro-o-toluidine		<	10	<	10	<	10
,12-Dimethylbenz(a)anthracene		<	10	<	10	<	10
cenaphthene	17	<	10	<	10	<	10
cenaphthylene		<		<	10	<	10
cetophenone		<	10	-		<	10
lpha,alpha-Dimethylphenethylamine		<	-	<	2,000	<	
miline		<		<			2,000
nthracene		<i>'</i> <			20	<	20
ramite, Total				<	10	<	10
enzo(a)anthracene		<		<	10	<	10
• •		<		<	10	<	10
enzo(a)pyrene		<	10	<_	10	<	10
enzo(b)fluoranthene		<	10	ς΄	10	<	10
lenzo(g,h,i)perylene		<	10	<	10	<	10
enzo(k)fluoranthene		<		<	10	<	10
enzyl alcohol		<		<	10	<	10
is(2-Chloroethoxy)methane		<		<	10	<	10
is(2-Chloroethyl)ether		/		<		<	
			10 }	`	10	<	10
is(2-Ethylhexyl)phthalate	1.8	<	10	<	10	<	10



TABLE 17 SUMMARY OF CULVERT WATER ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED JEFFERSON PLANT

WEST ELIZABETH, PENNSYLVANIA

Sample Description	on: PADEP	36'	' Pipe Influent	Ö	n-Site Culvert	361	' Pipe Effluent
Sample Date/Time			3/2/2004		3/2/2004		3/2/2004
Parameter .	Title 25, Chapter 16(b)		•			1	
Semivolatile Organic Compounds cont'd.(ug/l)		_	•				
Chrysene	0.0044	~	10	<	10	<	10
Cresol (ortho)		<.	10	<	10	<	10
Cresol, m & p	160 ⁽ⁱ⁾	<	10	<	10	<	10
Diallate, Total	100	<	10	<	10	<	10
Dibenzo(a,h)anthracene	0.0044	<	10	~	10	<	10
Dibenzofuran	0.0044	<	10	<	10	<	10
Diethylphthalate	800	<	10	-	10	<	10
Dimethoate	-	<	10	<	10	<	10
Dimethylphthalate	500	<	10	<	10	<	10
Di-n-butylphthalate	21	<	10	<	10	<	10
Di-π-octylphthalate	_	<	10	<	10	<	10
Dinoseb (2-sec-Butyl-4,6-dinitrophenol)	_ ,	<	10	<	10	<	10
Disulfoton		<	10	<	10	<	10
Ethyl methanesulfonate		<	10	<	10	<	10
Ethyl parathion (Parathion)	_	<	10	<	10	<	10
Famphur	_	<	10	<	10	<	10
Fluoranthene	40	<	10	<	10	<	10
Fluorene	1,300	<	10	<	10	<	10
Hexachlorobenzene	0.00075	<	10	<	10	<	10
Hexachlorobutadiene	0.44	<	10	<	10	<	10
Hexachlorocyclopentadiene	1	<	10	<	10	<	10
Hexachloroethane	1.9	<	10	<	10	<	10
Hexachlorophene		<	5,000	<	5,000	<	5,000
Hexachloropropene		<	10	<	10	<	10
Indeno(1,2,3-cd)pyrene	0.0044	<	10	<	10	<	10
Isophorone	36	<	10	<	10	<	10
Isosafrole	_	<	10	<	10	<	10
m-Dinitrobenzene	_	<	10	<	10	<	10
Methapyrilene	_	<	2,000	<	2,000	<	2,000
Methyl methanesulfonate		<	10	<	10	<	10
Methyl parathion		<	10	<	10	<	10
Naphthalene	43	<	10	<	10	<	10
Nitrobenzene	17	<	10	<	10	<	10
N-Nitrosodiethylamine	0.00069	<	10	<	10	<	10
N-Nitrosodimethylamine	0.00069	<	10	<	10	<	10
N-Nitrosodi-n-butylamine		<	10	<	10	<	10
n-Nitrosodi-n-propylamine	0.005	<	10	<	10	<	10
N-Nitrosodiphenylamine	5 .	<	10	<	10	<	10
N-Nitrosomethylethylamine		<	10	<	10	<	10
N-Nitrosomorpholine	 .	<	10	<	10	<	10
N-Nitrosopiperidine		<	10	<	10	<	10
N-Nitrosopytrolidine		<	10	<	10		10
O,O,O-Triethyl phosphorothioate		<	10	<	10	<	10
o-Toluidine		<	10	<	/ 10	<	10
p-(Dimethylamino)azobenzene		<	10	<	(10	<	10
Pentachlorobenzene		<	10	<	\ 10	<	10
Pentachloronitrobenzene	_	<	10	<	10	<	10
Pentachlorophenol	0.28	<	50	<	∑ 50	<	50
Phenacetin	_	<	10	<	10	<	10
Phenanthrene	1	<	10	<	10	<	10
Phenol	21,000	<	10	<	10	<	10
Phorate	-	<	10	<	10	<	10
Pronamide		<	10	<	10	<	10
Pyrene	960 .	<	10	<	10	<	10
Pyridine		<	50	<	50	<	50
Safrole	_	<	10	<	10	<	. 10
Sulfotepp (Tetraethyl dithiopyrophosphate)		<	10	<	10	<	10
Thionazin (0,0-Diethyl-O-pyrazinyl phosphorothioate)		<	10	<	10	<	10



TABLE 17 SUMMARY OF CULVERT WATER ANALYTICAL RESULTS CUMMINGS/RITER (2004) HERCULES INCORPORATED JEFFERSON PLANT

WEST ELIZABETH, PENNSYLVANIA

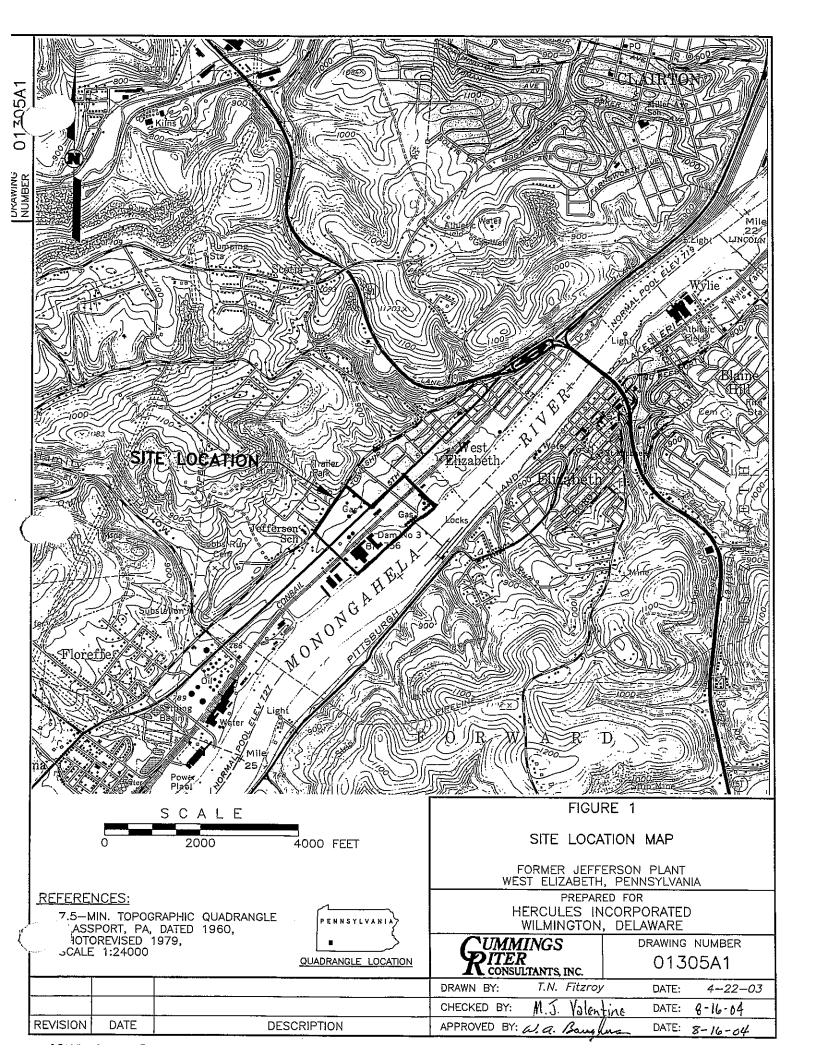
Parameter	Sample Description : Sample Date/Time :	PADEP Statewide Surface Water Title 25, Chapter 16 ^(b)	361	' Pipe Influent 3/2/2004	Oi	3/2/2004	36'	Pipe Effluent 3/2/2004
Inorganics (mg/l) ^(f)			-		•			
Antimony		14	<	20	<	20	<	20
Arsenic		50	<	10L	<	10L	<	10L
Barium		2,400		50		35	1	. 52
Beryllium		- '		0.41J	<	4	<	4
Cadmium	•	2.2	<	5	<	5	 <.	5
Chromium		74	<	10	1	3.7B	<	10
Cobalt		19		5.5J	<	10		6.2J
Copper		9		2.8J		49 ^(b)	ł	2.9Ј
Lead		2.5	<	5L [©]		6.3B	<	5L
Mercury		0.05	<	0.2L	<	0.2L	<	0.2L
Nickel		52		42	1	47	ļ	42
Selenium		4.6	<	10L		8.4B	<	10L
Silver		750	<	10	<	10	<	10
Thallium		1.7	<	10L		6.8B	<	10L
Tin		-	<	50	<	50	<	50
Vanadium		100		1.1B ⁽ⁱ⁾		3.7B		1.4B
Zinc		120	l	59	1	410	1	67

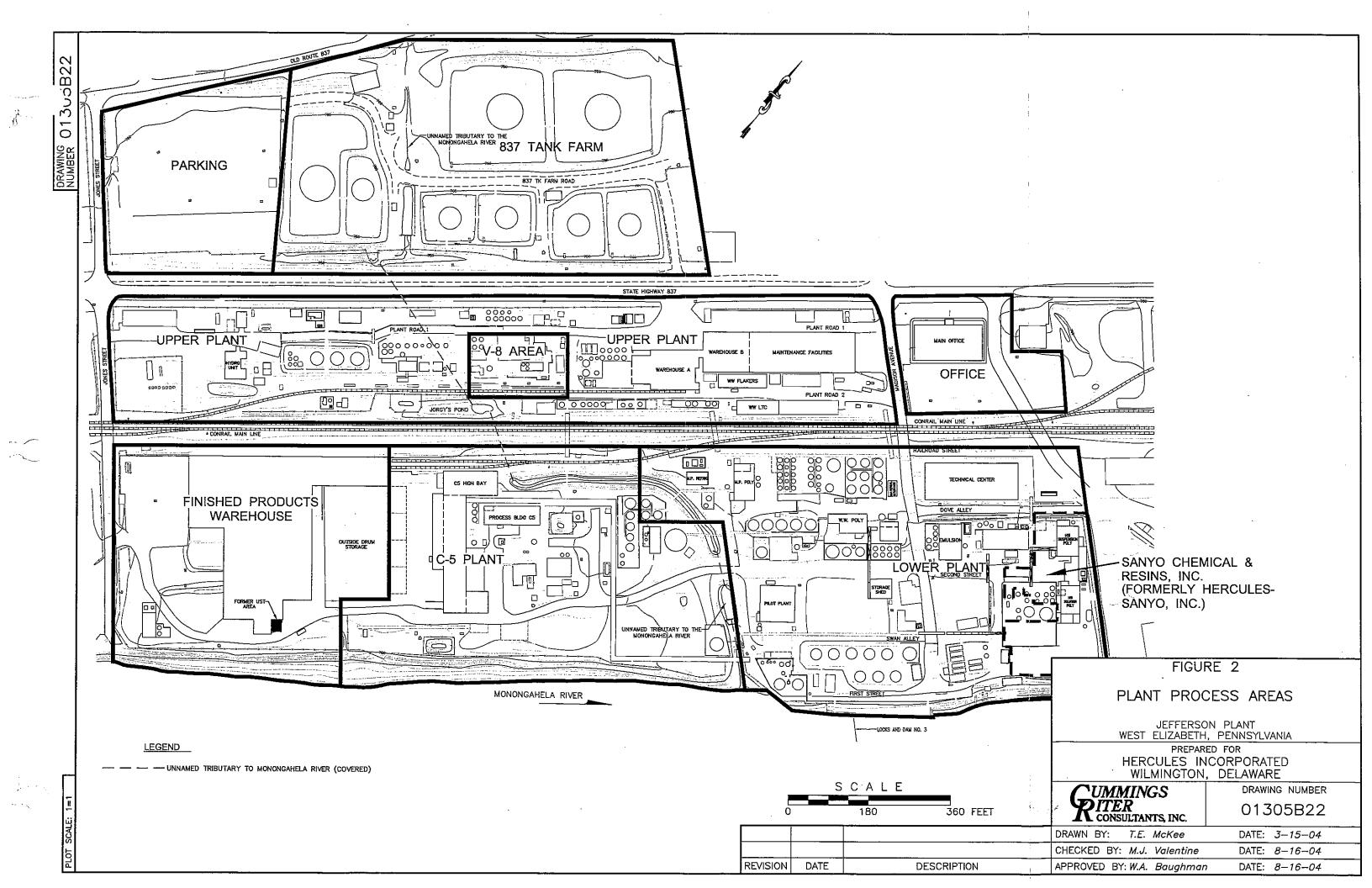
- (a) "ug/l" is micrograms per liter or parts per billion.
- (b) Surface water samples were compared to the most stringent Surface Water Criteria (as defined by Title 25, Chapter 16, Appendix A, Table 1, November 18, 2000).
- (c) "<x" indicates value less than method detection limit (MDL).
- (d) "-" denotes a standard for this compound does not exist.
- (e) "J" indicates an estimated value that is less than the reporting limit, but greater than instrument detection limit.
- (f) "mg/l" is milligrams per liter or parts per million.
- (g) "L" indicates a reported value may be biased low. Actual value is expected to be higher.
- (h) Bold value exceeds the corresponding PADEP statewide Surface Water Criteria.
- (i) "B" indicates not detected substantially above the level reported in the laboratory or field blanks.

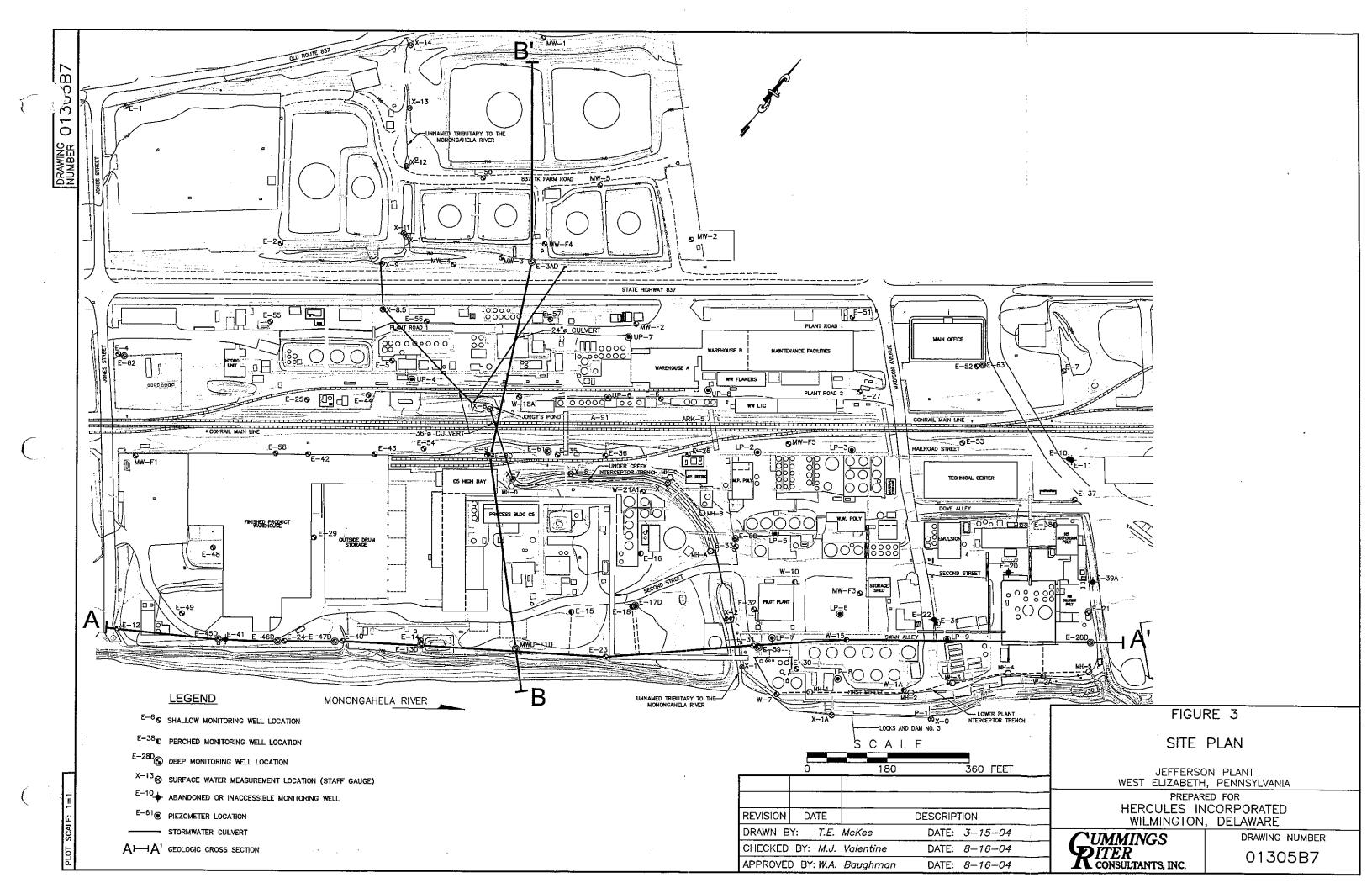
.

FIGURES

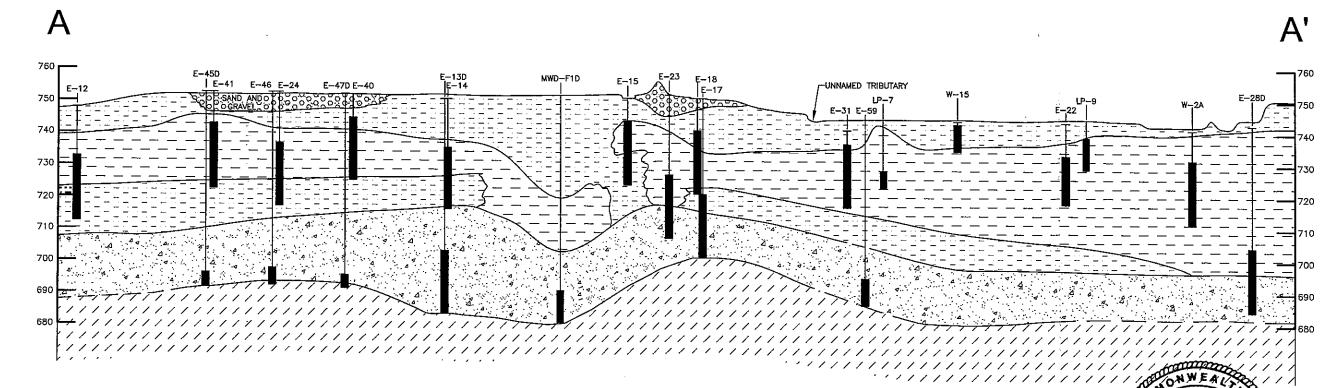












<u>VIEW LOOKING NORTHWEST</u>

NOTES

- 1. SEE FIGURE 3 FOR PLAN LOCATION OF HYDROGEOLOGIC CROSS-SECTIONS.
- 2. THE BORING LOGS AND RELATED INFORMATION DEPICTED SUBSURFACE CONDITIONS ONLY AT THE SPECIFIC LOCATIONS AND DATES INDICATED. SOIL CONDITIONS AT OTHER LOCATIONS MAY DIFFER FROM CONDITIONS OCCURRING AT THESE BORING LOCATIONS. ALSO THE PASSAGE OF TIME MAY RESULT IN A CHANGE IN THE CONDITIONS AT THESE BORING LOCATIONS.
- 3. THE DEPTH AND THICKNESS OF THE SUBSURFACE STRATA INDICATED ON THE SECTIONS WERE GENERALIZED FROM AND INTERPOLATED BETWEEN THE TEST BORINGS. INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXISTS ONLY AT THE LOCATION OF THE TEST BORINGS AND IT IS POSSIBLE THAT SUBSURFACE CONDITIONS BETWEEN THE TEST BORINGS MAY VARY FROM THOSE INDICATED.

LEGEND

SAND AND GRAVEL SILTY SAND/SANDY SILT

CLAYEY SILT/SILTY CLAY

SAND TO TRACE GRAVEL

CASSELMAN FORMATION

VERTICAL SCALE 60

HORIZONTAL SCALE 60 120 180

FIGURE 4

GEOLOGIC CROSS SECTION A-A'

JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

PREPARED FOR HERCULES INCORPORATED WILMINGTON, DELAWARE

CUMMINGS
RITER CONSULTANTS, INC.
A CONSULTANTS, INC.

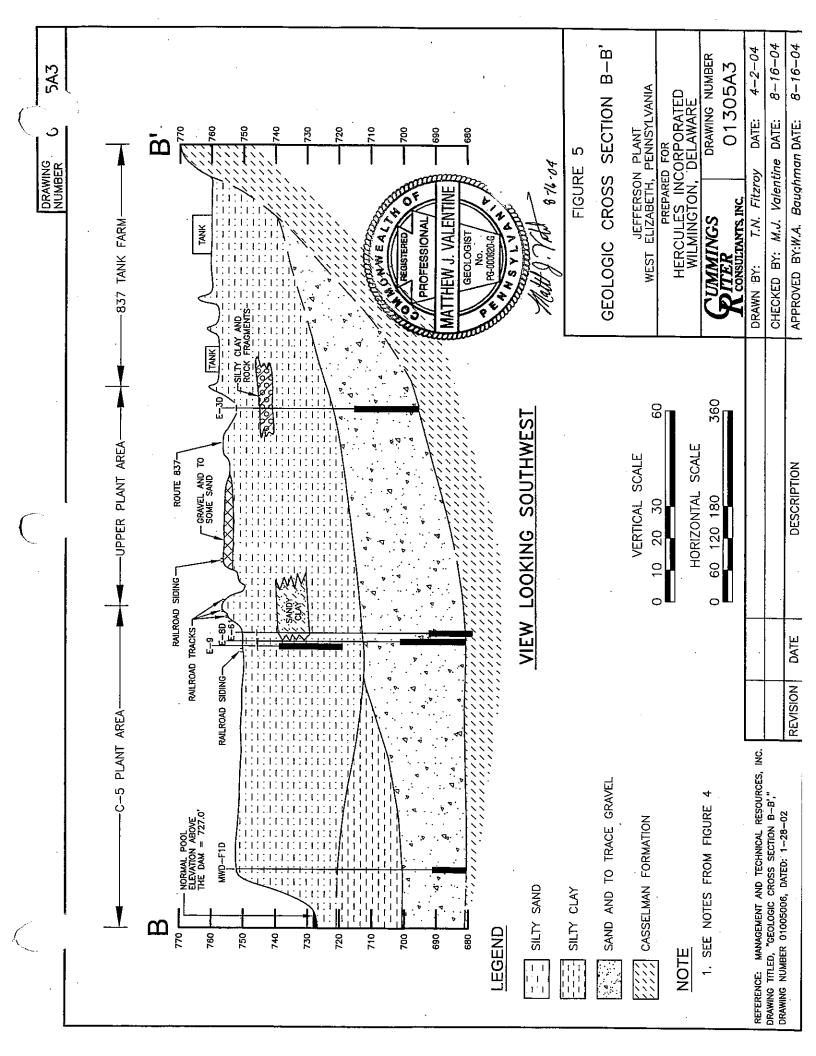
\PROFESSIONAL MATTHEW J. VALENTINE **GEOLOGIST**

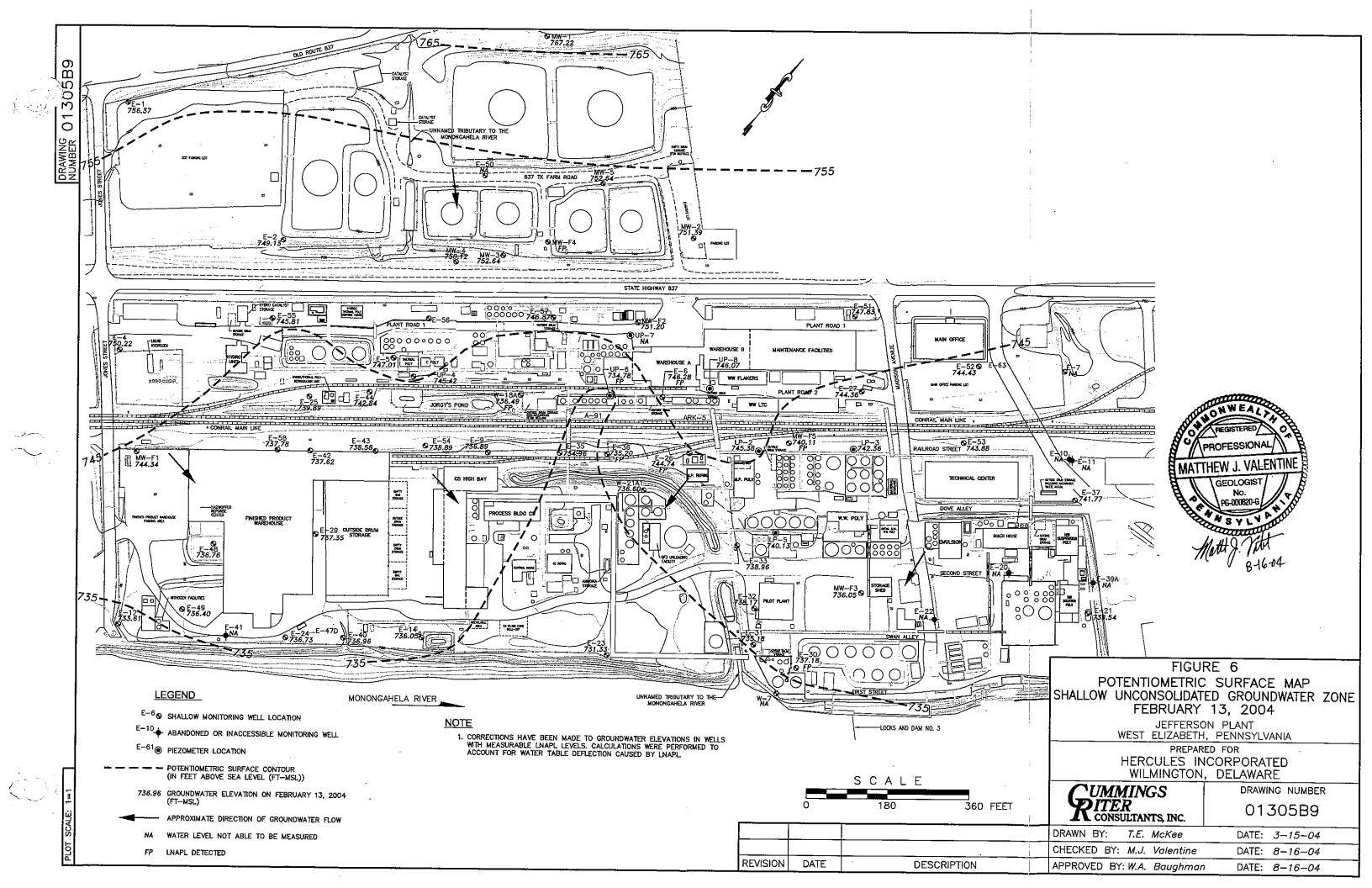
> DRAWING NUMBER 01305B24

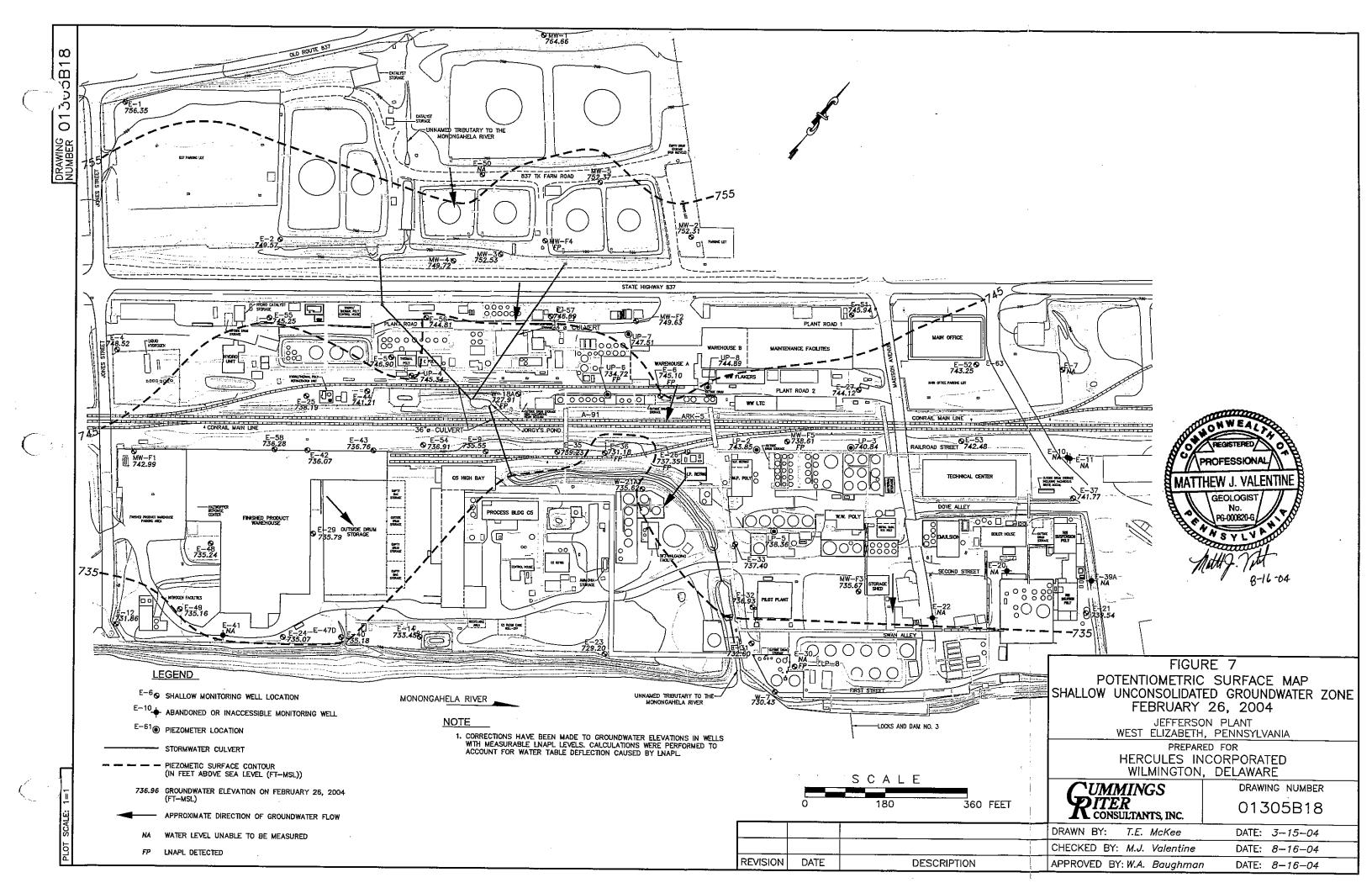
DRAWN BY: T.N. Fitzroy DATE: 4-2-04 CHECKED BY: M.J. Valentine DATE: 8-16-04 REVISION DATE DESCRIPTION APPROVED BY: W.A. Baughman DATE: 8-16-04

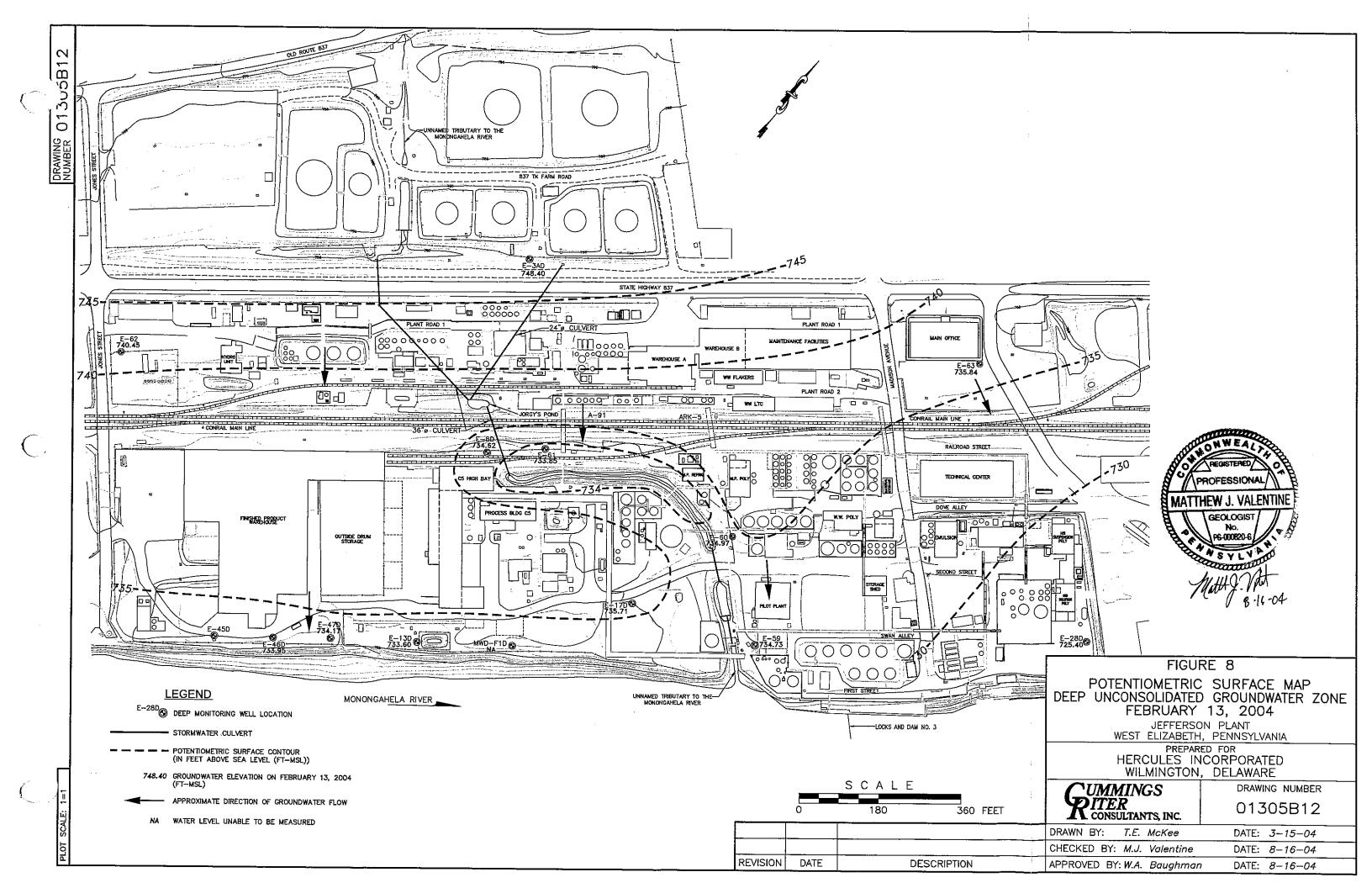
REFERENCE:

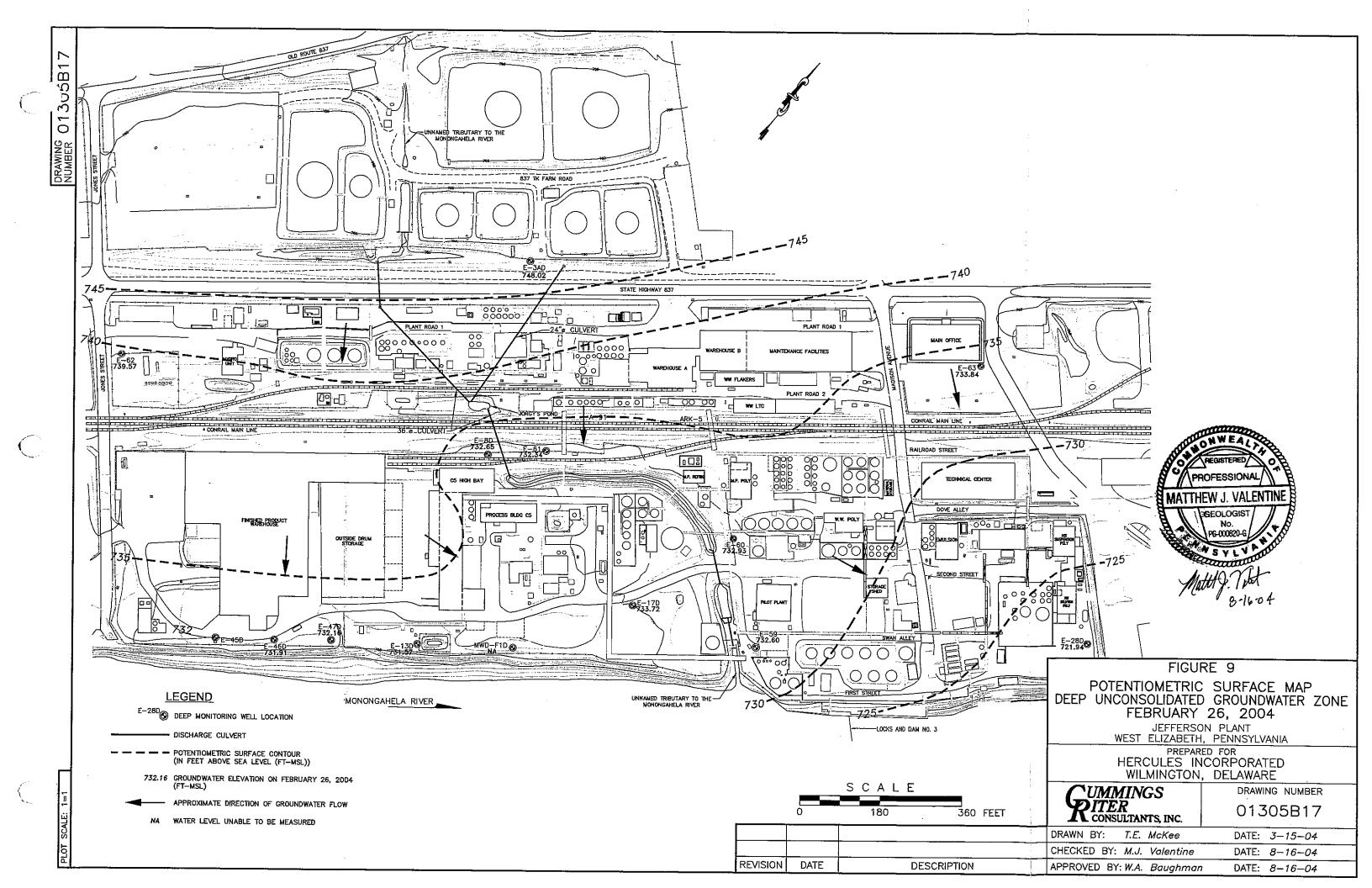
MANAGEMENT AND TECHNICAL RESOURCES, INC. DRAWING TITLED "GEOLOGIC CROSS SECTION A-A'," DRAWING NUMBER: 01005005, DATED: 1-28-02.

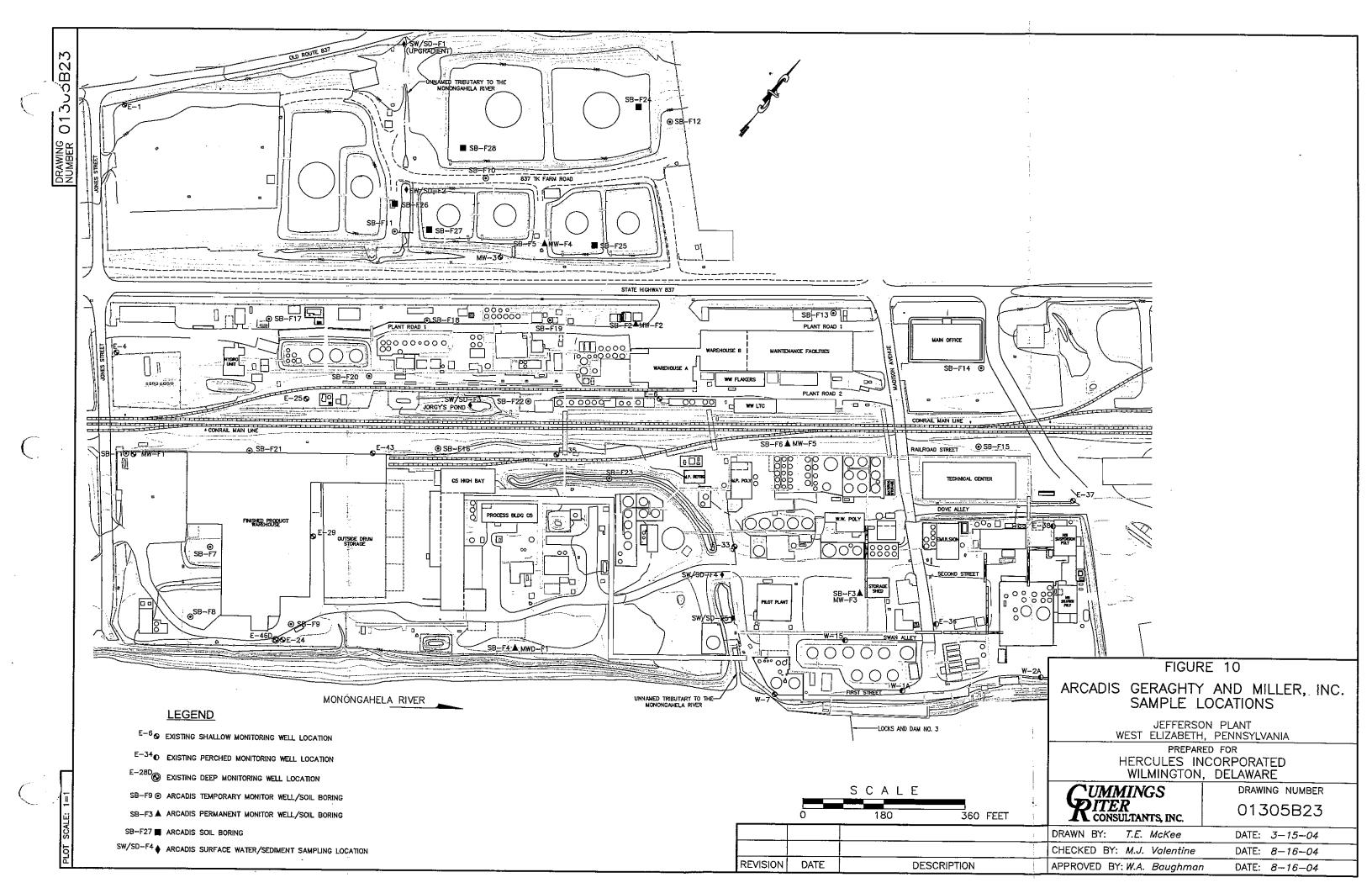


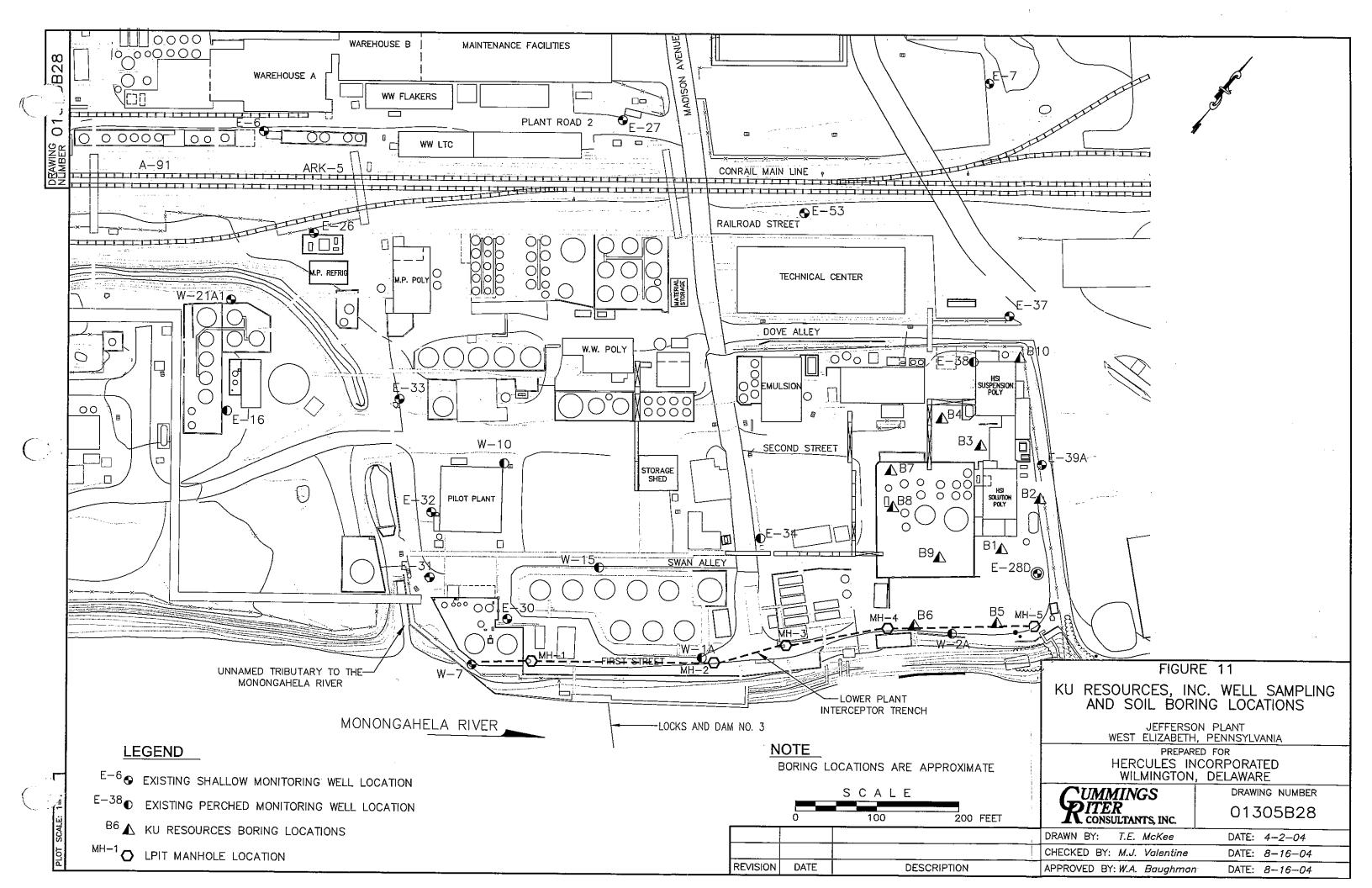


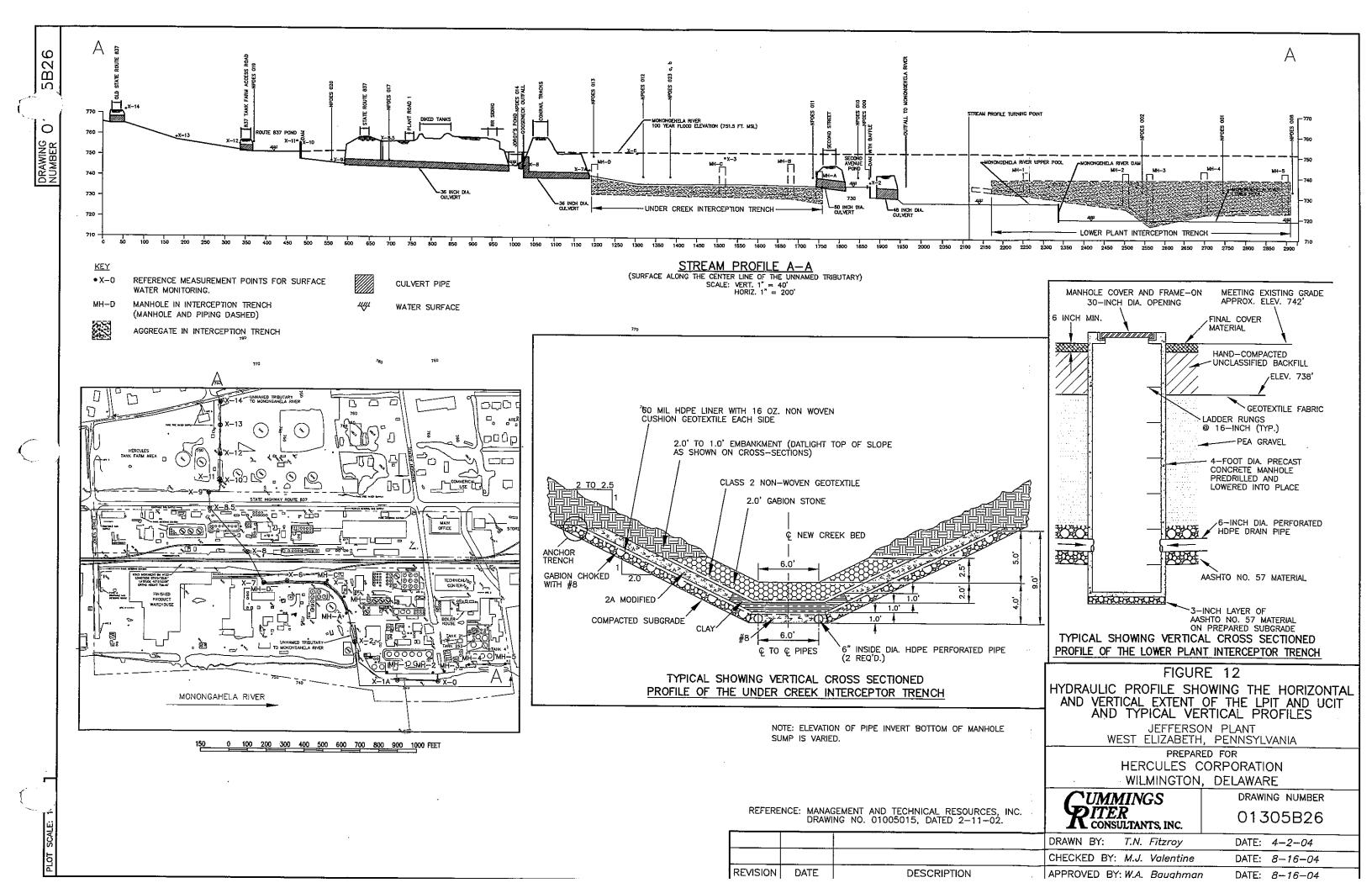


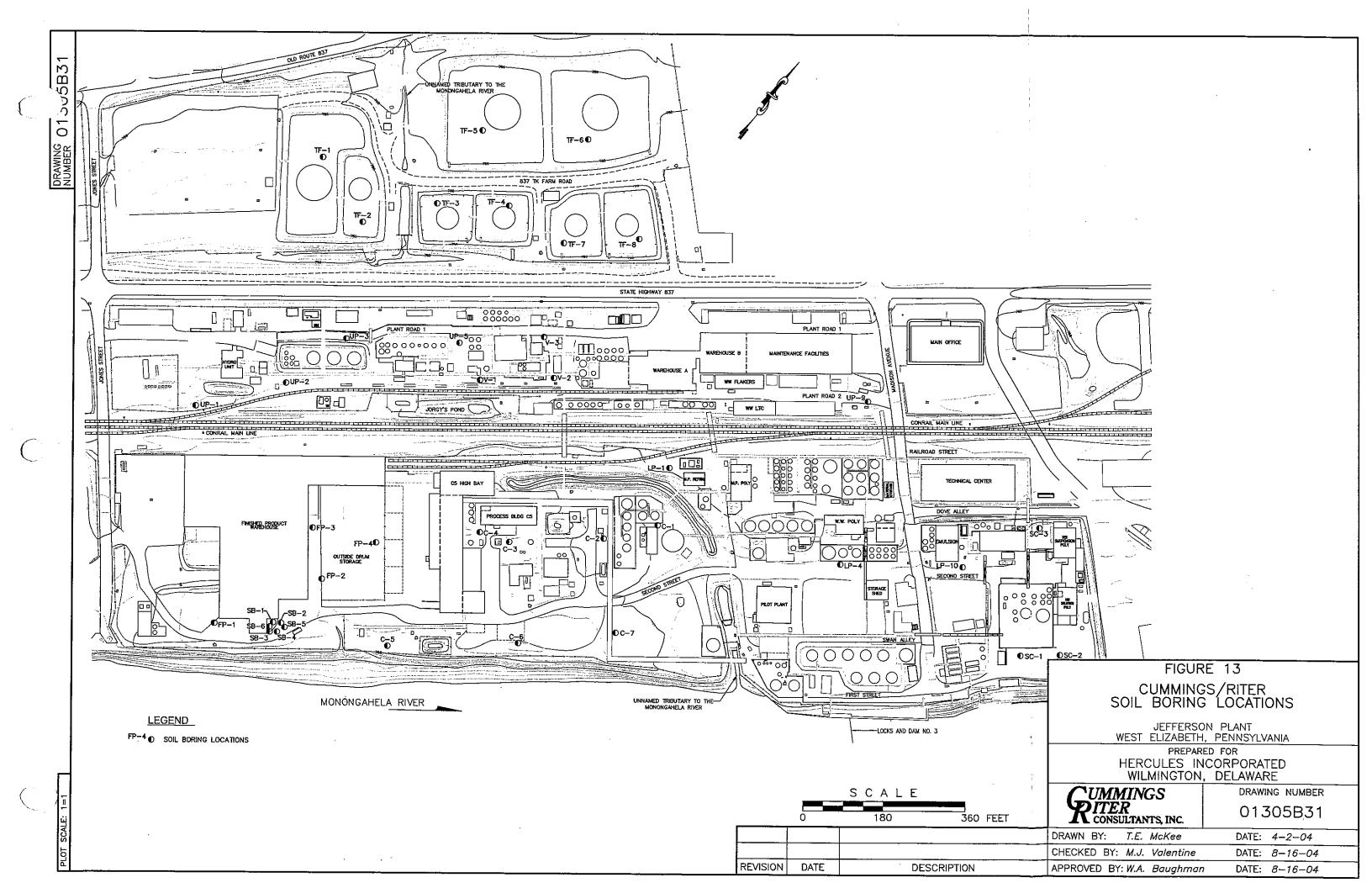


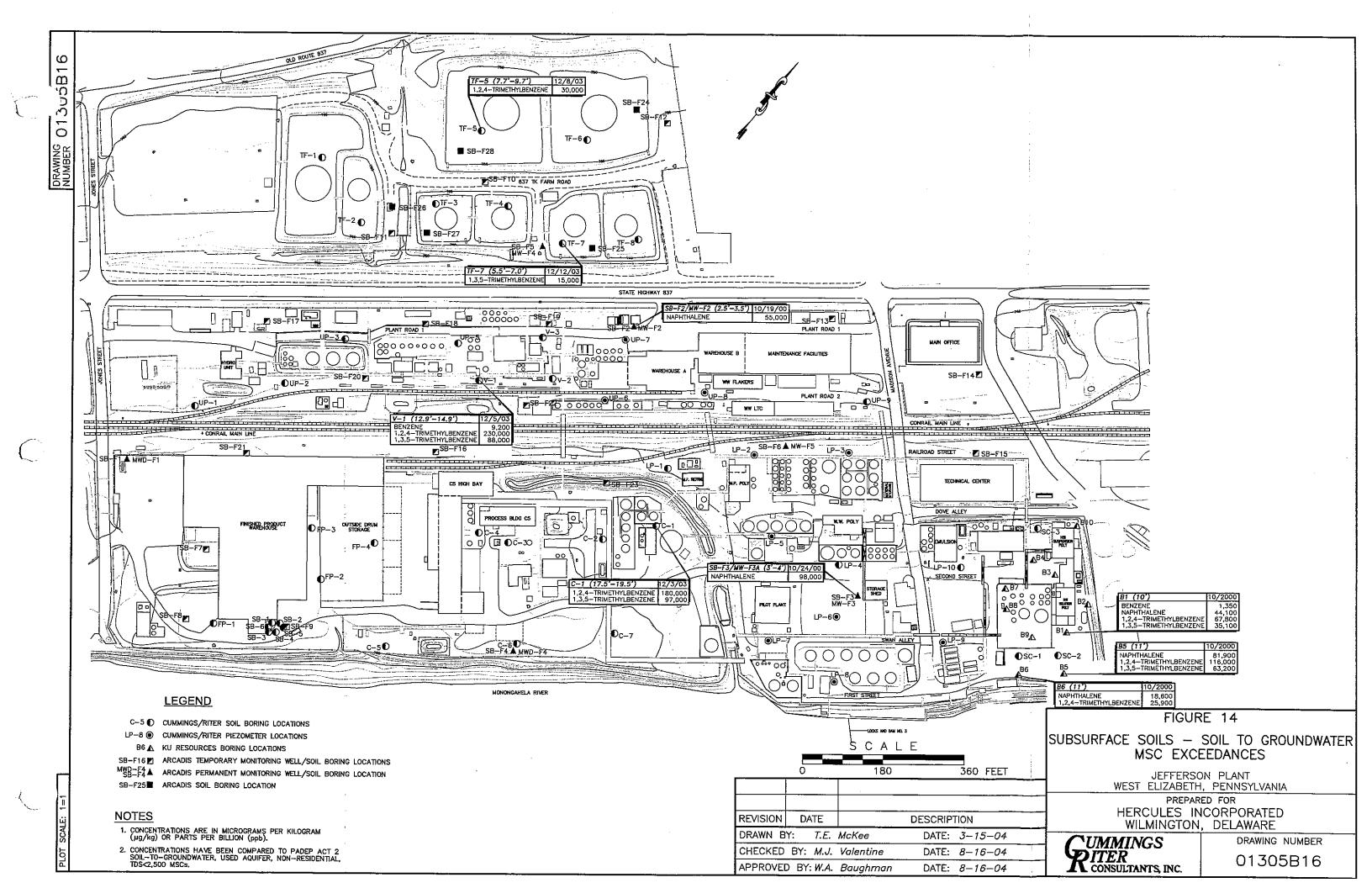


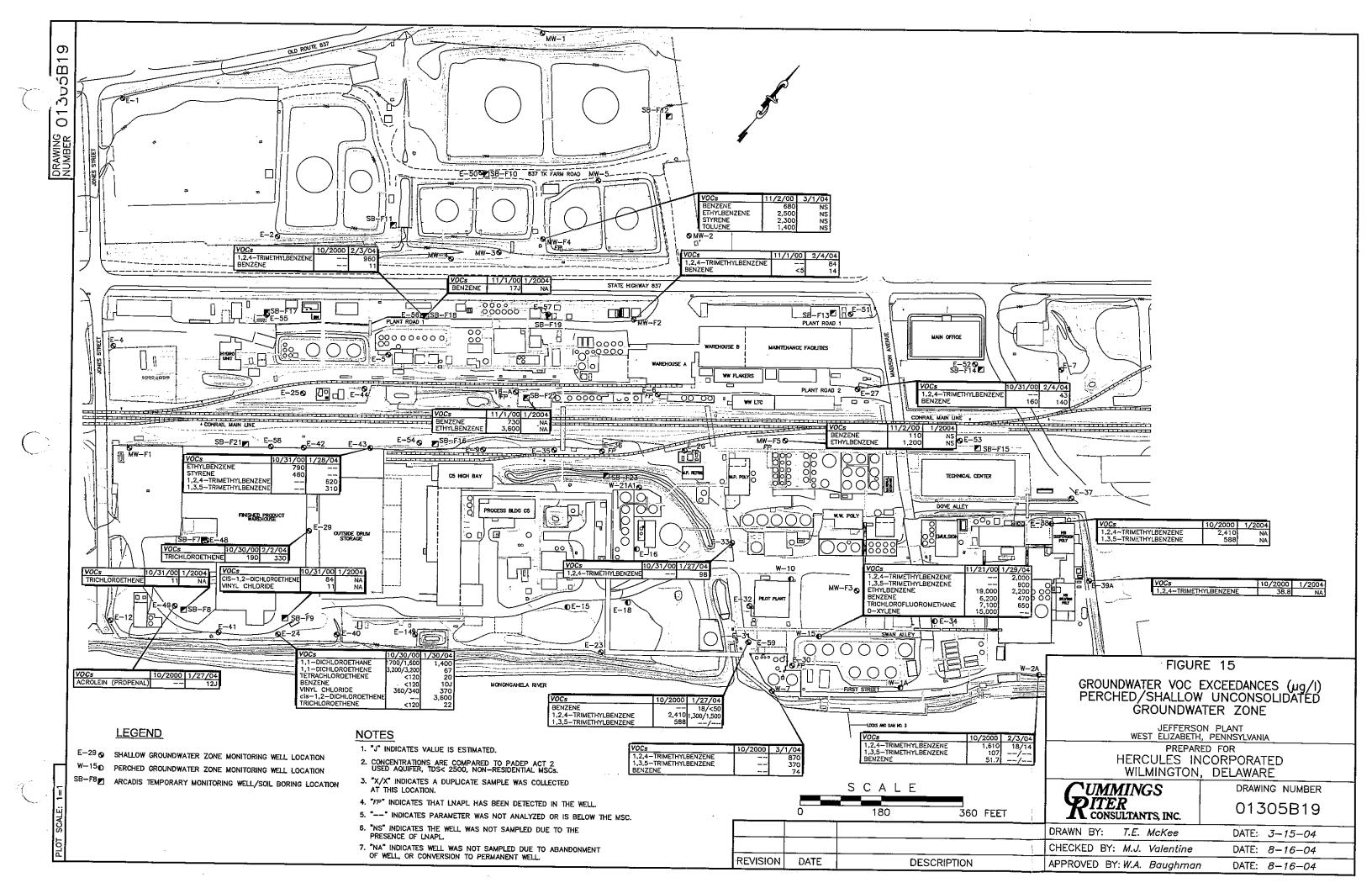


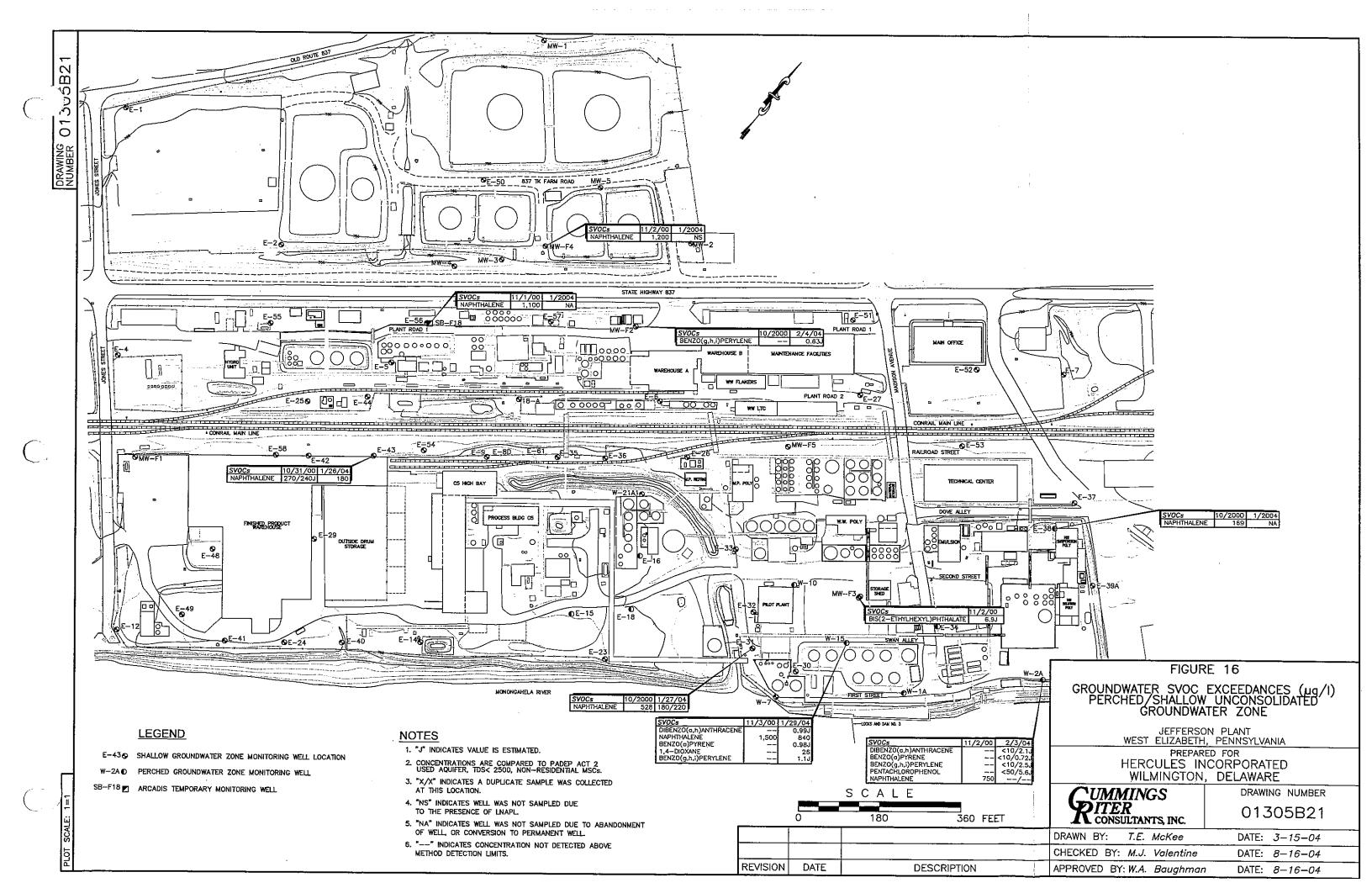


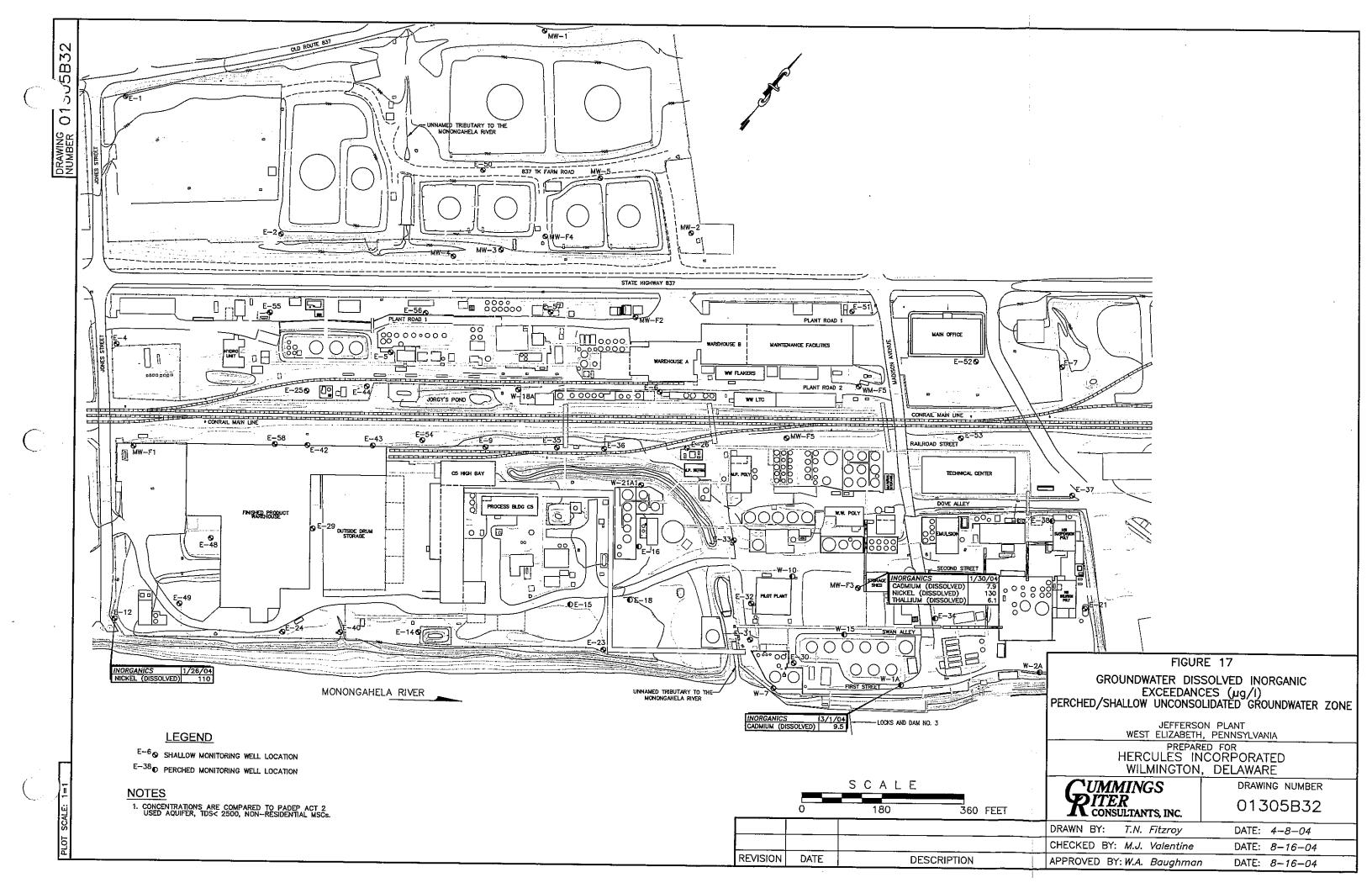


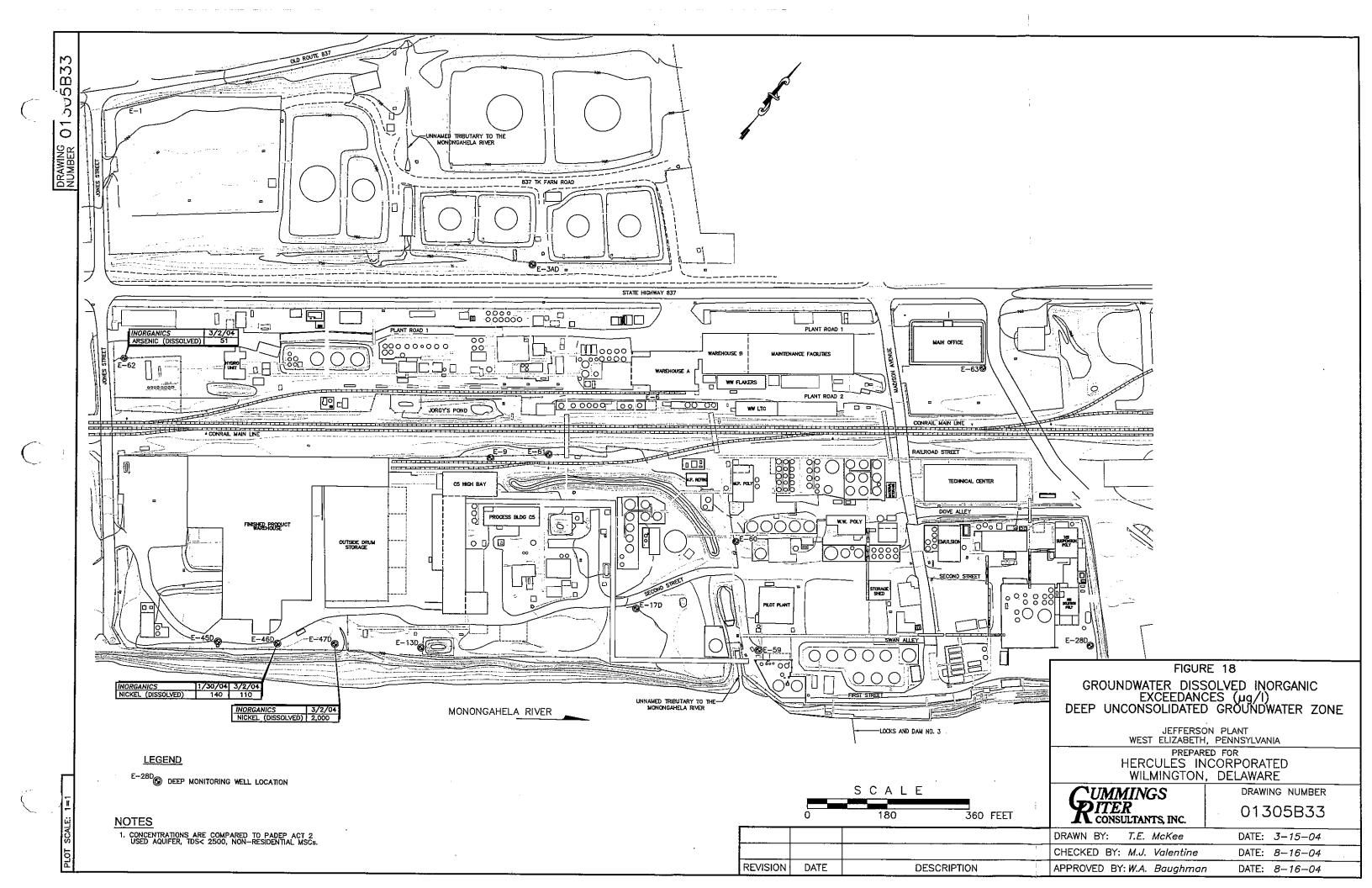


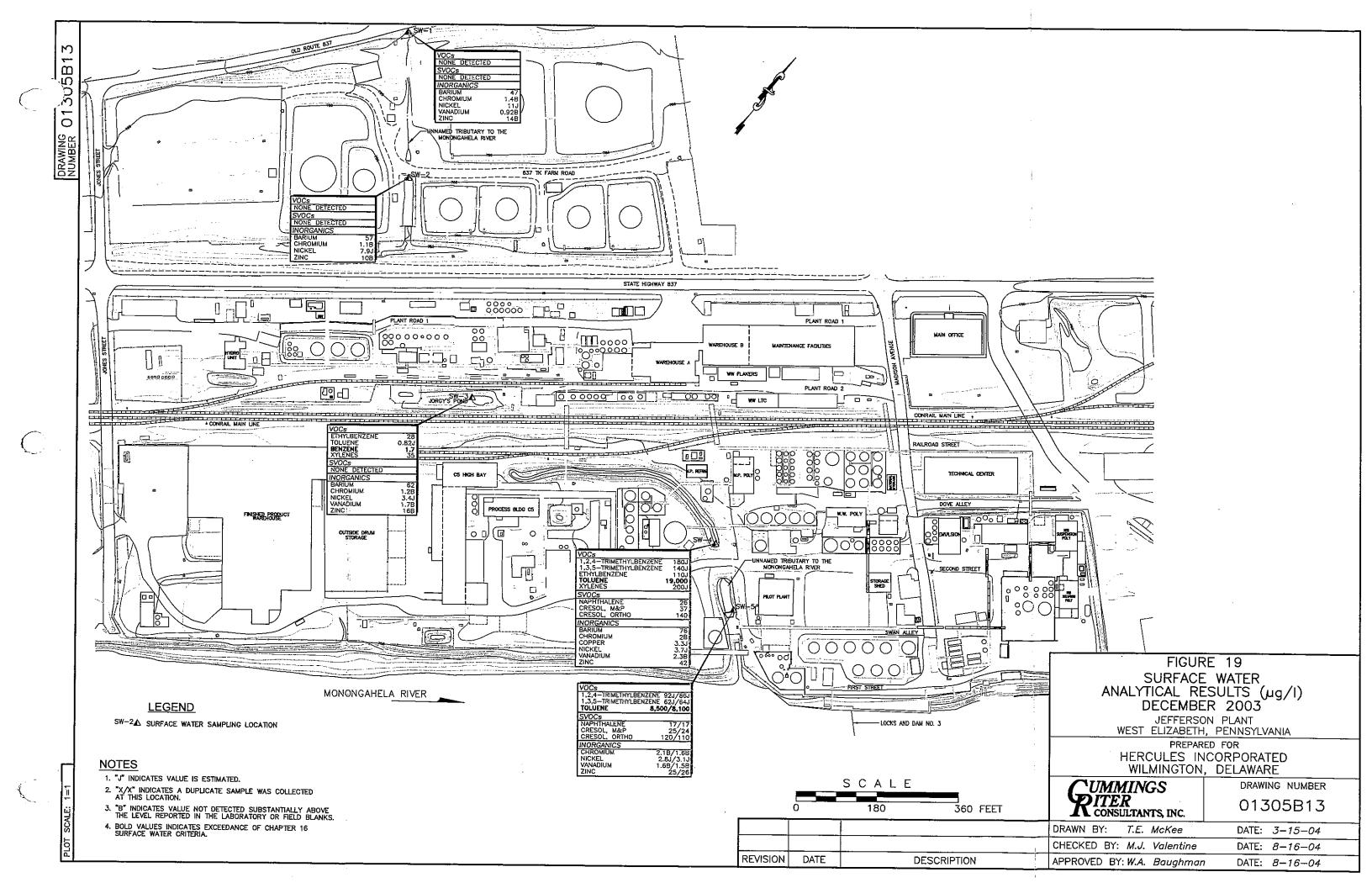


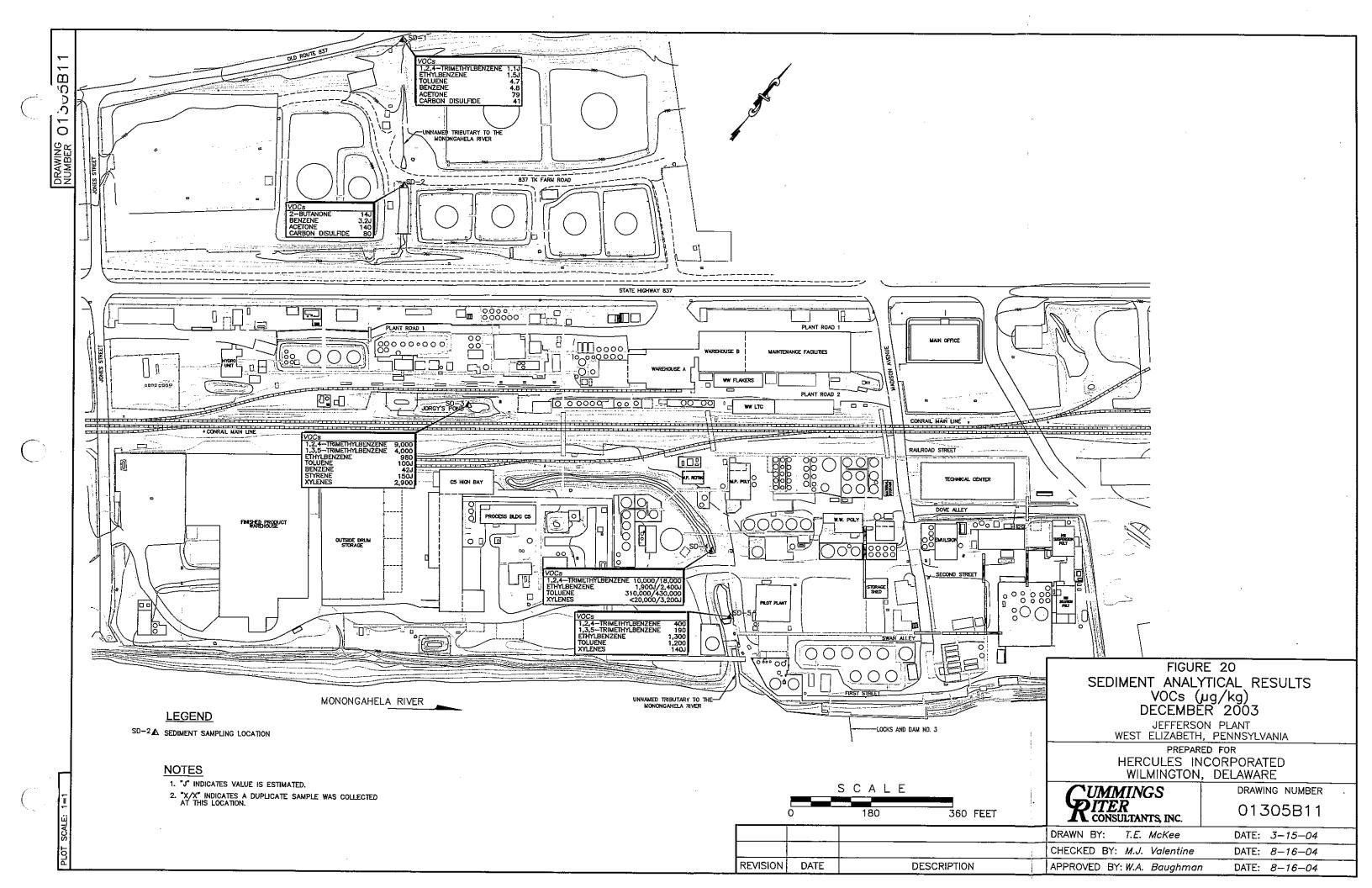


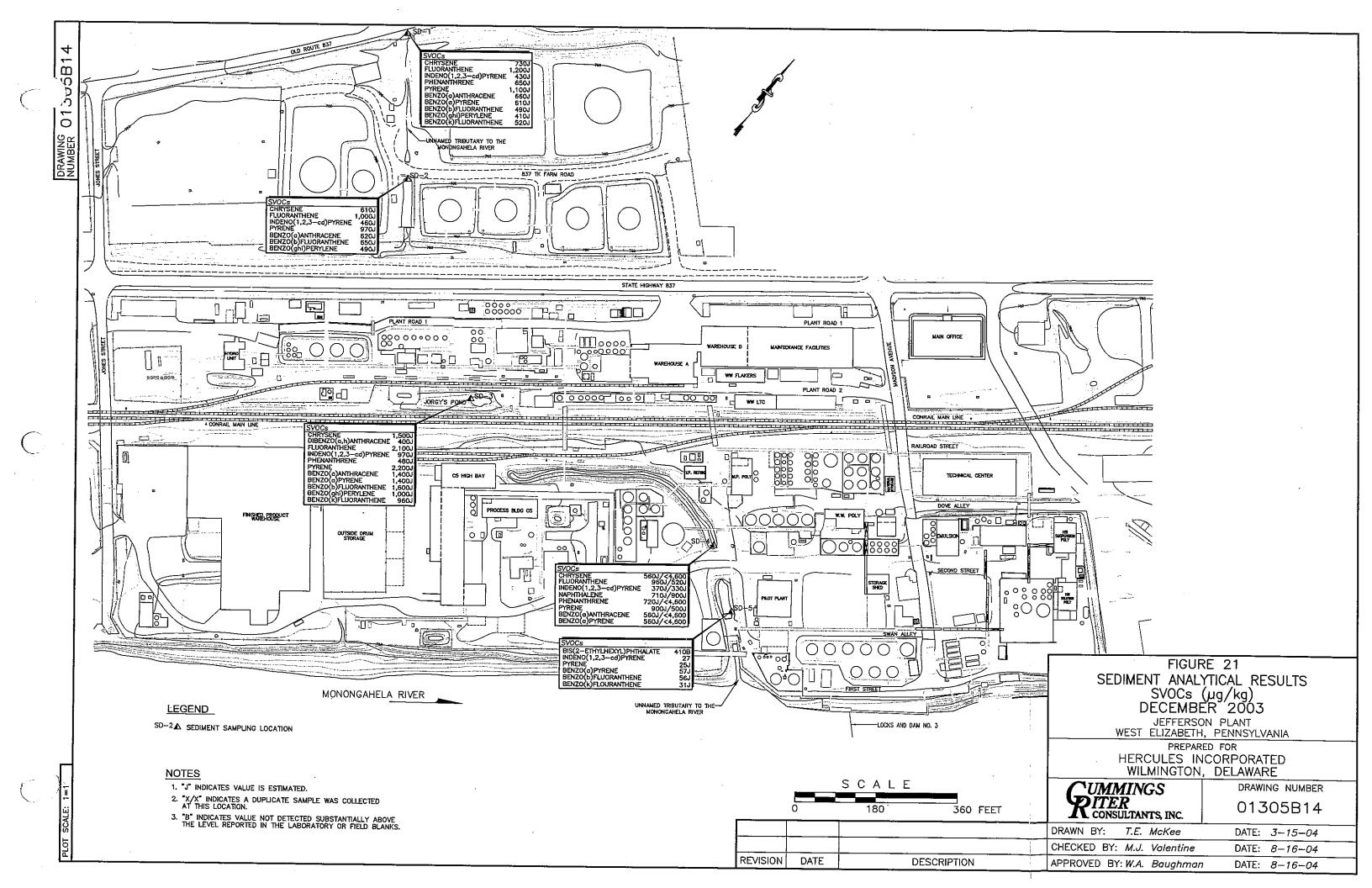


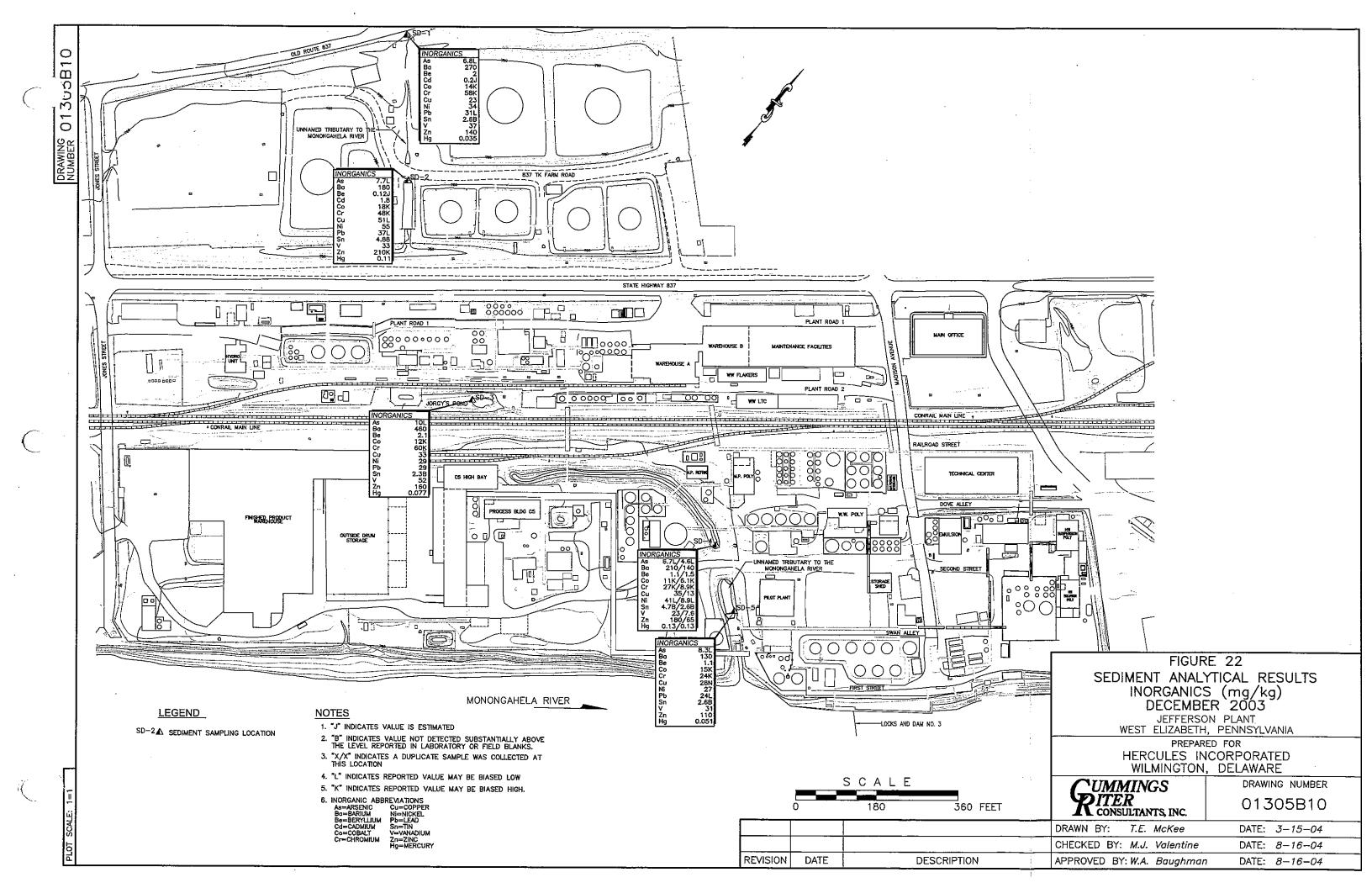


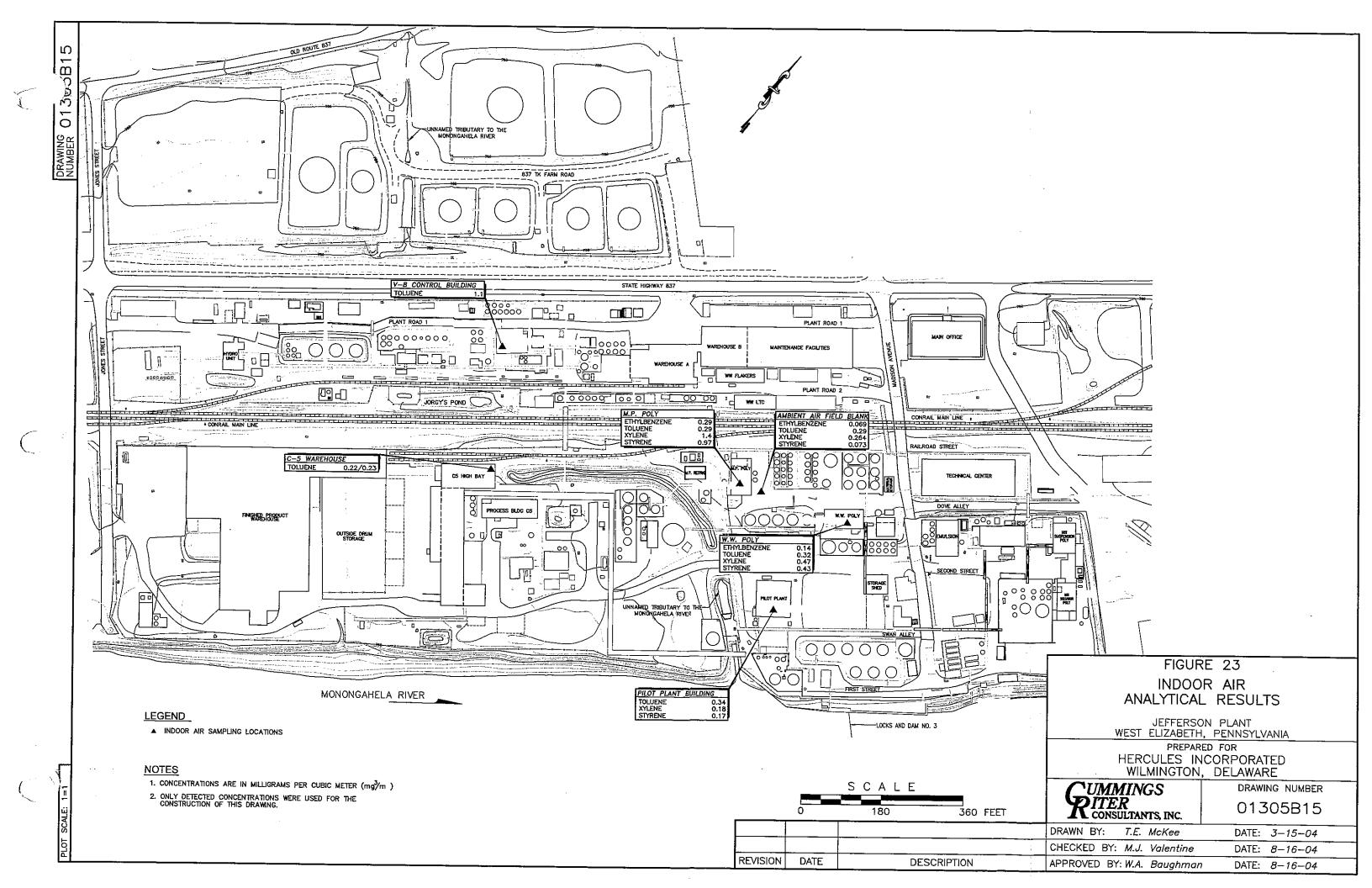


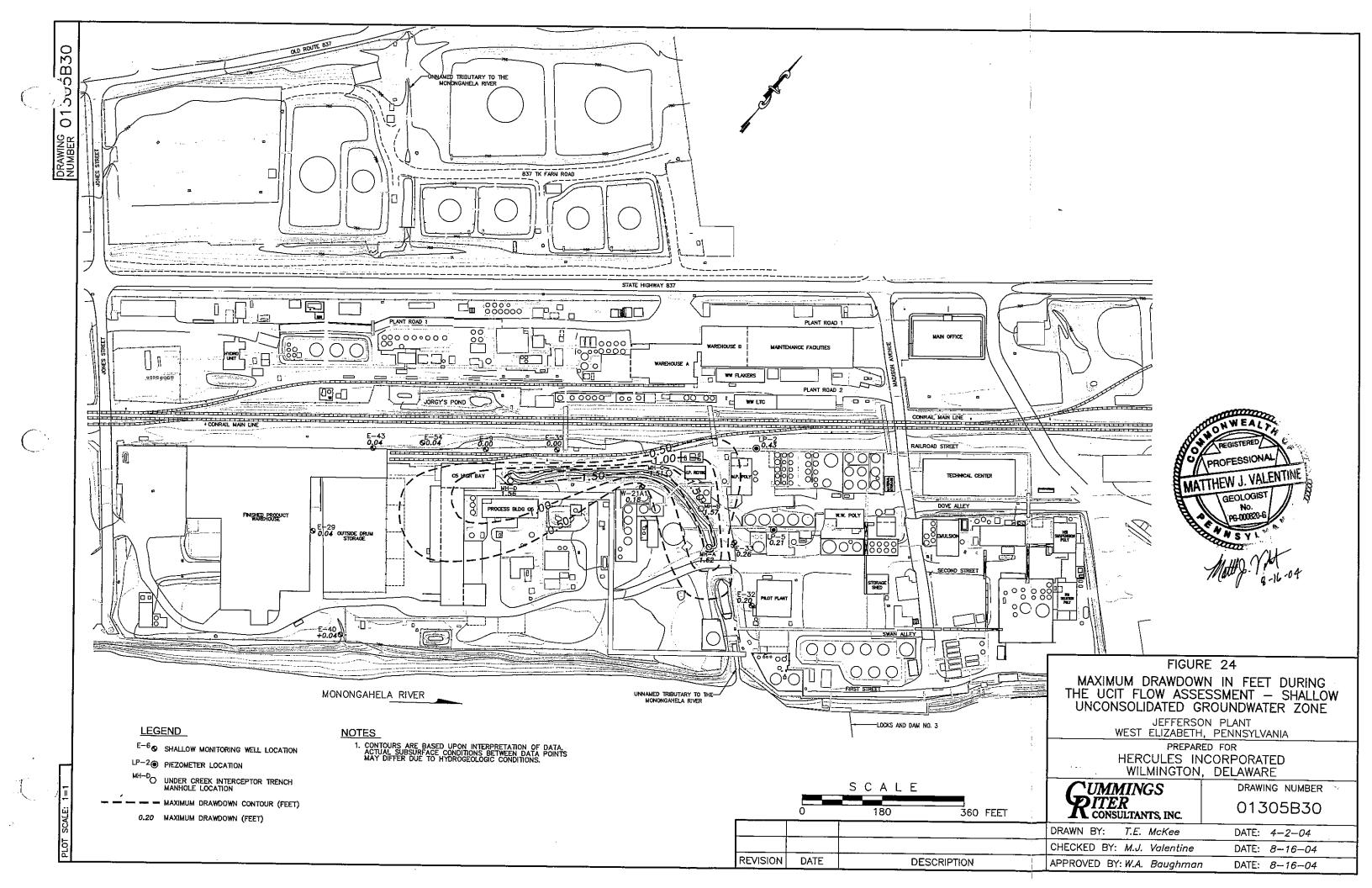


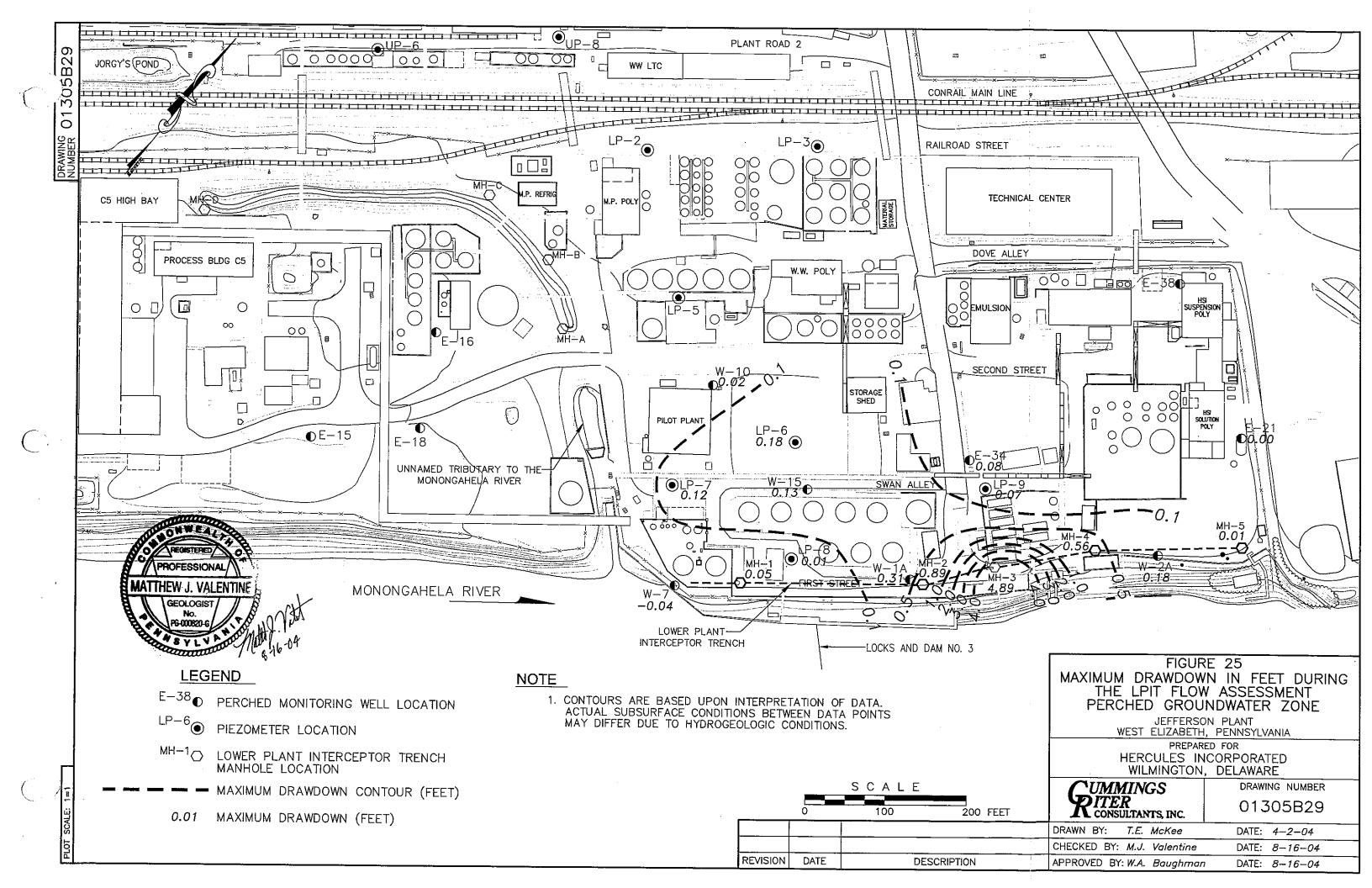


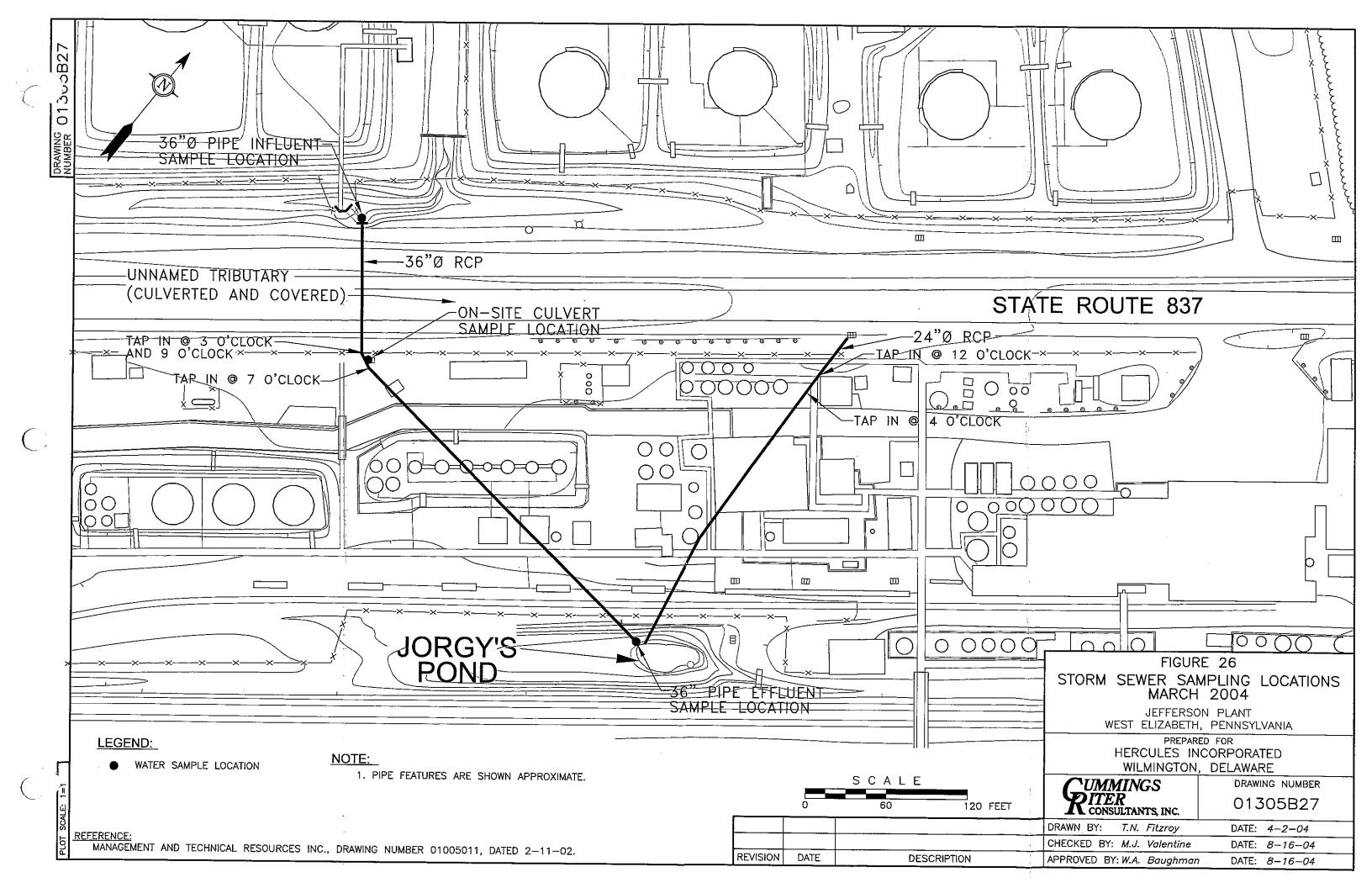












. · . . () ()

APPENDIX A BORING LOGS/WELL INSTALLATION DETAILS



CUMMINGSITER CONSULTANTS, INC.

...ng Co. CHATFIELD DRILLING

Driller: PAUL LORENO

LOG OF BORING NO. C-1

Client: HERCULES, INC.

Site Name: JEFFERSC'N PLANT

Location: WEST ELIZABETH, PA

Project No. 01305.40

Date Started: 12-3-03

Date Completed: 12-3-03

Depth to GW: 19.5 FT. BGS

Date/Time: 12-3-03 / 15:00

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Field Geologist: CGK

Checked By: CLN

				SE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE		
оертн (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4742.93 E 4488.09 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
0 1 1 1 1 1 1	S-1		æ1)√.	VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 1.2' STIFF, BROWN, CLAYEY SILT, TRACE GRAVEL, MOIST	0.0	C-1 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
5-1-1-1	S-2	0.0	1 2 2 2 J	8.0'	-	
-10-	S-3	3.7	10/10/20/20/20/20/20/20/20/20/20/20/20/20/20	SOFT, DARK GRAY, CLAYEY SILT, TRACE GRAVEL, MOIST	0.0	
)=15-	S-4	3.4		SOFT, DARK GRAY, SANDY SILT, MOIST	0.0	. (
- - - -20-	S-5	4.0		WATER ENCOUNTERED AT 19.5 FT BGS 19.5' VERY SOFT, DARK GRAY, CLAYEY SILT, WET 20.0'.	512 501	C-1 (17.5' - 19.5') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
-25			7,7	BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS		
30-						
40						

RUMMINGS RITERCONSULTANTS, INC.

rilling Co. CHATFIELD DRILLING

LOG OF BORING NO. C-2

Client: HERCULES INC. Project No. 01305.40
Site Name: JEFFERSON PLANT Date Started: 12-3-0

Site Name: JEFFERSON PLANT

Location: WEST ELIZABETH, PA

Date Started: 12-3-03

Date Completed: 12-3-03

Field Geologist: CGK Depth to GW: 16.0 FT. BGS

Driller: PAUL LORENO Checked By: CLN Date/Time: 12-3-03 / 13:25

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	g Meth	nod: 🤼	EUPRU	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINE	KS.
O DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4644.26 E 4414.68 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
	S-1	3.2	41	MEDIUM DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 1.1, MEDIUM STIFF, BROWN AND ORANGE, CLAYEY SILT, TRACE GRAVEL, DRY	0.0	C-2 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
5 - 1	S-2	2.7	0.00	LOOSE, OLIVE GREEN TO BLACK, SAND AND GRAVEL, MOIST	2.6	
10-	S-3	3.5		8.3' MEDIUM STIFF, REDDISH BROWN, SANDY SILT, TRACE GRAVEL, DRY 10.6' LOOSE, REDDISH BROWN, MEDIUM GRAINED SAND, MOIST	0.0	*.
1	S-4	4.0	777	12.5' MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT, MOIST	0.0	
	S-5	2.1		WATER ENCOUNTERED AT 16.0 FT. BGS. 16.0' VERY SOFT, REDDISH BROWN, CLAYEY SILT, WET SOFT, REDDISH BROWN, SANDY SILT, MOIST	0.0	C-2 (14.0' - 16.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
20-				20.0' BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS	0.0	
25						
30 <u>-</u> 30- - - - - -		,				
35 - - - -			-		-	· (
40						

	<i>UMMINGS</i>
Y	ITER CONSULTANTS, INC.
	CONSULTANTS, INC.

LOG OF BORING NO. C-3

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 12-3-03

Location: WEST ELIZABETH, PA

Date Completed: 12-3-03

Depth to GW: 16.0 FT. BGS

Driller: PAUL LORENO Checked By: CLN Date/Time: 12-3-03 / 11:52

1	Drilling Metho	ط، GEOPROBE	WITH	2.0-INCH	MACROCORE	SAMPLER	AND	ACETATE	LINERS
	I DI MINIG MICHIO	· 							

Drillin	g Meth	nod: GE	OPROL	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE			╛
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4505.12 E 4256.70 Surface Elev. D E S C R P T O N	HEADSPACE PID READING (PPM)	REMARKS	
	S-1	3.9		MEDIUM DENSE, GRAY TO BLACK, FILL MATERIAL, DRY. STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, DRY 4.0	0.0	C-3 (0.0 - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	
5 -	S-2	3.6	1 8 7 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8	STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT WITH TRACE GRAVEL, DRY	0.0	·	
-10-	S-3	4.0			0.0		
) S-4	4.0	41	12.9 MEDIUM STIFF, BROWN, SANDY SILT, MOIST	0.0		
-15- - - - - - -	S-5	2.9		WATER ENCOUNTERED AT 16.0 FT. BGS. 16.0 VERY SOFT, BROWN, SANDY SILT, WET 16.9 LOOSE, BROWN, SILTY SAND, MOIST	0.0	C-3 (14.0' - 16.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	
-20-			A PA	20.0 BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS	0.0		
- - - -25-							
				·			į
<u>-</u> 30-		:					
		-					-
E ₄₀ -				s\c3.dwo 2/19/2004 4:33:43 PM EST		C-	

CUMMINGS
PITER
CONSULTANTS, INC.

LOG OF BORING NO. C-4

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 12-2-03

Location: WEST ELIZABETH, PA

Date Completed: 12-2-03

filling Co. CHATFIELD DRILLINGField Geologist: CGKDepth to GW: 16.0 FT. BGSDriller: PAUL LORENOChecked By: CLNDate/Time: 12-2-03 / 16:10

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	g Meth	od: ـك	EUPRUI	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINE	KS
OEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4481.33 E 4192.88 Surface Elev D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
- 0 -	S-1	3.1	TIVE TIVE	VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 1.2' VERY STIFF, BROWN, CLAY SILT WITH TRACE GRAVEL, DRY 4.0'	0.0	C-4 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
5 -	S-2	4.0	# 1 P	MEDIUM STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT WITH TRACE GRAVEL, MOIST	0.0	·
10	S-3	4.0	714		0.0	
	S-4	4.0		SOFT, BROWN, SANDY SILT, MOIST	0.0	((
15				WATER ENCOUNTERED AT 16.0 FT. BGS. 16.0' VERY SOFT, BROWN, SANDY SILT, WET	0.0	C-4 (14.0' - 16.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
20-	S-5	0.2		20.0'	-	
				BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS		
15—				· ·	# 12 m	. (
 -40-	d\ araica	ta\ 01=	305\1000	2 / 20 / 200		C 4

CONSULTANTS, INC.

19 Co. CHATFIELD DRILLING

Driller: BRYAN HOBSON

<u>C-5</u> LOG OF BORING NO.

Client: HERCULES INC.

Site Name: JEFFERSON PLANT

Location: WEST ELIZABETH, PA

Project No. 01305.40

Date Started: 11-24-03 Date Compléted: 11-24-03

Depth to GW: _

Date/Time: 11-24-03 /

Checked By: CLN GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Field Geologist: CGK

Drillin	g Meth	od: GE	OPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINE	RS ·
	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4154.31 E 4194.14 Surface Elev D E S C R P T O N	HEADSPACE PID READING (PPM)	REMARKS
0 -	S-1	1.8	\bigotimes	VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 2.0'	0.0	C-5 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
5 -				BOTTOM OF BORING AT 2.0' BORING BACKFILLED WITH BENTONITE CHIPS		
-10 -						
ַ -וֹס- <u>-</u>			·		į	(
-20 <u>-</u>						
·25						
· —						
-30 -						
- - - - - - -						
						;
4U-			· ΛΕ\ !	\$\c-4.dwg 2/20/2004 3:15:39 PM EST		C-5

'UMMINGS JLTANTS, INC. LOG OF BORING NO. <u>C-6</u>

Project No. 01305.40 Client: HERCULES INC.

Site Name: JEFFERSON PLANT Date Started: 12-2-03

Location: WEST ELIZABETH, PA Date Completed: 12-2-03 Field Geologist: CGK Depth to GW: 15.5 FT. BGS

filling Co. CHATFIELD DRILLING Driller: BRYAN HOBSON Date/Time: 12-2-03 / Checked By: CLN

J. GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	g Meth	10d: <u>GE</u>	OPROL	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINE	RS
Г рертн О (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N_4342.25 E_4414.37 Surface Elev DESCRIPTION	HEADSPACE PID READING (PPM)	REMARKS
	S-1	3.8		VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 1.1, STIFF, BROWN, CLAYEY SILT, GRAVEL, DRY	0.0	C-6 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
1					0.0	
	S-2	3.7	#17	8.0' MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, MOIST 9.2'		
10	S-3	3.8		LOOSE, DARK BROWN, SILTY SAND, MOIST 12.5'	0.0	
15	S-4	3.9		LOOSE, BLACK, CLAYEY SAND, TRACE COAL, MOIST WATER ENCOUNTERED AT 15.5 FT BGS 15.5' VERY LOOSE, BLACK, CLAYEY SAND, TRACE COAL, WET16.0'	0.0	C-6 (13.5' - 15.5') SAMPLE (COLLECTED AND SENT FOR LABORATORY ANALYSIS
20-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1			# 1 N. C. M. M. M. M. M. M. M. M. M. M. M. M. M.	BOTTOM OF BORING AT 16.0' BORING BACKFILLED WITH BENTONITE CHIPS		
-40-					· ·	

CUMMINGS
WITER
CONSULTANTS, INC.

Driller: BRYAN HOBSON

Checked By: CLN

Date/Time: 11-24-03 / 11:18

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

C (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4497.59 E 4567.79 G (Mad 30 Marks) E REMARKS D E S C R I P T I O N P 2 Marks P 3 Marks P 3 Marks	
	S-1	2.0	\bigotimes	VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 0.0 C-7 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	
) 				BOTTOM OF BORING AT 2.0' BORING BACKFILLED WITH BENTONITE CHIPS	
0 - - - -					
: 2ر - 5					
0 <u> </u>					
5-					
- - -0-					:
`.					
-	-				

RUMMINGS RITERCONSULTANTS, INC.

LOG OF BORING NO. E-59

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT . Date Started: 12-29-03 Location: WEST ELIZABETH, PA Date Completed: 1-5-04

illing Co. CHATFIELD DRILLING Field Geologist: CGK Depth to GW: 10 FT BGS.

Driller: AARON HUGHES Checked By: CLN Date/Time: 1-5-04

Drillin	g Metl	10d: <u>1</u>	0.25"	I.D. A	ND 4.25" I.D. HOLLOW STEM AUGERS WITH	2" C	D.D. SPLIT	SPOON	SAMPLERS AND S	SPT .
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	SPT BLOWS (6")	PROFILE	Coordinates N 4,666.72 E 4,833.57 Surface Elev. 741.22'	HEADSPACE PID READING (PPM)	WELL II		LATION DETAIL FLUSH MOUNT PROTECTIVE CASING	ELEVATION (FT. M.S.L.)
-0-		- 22	ᅜ		STIFF, GRAY TO BROWN, FILL	모존	[·] · [PROTECTIVE CASING	741.22
					MATERIAL, MOIST				CONCRETE PAD CEMENT-BENTONITE	7.10.04
5 -			6 0	XX	5.0' MEDIUM DENSE, LIGHT BROWN TO BLACK,	-			GROUT(1.0' - 44.0'	
	S-1	0.8	6-8 7-7	0 0	SAND AND GRAVEL, WET	>9999				
				0.0	10.0	-			8* I.D. SCH. 40	730.00
-10- - - -	S-2	0.5	HOM-HOM		VERY SOFT, BLACK, SANDY CLAY, WET WATER ENCOUNTERED AT 10.0 FT BGS	>9999			PVC CASING (0.0' - 25.0')	750.55
	S-3	2.0	MOH-MOH		SOFT, DARK GRAY, SILTY CLAY, TRACE SAND, MOIST	165			—2" I.D. THREADED	
-15-	S-4	2.0	MOH-MOH		16.0	24.5			FLUSH-JOINT SCHEDULE 40 PVC RISER	
	S-5	2.0	MOH-MOH		SOFT, DARK BROWN, SILTY CLAY, TRACE SAND, DRY	2.5			(0' - 50.0')	
20-	S-6	2.0	woH-woH 1−3		18.8 SOFT, DARK BROWN, SILTY CLAY, TRACE SAND AND GRAVEL, DRY 20.2	20.6				720.00
	S-7	1.2	1-1 2-3		MEDUIM STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, MOTTLED, DRY	14.8				
	S-8	1.3	2-2 3-2	1717	24.0				12.25" DIA. BOREHOLE	
-25-	S-9	0.9	1-2 2-3		MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT TRACE GRAVEL, MOIST 26.2	0.0			·	
	S-10	1.4	2-4 6-6		SOFT, LIGHT GRAY, SILTY CLAY, MOIST 26.9 LOOSE TO DENSE, REDDISH BROWN, SAND AND GRAVEL, SOME CLAY, DRY				- :	
30-	S-11	1.5	16–18 18–19		The state come con, bitt	0.0			——8.25" DIA. BOREHOLE	710.00
	S-12	1.6	3-4 7-7	2		0.0				
	S-13	1.7	2-3 3-5		33.5 MEDIUM STIFF, GRAY, SANDY CLAY, MOIST 34.0	_				
 - -	S-14	2.0	3-5 5-6		LOOSE, GRAY, FINE GRAINED SAND, TRACE SILT, MOIST	0.0				
	S-15	1.1	3-4 4-6)	36.5 LOOSE, REDDISH BROWN AND GRAY, SILTY SAND, MOIST	0.0				
L 40	S-16	1.2	2-3 5-5			0.0				700.00
-					•					F50

UMMINGS CONSULTANTS, INC.

.mg Co. CHATFIELD DRILLING

LOG OF BORING NO. E-59

Client: HERCULES INC. Site Name: JEFFERSON PLANT Location: WEST ELIZABETH, PA Project No. 01305.40 Date Started: 12-29-03

Date Completed: 1-5-04

Depth to GW: 10 FT BGS. Field Geologist: CGK Date/Time: 1-5-04 Checked By: CLN

					Field Geologist: CGK			
Driller	AARO	. 10	0.25"	1D AN	Checked By: <u>CLN</u> ND 4.25" I.D. HOLLOW STEM AUGERS WITH 2	·" O I	Date/Time: 1-5-04 D SPLIT SPOON SAMPLERS AND	SPT
Drilling	g Meti			ויטי עו	AD 4.23 I.D. HOLEON STEW AGGERS WITH 2	. 0.1	D. SI EN SI CON GAME LENS AND	
H.	NO.	SAMPLE RECOVERY (FT.)	(e")	씰	Coordinates N <u>4,666.72</u> E <u>4,833.57</u>	CPPM)	WELL INSTALLATION DETAIL	(FT. M.S.L.)
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMP	L BLOWS	PROFILE	Surface Elev. 741.22'	HEADSPACE READING (PP		
-40-	03	Æ	SPT		DESCRIPTION	보光		
	S-17	1.7	4-4 12-20		LOOSE TO MEDIUM DENSE, REDDISH BROWN, SILTY SAND, MOIST	0.0		
	S-18	0.7	4-5 8-11		44.3'	0.0	CEMENT-BENTONIT GROUT (1.0' - 44.0')	E
45	S - 19	1.4	4-5 8-7		LOOSE, REDDISH BROWN, CLAYEY SAND, TRACE GRAVEL, MOIST	0.0		
	S-20	1.6	8-9 12-16			0.0	, ,	
	S-21	1.8	8–8 15–17			0.0	SCHEDULE 40 PVC RISER (0.0' – 50.0')	690.00
<u>-50-</u>	S-22		8-12 16-25		51.4' LOOSE TO MEDIUM DENSE, BROWN SILTY SAND,			
	S-23	1.6	₩0H-5 8-7		SOME GRAVEL, MOIST	0.0	8.25" DIA. BOREHOLE	<u> </u>
55-1	S-24	1.5	12-25 27-33	ulli	DENSE, BROWN, SILTY SAND, SOME GRAVEL, MOIST	0.0	FUISH JOINT BY	
	S-25	1.4	12-12 14-50	$H \times C \times C$	57.1' HARD, YELLOWISH BROWN, SILTY CLAY, DRY	0.0	SCREEN (0.010" SLOT) (50.0' – 60.0')	
	S-26	0.7	48 50/1	140	58.5' HARD, GRAY, SANDSTONE, WEATHERED, DRY	0.0	COARSE SAND (47.0' - 60.0')	681.22
-60- -					BOTTOM OF BORING AT 60.0' WELL E-59 INSTALLED WITH SCREEN SET FROM 50.0'-60.0' BGS		REMARKS WOH = WEIGHT OF HAMMER	
- - - - - - - - - -					SCREEN SET FROM 50.0'-60.0' BGS			
65-						ļ		
	;							
<u>-70-</u>								
					·			
L 80-		<u> </u>		J	<u> </u>	<u></u>		<u></u> E−59

'UMMINGS SULTANTS, INC.

LOG OF BORING NO. E-60

Project No. 01305.40 Client: HERCULES INC.

Site Name: JEFFERSON PLANT Date Started: 12-30-03 Location: WEST ELIZABETH, PA Date Completed: 1-6-04

rilling Co. CHATFIELD DRILLING Depth to GW: 16 FT BGS. Field Geologist: CGK Driller: AARON HUGHES Checked By: CLN Date/Time: 1-6-04

Drillin	g Metl	nod: <u>1</u>	0.25"	I.D. Al	ND 4.25" I.D. HOLLOW STEM AUGERS WITH	2" C	D.D. SPLIT	SPOON SAMPL	ERS AND S	PT .
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	BLOWS (6")	PROFILE	Coordinates N 4,823.47 E 4,641.74 Surface Elev. 746.60'	HEADSPACE PID READING (PPM)	WELL IN	NSTALLATION		ELEVATION (FT. M.S.L.)
-0-	Š	REC	SPT			哥哥	1.72	FLUSH MO PROTECTIV	E CASING	741.22
					VERY STIFF, GRAY TO BLACK, FILL MATERIAL, DRY 5.0'			СЕМЕ	RETE PAD	740.84
5 -	S-1	1.1	WOH-WOH		LOOSE, GRAY TO BLACK, FILL MATERIAL, MOIST	76.2		GROU	(1.0' — 44.0')	
- - - - 10-					10.0	_		8" I.D.	SCH. 40	730.00
	S-2	1.9	2-3 3-5		MEDIUM STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, MOTTLED, DRY	298		(0.0° C	ASING - 26.0')	
	S-3	2.0	8-8 7-9		14.2	214		2" i.D	THREADED	,
15 	S-4	1.8	2-4 4-6	liti liti	MEDIUM STIFF, BROWN, SANDY SILT, MOIST WATER ENCOUNTERED AT 16.0 FT. BGS. 16.0	95.1		SCHEE PVC F	-JOINT DULE 40 RISER 50.0')	
	S-5	1.8	4-6 6-6	i i i i i i i i i	VERY SOFT, LIGHT GRAY AND BROWN, SANDY SILT, WET	992			,	
	S-6	2.0	1-2		19.0° SOFT TO MEDIUM STIFF, REDDISH BROWN, SANDY CLAY, MOIST	>9999				720.00
	S-7	1.9	1-1 2-3			838				,
	S-8	1.7	2-3		24.0 MEDIUM STIFF, REDDISH BROWN, SANDY CLAY,			12.25 BORE	" DIA. IOLE	;
<u>-25</u>	S-9	1.7	2-2 2-3		DRY	0.0				
	-	-	-		28.0	-				
30	S-10	1.8	1-1 2-3		VERY LOOSE, REDDISH BROWN, CLAYEY SAND, MOIST	0.0		8.25" BORE	DIA. HOLE	710.00
	S-11	1.2	1-3 5-5		31.9	0.0				
	S-12	1.7	1-2 3-3		LOOSE, DARK GRAY, SILTY SAND, MOIST 34.0	0.0				
5-	S-13	2.0	1-1		VERY LOOSE, REDDISH BROWN, SILTY SAND, TRACE GRAVEL, MOIST 34.0 VERY LOOSE, GRAY, CLAYEY SAND, MOIST TO WET	0.0				
	S-14	1.8	2-2 2-3		38.0	0.0				
E ₄₀]	S-15	2.0	2-3 2-2	KK	LOOSE, GRAY, CLAYEY SAND, TRACE GRAVEL, MOIST	0.0			·····	700.00

'UMMINGS

LOG OF BORING NO. E-60

Client: HERCULES INC.

Project No. 01305.40

Site Name: JEFFERSON PLANT Location: WEST ELIZABETH, PA Date Started: 12-30-03 Date Completed: 1-6-04

ming Co. CHATFIELD DRILLING

Depth to GW: 16 FT BGS. Field Geologist: CGK

Driller: AARON HUGHES

Checked By: CLN Date/Time: 1-6-04

		, , 1		ID Al	Checked By: CLN Date/Time: 1-8-04 ND 4.25" I.D. HOLLOW STEM AUGERS WITH 2" O.D. SPLIT SPOON SAMPLERS AND SP	PT PT
Drillin	g Met			1.0. 7		
DEPTH O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	SPT BLOWS (6")	PROFILE	Coordinates N 4,823.47 E 4,641.74 Surface Elev. 746.60' D E S C R I P T I O N	ELEVATION FT. M.S.L.)
-40-	S-16	1.7	2-2 3-3	8/2	VERY LOOSE, BROWN, CLAYEY SAND, 41.0' O.0 CEMENT-BENTONITE GROUT (1.0' - 48.5')	
	\$ - 17	2.0	2-4 4-5	8	0.0	
45	S-18	1.1	5-5 6-7		LOOSE, BROWN, CLAYEY SAND, MOIST 44.6' 0.0 46.0' 2" I.D. THREADED FLUSH—JOINT SCHEDULE 40 PVC RISER	
	S-19	1.1	7-8 9-11	ita mii	MEDIUM DENSE, BROWN, SILTY SAND, SANDSTONE FRAGMENTS, MOIST 0.0 (0.0' - 51.5')	
50-	S-20	0.9	7–8 17–18			690.00
	S-21	1.2	7-8 10-12	¢	MEDIUM DENSE, GRAY AND BROWN, SAND AND O.0 (48.5' - 51.5') GRAVEL, DRY TO MOIST	
	S-22		8-8 10-10 10-10		0.0 8.25" DIA. BOREHOLE	<u> </u>
-55- 	S-23	1 7 /	14-24	. 0	56.1 0.0 South Fragments DRY 56.2 COARSE SAND	
	S-24	1.5	8-14 17-20 3-8		MEDIUM DENSE, GRAY AND BROWN, SAND AND O.0 (51.5' - 64.5') GRAVEL, MOIST	
60	S-25		10–17	0	0.0 0 2" I.D. THREADED FLUSH-JOINT PVC	<u>.</u>
	S-26	1.8	14-18 22-25 15-20	00	0.0 SCREEN (0.010" SLOT) 62.0' (54.5' - 64.5')	
	S-27	1.3	25-50/3	\circ	MOIST 0.0 63.9' HARD, GRAY, SANDSTONE, WEATHERED, DRY	682.10
-65- 					BOTTOM OF BORING AT 64.5' WELL E-60 INSTALLED WITH SCREEN SET FROM 54.5'-64.5' BGS REMARKS WOH = WEIGHT OF HAMMER	
 - 70-						,
			ı.			
/ 1	Ű+∰					(
		•				
E ₈₀ _1					<u> </u>	

RUMMINGS RITERCONSULTANTS, INC.

LOG OF BORING NO. E-61

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 1-8-04

Location: WEST ELIZABETH, PA

Date Completed: 1-13-04

Alling Co. CHATFIELD DRILLING Field Geologist: CGK

Depth to GW: 7 FT BGS.

Driller: AARON HUGHES Checked By: CLN Date/Time: 1-13-04 / 15:15

Drilling Method: 10.25" I.D. AND 4.25" I.D. HOLLOW STEM AUGERS WITH 2" O.D. SPLIT SPOON SAMPLERS AND SPT HEADSPACE PID READING (PPM) ELEVATION WELL INSTALLATION DETAIL છ E 4,194.94 SAMPLE NO. AND TYPE N 4,710.383 Coordinates (FT. M.S.L.) SAMPLE RECOVERY (F PROFILE BLOWS HEET) 748.61 Surface Elev. FLUSH MOUNT PROTECTIVE CASING DESCRIPTION 748.61 0 VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY TO WET 74<u>7.9</u>2 CONCRETE PAD CEMENT-BENTONITE GROUT(1.0' - 18.0')WOH-3 S-1 2.0 0.0 3-3 WATER ENCOUNTERED AT 7.0 FT. BGS. 740.00 8" I.D. SCH. 40 PVC CASING (0.0' - 18.0') S-2 0.3 0.0 WOH WOH-1 S-3 1.1 0.0 14.0 I.D. THREADED FLUSH-JOINT SCHEDULE 40 SOFT TO MEDIUM STIFF, LIGHT GRAY AND REDDISH BROWN, SANDY CLAY, TRACE GRAVEL, MOTTLED, MOIST S-4 0.0 PVC RISER (0' - 58.5') 3-5 S-5 2.0 0.0 -12.25" DIA. BOREHOLE 730.00 2-3 1.6 S-60.0 3-2 20 2-3 S-7 1.5 0.0 7-7 S-8 2.0 0.0 7-7 CEMENT-BENTONITE SOFT, REDDISH BROWN, SILTY CLAY, MOIST 1-2 GROUT(1.0' - 53.5')S-9 1.5 0.0 2-4 S-10 1.9 0.0 VERY LOOSE, GRAY, SANDY CLAY, MOIST 1-1 720.00 8.25" DIA MOH-WOH BOREHOLE S-11 2.0 0.0 WOH-1 1-2 S-12 2.0 0.0 VERY SOFT, GRAY, SANDY CLAY, TRACE GRAVEL, MOIST 1-2 S-13 2.0 0.0 2 - 1HOW-HOW S-14 0.0 VERY LOOSE, DARK GRAY, CLAYEY SAND, MOIST 1-2 S-15 1.7 0.0 MEDIUM STIFF, GRAY, SANDY CLAY, TRACE SAPROLITE FRAGMENTS, DRY 38.0 VERY SOFT, BROWN, SANDY SILT, TRACE GRAVEL, MOIST 710.00 WOH-1 S-16 1.8 0.0

UMMINGS CONSULTANTS, INC.

.nng Co. CHATFIELD DRILLING

Driller: AARON HUGHES

LOG OF BORING NO. E-61

Client: HERCULES INC. Site Name: JEFFERSON PLANT

Location: WEST ELIZABETH, PA

Field Geologist: CGK Checked By: CLN

Project No. 01305.40

Date Started: 1-8-04 Date Completed: 1-13-04

Depth to GW: 7 FT BGS.

Date/Time: 1-13-04 / 15:15

Drilling	g Meti	nod: <u>1</u>	0.25"	I.D. Al	ND 4.25" I.D. HOLLOW STEM AUGERS WITH 2	2" 0.	D. SPLIT SPOON SAMPLERS AND S	PT
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	SPT BLOWS (6")	PROFILE	Coordinates N 4,710.383 E 4,194.94 Surface Elev. 748.61' D E S C R I P T I O N	HEADSPACE PID READING (PPM)	INCER INSTREETING DEINE	ELEVATION (FT. M.S.L.)
- 40-	S-17	1.9		{ { }, }, {	VERY LOOSE, BROWN, SILTY SAND, WET 41.1' SOFT, OLIVE GREEN, SANDY SILT, DRY	0.0	CEMENT-BENTONITE GROUT (1.0' - 53.5')	
<u> </u>	S-18	2.0	1-1 1-1		LOOSE, GRAY, SILTY SAND, MOIST 44.0'	0.0		
45-	S-19	1.5	2-2 3-3		MEDIUM DENSE, BROWN AND GRAY, SAND AND GRAVEL, TRACE CLAY, DRY	0.0	2" I.D. THREADED FLUSH-JOINT SCHEDULE 40 PVC RISER	
	S-20	1.8	4-6 6-4	6/		0.0	(0.0' - 58.5')	
- - -50-	S-21	1.9	6-6 5-6			0.0		700.00
 	S-22	2.0	7-7 8-7		52.0' LOOSE, BROWN, SAND, MEDIUM GRAINED, MOIST	0.0		
- , - 	\S−23 /	1.9	5-5 6-8 7-8	06	MEDIUM DENSE, BROWN AND GRAY, SAND AND GRAVEL, DRY	0.0	BENTONITE SEAL	
-55 -	S-24	1.8	7-8 8-10 2-3			0.0	(53.5' - 56.5')	
	S-25	2.0	3-3 8-8		57.0' LOOSE, GRAY TO OLIVE GREEN, SAND, MEDIUM GRAINED, MOIST			
- -60-	S-26	1.6	9-9 7-7		60.0' MEDIUM DENSE, GRAY AND OLIVE GREEN,			690.00
 	S-27	2.0	8-7 6-7		SAND, MEDIUM GRAINED, INTERMITTENT COAL LAYERS, MOIST	0.0		
	S-28 	1.8	8-8 5-6			0.0		
-03-	S-30	1.7	6-6 10-12			0.0	FLUSH-JOINT PVC SCREEN (0.010" SLOT)	٠.
	S-31		12–13 50/5	****	69.1		(58.5' – 68.5')	670.44
-70-			-		HARD, BLACK, SHALE, DRY BOTTOM OF BORING AT 69.1' WELL E-61 INSTALLED WITH SCREEN SET FROM 58.5'-68.5' BGS		REMARKS WOH = WEIGHT OF HAMMER	679.11
	` i							·
11111								
L ₀₈ _]		<u> </u>		F_61

'UMMINGS NSULTANT'S, INC.

LOG OF BORING NO. E-62

Project No. 01305.40 Client: HERCULES INC. Site Name: JEFFERSON PLANT

_ Date Started: 12-18-03 Location: WEST ELIZABETH, PA Date Completed: 12-23-03

rilling Co. CHATFIELD DRILLING Field Geologist: CGK Depth to GW: 15 FT BGS. Driller: AARON HUGHES Date/Time: 12-23-03 Checked By: CLN

DENIST MATERIA, 10.25" LD. AND 4.25" LD. HOLLOW STEM AUGER WIH 2" O.D. SPLIT SPOON SAMPLERS AND SPT

Drillin	g Metl	hod: <u>1</u>	0.25"	I.D. Al	ND 4.25" I.D. HOLLOW STEM AUGER WIH 2"	' O.D	SPLIT SPOON SAMPLERS AND SPT
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	T BLOWS (6")	PROFILE	Coordinates N 4,278.98 E 3,328.43 Surface Elev. 758.70'	HEADSPACE PID READING (PPM)	WELL INSTALLATION DETAIL (FT. M.S.L.) FLUSH MOUNT PROTECTIVE CASING 758 70
-0-		<u> </u>	SPT		VERY DENSE, GRAY TO BLACK, FILL	王丞	758.70 758.36
				\bowtie	MATERIAL, DRY		CONCRETE PAD
F -				XX			
				$\times\!\!\times\!\!\times$			
L ₅ -				$\langle \! $	5.0'		CEMENT-BENTONITE GROUT(1.0' - 26.0')
<u> </u>	S-1	1.1	2-3	NN	SOFT, LIGHT GRAY AND REDDISH BROWN, SILTY CLAY, MOTTLED, MOIST	0.0	
F =			6-7	NN			
				NN	9.0'		750.00
-,,-			2-2	17/1	VERY SOFT TO SOFT, REDDISH BROWN, SILTY		8" I.D. SCH. 40
-10- -	S2	1.7	3-4		CLAY, TRACE SAND, MOIST	0.0	PVC CASING (0.0' - 27.0')
<u> </u>					·		
<u> </u>				W			
_/			1-1	NN			2" I.D. THREADED FLUSH-JOINT
_15 - -	S-3	2.0	1-2	NN	WATER ENCOUNTERED AT 15.0 FT. BGS.	0.0	I NY A Y AI PVC RISER I I
					·		(0' - 56.2')
E -							12.25" DIA. BOREHOLE
							740.00
- ₂₀ -	S-4	1 1 1	MOH-MOH			0.0	
			MOH-MOH	MX		<u> </u>	
-				$\mathcal{N}\mathcal{N}$		<u> </u>	
					24.0	1	
- -25-	S-5	2.0	MOH-MOH		VERY SOFT, LIGHT GRAY, SANDY CLAY, WET	0.0	
	3-5	2.0	WOH-WOH			0.0	
<u> </u>				11/1	27.0	<u> </u>	
<u> </u>	S6	2.0	жон-жон 1—1		VERY SOFT TO SOFT, LIGHT GRAY, SANDY CLAY, MOIST	0.0	730.00
-			1-3			-	
-30-	S-7	1.3	2-2		31.0	0.0	CEMENT-BENTONITE GROUT(1.0' - 49.0')
E =	S–8	1.9	2-3		SOFT, LIGHT GRAY, SANDY CLAY, WET	0.0	
<u> </u>			44		·	0.0	
F -	S - 9	1.6	1-2		34.0	7 0.0	1 171 1 1 3 0,20 pm
35 -			2-3 1-3	1/2/	SOFT, GREENSIH GRAY, SILTY CLAY, MOIST 35.0 MEDIUM STIFF TO STIFF, DARK GRAYISH	1	BOREHOLE
F =	S-10	1.1	5-5	M/A	BROWN, SILTY CLAY, TRACE SAND AND GRAVEL, DRY	0.0	
<u> </u>	0.44		5-5	D N			1 13 14 1 1 1
E - =	S-11	1.7	5-5	12/1	39.0	0.0	720.00
L ₄₀ -	S-12	1.9	WOH 1	11.70	SOFT, DARK GRAYISH BROWN, SILTY CLAY, TRACE SAND. MOIST	0.0	ГИЦ

'UMMINGS CONSULTANTS, INC.

mig Co. CHATFIELD DRILLING

LOG OF BORING NO. E-62

Client: HERCULES INC. Site Name: JEFFERSON PLANT

Location: WEST ELIZABETH, PA

Field Geologist: CGK Checked By: CLN

Project No. 01305.40

Date Started: 12-18-03

Date Completed: 12-23-03 Depth to GW: 15 FT BGS.

, anni	g Co .ΔΔRC	N HUG	HFS		Field Geologist: CGK Depth to GW: 15 F1 BGS. Depth to GW: 15 F1 BGS. Date/Time: 12-23-03	$\overline{}$
Driller	: 		0.25"	1.D. AN	Checked By: CLN Date/Time: 12-23-03 ID 4.25" I.D. HOLLOW STEM AUGER WIH 2" O.D. SPLIT SPOON SAMPLERS AND SP	
Drilling	g Meti	-		VI.		
를 된)	E NO. TYPE	기년 (Y (FT.)	WS (6")	TILE	Constitution N 4.278.98 F 3.328.43 [6.5] WELL INSTALLATION DETAIL	ELEVATION (FT. M.S.L.)
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	SPT BLOWS	PROFILE	DESCRIPTION	,
 40			<u>υ</u>		41 0' CEMENT-BENTONITE	
	S-13	1.8	1-2 3-3		MEDIUM STIFF, DARK GRAY, SILTY CLAY, MOIST 0.0 43.0'	
 -45-	S-14	2.0	WOH−1 2−3		VERY SOFT TO SOFT, DARK GRAY, SAND CLAY, 0.0 WET 2" I.D. THREADED FLUSH-JOINT	
143, 1 1 1 1	S-15	1.1	₩0H-₩0H 1-5		MEDIUM STIFF, DARK GRAY, SILTY CLAY, SOME SANDSTONE FRAGMENTS, MOIST 0.0 SCHEDULE 40 PVC RISER (0.0' - 56.2')	
·	S-16	1.7	WOH-1 2-3	XXX	0.0 B.25" DIA. BOREHOLE	710.00
-50-	S-17	1.8	2-3 3-4		0.0 BENTONITE SEAL (49.0' - 53.0')	
	S-18	1.8	2-3 6-3 4-7	HH H	MEDIUM STIFF, DARK GRAY, SILTY CLAY, SOME	
	S-19	1.7	6-5 2-3	NN NR	SANDSTONE FRAGMENTS, WET MEDIUM STIFF TO STIFF, DARK GRAY, SILTY CLAY, TRACE SAND, DRY CLAY, TRACE SAND, DRY COARSE SAND	
	S-20	2.0	3-2 1-1			
	S-21 S-22	2.0	1-7 1-1		MEDIUM STIFF, DARK GRAY, SILTY CLAY, TRACE GRAVEL, MOIST 0.0	700.00
	S-23	1.8	2-3 WOH-1	7:7	MEDIUM STIFF, DARK GRAY, SANDY CLAY,	
	S-24	2.0	2-3 4-5	&/.,	MEDIUM STIFF, DARK GRAY, SANDY CLAY, TRACE GRAVEL, WET 64.4' 0.0 FLUSH-JOINT PVC SCREEN (0.010" SLOT) (56.2' - 66.2')	
65-	S-25	1.1	9-6 2-9	2/2	STIFF, DARK GRAY, SANDY CLAY AND 65.6' SAPROLITE, DRY HARD, DARK GRAY TO GREEN, SHALE, WEATHERED 0.0	692.50
			50/4		BOTTOM OF BORING AT 66.2' WELL E-62 INSTALLED WITH REMARKS WOH = WEIGHT OF HAMMER	302.00
- -70-					SCREEN SET FROM 56.2'-66.2' BGS	
r 1						
E ₈₀ ∃						E-62

SUMMINGS RITERCONSULTANTS, INC.

LOG OF BORING NO. E-63

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 1-7-04

Location: WEST ELIZABETH, PA Date Completed: 1-12-04

illing Co. CHATFIELD DRILLING Field Geologist: CGK

Driller: AARON HUGHES Checked By: CLN

Date/Time: 1-12-04

HOLLOW STEM ALIGERS WITH 2" O.D. SPLIT SPOON SAMPLERS AND SPT

Depth to GW: 16.9 FT BGS.

Drilling	g Meth	nod: <u>.11</u>	0.25"	1.D. A	ND 4.25" I.D. HOLLOW STEM AUGERS WITH	2" (D.D. SPLIT SPOON SAMPLERS AND SPT
рертн (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	T BLOWS (6")	PROFILE	Surface Elev. 757.86'	HEADSPACE PID READING (PPM)	WELL INSTALLATION DETAIL (FT. M.S.L.)
-0-	· · ·		SPT		DESCRIPTION VERY DENSE, GRAY TO BLACK, FILL	보문	
5 1 1 1 1 1 1 1 1 1					MATERIAL, DRY 5.0		CONCRETE PAD CEMENT-BENTONITE GROUT(1.0' - 26.0')
	S-1	2.0	2-2 4-5		MEDIUM STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, MOTTLED, DRY	0.0	
 - 10-				11/1	10.0		8" I.D. SCH. 40
	S-2	2.0	2-2 3-3	HA LA	SOFT, REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, DRY	0.0	PVC CASING (0.0' - 27.0')
			- - -	11 17 17 17 17 12	15.0		2" I.D. THREADED FLUSH-JOINT SCHEDULE 40
	S-3	1.9	1-2 3-3		SOFT, REDDISH BROWN, SANDY CLAY, DRY TO MOIST 16.9	0.0	
	S-4	1.8	1-2 2-3		VERY SOFT, REDDISH BROWN, SANDY CLAY, WET WATER ENCOUNTERED AT 16.9 FT. BGS.	0.0	12.25 DIA. 740.00 BOREHOLE
-20-	S-5	2.0	WOH-WOH		21.0		
	S-6	1.6	1 — 1 WOH-1		VERY LOOSE, REDDISH BROWN, CLAYEY SAND, WET	0.0	
	S-7	2.0	₩OH-WOH 2-2		24.1 VERY SOFT, REDDISH BROWN, SANDY CLAY, MOIST	0.0	
	S8	1.7	WOH-1 2-2			0.0	
	S-9	2.0	WOH-1 2-3		29.3		730.00
30-	S-10	2.0	MOH-MOH		VERY LOOSE, REDDISH BROWN, SAND, MEDIUM GRAINED, WET 30.4 VERY SOFT, REDDISH BROWN, SANDY CLAY MOIST 31.5	0.0	CEMENT-BENTONITE GROUT(1.0' - 65.0')
	S-11	1.9	3-3 4-5		VERY SOFT, REDDISH BROWN, SANDY CLAY, MOIST 33.4	0.0	
- 5 -	S-12	1.8	2-4 4-10		MEDIUM STIFF, GRAY, SILTY CLAY, TRACE SAND, MOIST 34.8	0.0	8.25" DIA. BOREHOLE
ΕÍ	S-13	1.9	7–9 10–13		MEDIUM DENSE, REDDISH BROWN, SAND AND GRAVEL, DRY 35.9 MEDIUM STIFF, GRAY, SILTY SAND, MOIST	0.0	1 1/1 1
	S-14	2.0	4-5 5-5		MEDIUM STIFF, GRAY, SILTY CLAY, TRACE SAND, MOIST 39.0	10.0	4
L ₄₀ _1	S-15	1.1	10-12	16.76	STIFF, GRAY, SILTY CLAY, TRACE SAND, DRY	0.0	

RUMMINGS RITER CONSULTANTS, INC. Client: HERCULES INC.

Site Name: JEFFERSON PLANT

Location: WEST ELIZABETH, PA

Field Geologist: CGK

Date Started: 12-2-03

Date Completed: 12-2-03

Depth to GW: 15.6 FT BGS

rilling Co. CHATFIELD DRILLING Field Geologist: CGK Depth to GW: 15.6 FT BGS

Driller: PAUL LORENO Checked By: CLN Date/Time: 12-2-03 / 13:00

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	g Meth	nod: <u>Gl</u>	OPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINE	RS
DEPTH O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 3950.94 E 3865.42 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
	_	_		HARD, GRAY TO BLACK, FILL MATERIAL, DRY	-	
				4.0'	-	
5 -	S-1	3.1	611 2.4	MEDIUM STIFF, LIGHT GRAY TO REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, MOTTLED, DRY 5.2' SOFT, YELLOWISH BROWN, CLAYEY SILT, TRACE GRAVEL, MOIST	0.0	
			FL		0.0	
E -	S-2	4.0	77	8.6' MEDIUM STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, DRY	0.0	
	0 2	,0	11/2		0.0	
<u></u>	S-3	4.0	11/4 10/1		0.0	FP-1 (13.6' - 15.6') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
15-			32/7	WATER ENCOUNTERED AT 15.6 FT BGS 15.6' VERY SOFT, BROWN, CLAYEY SILT, WET 16.0'	0.0	
-20				BOTTOM OF BORING AT 16.0' BORING BACKFILLED WITH BENTONITE CHIPS		
-25-						
					:	
-30- 						
35-					·	
- - - - - -	:					

CONSULTANTS, INC.

Co. CHATFIELD DRILLING

Driller: AARON HUGHES

LOG OF BORING NO. E-63

Client: HERCULES INC.

Site Name: JEFFERSON PLANT Location: WEST ELIZABETH, PA

Checked By: CLN

Field Geologist: CGK

Project No. 01305.40

Date Started: 1-7-04

Date Completed: 1-12-04

Depth to GW: 16.9 FT BGS.

Date/Time: 1-12-04

Second S	Drillin	g Metl	nod: <u>1</u>	0.25"	I.D. A	ND 4.25" I.D. HOLLOW STEM AUGERS WITH 2	." O.	D. SPLIT SPOON SAMPLERS AND SPT
S-15 1.1 2-15 SIFF, GRAY, SILTY CLAY, TRACE SAND, DRY O.0 O.		SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	BLOWS	PROFILE	Coordinates N 5,472.08 E 4,823.73 Surface Elev. 757.86 D E S C R I P T I O N	HEADSPACE PID READING (PPM)	
S-16 12 8-10 10-12 10-12 10-13 1 10-10 1 10-12	-40-	S-15			127			CEMENT-BENTONITE
S-17 2.0 10-10 NEIDIM STIFF, GRAY, SANDY CLAY, MOIST 0.0 45.0 0.		S-16					0.0	
S-18 1.8 1.8 10-10	- - - -45-	S-17		10-10	 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	MEDIUM STIFF, GRAY, SANDY CLAY, MOIST 45.0'	0.0	2" I.D. THREADED FLUSH-JOINT
S-19 1.1 10-12 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.		S-18	1.8	13-12		GRAVEL, MOIST	0.0	SCHEDULE 40 PVC RISER (0.0' 70.0')
S-20 S-20 2.0 12-12		S-19	1.1	10-12	15/		0.0	
S-21 2.0 10-10 10-13 13-14 10-13 13-14	-50 <u>-</u>	S-20		12-12	1 / 1		0.0	
5-22 1.9 13-14 SIFF DARK BROWN, SILTY CLAY AND 0.0 0		.—	2.0	10-10	<i>\</i> ≻: \ `	53.0'	0.0	
S-23 1.1 9-10 1.8 S7.0' 0.0 S8.25" DIA BOREHOLE 700.00	(_ 55–	<i>'</i>		13-14	D X	STIFF, DARK BROWN, SILTY CLAY AND	0.0	
S-24 0.6 8-12 GRAVEL, WET 0.0 0.0		S-23	1.1	9-10	11-2-1-21	57.0'	0.0	8.25° DIA. BORFHOLF
S-25 0.8 11-12		S-24	0.6	8-12	0	GRAVEL, WET	0.0	
S-27 1.4 1-9	60-	S-25	0.8	11-12		61.0'		
S-27 1.4 8-3 1.7 1-4 1.7 1.6 1.7 1.6 1.7 1.6 1.7 1.6 1.7 1.6 1.7 1.6 1.7 1.6 1.7 1.6 1.6 1.7 1.6		S-26	1.9	6-9	17.5	LOOSE, DARK GRAY, SILTY SAND, TRACE	0.0	
1.6	-65-	S-27	1.4			•	0.0	
S-29 1.6 7-7 1.0 7-7 1.0 7-7 1.0 7-7 1.0 7-7 1.0 7-7		S-28	1.7				0.0	■ BENTONITE SEAL (65.0' – 68.0')
S-30 1.5 5-5 1.7		S-29	1.6	7–7	1311		0.0	
S-31 1.2 5-7 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	-70-	S-30	1.5	5-5	ia i	71.0°	0.0	
S-32 1.3 12-19 GRAVEL, MOIST 0.0 0.0 12-19 2" I.D. THREADED FLUSH-JOINT PVC SCREEN (0.010" SLOT) (70.0' - 80.0') 680.00 SANDSTONE, WEATHERED, DRY WELL E-63 INSTALLED WITH SCREEN SET FROM 70.0'-80.0' BGS 678.70		S-31	1.2	5–7	Ö	MOIST 73.0'	0.0	
S-33 1.2 14-18 77.6' 0.0 77.6' 0.0	<u> </u>	S-32		12-19	Ç	GRAVEL, MOIST	0.0	
SANDSTONE, WEATHERED, DRY BOTTOM OF BORING AT 80.0' WELL E-63 INSTALLED WITH SCREEN SET FROM 70.0'-80.0' BGS 678.70	- 1	S-33		14-18			0.0	FLUSH-JOINT PVC SCREEN (0.010" SLOT)
80 SCREEN SET FROM 70.0'-80.0' BGS		·S-34	1.0			SANDSTONE, WEATHERED, DRY BOTTOM OF BORING AT 80.0'	0.0	
	ᆫ ₈₀ 크	<u></u>				SCREEN SET FROM 70.0'-80.0' BGS	<u></u>	678.70 E-63

	<i>TUMMINGS</i>
4	P ITER
	CONSULTANTS, INC.

mng Co. CHATFIELD DRILLING

Driller: PAUL LORENO

LOG OF BORING NO. FP-2

Client: HERCULES INC. Site Name: JEFFERSON PLANT Location: WEST ELIZABETH, PA Project No. 01305.40

Date Started: 11-25-03 Date Completed: 11-25-03

Depth to GW: 16.5 FT BGS

Date/Time: 11-25-03 / 15:35

Checked By: CLN

_ Field Geologist: <u>CGK</u>

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS							
DEPTH O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4178.66 E 3988.09 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS	
	-	-	OF FR	STIFF, REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, DRY	_	·	
1,1,1,1	S-1	4.0			0.0	·	
10-	S-2	4.0		9.1' STIFF, REDDISH BROWN, SANDY SILT, DRY	0.0		
	/S-3	4.0		12.9' MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT, MOIST	0.0	FP-2 (14.5' - 16.5') SAMPLE	
15-				WATER ENCOUNTERED AT 16.5 FT BGS 16.5' VERY SOFT, REDDISH BROWN, CLAYEY SILT, WET 17.6'	1 1	COLLECTED AND SENT FOR LABORATORY ANALYSIS	
20-	S-4	4.0		STIFF, REDDISH BROWN, CLAYEY SILT WITH TRACE GRAVEL, DRY	0.0		
				BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS	:		
-25-	:						
30-							
			·				
		-					
E ₄₀]				\up-1.dwg 2/19/2004 11:49:02 AM EST		FP-2	

JLTANTS, INC.

rilling Co. CHATFIELD DRILLING

Driller: PAUL LORENO

pro Mil

LOG OF BORING NO. FP-3 Project No. 01305.40 Client: HERCULES INC. Site Name: JEFFERSON PLANT Date Started: 12-2-03 Location: WEST ELIZABETH, PA Date Completed: 12-2-03 Depth to GW: 16.0 FT BGS Field Geologist: CGK Date/Time: 12-2-03 / 9:33 _ Checked By: CLN Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drilling	g Metr	10'a:	-01 1101	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETA	L= L=11	
	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4178.66 E 3988.09 Surface Elev. D E S C R I P T I O N	HEADSPACE PID	REMARKS
0 1 1	_			ASPHALT SOFT, REDDISH BROWN, SANDY SILT, MOIST	.5'	
	·		714		.0' -	
5 1 1	S-1	3.8	718	MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, MOIST	0.0	<u>-</u>
			R/7 1/8		0.0	-
10-	S-2	3.7	779		0.0	
				SOFT, REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL	0.6 2.0' 2.4' 0.6	-
_ _ _15_	S-3	4.0	θ	MEDIUM STIFF, REDDISH BROWN, SANDY SILT, TRACE GRAVEL, DRY	0.	FP-3 (14.0' - 16.0') SAMPLE (COLLECTED AND SENT FOR
			1199 111	TOTAL COURT DESIGNATION OF THE SECOND	5.0' 0.	4
	S-4	3.5	411 111	SOFT, REDDISH BROWN, SANDY SILT, MOIST	7.9' 0.	_ o
20-				BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS	0.0'	
 25- 						
1 1 1 1 1 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5						
	1					

CUMMINGS	
PITER	• •
CONSULTANTS, IN	IC.

LOG OF BORING NO. FP-4

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 12-2-03

Location: WEST ELIZABETH, PA Date Completed: 12-2-03

ming Co. CHATFIELD DRILLING Field Geologist: CGK

Driller: PAUL LORENO Checked By: CLN

Depth to GW: 19.5 FT BGS

Date/Time: 12-2-03 / 11:05

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS						
O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4317.10 E 4028.75 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS	
	_			ASPHALT 0.6' VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 1.8' MEDIUM STIFF, REDDISH BROWN, SILTY CLAY, MOIST 4.0'	1	,	
5 -	S-1	4.0	1000	SOFT, REDDISH BROWN, SILTY CLAY, TRACE GRAVEL, DRY 5.1' STIFF, LIGHT GRAY AND REDDISH BROWN, SANDY CLAY, TRACE GRAVEL, MOTTLED, DRY	0.0		
			8	8.7' STIFF, BROWN, CLAYEY SILT, TRACE GRAVEL, DRY	0.0		
-10-	S-2	2.8	9/	12.0° MEDIUM STIF, BROWN, CLAYEY SILT, MOIST	0.0		
F15-	S-3	2.1		MEDION OTHER BROTH, GEATER SIET, MOIST	0.0	(
	S-4	4.0		WATER ENCOUNTERED AT 19.5 FT BGS 19.5	0.0	FP-4 (17.5' - 19.5') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	
20-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1				VERY SOFT, BROWN, CLAYEY SILT, WET 20.0' BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS			

'UMMINGS

rilling Co. CHATFIELD DRILLING

AND AND AND AND THE TOTAL TO AND THE PROPERTY OF THE POT

Driller: PAUL LORENO

LOG OF BORING NO. LP-1

Client: HERCULES INC. Site Name: JEFFERSON PLANT Location: WEST ELIZABETH, PA

Field Geologist: CGK

Project No. 01305.40

Date Started: 12-4-03

Date Completed: 12-4-03 Depth to GW: 17.1 FT. BGS

_ Checked By: CLN Date/Time: 12-4-03 / Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS							
DEPTH O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4859.27 E 4427.45 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS		
	S-1	4.0		VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 0.8' STIFF, REDDISH BROWN, CLAYEY SILT WITH TRACE GRAVEL, MOIST	0.0	LP-1 (0.0' -2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS		
5 -	S-2	3.2	12 12 12 12 12 12 12 12 12 12 12 12 12 1	9.00	0.0			
10-	S-3	4.0		8.0' STIFF, REDDISH BROWN, CLAYEY SILT WITH TRACE GRAVEL, DRY	0.0			
15-	S-4	4.0	THAT A		0.0	LP-1 (15.1 - 17.1') SAMPLE		
	S-5	1.2		WATER ENCOUNTERED AT 17.1 FT BGS 17.1' VERY SOFT, REDDISH BROWN, SANDY SILT, WET 20.0'	0.0	COLLECTED AND SENT FOR LABORATORY ANALYSIS		
-20-			Late at Se	BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS				
)5-								
40								

'UMMINGS CONSULTANTS, INC.

ттід Co. CHATFIELD DRILLING

Driller: PAUL LORENO

LOG OF BORING NO. LP-2

Client: HERCULES INC. Site Name: JEFFERSON PLANT

Location: WEST ELIZABETH, PA

Project No. 01305.40 ___ Date Started: 12-11-03

_ Date Completed: 12-15-03 Depth to GW: 16.7 FT. BGS

Date/Time: 12-11-03 / 9:35

_ Checked By: CLN Mothod, GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

_ Field Geologist: <u>CGK</u>

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS							
	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 5,004.35 E 4,558.03 Surface Elev. 754.38' DETAIL OUT OF SCRIPTION DETAIL OUT OF SCRIPTION PROTECTIVE CASING	LEVATION FT. M.S.L.) 754.38		
0 -	S-1	4.0		VERY DENSE, GRAY TO BLACK, FILL MATERIAL DRY 0.2 STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, 0.0 CLAYEY SILT, TRACE GRAVEL, DRY CEMENT-BENTONITE	753.83		
5 -				0.0 GROUT (10' - 110')	750.00		
	S-2	4.0		SAND, DRY 0.0 1" I.D. THREADED FLUSH-JOINT SCHEDULE 40 PVC RISER			
-10-	S-3	4.0		0.0 (0.0' - 15.0')			
15-	S-4	3.9		16.5 0.0	740.00		
	S-5	2.1		SOFT, DARK GRAY, SANDY SILT, MOIST, PETROEUM ODOR WATER ENCOUNTERED AT 16.7 FT. BGS 16.7' VERY SOFT, DARK GRAY SANDY SILT, WET 17.5' SOFT, REDDISH BROWN, CLAYEY SILT, TRACE SAND, MOIST			
20				BOTTOM OF BORING AT 20.0' LP-2 (0.0' - 2.0') /MS/MSD SAMPLE COLLECTED AND SENT FOR	734.38		
25		,		SCREEN SET FROM 15.0'-20.0' BGS LABORATORY ANALYSIS LP-2 (14.7' - 16.7') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	•		
			-				
30 <u>-</u> 30-		,					
1 4 1	, -				(
- - - 40-							

CUMMINGS	
DITER	
L CONSULTANTS, IN	IC.

rilling Co. CHATFIELD DRILLING

Driller: PAUL LORENO

LOG OF BORING NO. LP-3

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 12-11-03

Location: WEST ELIZABETH, PA Date Completed: 12-11-03

Field Geologist: CGK Depth to GW: 21.5 FT. BGS

Checked By: CLN Date/Time: 12-11-03

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS									
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)		Coordinates N 5,141.73 E 4,718.17 Surface Elev. 756.32	HEADSPACE PID READING (PPM)	PIEZOMETER INSTALLATION ELEVA DETAIL			
· 0 –	SAM	RECO		DESCRIPTION					
		_	\bigotimes	ASPHALT 0.5 VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY] -	CONCRETE PAD	<u>.06</u>		
=			\$1,0°	VERY STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, DRY	_	CEMENT-BENTONITE GROUT (1.0' - 14.0')			
5 -	S1	4.0	2/2		0.0	2" DIA. 750	۰.0		
	S-1	4.0	1/2		0.0	BOREHOLE			
_ 			111	VERY STIFF, MOTTLED LIGHT GRAY AND DARK BROWN CLAYEY SILT, DRY	0.0				
10 <u>-</u>	S-2	4.0		12.2	0.0	1 [/ 			
-				MEDIUM DENSE, REDDISH BROWN, SILTY SAND, MOIST	0.0	FLUSH-JOINT SCHEDULE 40 PVC RISER (0.0' - 18.0')			
5 -	S-3	3.8	111		0.0				
-			ill.	LOOSE, REDDISH BROWN, SILTY SAND, MOIST	0.0	(14.0' - 17.0')			
-	S-4	3.1			0.0				
20 -			III III	WATER ENCOUNTERED AT 21.5 FT. BGS. 21.5 VERY SOFT, REDDISH BROWN, CLAYEY SILT, WET	0.0	FLUSH-JOINT PVC SCREEN (0.010" SLOT)			
-	S-5	2.9	111	21.9 MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT, MOIST	0.0	(18.0' - 23.0')			
_			777	BOTTOM OF BORING AT 24.0'	<u>'</u>	MATERIAL 736	<u>5.5</u>		
25 <u>–</u> -				PIEZOMETER LP-3 INSTALLED WITH SCREEN SET FROM 18.0'-23.0' BGS		LP-3 (14.0' - 16.0')/DUP-3 SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS			
=									
 30						·			
- - -									
-									
;5 -									
_		!		;					
=									

CUMMINGS
RITER CONSULTANTS, INC.
CONSULTANTS, INC.

Driller: PAUL LORENO

LOG	OF	BORING	NO.	LP-4
FOG	OI.		INO.	<u> </u>

Client: HERCULES INC. Site Name: JEFFERSON PLANT Location: WEST ELIZABETH, PA Project No. 01305.40 Date Started: 12-3-03

Date Completed: 12-3-03

....rg Co. CHATFIELD DRILLING Field Geologist: CGK Checked By: CLN

Depth to GW: 16.0 FT. BGS Date/Time: 12-3-03 / 15:55

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	g Meu	10u:		SE TITT 2.0 THOS WACKGOOKE SAMELER AND ACETALE	L1114	
DEPTH O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4933.32 E 4859.00 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
E°				ASPHALT		
	-	_		1.5' STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, MOIST 4.0'	-	
5 -			44	SOFT, MOTTLED LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, MOIST 4.9'	0.0	
	S-1	4.0		STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, DRY	0.0	
-10-		4.0			0.0	
	S-2	4.0			0.0	
			777	·	0.0	
-15-	S-3	4.0		WATER ENCOUNTERED AT 16.0 FT BGS 16.0'	0.0	(LP-4 (14.0' - 16.0') SAMPLE
- - -			11/1	VERY SOFT, GRAY, CLAYEY SILT, WET	0.0	COLLECTED AND SENT FOR LABORATORY ANALYSIS
	S-4	0.2			_	
20-			1 1 1	20.0	 	
				BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS		
-25- 						
			-	• *		
<u> </u>						·
-30-		•				
F -					·	
E. 3				·		
				·		
)F `	`					
						·
ΕJ						
Ł ₄₀]						

UMMINGS

LOG OF BORING NO. LP-5

Project No. 01305.40 Client: HERCULES INC.

Site Name: JEFFERSON PLANT Date Started: 12-9-03 Date Completed: 12-9-03 Location: WEST ELIZABETH, PA

rilling Co. CHATFIELD DRILLING Depth to GW: 21.0 FT. BGS Field Geologist: CGK

Date/Time: 12-9-03 / Driller: PAUL LORENO Checked By: CLN 16:25

	g Meth		OPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND AC	ETATE	LINERS	
	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4,887.58 E 4,703.11 Surface Elev. 752.06'	HEADSPACE -PID READING (PPM)	-4" FLUSH MOUNT PROTECTIVE CASING	EVATION M.S.L.)
0 -	S-1	3.1		DENSE, GRAY AND BLACK, FILL MATERIAL, MOIST TO DRY	0.0	CONCRETE PAD 75 CEMENT-BENTONITE GROUT	51.56 50.00
- 5 -	S-2	4.0		VERY STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, DRY	0.0	(1.0' - 13.5') 2" DIA. BOREHOLE	
 -10-	S-3	4.0	77/2/1		0.0	1" I.D. THREADED 7	'40.00
-15	S-4	4.0			0.0	FLUSH—JOINT SCHEDULE 40 PVC RISER (0.0' - 17.5') BENTONITE SEAL (13.5' - 16.5')	((
	S-5	4.0			0.0	COARSE SAND (16.5' – 27.5')	
20-	S6	4.0		WATER ENCOUNTERED AT 21.0 FT. BGS. 21.0 SOFT, DARK GRAY, CLAYEY SILT, TRACE SAND, WET	0.0	FLUSH-JOINT PVC SCREEN (0.010" SLOT) (17.5' - 27.5') 7	730.0
 -25- 	S-7	3.7		27.2 SOFT, BROWN, CLAYEY SILT, MOIST 28.0	7 20	COLLAPSED	
-30-	_		N Y I	SOFT, BROWN, CLAYEY SILT, MOIST 28.0 BOTTOM OF BORING AT 28.0' PIEZOMETER LP-5 INSTALLED WITH SCREEN SET FROM 17.5'-27.5' BGS	,		<u>7</u> 24.00
35-							(
40 [±]	d\ nrnier	te\lane\	/ SUIL 1 UG	2 dwg 2/10/2004 0-33-48 AM FST			I P.

GUMMINGS ITERCONSULTANTS, INC.

LOG OF BORING NO. LP-6

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 12-9-03

Location: WEST ELIZABETH, PA Date Completed: 12-17-03

Driller: PAUL LORENO Checked By: CLN Depth to GW: 24.0 FT. BGS

Date/Time: 12-9-03 / 13:17

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	g Meti	nod: <u>GE</u>	OPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND AC	ETAT	E LINERS	· .
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4,839.98 E 4,928.16 Surface Elev. 743.45 D E S C R I P T I O N	HEADSPACE PID READING (PPM)	-4" FLUSH MOUNT PROTECTIVE CASING	LEVATION T. M.S.L.)
	S-1	2.9		DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 1.2 VERY STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT WITH TRACE GRAVEL, MOTTLED, MOIST	155	CONCRETE PAD	143.45 142.86 740.00
5 -	S-2	3.9		6.2 VERY STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT WITH TRACE GRAVEL, DRY 8.2	1531	2" DIA.	
-10-	S-3	4.0		VERY STIFF, REDDISH BROWN, CLAYEY SILT, DRY	190	1" I.D. THREADED FLUSH-JOINT	730.00
F15-	S-4	4.0		STEE PERMIT PROMIT CAMPAGE TO PROMIT	219 172	PVC RISER (0.0' - 18.0')	<u>/30.00</u>
-20-	S5	4.0		STIFF, REDDISH BROWN, SANDY SILT, DRY	133 39.8	COARSE SAND (17.0' – 28.0')	
	S-6	4.0		MEDIUM STIFF, REDDISH BROWN, SANDY SILT, MOIST WATER ENCOUNTERED AT 24.0 FT. BGS. 24.1	0.0	(18.0' – 28.0')	720.00
-25-	S-7	0.3		VERY SOFT, REDDISH BROWN, SANDY SILT, WET 28.0	0.0		715.45
30-				BOTTOM OF BORING AT 28.0' PIEZOMETER LP-6 INSTALLED WITH SCREEN SET FROM 18.0'-28.0' BGS		LP-6 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS LP-6 (22.0' - 24.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	,
E ₄₀ =							

UMMINGS ONSULTANTS, INC.

rilling Co. CHATFIELD DRILLING

LOG OF BORING NO. LP-7

Client: HERCULES INC.

Project No. 01305.40

Site Name: JEFFERSON PLANT Location: WEST ELIZABETH, PA

Date Started: 12-9-03 Date Completed: 12-15-03

Field Geologist: CGK

Depth to GW: 20.0 FT. BGS

Driller: PAUL LORENO Checked By: CLN Date/Time: 12-9-03 /15:03

Drillin	g Metł	nod: <u>G</u>	EOPROE	BE WITH 2.0-INCH MACROCORE SAMPLER AND AC	ETATE	LINERS	
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N_4,944.73 E_5,146.96 Surface Elev	HEADSPACE PID READING (PPM)	PIEZOMETER INSTALLATION DETAIL 4" FLUSH MOUNT PROTECTIVE CASING 74	VATION M.S.L.)
	S1	3.1	£ 2000	VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 1.9 VERY STIFF, REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, DRY	0.0		2.65
5 -	S-2	4.0	A FELL	6.7 MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT, TRACE SAND, MOIST	0.0	2" DIA. BOREHOLE	
-10-	S-3	4.0			0.0	1" I.D. THREADED FLUSH-JOINT SCHEDULE 40 PVC RISER (0.0' - 16.0')	50 00
	S-4	4.0			0.0	BENTONITE SEAL (12.0' 15.0')	. (
-20-	S-5	4.0		WATER ENCOUNTERED AT 20.0 FT. BGS. 20.0 VERY SOFT, REDDISH BROWN, CLAYEY SILT, WET	0.0	COARSE SAND (15.0' - 21.0') 1" I.D. THREADED FLUSH-JOINT PVC	
	S-6	4.0		MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT, DRY	0.0	(16.0' - 21.0')	20.00
-25-				BOTTOM OF BORING AT 24.0' PIEZOMETER LP-7 INSTALLED WITH SCREEN SET FROM 16.0'-21.0' BGS		LP-7 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS LP-7 (18.0' - 20.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	
35-							
E ₄₀	W 1.51.		201100	D 1			I D - 7

'UMMINGS CONSULTANTS, INC.

anng Co. CHATFIELD DRILLING

Driller: PAUL LORENO

LOG OF BORING NO. LP-8

Client: HERCULES INC.

Site Name: JEFFERSON PLANT

Location: WEST ELIZABETH, PA

Project No. 01305.40 Date Started: 12-9-03

Date Completed: 12-9-03

Depth to GW: 17.0 FT. BGS

Date/Time: 12-9-03 /09:10

Checked By: CLN

Field Geologist: CGK

Drilli	ng Meti	nod: GE	OPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND AC	ETAT	E LINERS	
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4,724.46 E 5,015.94 Surface Elev. 741.91	HEADSPACE PID READING (PPM)	PIEZOMETER INSTALLATION DETAIL -4" FLUSH MOUNT	ELEVATION FT. M.S.L.)
-0-	S &	RECC		DESCRIPTION	READ		741.91
	S-1	3.4	\bigotimes	VERY DENSE, GRAY TO BLACK, FILL MATERIAL, MOIST 2.6	514	COMODELLE DAD	741.57 740.00
	-			MEDIUM STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, MOIST	512	CEMENT-BENTONITE GROUT (1.0' - 9.0')	
- 5 ·	S-2	2.9		6.5 VERY SOFT, DARK GRAY, CLAYEY SILT, MOIST	1700	2" DIA.	
	1			8.0 SOFT, MOTTLED LIGHT GRAY AND REDDISH BROWN CLAYEY SILT, MOIST	י		
-10-	- S-3	4.0			192	1" I.D. THREADED	730.00
	턴 - S-4	4.0			0.0	PVC_RISER (0.0' - 12.0')	
-15-	- - -			WATER ENCOUNTERED AT 17.0 FT. BGS. 17.0	0.0		
<u>-</u> .	S-5	4.0		VERY SOFT, REDDISH BROWN, CLAYEY SILT WITH TRACE SAND, WET	0.0	COARSE SAND (11.0' - 22.0')	·
<u>-20</u> -	S-6	2.1		LOOSE, GRAY, CLAYEY SAND, MOIST	0.0	FLUSH-JOINT PVC SCREEN (0.010" SLOT)	720.00
E.	- 30 -	2.1		24.0	0.0	I IZV ZV Z V U UULLAESED L	717.91
_ ₂₅	-			BOTTOM OF BORING AT 24.0' PIEZOMETER LP-8 INSTALLED WITH SCREEN SET FROM 12.0'-22.0' BGS		LP-8 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	
<u>-</u> -	-			3311 SET FROM 12.0 22.0 803		LP-8 (15.0' - 17.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	
30-							
	- - -						
	1		·				
E :				·			Ì
E ₄₀ .	<u> </u>						
CA Ca	dd\ araica	Inaa 1 /ns	504100	2 dwg 2/19/2004 9:33:48 AM EST			10_8

UMMINGS JLTANTS, INC.

illing Co. CHATFIELD DRILLING

BORING NO. LP-9 LOG OF Project No. 01305.40 Client: HERCULES INC. Site Name: JEFFERSON PLANT Date Started: 12-8-03 Location: WEST ELIZABETH, PA Date Completed: 12-8-03 Field Geologist: CGK Depth to GW: 8.0 FT. BGS

Driller: PAUL LORENO Checked By: CLN Date/Time: 12-8-03 /

Drillin	g Meth	nod: <u>GE</u>	OPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND AC	ETATE	LINERS	<u> </u>
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4,702.10 E 4,844.03 Surface Elev. 741.47'	HEADSPACE PID READING (PPM)	PIEZOMETER INSTALLATION DETAIL -4" FLUSH MOUNT	ELEVATION (FT. M.S.L.)
L 0 -	35 7	REC		DESCRIPTION ·	奇奇	PROTECTIVE CASING	741.91
	_			DENSE, GRAY TO BLACK, FILL MATERIAL, MOIST	_	CONCRETE PAD CEMENT-BENTONITE GROUT	741.57
				4.0' SOFT, DARK GRAY TO BLACK, CLAYEY SILT WITH	1	(1.0' - 2.0') BENTONITE SEAL (2.0' - 4.0') "" I.D. THREADED	
5-	S-1	3.6		TRACE SAND, MOIST	0.0	FLUSH-JOINT SCHEDULE 40 PVC RISER (0.0' - 5.0')	
				WATER ENCOUNTERED AT 8.0 FT. BGS	-	2" DIA. BOREHOLE	
-10- -	S-2	0.0		12.0	-	1" I.D. THREADED FLUSH-JOINT PVC SCREEN (0.010" SLOT)	730.00
	S-3	1.8	111	SOFT, MEDIUM BROWN, CLAYEY SILT, MOIST	0.0	(5.0' - 15.0') COARSE SAND (4.0' - 15.0')	
15-			777	16.0	_	COLLAPSED MATERIAL	725.91
				BOTTOM OF BORING AT 16.0' PIEZOMETER LP—9 INSTALLED WITH SCREEN SET FROM 5.0'—15.0' BGS		LP-9 (5.6' - 7.6') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	
20-							
-25-							
					1		
30-							
├ - -5′ - ' - '							
	,						
E ₄₀ =	۸۱ مـد،م	ta\ 1 aaa\	SOIL 100	2 dun 2 /10 /2004 0.27.49 AM EST	<u></u>		10.0

E	<i>Ī</i> 7	AMINO TER Insultan	
- Drim	Co.	CHATFIELD	DRILLING

Driller: PAUL LORENO

Drillin Drillin	g Meth	od: G	OPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE		RS
	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 5099.94 E 5072.59 Surface Elev. D E S C R P T O N	HEADSPACE PID READING (PPM)	REMARKS
- 0 <u>-</u>				ASPHALT 1.5'	_	
 	–	-	1/4 4/1	MEDIUM STIFF, GRAY, CLAYEY SILT, GRAVEL, MOIST 4.0'	_	
- 5 -	S-1	0.5	71 27	MEDIUM STIFF, DARK GRAY, CLAYEY SILT, TRACE GRAVEL, MOIST	0.0	
<u>-</u>			1/2	8.0'	0.0	
-10-	S-2	4.0		STIFF, LIGHT GRAY AND REDDISH BROWN, SANDY SILT, TRACE GRAVEL, MOTTLED, DRY	0.0	
-	3-2	4.0	Φ.) ΤΙΦ		0.0	
- - -	6.7				0.0	
15-	S-3	4.0	14	16.0'	0.0	LP-10 (16.0' - 18.0') SAMPLE
-				STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, SANDY SILT, TRACE GRAVEL, DRY WATER ENCOUNTERED AT 18.0 FT BGS 18.0'	0.0	COLLECTED AND SENT FOR LABORATORY ANALYSIS
	S-4	3.1		VERY SOFT, REDDISH BROWN, SANDY SILT, WET 20.0	0.0	
20 - - -				BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS		
=						
25 <u>-</u>						
-						
-						
-					,	
, A				*.		
=						
			1		. 1	<u> </u>

'UMMINGS

LOG OF BORING NO. SB-1

Project No. 01305.40 Client: HERCULES INC. Site Name: JEFFERSON PLANT Date Started: 11-25-03

Location: WEST ELIZABETH, PA Date Completed: 11-25-03 Field Geologist: CGK

cilling Co. CHATFIELD DRILLING Depth to GW: 16.0 FT. BGS Driller: PAUL LORENO Checked By: CLN ______Date/Time:_______11-25-03____

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	g Meth	iod: <u>حو</u>	UPKU	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINE	3
DEPTH O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4034.53 E 3965.33 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
		-		LOOSE, GRAY TO BLACK, FILL MATERIAL, MOIST	-	
1.1.1.1.	S-1	3.5	XZZ	SOFT, DARK GRAY, CLAYEY SILT, MOIST STRONG PETROLEUM ODOR	52.4 54.8	
10-	\$ - 2	3.0	7-10-1-	STIFF, LIGHT GRAY AND REDDISH AND BROWN, CLAYEY SILT WITH TRACE GRAVEL, DRY	39.6 252	
<u>-</u> 15-	S-3	4.0		SOFT, DARK GRAY, CLAYEY SILT, MOIST STRONG PETROLEUM ODOR 13.5' MEDIUM STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, DRY — STRONG PETROLEUM ODOR	127 45.6	·
	S-4	4.0	700	VERY SOFT, DARK GRAY, CLAYEY SILT, WET 16.9' MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT WITH TRACE GRAVEL, DRY	51.4 21.0	SB-1 (14.0' - 16.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
-20-			<u> </u>	BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS		
30						
,					n see.	

CUMMINGSITER
CONSULTANTS, INC.

uning Co. CHATFIELD DRILLING

LOG OF BORING NO. SB-2

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 11-25-03

Location: WEST ELIZABETH, PA Date Completed: 11-25-03

Field Geologist: CGK Depth to GW: 13.5 FT BGS

Driller: PAUL LORENO Checked By: CLN Date/Time: 11-25-03 / 13:35

Drillin	g Meth	od: <u>G</u> E	OPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETAT	E LINE	RS
O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4044.88 E 3980.07 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
	_	_		HARD, GRAY TO BLACK, FILL MATERIAL, DRY 4.	-	
5 -	S-1	2.8		SOFT, LIGHT GRAY AND BROWN, CLAYEY SILT AND GRAVEL, MOIST 6. SOFT, DARK GRAY, CLAYEY SILT, TRACE SAND, MOIST 8.	0.0	
-10-	S-2	4.0		MEDIUM STIFF, OLIVE BROWN, CLAYEY SILT, MOIST 10. MEDIUM STIFF, DARK GRAY, CLAY, TRACE SAND, MOIST	0.0	SB-2 (11.5° - 13.5°) SAMPLE
- - 15-	S-3	4.0		WATER ENCOUNTERED AT 13.5' VERY SOFT, DARK GRAY, CLAYEY SILT, WET 14. STIFF, REDDISH BROWN, CLAYEY SILT, DRY 16.	□ o.o	-{
-25-				BOTTOM OF BORING AT 16.0' BORING BACKFILLED WITH BENTONITE CHIPS		

CUMMINGS
PITER
CONSULTANTS, INC.

rilling Co. CHATFIELD DRILLING

LOG OF BORING NO. SB-3

LOG OF BORING IN	(O. <u>OB B</u>
Client: HERCULES INC.	Project No. 01305.40
	Date Started: 11-25-03
	Date Completed: 11-25-03
	Depth to GW: 16.0 FT BGS
Checked By: CLN	Date/Time: 11-25-03 / 11:20

Driller: PAUL LORENO Checked By: CLN Date/T

Drillin	ng Meth	od: <u>GE</u>	OPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINE	RS	-
T DEPTH O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N_4013.68 E_3972.90 Surface Elev D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS]
F -	+	_		HARD, GRAY TO BLACK, FILL MATERIAL, DRY	_		
	-			4.0' MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT AND GRAVEL, DRY	- 54.6		
-	S-1	4.0	ALK ALK ALK ALK ALK ALK ALK ALK ALK ALK	SOFT, LIGHT GRAY TO REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, MOTTLED, DRY PETROLEUM ODOR	283		
-			7/3	9.1' SOFT, DARK GRAY, SANDY SILT, MOIST	214		
-10- - - -	S-2	2.9		PETROLEUM ODOR	60.8		
上、_ 上/:	S-3	4.0		13.6' STIFF, LIGHT GRAY TO REDDISH BROWN, CLAYEY SILT SILT, TRACE SAND, MOTTLED, DRY	77.8	SB-3 (14.0' - 16.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	(
-15- - -	-			WATER ENCOUNTERED AT 16.0 FT BGS 16.0' VERY SOFT, LIGHT GRAY, CLAYEY SILT, TRACE SAND, WET			
	S-4	4.0	12 P	STIFF, REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, DRY	0.0		
-20- 	-		77 Y D	20.0 BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS			
25				·			
30- 			:	•			
5-			٠.				
L -							

CUMMINGS	
PITER	
CONSULTANTS, INC	•

Driller: PAUL LORENO

LOG OF BORING NO. SB-4

Project No. 01305.40 Client: HERCULES INC. Site Name: JEFFERSON PLANT __ Date Started: 11-25-03 Location: WEST ELIZABETH, PA __ Date Completed: 11-25-03 ___ Depth to GW: 10.0 FT BGS mg Co. CHATFIELD DRILLING Field Geologist: CGK ____ Date/Time: 11-25-03 / 13:00

____ Checked By: CLN Drilling Method, GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	g Meth	iod: Gt	OPROL	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETA	ME	LINE	3 5	-
O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4023.83 E 3985.52 Surface Elev. D E S C R I P T I O N		HEADSPACE PID READING (PPM)	REMARKS]
	_		\bigotimes	HARD, GRAY TO BLACK, FILL MATERIAL, DRY		_		
				VERY SOFT, DARK GRAY, CLAYEY SILT, AND GRAVEL	4.0'	-		
5 -	S-1	2.2	47 4	VERY SOFT, DARK GRAY, CLAYEY SILT, AND GRAVEL, MOIST MEDIUM STIFF, DARK GRAY, CLAYEY SILT, TRACE GRAVEL, DRY	4.9'	0.0		
			12 M			2.5	SB-4 (8.0' - 10.0') SAMPLE	
10-	S-2	2.1	11	WATER ENCOUNTERED AT 10.0' 10 VERY SOFT, DARK GRAY, CLAYEY SILT, WET	0.0'		COLLECTED AND SENT FOR LABORATORY ANALYSIS	
						0.0		
-15-	S-3	4.0				0.0		
F' =				16	6.0'	0.0		-
-20-				BOTTOM OF BORING AT 16.0' BORING BACKFILLED WITH BENTONITE CHIPS				
	\ 	i						
					٠			
L ₄₀ J								╛

CUMMINGS
PITER
A CONSULTANTS, INC.

illing Co. CHATFIELD DRILLING

Driller: PAUL LORENO

NO. <u>SB-5</u>
Project No. <u>01305.40</u>
Date Started: 11-25-03
Date Completed: 11-25-03
Depth to GW: 14.0 FT BGS
Date/Time: 11-25-03 / 14:45

Drillin	g Metl	nod: <u>G</u> E	EOPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE		RS
оертн (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4042.27 E 3992.13 Surface Elev D E S C R P T O N	HEADSPACE PID READING (PPM)	REMARKS
0 -	-			HARD, GRAY TO BLACK, FILL MATERIAL, DRY	-	
5 -	S-1	1.2	# 1	4.0' SOFT, DARK GRAY, CLAYEY SILT AND GRAVEL, MOIST	0.0	
-10-	S-2	0.4	12 12 12 12 12 12 12 12 12 12 12 12 12 1	8.0' STIFF, OLIVE BROWN, CLAYEY SILT, TRACE GRAVEL, MOIST	0.0	
			77	MEDIUM STIFF, OLIVE BROWN, CLAYEY SILT, MOIST WATER ENCOUNTERED AT 14.0 FT BGS 14.0	0.0	SB-5 (12.0' 14.0') SAMPLE COLLECTED AND SENT FOR
15	S-3	4.0			,	LABORATORY ANALYSIS
-20-		:		BORING BACKFILLED WITH BENTONITE CHIPS		
				• · · · · · · · · · · · · · · · · · · ·		
- 25 - 25						
-30-			-			
			. ,			
5-1 1 - 1				·		
		_				

	<i>IMMINGS</i>
Y)	ITER CONSULTANTS, INC.
	CONSULTANTS, INC.

ang Co. CHATFIELD DRILLING

Driller: PAUL LORENO

LOG OF BORING NO. SB-6

Client: HERCULES INC. Site Name: JEFFERSON PLANT Location: WEST ELIZABETH, PA __ Project No. 01305.40

___ Date Started: 11-25-03

_ Date Completed: 11-25-03

Depth to GW: 15.0 FT BGS _ Date/Time: <u>11-25-03 / 9:55</u>

_ Checked By: CLN Distilling Mothod, GEOPROBE WITH 2,0-INCH MACROCORE SAMPLER AND ACETATE LINERS

_ Field Geologist: CGK

Drilling	g Meth	od: <u>GE</u>	OPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINE	RS
I DEPTH O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4021.94 E 3965.29 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
		_		HARD, GRAY TO BLACK, FILL MATERIAL, DRY 4.0	-	
5-1-1-1	S-1	3.8	777	VERY STIFF, YELLOWISH BROWN, CLAYEY SILT, DRY 6.1' MEDIUM STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, MOTTLED, MOIST	0.0	
 - 10-	S-2	2.1			0.0	
			41	WATER ENCOUNTERED AT 13.0 FT BGS 13.0'	0.0	SB-6 (11.0' - 13.0') SAMPLE COLLECTED AND SENT FOR
-15- <u>-</u>	, S–3	3.4		VERY SOFT, YELLOWISH BROWN, CLAYEY SILT, WET 15.2'	0.0	LABORATORY ANALYSIS
	S-4	2.5		SOFT, BROWN, SILTY CLAY, MOIST 17.0' LOOSE, REDDISH BROWN, SILTY SAND, DRY 20.0	0.0	·
-20- 				BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS		
40				Nun-1 dwg 2/19/2004 11:49:02 AM EST		

CUMMINGS	
PITER	
L CONSULTANTS, INC	Ξ.

rilling Co. CHATFIELD DRILLING

LOG OF BORING NO. TF-1

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 12-8-03

Location: WEST ELIZABETH, PA Date Completed: 12-8-03

Field Geologist: CGK Depth to GW: 11.7 FT BGS

Checked By: CLN Date/Time: 12-8-03 / 10:35

Driller: PAUL LORENO Checked By: CLN Date/

Drillin	g Meth	od: <u>GE</u>	OPROE	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINE	RS
	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4910.29 E 3395.70 Surface Elev D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
	S-1	3.8	$\overset{\times}{\otimes}$	VERY STIFF, GRAY TO BLACK, FILL MATERIAL, DRY 3.1	0.0	TF-1 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
- 5	S-2	3.6	77.7	VERY STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, TRACE SAND AND GRAVEL, MOTTLED, DRY 4.0' MEDIUM STIFF, LIGHT GRAY AND DARK BROWN, CLAYEY SILT, TRACE SAND, DRY		
				•	0.0	TF-1 (9.7' - 11.7') SAMPLE COLLECTED AND SENT FOR
10-	S-3	4.0		WATER ENCOUNTERED AT 11.7 FT BGS 11.7' SOFT, BROWN SAN, MEDIUM GRAINED, WET 12.0	0.0	LABORATORY ANALYSIS
上 				BOTTOM OF BORING AT 12.0' BORING BACKFILLED WITH BENTONITE CHIPS		
				. '		
-20-						
-25- 					-	
30						
35 <u>—</u>						
			_		<u> </u>	

CUMMINGS
DITER
CONSULTANTS, INC.

ming Co. CHATFIELD DRILLING

Driller: MIKE	LARIMER Checked By: MJV		Dept	th to GW: ~8.0 BGS / 13:50
DEPTH (FEET) PROFILE	Coordinates N 4854.05 E 3553.96 Surface Elev. D E S C R 1 P T I O N		HEADSPACE PID READING (PPM)	REMARKS
	STIFF, BROWN CLAY, SOME GRAY MOTTLING, DRY TO MOIST	4.0'	Ξœ	TF-2 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
-5-	STIFF, TAN CLAY, MOIST STIFF, BROWN CLAY, SOME GRAY MOTTLING, WET TO MOIST WET AT ~8.0 FT BGS	6.0' 8.0'		TF-2 (6.0' - 8.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
 -10- 	BOTTOM OF BORING AT 8.0' BORING BACKFILLED WITH BENTONITE CHIPS			
<. 4 -15- 				(
-20- -25-				
- -40	te\01-305\100e\in-10 dwa 2/19/2004 3-31-55 PM FST			TF

	CUMMINGS
	RITER CONSULTANTS, INC.
,	A CONSULTANTS, INC.

rilling Co._

CHATFIELD DRILLING

LOG OF BORING NO. TF-3

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 12-8-03

Location: WEST ELIZABETH, PA Date Completed: 12-8-03

Field Geologist: CGK Depth to GW: 9.4 FT BGS

Checked By: CLN Date/Time: 12-8-03 / 9:30

Driller: PA	UL LORE	NO	Checked By: CLN	Date	th to GW: 9.4 FT 603 e/Time: 12-8-03 / 9:30
Drilling M		-OPROI	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE		NO .
DEPTH (FEET) SAMPLE NO.	AND TYPE SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4990.91 E 3655.99 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
- 0 - S-		RIA	STIFF LIGHT GRAY TO REDDISH BROWN, SANDY SILT, TRACE GRAVEL, MOTTLED, DRY STIFF, LIGHT GRAY TO REDDISH BROWN CLAYEY SILT, TRACE GRAVEL, DRY	0.0	TF-3 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
- 5 - s-	2 4.0	A PA	4.0' MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT, TRACE SAND AND GRAVEL, DRY	0.0	
 - 10- s-	3 4.0		WATER ENCOUNTERED AT 9.4' VERY SOFT, REDDISH BROWN, CLAYEY SILT, WET 9.6' MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT, TRACE SAND, MOIST	0.0	TF-3 (7.4' - 9.4') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
	1.0		TRACE SAND, MOIST 12.0	0.0	
-15-1			BOTTOM OF BORING AT 12.0' BORING BACKFILLED WITH BENTONITE CHIPS		,
-20-				1	
-25-				:	·
30-					
15-1 15-1 1-1					
					,

	<i>UMMINGS</i>
Y	DITER
(CONSULTANTS, INC.

 LOG OF BORING NO.
 TF-4

 Client:
 HERCULES INC.
 Project No.
 01305.40

Site Name: JEFFERSON PLANT

Date Started: 12-12-03

Location: WEST ELIZABETH, PA

Date Completed: 12-12-03

Driller: MIKE LARIMER Checked By: MJV Depth to GW: ~6.0' BGS

Driller: MIKE LARIMER Checked By: MJV Date/Time: 12-12-03 / 10:50

Drilling Method: HAND AUGER

Drilling [*]	Meth	od: HAND AUGER		•	
DEPTH (FEET)	PROFILE	Coordinates N 5088.27 E 3782.86 Surface Elev. D E S C R I P T I O N		HEADSPACE PID READING (PPM)	REMARKS
		STIFF, BROWN, SILTY CLAY, SOME GRAY MOTTLING, DRY STIFF, BLACK, SILTY CLAY, TRACE GRAVEL, DRY	3.0'		TF-4 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
5 -		WET ~6.0', OILY SHEEN ON WATER	7.0*		TF-4 (4.0' - 6.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
10-		BOTTOM OF BORING AT 7.0' BORING BACKFILLED WITH BENTONITE CHIPS			
-15- - 15- 					
-20-					
25-					
30-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1					
40					

CUMMINGS
PITER
CONSULTANTS, INC.

LOG OF BORING NO. TF-5

Client: HERCULES INC. Project No. 01305.40 Site Name: JEFFERSON PLANT Date Started: 12-8-03 Location: WEST ELIZABETH, PA Date Completed: 12-8-03 Depth to GW: 9.7 FT BGS

CHATFIELD DRILLING ے۔illing Co Driller: PAUL LORENO

Field Geologist: CGK Checked By: CLN

Date/Time: 12-8-03 / 11:30

Drillin	Orilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS					
T DEPTH O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 5181.13 E 3632.47 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
	S-1	4.0	\bigotimes	VERY STIFF, GRAY TO BLACK, FILL MATERIAL, DRY	0.0	TF-5 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
5 -	S-2	4.0		5.9 MEDIUM STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, TRACE SAND AND GRAVEL, MOTTLED, DRY	0.0	TF-5 (7.7' - 9.7') SAMPLE
10-	S-3	4.0	N	WATER ENCOUNTERED AT 9.7 FT BGS 9.7 VERY SOFT, REDDISH BROWN, CLAYEY SILT, WET 10.1 SOFT, DARK GRAY, CLAYEY SILT, TRACE SAND, MOIST 12.0	0.0	COLLECTED AND SENT FOR LABORATORY ANALYSIS
-15- -20- -30- -30- -35- -40-				BOTTOM OF BORING AT 12.0' BORING BACKFILLED WITH BENTONITE CHIPS		

CUMMINGS	
PITER	٠
CONSULTANTS, IN	NC.

LOG OF BORING NO. TF-6

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 12-8-03

Location: WEST ELIZABETH, PA Date Completed: 12-8-03

Field Geologist: CGK Depth to GW: 16.0 FT BGS

ming Co. CHATFIELD DRILLING

Driller: PAUL LORENO

Field Geologist: CGK
Checked By: CLN

Date/Time: 12-8-03 / 13:35

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS					
O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE		HEADSPACE PID READING (PPM)	REMARKS
	S-1	4.0	XX P	VERY STIFF, GRAY TO BLACK, FILL MATERIAL, DRY 0.2' VERY STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, MOTTLED, DRY	0.0	TF-6 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
5 -	S-2	4.0	12-2-6 10-2-6-10-10-10-10-10-10-10-10-10-10-10-10-10-		0.0	
10-	S-3	4.0	7 2 2 2	HARD, BLACK, COAL, DRY 10.3' VERY STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, MOTTLED, DRY	7.7 17.7	
(-15-	S-4	4.0		14.5' VERY STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY		TF-6 (14.0' - 16.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
	S-5	3.8	10 10 10 10 10 10 10 10 10 10 10 10 10 1	SILT, TRACE GRAVEL, MOTTLED, MOIST SOFT, GRAY TO BLACK, CLAYEY SILT, GRAVEL, WET PETROLEUM ODOR — WATER ENCOUNTERED AT 16.0' 16.3' VERY STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, GRAVEL, DRY 20.0'	203 486	·
-20- 				BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS		
25						
-30- -30- -						
L		•				

CUMMINGS
DITER
A CONSULTANTS, INC.

rilling Co. CHATFIELD DRILLING

LOG OF BORING NO. TF-7

Client: HERCULES INC.

Project No. 01305.40

Date Started: 12-12-03

Site Name: JEFFERSON PLANT Location: WEST ELIZABETH, PA

Date Completed: 12-12-03

_ Field Geologist: <u>CLN</u> _ Checked By: <u>MJV</u> Depth to GW: ~7.0' BGS

Date/Time: 12-12-03 / 10:50

Drilling Method: HAND AUGER

Driller: MIKE LARIMER

Drillin	g Meth	nod: HAND AUGER			
DEPTH O (FEET)	PROFILE	Coordinates N 5100.03 E 3928.66 Surface Elev. D E S C R I P T I O N	1	HEADSPACE PID READING (PPM)	REMARKS
	7777	STIFF, BROWN, SILTY CLAY, DRY TO MOIST	-	0.4 4.4	TF-7 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
5 -		LOOSE, GRAY, SILTY SAND, TRACE CINDERS, MOIST STIFF, BROWN CLAY, WET, OILY SHEEN ON WATER	5.5' ¹ 6.5' 8.0'	15.5 14.1	TF-7 (5.5' - 7.5') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
		BOTTOM OF BORING AT 8.0' BORING BACKFILLED WITH BENTONITE CHIPS			
-15- 					
-25-					·
-30					
35-		:			
40				<u>.</u>	

	<i>UMMINGS</i>	
P	ITER CONSULTANTS, IN	
	CONSULTANTS, IN	NC.

LOG OF BORING NO. <u>TF-8</u> Project No. 01305.40 Client: HERCULES INC.

Site Name: JEFFERSON PLANT Location: WEST ELIZABETH, PA nung Co. CHATFIELD DRILLING

Date Started: 12-12-03 Date Completed: 12-12-03

_ Field Geologist: <u>CLN</u>

Depth to GW: ~7.5' BGS

Driller: MIKE LARIMER	Checked By: MJV	Date/Time: 12-12-03 / 9	9:40
	Checked by:	bate/ line.	
Drilling Method: HAND AUGER			<u> </u>

(FEET)	PROFILE	Coordinates N 5088.27 E 3782.86 Surface Elev. D E S C R I P T I O N		HEADSPACE PID READING (PPM)	REMARKS
	7	LOOSE, GRAY GRAVEL AND BROWN SILTY CLAY, MOIST TO WET STIFF, BROWN CLAY, SOME GRAY MOTTLING, MOIST	1.0'		TF-8 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
		LOOSE, GRAY SAND, TRACE CINDERS, ODOR, MOIST STIFF, BROWN CLAY, WET	6.5' 7.5' 8.5'		TF-8 (6.0' - 7.5.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
0 1 1 1		BOTTOM OF BORING AT 8.5" BORING BACKFILLED WITH BENTONITE CHIPS			
1. [.]					
1.1.1.					
Telephone .					
41111					

CUMMINGS	
PITER	
CONSULTANTS, IN	IC.

cilling Co. CHATFIELD DRILLING

Driller: PAUL LORENO

 LOG OF BORING NO.
 V-1

 Client: HERCULES INC.
 Project No.
 01305.40

 Site Name: JEFFERSON PLANT
 Date Started: 12-5-03

 Location: WEST ELIZABETH, PA
 Date Completed: 12-5-03

 Field Geologist: CGK
 Depth to GW: 14.9 FT BGS

 Checked By: CLN
 Date/Time: 12-5-03 / 11:20

Drille:	r: <u>PAUL</u> ig Meth	od: GE	OPROL	E WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINE	RS
DEPTH (FEET)	\$ ₹	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4301.35 E 3526.20 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
-0-	S-1	3.7		DENSE TO VERY DENSE, GRAY TO BLACK FILL MATERIAL, DRY	0.0	V 1 (0.0 2.0') (DUD 2 SAMPLE
			\bowtie		0.0	
- 5 -		7.0	\bowtie		0.0	
	S-2	3.8	\bigotimes		0.0	
	S-3	4.0	\bowtie		0.0	
			\bigotimes	12.0	0.0	
上、 <u>·</u> ·	S-4	3.2	777	STIFF, REDDISH BROWN, CLAYEY SILT, DRY	0.0	V-1 (12.9' - 14.9') SAMPLE / COLLECTED AND SENT FOR
-15-		0.2	111	WATER ENCOUNTERED AT 14.9 FT BGS 14.9 VERY SOFT, REDDISH BROWN, CLAYEY SILT, WET 16.0	-1 U.U	LARORATORY ANALYSIS
				BOTTOM OF BORING AT 16.0' BORING BACKFILLED WITH BENTONITE CHIPS		
-20-					-	
<u>-25</u>				•		•
		:				
- -	1				BU JOSE	
]					

		MINO ER nsultan	
ការពិ	Co	CHATFIELD	DRILLING

Driller: PAUL LORENO

LOG OF BORING NO.

Client: HERCULES INC. Site Name: JEFFERSON PLANT Project No. 01305.40

Date Started: 12-5-03

Location: WEST ELIZABETH, PA Date Completed: 12-5-03 _ Field Geologist: <u>CGK</u>

Depth to GW: 19.5 FT BGS Date/Time: 12-5-03 / 12:20

_ Checked By: CLN Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	g Metr	10d: <u>~</u>	-011101	BE WITH 2.U-INCH MACROCORE SAMPLER AND ACETATE	LIIVE		_
O (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4851.85 E 4101.43 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS	
	-	—	\bigotimes	VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 4.1	-		
5-1	S-1	4.0		MEDITAL CHEE DARK COAY CLAY CILT DOV	668 1158		
	S-2	4.0			1072		
	S-3	4.0			185 45.7		
-15- - - -				16.0' SOFT, BROWN, CLAYEY SILT, MOIST	373 91.3		
20-	S-4	3.7		19.5 VERY SOFT, BROWN, CLAYEY SILT, WET 20.0 BOTTOM OF BORING AT 20.0'	345	COLLECTED AND SENT FOR	
-25-				BORING BACKFILLED WITH BENTONITE CHIPS			
	- "1			- mi			
L 1							

CUMMINGS
RITER CONSULTANTS, INC.
A CONSULTANTS, INC.

illing Co. CHATFIELD DRILLING

Driller: PAUL LORENO

LOG OF BORING NO. V-3

Drillin	g Meth	od: <u>GE</u>	OPROE	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINEF	RS
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (IN.)	PROFILE	Coordinates N_4909.45 E_4026.48 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
0 -	S-1	2.9		VERY DENSE, BLACK TO GRAY, FILL MATERIAL, DRY 2.2' STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, MOTTLED, DRY	0.0	V-3 (0.0' - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
5 -	S-2	3.2	7777	4.0' MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT, MOIST	0.0	
	S-3	4.0			2.2	
				12.9' SOFT, GRAY, CLAYEY SILT, MOIST	200 32.5	V-3 (13.0 - 17.0) SAMPLE
-15- -15- 	S-4	4.0		17.0	13.2	COLLECTED AND SENT FOR LABORATORY ANALYSIS
-20-	S-5	3.8		VERY SOFT, GRAY, CLAYEY SILT, WET 17.4 MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT, DRY WATER ENCOUNTERED AT 17.0 FT BGS	0.0	
				BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS		
-25- -25-						
	- - - - - - - -					
15					į	
					617.4	

	<i>UMMINGS</i>
Y	ITER
	CONSULTANTS, INC.

LOG OF BORING NO. UP-1

Project No. 01305.40 Client: HERCULES INC. Site Name: JEFFERSON PLANT Date Started: 12-4-03 Date Completed: 12-4-03 Location: WEST ELIZABETH, PA

ang Co. CHATFIELD DRILLING _ Field Geologist: <u>CGK</u>

Driller: PAUL LORENO Checked By: CLN Depth to GW: 15.7 FT. BGS Date/Time: 12-4-03 / 13:55

Drilling	Meth	od: GE	OPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINE	RS ·	_
O (FEET)	AND TYPE	SAMPLE RECOVERY (IN.)	PROFILE	Coordinates N 4301.35 E 3526.20 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS	
	S–1	4.0		VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 1.6' STIFF, MOTTLED LIGHT GRAY TO REDDISH BROWN CLAYEY SILT WITH TRACE GRAVEL, DRY	0.0	UP-1 (0.0 - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	
5 -	S-2	1.7	8787	8.0*	0.0	·	
-10- s	S-3	4.0	1474 J	SOFT, REDDISH BROWN, CLAYEY SILT, MOIST	0.0		
15-1	5-4	3.7	ZAZE	WATER ENCOUNTERED AT 15.7 FT BGS	0.0	UP-1 (13.7' - 15:7') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	
5	S-5	0.0	-10/10 10/10/10	20.0	0.0		
-25-				BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS			
 - 40				\up-1.dwg 2/19/2004 11:49:02 AM FST		I ID_	

GUMMINGS *ITER*CONSULTANTS, INC.

illing Co. CHATFIELD DRILLING

LOG OF BORING NO. UP-2

Client: HERCULES INC. Pro
Site Name: JEFFERSON PLANT Da
Location: WEST ELIZABETH, PA Da

Project No. 01305.40

Date Started: 12-4-03

Date Completed: 12-4-03

Depth to GW: 15.5 FT. BGS

Date/Time: 12-4-03 / 14:50

Driller: PAUL LORENO Checked By: CLN Date/T
Drilling Method: GEOPROBE WITH 2.0—INCH MACROCORE SAMPLER AND ACETATE LINERS

Field Geologist: CGK

Drillin	g Meth	nod: <u>GE</u>	OPROL	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACET	AIE	LINE	RS .	_
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (IN.)	PROFILE	Coordinates N 4467.73 E 3648.87 Surface Elev. D E S C R I P T I O N		HEADSPACE PID READING (PPM)	REMARKS	
-0-	S-1	3.7	12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LOOSE, BROWN, CLAYEY SILT WITH GRAVEL, MOIST			UP-2 (0.0 - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS	
5 -	S-2	3.8	47		6.3'	0.0		
	3 12	5.0	10 TO TO	VERY SOFT, REDDISH BROWN, SANDY SILT WITH TRACE GRAVEL, MOIST VERY SOFT, REDDISH BROWN, CLAYEY SILT WITH TRACE GRAVEL, MOIST TO WET	8.0'	0.0		
10-	S-3	4.0			•	0.0		
-	S-4	4.0	777	WATER ENCOUNTERED AT 15.5 FT BGS		0.0	UP-2 (13.5' - 15.5') SAMPLE COLLECTED AND SENT FOR	
	5-4	4.0			16.0'	0.0	LABORATORY ANALYSIS	
				BOTTOM OF BORING AT 16.0' BORING BACKFILLED WITH BENTONITE CHIPS				
35-				l i				

	<i>TUMMINGS</i>
4	PITER
	CONSULTANTS, INC.

LOG OF BORING NO. UP-3

Project No. 01305.40 Client: HERCULES INC. Site Name: JEFFERSON PLANT Date Started: 12-4-03 Date Completed: 12-4-03 Location: WEST ELIZABETH, PA

ள்g Co. CHATFIELD DRILLING Driller: PAUL LORENO

Field Geologist: CGK Checked By: CLN

Depth to GW: 17.3 FT. BGS Date/Time: 12-4-03 / 11:50

Coordinates N 4629.54 E 3690.16 Surface Elev. D E S C R I P T I O N Surface Slev. D E S C R I P T I O N DENSE, REDDISH BROWN, FILL MATERIAL, DRY DENSE, REDDISH BROWN, FILL MATERIAL, DRY	
CONCRETE DENSE, REDDISH BROWN, FILL MATERIAL, DRY DENSE, REDDISH BROWN, FILL MATERIAL, DRY VERY SOFT TO MEDIUM STIFF, REDDISH BROWN, CLAYEY S-1 2.6 S-2 3.9 PETROLEUM ODOR AT 12.0' S-3 4.0 S-3 4.0	
VERY SOFT TO MEDIUM STIFF, REDDISH BROWN, CLAYEY O.0 S-1 S-2 3.9 PETROLEUM ODOR AT 12.0' 4.5' O.0 21.0 81.8 469	
VERY SOFT TO MEDIUM STIFF, REDDISH BROWN, CLAYEY S-1 S-1 S-2 3.9 PETROLEUM ODOR AT 12.0' S-3 469	
21.0 21.0 21.0 81.8 PETROLEUM ODOR AT 12.0'	
S-2 3.9 PETROLEUM ODOR AT 12.0' S-3 4.0 3.9 PETROLEUM ODOR AT 12.0'	
S-3 4.0 2 4.0 81.8	
S-3 4.0 (2)	
15- [1] 3' - 173') SAMPLE	(
COLLECTED AND SENT FOR LABORATORY ANALYSIS	
S-4 1.5 WATER ENCOUNTERED AT 17.3 FT BGS	
BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS	
50-	

CUMMINGS	
RITER CONSULTANTS, INC	
AL CONSULTANTS, INC	

illing Co. CHATFIELD DRILLING

LOG OF BORING NO. UP-4

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 12-4-03

Location: WEST ELIZABETH, PA Date Completed: 12-4-03

Field Geologist: CGK Depth to GW: 11.6 FT. BGS

Checked By: CLN Date/Time: 12-4-03 / 15:45

illing	Co.	HATFR	LU UF	RILLING Field Geologist: CGK	Dep	oth to GW: 11.6 F1. BGS
Driller:	PAUL	LORE	40	Checked By: CLN	Date	e/Time: 12-4-03 / 15:45
Drilling	Meth	od: GE	OPROL	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE		
	AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4643.50 E 3857.60 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
0	S-1	3.2		VERY DENSE, GRAY TO BLACK, FILL MATERIAL, MOIST SHEEN AND PETROLEUM ODOR		UP-4 (0.0 - 2.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
5 - :	S-2	3.7			56.7 60.4	
-10- -10- 	S-3	3.9		WATER ENCOUNTERED AT 11.6 FT BGS SHEEN APPARENT ON WATER 11.9	18.0	UP-4 (9.6' - 11.6') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
-15- -15- -20- 				BOTTOM OF BORING AT 11.9' BORING BACKFILLED WITH BENTONITE CHIPS		
35	: 111					

GUMMINGS ITER CONSULTANTS, INC.

LOG OF BORING NO. UP-4R

Client: HERCULES INC. Project No. 01305.40

Site Name: JEFFERSON PLANT Date Started: 12-17-03

Location: WEST ELIZABETH, PA Date Completed: 12-17-03

Tilling Co. CHATFIELD DRILLING Field Geologist: CGK Depth to GW: 12.0 FT. BGS

Driller: PAUL LORENO Checked By: CLN Date/Time: 12-17-03 / 10:02

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

	9 11.01.						
ĔĠ.	E NO. TYPE	OLE YY (FT.)	-ILE	Coordinates N 4,643.50 E 3,857.60 Surface Elev. 755.84'	OE PID (PPM)		ELEVATION (FT. M.S.L.)
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (F	PROFILE	DESCRIPTION .	HEADSPACE READING (PP	4" FLUSH MOUNT PROTECTIVE CASING	755.84
- 0 -			\otimes	VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY	19.7		755.37
	S-1	3.2			52.2	CENTAL REPUTA	
5 -	6 6	7.7			56.7	BENTONITE SEAL (4.0' – 7.0')	750.00
	S-2	3.7	\bowtie		60.4	1" 1.D. THREADED	
10-	S-3	3.9			2.6	SCHEDULE 40 PVC RISER (0.0' - 8.0')	
				11.7	150		
<u> </u>				WATER ENCOUNTERED AT 12.0 FT. BGS. 12.0	120	2" DIA. BOREHOLE	
-15-	S-4	0.9		SOFT, BLACK, SANDY SILT WITH GRAVEL, WET, SHEEN, PETROLEUM ODOR 16.0		1" I.D. THREADED FLUSH-JOINT PVC SCREEN (0.010" SLOT)	740.00
				MEDIUM STIFF, DARK GRAY, CLAYEY SILT, MOIST	20	(8.0' – 18.0')	
-20-	S-5	3.1		20.0	0.0	COLLAPSED MATERIAL	735.84
E				BOTTOM OF BORING AT 20.0'			
-	1			PIEZOMETER UP-4R INSTALLED WITH SCREEN SET FROM 8.0'-18.0' BGS			
F =							
-25-							
E =							
			·				
30-				·			
				,			
<u>) </u>	<u>.</u>						
-				·			
E =							
L40-					<u></u>		

UMMINGS ULTANTS, INC.

rilling Co. CHATFIELD DRILLING

AN ALEST LESS AND BACK LIST IN ESTATE A MAY MADAR THORED BY FOR

LOG OF BORING NO. UP-5

Client: HERCULES INC. Site Name: JEFFERSON PLANT Location: WEST ELIZABETH, PA

Field Geologist: CGK

Project No. 01305.40 Date Started: 12-11-03

Date Completed: 12-11-03

Depth to GW: 8.0 FT. BGS 12-11-03

Driller	PAUL	LORE!	OPROF	Checked By: CLN Date/Time: 12-11-03 BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS	
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N_4781.17 E_3890.32 QQ QQ QQ REMARKS DESCRIPTION QQ QQ QQ QQ QQ QQ QQ QQ QQ QQ QQ QQ QQ	
-0-			XX	VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 2.1' UP-5 (0.0 - 2.0') MS/MSD SAMPLE COLLECTED AND ANALYZED FOR	
	S-1	3.9		DENSE TO VERY DENSE, DARK GRAY, FILL MATERIAL, MOIST LABORATORY ANALYSIS 0.0	
5-	S-2	3.5		VERY STIFF, DARK BROWN AND DARK GRAY, CLAYEY SILT WITH SAND AND GRAVEL, DRY	
F =				WATER ENCOUNTERED AT 8.0 FT. BGS. 8.0'	
-10-	,			STIFF TO VERY STIFF, DARK BROWN AND DARK GRAY, CLAYEY SILT WITH GRAVEL, WET 0.0 UP-5 (6.0'- 8.0') SAMPLE COLLECTED AND ANALYZED FOR	
F =	S-3	3.1		190 LABORATORY ANALYSIS	
F ₁₅				BOTTOM OF BORING AT 12.0' BORING BACKFILLED WITH BENTONITE CHIPS (
		·			
20-		,	·		
	-				
30-					
35-					
L-40-	<u> </u>	!	L	<u> </u>	

GUMMINGS ITER CONSULTANTS, INC.

Ang Co. CHATFIELD DRILLING

LOG OF BORING NO. UP-6

Client: <u>HERCULES INC.</u> Site Name: <u>JEFFERSON PLANT</u>

Project No. 01305.40

Date Started: 12-12-03

Location: WEST ELIZABETH, PA

Field Geologist: CGK

Date Completed: 12-16-03

Depth to GW: 12.0 FT. BGS

Driller: PAUL LORENO Checked By: CLN

Date/Time: 12-12-03 / 10:08

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACEIATE LINERS										
DEPTH (FEET)	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4,886.71 E 4,222.41 Surface Elev. 755.90'	HEADSPACE PID READING (PPM)	PIEZOMETER INSTALLATION DETAIL -4" FLUSH MOUNT PROTECTIVE CASING	ELEVATION (FT. M.S.L.)			
-0-	6,	Æ		DESCRIPTION ASPHALT	吊吊	PROTECTIVE CASING	755.90			
<u> </u>]			1.4	_	CONCRETE PAD	755.67			
-	-	-	\bigotimes	VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY 3.3'	├	CEMENT-BENTONITE				
$E = \frac{1}{2}$				VERY STIFF, REDDISH BROWN, CLAYEY SILT, TRACE GRAVEL, DRY 4.0'	1	GROUT (1.0' - 8.0')				
<u>-</u> 5-				MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT, TRACE SAND, MOIST	0		750.00			
F -	S-1	3.9			<u></u>		750.00			
E					20					
<u> </u>				·	20					
10-	S-2	4.0			H	BENTONITE SEAL (8.0' - 11.0')				
E :				12.0	42	1" I.D. THREADED				
<u>F.</u>	{			WATER ENCOUNTERED AT 12.0 FT. BGS. NO RECOVERY	_	SCHEDULE 40 PVC RISER				
(<u> </u>	1 S-3	0.0			-	(0.0' - 12.0')	(
-15-				16.0	, –	(11.0' – 22.0')	740.00			
E 3	-		N	SOFT, REDDISH BROWN, CLAYEY SILT, TRACE SAND, MOIST	131	2" DIA. BOREHOLE				
<u> </u>	S-4	4.0		18.5	·	1" I.D. THREADED				
F=	}			VERY SOFT, GRAY, SANDY SILT, MOIST FREE PRODUCT APPARENT 20.0	495	FLUSH-JOINT PVC SCREEN (0.010" SLOT)				
<u>-20-</u>			NN	VERY SOFT, GRAY, CLAYEY SILT, TRACE SAND, MOIST	500] [[[[[[[]]]]]] (12.0' - 22.0')				
<u> </u> -	S-5	2.1	XX							
F =				24.0	, –	COLLAPSED MATERIAL	731.90			
- -25-			7 K W	BOTTOM OF BORING AT 24.0'		UP-6 (10.0' - 12.0') SAMPLE	751.50			
F 25				PIEZOMETER UP-6 INSTALLED WITH SCREEN SET FROM 12.0'-22.0' BGS		COLLECTED AND SENT FOR LABORATORY ANALYSIS				
E]			2011=211 321 71101111 72.0 22.0 330	İ		Ì			
	-		!							
E ₃₀ -	1									
<u> </u>	1									
F]									
E :]									
.										
<u>}</u>	1									
F -				·		•				
F. 3										
L ₄₀ -		<u> </u>		<u> </u>	<u> </u>					
CO Cod	d\ nraioa	tellane	SOULING	27 dwa - 2 /10 /2004 - 0.33.49 - AH EST			IID_C			

CUMMINGS
PITER
A CONSULTANTS, INC.

illing Co. CHATFIELD DRILLING

Driller: PAUL LORENO

LOG OF BORING NO. UP-7

Client: HERCULES INC. Site Name: JEFFERSON PLANT

Location: WEST ELIZABETH, PA

Project No. 01305.40

Date Started: 12-11-03 Date Completed: 12-16-03

Depth to GW: 14.0 FT. BGS

Date/Time: 12-11-03 / 12:05

Checked By: CLN Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Field Geologist: CGK

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS										
1	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	PROFILE	Coordinates N 4,944.73 E 5,146.96 Surface Elev. 742.96 D E S C R P T O N	HEADSPACE -PID READING (PPM)		ELEVATION (FT. M.S.L.) 742.96			
-0-	_	_		CONCRETE 0.8' ASPHALT 1.2' VERY DENSE, GRAY TO BLACK, FILL MATERIAL, DRY		CONCRETE PAD	742.65			
5-				VERY STIFF, LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT, MOTTLED, DRY	0.0	CEMENT-BENTONITE GROUT (1.0' - 9.0')	740.00			
	S-1	4.0		8.0	0.0	2" DIA. BOREHOLE 1" I.D. THREADED				
- - -10-	S-2	3.7		MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT WITH TRACE SAND, DRY	0.0	FLUSH-JOINT SCHEDULE 40 PVC RISER (0.0' - 13.0')				
				12.0' SOFT, REDDISH BROWN, CLAYEY SILT WITH TRACE SAND, MOIST		BENTONITE SEAL (9.0' - 12.0')	730 00			
15-	S-3	4.0		WATER ENCOUNTERED AT 14.0 FT. BGS. 14.0 SOFT, REDDISH BROWN, CLAYEY SILT, MOIST	0.0	COARSE SAND (12.0' – 18.0') 1" I.D. THREADED FLUSH-JOINT PVC	(
 	S-4	2.1		VERY SOFT REDDISH BROWN, CLAYEY SILT, WET 17.1' SOFT, REDDISH BROWN, CLAYEY SILT, MOIST	0.0	SCREEN (0.010" SLOT) (13.0" – 18.0")				
-20-				20.0° BOTTOM OF BORING AT 20.0°	0.0	UP-7 (14.0' - 16.0') SAMPLE	722.96			
 				PIEZOMETER UP-7 INSTALLED WITH SCREEN SET FROM 13.0'-18.0' BGS		COLLECTED AND SENT FOR LABORATORY ANALYSIS				
25	:	:								
				,						
30 -						(
	i									
5-				1			(
1.1.1										
ь _о ,				0 / 0 / 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<u> </u>					

'UMMINGS ONSULTANTS, INC.

LOG OF BORING NO. UP-8

Client: HERCULES INC. Site Name: JEFFERSON PLANT

Location: WEST ELIZABETH, PA

...ing Co. CHATFIELD DRILLING Field Geologist: CGK Checked By: CLN

Project No. 01305.40

Date Started: 12-12-03

__ Date Completed: 12-12-03 _ Depth to GW: 16.0 FT. BGS

Date/Time: 12-12-03 / 11:15

Driller: PAUL LORENO GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS										
DEPTH (FEET)	SAMPLE NO. AND TYPE	MPLE ERY (FT.)	PROFILE	Coordinates N 5,042.99 E 4,385.32 Surface Elev. 756.85	HEADSPACE PID READING (PPM)	PIEZOMETER INSTALLATION DETAIL	ELEVATION (FT. M.S.L.)			
-0-	SAMPLE AND TY	SAMPLE RECOVERY (F	£ .	D E S C R I P T I O N LOOSE, GRAY TO BLACK, FILL MATERIAL, MOIST	READS	4" FLUSH MOUNT PROTECTIVE CASING	756.85 756.59			
-	_			LUUSE, GRAT TO BLACK, FILL MATERIAL, MOIST	_	CONCRETE PAD				
				4.0'	-	CEMENT-BENTONITE GROUT (1.0' - 10.0')				
-5-				STIFF, MOTTLED LIGHT GRAY AND REDDISH BROWN, CLAYEY SILT WITH TRACE SAND, DRY	0.0	2" DIA. BOREHOLE	750.00			
	S-1	4.0		8.0 MEDIUM STIFF, MOTTLED LIGHT GRAY AND REDDISH		1" I.D. THREADED FLUSH-JOINT SCHEDULE 40				
	S-2	3.8		BROWN CLAYEY SILT WITH TRACE SAND, DRY	1.5	PVC RISER (0.0' - 14.0')				
				12.0 SOFT, REDDISH BROWN, SANDY SILT, MOIST,		(10.0" – 13.0")				
] s-3	3.7		PETROLEUM ODOR	325					
<u>-</u> 15-	<u> </u>	· ·		WATER ENCOUNTERED AT 16.0 FT. BGS. 16.0 VERY SOFT, REDDISH BROWN, CLAYEY SILT, WET		FLUSH-JOINT PVO	740.00			
.	S-4	3.3		17.7 VERY SOFT, GRAY AND BROWN, SANDY SILT, WET 18.2 SOFT, REDDISH BROWN, CLAYEY SILT WITH TRACK	1220	COARSE SAND				
20-	1	<u> </u>	17.77	SAND, MOIST 20.0	- 1		736.85			
	= 			BOTTOM OF BORING AT 20.0' PIEZOMETER UP-8 INSTALLED WITH SCREEN SET FROM 14.0'-19.0' BGS		UP-8 (14.0' - 16.0') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS				
-25- -	<u>-</u>									
	-]	·				
<u> </u>	- - -									
	1									
	`; ~1									
-										
E ₄₀	1		-\ route	G2 dwg 2/19/2004 9:33:48 AM FST		<u> </u>	UP-8			

Depth to GW: 18.5 FT. BGS

CUMMINGS
PITER
L CONSULTANTS, INC.

LOG OF BORING NO. UP-9

Client: HERCULES INC.

Site Name: JEFFERSON PLANT

Location: WEST ELIZABETH, PA

Project No. 01305.40

Date Started: 12-5-03

Date Completed: 12-5-03

Location: WEST ELIZABETH, PA

Location: WEST ELIZABETH, PA

Location: CGK

Field Geologist: CGK

Driller: PAUL LORENO Checked By: CLN Date/Time: 12-5-03 / 15:25

Drilling Method: GEOPROBE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE LINERS

Drillin	g Meth	nod: GE	OPRO	BE WITH 2.0-INCH MACROCORE SAMPLER AND ACETATE	LINE	RS .
	SAMPLE NO. AND TYPE	SAMPLE RECOVERY (FT.)	-	Coordinates N 5255.53 E 4677.78 Surface Elev. D E S C R I P T I O N	HEADSPACE PID READING (PPM)	REMARKS
0-		-		MEDIUM STIFF, MOTTLED LIGHT GRAY TO REDDISH BROWN, CLAYEY SILT WITH TRACE GRAVEL, DRY	1	
5 -	S-1	4.0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		0.0	
- - -10- -	S-2	4.0	10	12.0'	0.0	
15	S-3	4.0		MEDIUM STIFF, REDDISH BROWN, CLAYEY SILT WITH TRACE SAND, DRY	0.0	
-20	S-4	3.4		18.5' VERY SOFT, REDDISH BROWN, CLAYEY SILT WITH TRACE SAND, WET WATER ENCOUNTERED AT 18.5 FT BGS 20.0'	0.0	UP-9 (16.5' - 18.5') SAMPLE COLLECTED AND SENT FOR LABORATORY ANALYSIS
-20 				BOTTOM OF BORING AT 20.0' BORING BACKFILLED WITH BENTONITE CHIPS		
40				ş .		

,

 $R^{UMMINGS}_{ITER}$ consultants, inc.

VOLUME II OF II

REPORT REMEDIAL INVESTIGATION HERCULES INCORPORATED JEFFERSON PLANT WEST ELIZABETH, PENNSYLVANIA

PREPARED FOR:
HERCULES INCORPORATED
HERCULES RESEARCH CENTER - BUILDING 8139/15
500 HERCULES ROAD
WILMINGTON, DELAWARE 19808-1599

PREPARED BY:
CUMMINGS/RITER CONSULTANTS, INC.
10 DUFF ROAD, SUITE 500
PITTSBURGH, PA 15235

PROJECT No. 01305.40/11 AUGUST 16, 2004

10 Duff Road • Suite 500 • Pittsburgh, PA 15235 (412) 241-4500 • FAX (412) 241-7500 • E-Mail: crc@cummingsriter.com

APPENDIX B

CULVERT INVESTIGATION LETTER REPORT



 $R^{UMMINGS}_{ITER}$ CONSULTANTS, INC.

LETTER REPORT CULVERT VIDEO INSPECTION AND CLEANING FORMER HERCULES JEFFERSON PLANT JEFFERSON BOROUGH, PENNSYLVANIA

PREPARED FOR:
HERCULES INCORPORATED
RESEARCH CENTER
BUILDING 8139/14
500 HERCULES ROAD
WILMINGTON, DE 19808-1599

PREPARED BY:
CUMMINGS/RITER CONSULTANTS, INC.
10 DUFF ROAD, SUITE 500
PITTSBURGH, PA 15235

PROJECT No. 01305.40/01 JANUARY 27, 2004

10 Duff Road • Suite 500 • Pittsburgh, PA 15235 (412) 241-4500 • FAX (412) 241-7500 • E-Mail: crc@cummingsriter.com



January 27, 2004 Project No. 01305.40/01

Mr. Joseph Keller Hercules Incorporated Research Center Building 8139/14 500 Hercules Road Wilmington, DE 19808-1599

RE: LETTER REPORT - CULVERT VIDEO INSPECTION AND CLEANING FORMER HERCULES JEFFERSON PLANT JEFFERSON BOROUGH, PENNSYLVANIA

Dear Mr. Keller:

Cummings/Riter Consultants, Inc. (Cummings/Riter) is submitting this report to summarize the activities that took place November 13, 14, and 18, 2003 during culvert video inspection and cleaning of a 36-inch and a 24-inch reinforced concrete pipe storm sewer at the former Hercules Jefferson plant (now owned and operated by Eastman Chemical [Eastman]) located in Jefferson Borough, Pennsylvania. The video inspection for both the 36-inch and 24-inch pipes began along State Route 837, ran underneath the upper plant area, and terminated in Jorgys Pond located on the plant property. Eastman provided air monitoring and cleared all work areas daily, prior to work activities. Eastman required that all equipment be removed from the plant at the end of each day.

The following paragraphs provide a detailed summary of video inspection and cleaning activities, the condition of the 36-inch and 24-inch pipes before and after cleaning, as well as general observations.

GENERAL TIMELINE

On November 13, 2003, Robinson Pipe Cleaning Company (RPC) arrived on site and began work on exposing the ends of the 36-inch and 24-inch reinforced concrete pipes at the retention pond. The end of the 36-inch pipe, at the retention pond, was partially obstructed by rip-rap and gravel which was removed and placed on plastic located on the bank of the retention pond. The 24-inch pipe was completely obstructed by the rip-rap and gravel. The rip-rap and gravel on the west bank was placed to reinforce a railroad tie wall located above the west bank of the retention pond. Rip-rap and gravel were removed only enough to expose the ends of the pipes using a Case 580 Super K Extenda-hoe. Eastman approved all rip-rap and gravel removal and replacement. All material removed from the retention pond was staged on plastic located on the east bank of the retention pond.

RPC constructed a dike between the ends of the 36-inch and 24-inch pipes and the gooseneck discharge outlet using formerly dredged material from the east bank of the retention pond.

Water discharging from the 36-inch and 24-inch pipes was pumped over the dike using a gas powered pump. The dike was created to capture material discharged from the 36-inch and 24-inch pipes during pipe cleaning activities.

Prior to videotaping the pipes, the water level in the pipes was lowered to facilitate videotaping. Since it was determined that the gas-powered pump was not lowering the water level quick enough, RPC acquired a 900-gallon per minute hydraulic pump and began pumping water at a quicker rate. Once the water level in the retention pond was reduced to a level below the pipe, the 36-inch pipe was videotaped, starting at the headwall located on the west side of State Route 837 near the tank farm. Sediment and debris were observed in the lower end of the 36-inch pipe at about 159 feet, and it was determined that the 36-inch pipe was in need of cleaning.

From the retention pond outlet, a high-pressure water jet was used to clean and pull material out of the 36-inch pipe and into the isolated portion of the retention pond. The 36-inch pipe was then re-videotaped for the post-cleaning condition. Some debris and sediment still remained in the 36-inch pipe. RPC determined that a stronger nozzle was necessary to remove the remaining sediment and debris from the 36-inch pipe.

The videotape of the 24-inch pipe began at a culvert located on the east side of State Route 837. At approximately 212 feet from the culvert, sediment and debris obstructed the pipe, and the videotape was discontinued.

On November 14, 2003, RPC built up the dike with sandbags and pumped water out of the isolated portion of the retention pond. RPC re-cleaned the 36-inch pipe with the larger jet head and continued with the post-cleaning video. At approximately 220 feet from the inlet at State Route 837, debris and sediment were still observed in the pipe. RPC discontinued the video and re-cleaned the 36-inch pipe. After the 36-inch pipe was re-cleaned, RPC completed the post-cleaning videotape of the 36-inch pipe.

A few large rocks remained in front of and above the 24-inch pipe end at the retention pond. RPC felt that, in order to gain access to the 24-inch pipe for cleaning, the rocks must be removed. RPC was unable to schedule a backhoe operator for work that day. The sandbags were removed from the dike and site activities were discontinued for the day.

On November 18, 2003, the dike was built up with formerly dredged material located on the east bank of the retention pond, and the remaining rocks were removed from in front of and above the 24-inch pipe with a trackhoe. RPC cleaned the 24-inch pipe with the water jet. Periodically, cleaning was discontinued so that accumulated sediment from the



24-inch pipe could be excavated from the retention pond. All material removed from the retention pond was placed on the plastic located on the east bank to allow water to drain from the material back into the retention pond.

Once the 24-inch pipe was cleaned, RPC videotaped the post-cleaning condition of the 24-inch pipe. During cleaning of the 24-inch pipe, some sediment and debris from the 24-inch pipe backed up into the 36-inch pipe. RPC re-cleaned approximately 50 feet of the 36-inch pipe. Once cleaning was complete, RPC removed all equipment from the retention pond, replaced the rip-rap and gravel removed from the west bank of the retention pond with the trackhoe, and removed the dike and some sediment from the retention pond. Eastman approved the rip-rap and gravel replacement as well as the current condition of Jorgys Pond.

A copy of RPC's daily work orders is included in Attachment A.

VIDEO FINDINGS: 36-INCH PIPE

In general, the 36-inch pipe is functional, seems to be in good condition, and is 398 feet in length. Pipe sections were measured to be 4 feet long. The joints between pipes seemed relatively tight with the exception of the last two sections of pipe before the 36-inch pipe ends at the retention pond, where a gap of approximately 1 to 3 inches was observed. Multiple seeps from joints were also observed. At around 180 feet from the 36-inch pipe's inlet at State Route 837, a sag of approximately 20 percent begins and ends at approximately 218 feet.

Three pipes tap into the 36-inch pipe. Two of the tap-ins enter at a service point approximately 96 feet from the 36-inch pipe's inlet. At the service point, one tap-in is located at the 9 o'clock position, and the other tap-in is located at the 3 o'clock position. The third tap-in occurs at a service point at approximately 115.6 feet from the inlet. The 36-inch pipe makes two noticeable bends: one bend to the left at approximately 96 feet from the pipe inlet, and one bend (also to the left) at approximately 115 feet from the 36-inch pipe's inlet. The walls of the 36-inch pipe were stained from approximately 165 feet from the pipe inlet to the outlet at the retention pond.

During the pre-cleaning videotape, multiple points with infiltration, deposits, and encrustation were observed. From 96 feet to approximately 106 feet from the pipe inlet, calcium deposits were observed. Multiple joints with and without infiltration were also encrusted. At 131 feet, a substantial amount of infiltration was observed ("gusher") at the 2 to 3 o'clock position. At 204 feet, infiltration dripping into the pipe beaded up when it ran down the side of the pipe; this suggests that this infiltrating water has an oily nature.

The net increase of flow into the 36-inch pipe from the pipe's inlet to the pipe's outlet at the retention pond was estimated to be approximately 250 percent.



Pre-cleaning and post-cleaning logs and videotapes are included in Attachment B.

VIDEO FINDINGS: 24-INCH PIPE

As with the 36-inch pipe, the 24-inch pipe is also functional and seems to be in good condition. The total length of the 24-inch pipe is 270 feet. Pipe sections were measured at 4 feet and the joints between pipes seemed relatively tight with an exception to the last two sections of pipe before the 24-inch pipe ends at the retention pond, where a gap of approximately 1 to 2 inches was observed. Seeps from joints were also observed along with some deposits and encrustations. The walls of the pipe had some staining beginning at 190 feet. The 24-inch pipe had one bend, to the left, at 184 feet from the culvert located on the east side of State Route 837.

Two pipe tap-ins on the 24-inch pipe were observed. One tap-in is located at approximately 32 feet at 12 o'clock, and another is located at approximately 51 feet at 4 o'clock. At approximately 151 feet, from the culvert located on the east side of State Route 837, a hole is located at 12 o'clock. This hole has rebar protruding from the end into the pipe. While the video equipment was being pulled out of the 24-inch pipe after the post-cleaning video was completed, a hole was discovered at the 6 o'clock position at approximately the same location. The circular nature of the hole and the orientation (one on top and one in the bottom) suggest that these holes could possibly have been made during previous drilling operations at the site.

A hole in the 24-inch pipe at 254 feet, from 3 o'clock to 4 o'clock, contains moderate encrustation. In the post-cleaning video, a brown light non-aqueous phase liquid (LNAPL) was observed in the joint at approximately 245 feet from the culvert located on the east side of State Route 837. Also at this joint, scum on the water flowing through the 24-inch pipe was visible and remained relatively stationary in an eddy.

No water was observed entering the 24-inch pipe prior to an unrelated plant incident. Therefore, net increase in flow estimations was not performed for the 24-inch pipe.

Pre-cleaning and post-cleaning logs and videotapes are included in Attachment B.

GENERAL OBSERVATIONS

On November 13, 2003, an organic sheen on the water of the retention pond was observed prior to culvert cleaning and videotaping activities. When the water in the isolated portion of the retention basin was pumped low enough so that water could drain from the 24-inch pipe, a brown LNAPL was seen flowing out of the 24-inch pipe. An organic sheen on the water flowing from the 36-inch pipe was also visible. After the 36-inch pipe was cleaned an organic sheen on the water flowing from the 36-inch pipe was still visible. The organic sheen remained on the water flowing from both the 36-inch and 24-inch pipes throughout the culvert cleaning and videotaping activities even though the sheen was not observed during videotaping.



On November 14, 2003, two seeps were observed originating from the west bank of the retention basin. One seep was observed on the right side of the 36-inch pipe coming from above the 36-inch pipe. The other seep originated from the west bank above and to the right of the 24-inch pipe. The seeps continued to flow throughout activities at the retention pond. On November 18, 2003, the seep adjacent to the 24-inch pipe had a noticeable organic sheen on the water.

During cleaning of the 24-inch pipe, the material removed from the 24-inch pipe was black, sludge like, and had a strong organic odor and sheen. Some brown LNAPL was also cleaned out of the 24-inch pipe. The lower portion of both pipes had discoloration on the walls either from impounded water and sediment, LNAPL, or both.

Pictures taken during culvert cleaning and videotaping activities are included in Attachment C.

CLOSING

Approximately 240 feet of 36-inch and 68 feet of 24-inch pipe were cleaned by RPC.

The videotaping revealed several previously unknown tap-ins to the 24-inch and 36-inch pipes as well as significant infiltration of groundwater. Field observations confirmed the presence of a sheen on the water flowing out of the culvert after cleaning. Figure 1 notes the approximate location of the pipes, tap-ins, and the impacted groundwater areas, as defined by MTR. The pipes' proximity to groundwater and LNAPL areas should be reassessed after the current groundwater investigation is completed. In addition, it would be beneficial to survey the pipe inverts at the inlet, outlet, and other access points to approximate the pipe slope. This slope could be used to estimate the pipe elevation at various points along the pipe and compare it to groundwater elevations. This report completes our current scope for the project.

Cummings/Riter appreciates the opportunity to assist Hercules Incorporated on this project. If you have any questions or are in need of further assistance, please call me at (412) 241-4500.

Sincerely,

Cummings/Riter Consultants, Inc.

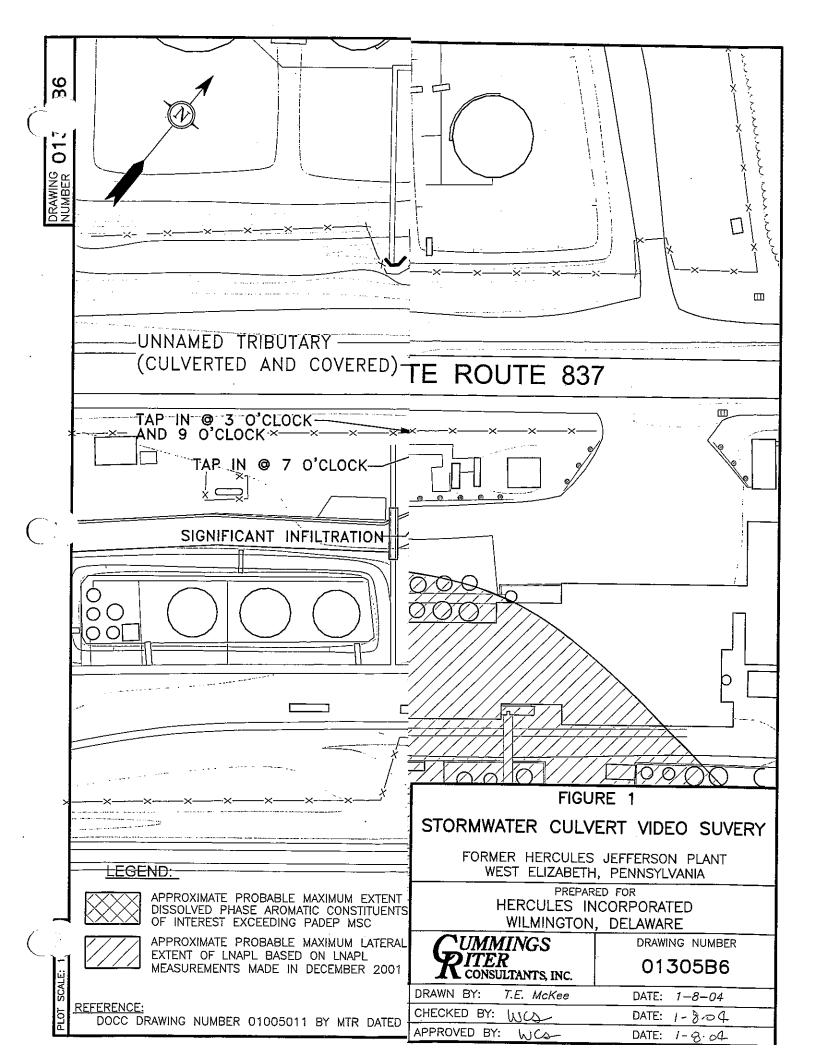
William C. Smith, P.E. Senior Project Manager

CRY/WCS/cld Attachments

pc: Mr. William Hendon - Eastman Company

 $R^{{\scriptstyle UMMINGS}}$

FIGURE



ATTACHMENT A

ROBINSON PIPE CLEANING COMPANY DAILY WORK ORDERS

ROBINSON PIPE CLEANING CO. WORK ORDER.

	(00580	PO #45007	40744	•	DATE:		රි.පණයි	B1129	s R	START: 7
WORK P	····	<u> </u>				400			 -	
		ES, INC.			JOB NO: 3€	134-4Kr W	/ // // PI	(QNE) /().c	<u> </u>	3407
	1 1/4/14	t Elizabeth,	<u> PA</u>			<u> </u>				
REPORT	TO: Joe Ke	<u>ller</u>					TIME 1	O REPOR	T: ASA	<u> </u>
WORK T	O BE DONE: T	V AND CLEAN L	INES							_
	••				,					
	A		<u> </u>	75.00						
EQUIP	MENT REQUI	RED JETTER	сомво *	TV TRUCK	Unit No	Vac N	D,		Tank	er No
SET-UP	☐ Jetter	2 MEN D Power Rodder	O T.V.	Diam.	Winch No	Hydro N	o,	Vac		er No. <u>/50</u>
NO.	☐ Hydro	☐ Small Rodder	☐ Winches		Truck No. 244	Pum	p <u>///</u>	<u>0</u>		Other:
1 .	☐ Vac/Jet Rodde	r 🔲 Vacuum Tanker	☐ Dry/Wet	t Vac	Jetter No.	TV Trk. N	o. <u>5</u> 4	-		
ON		<u> </u>	Q1: 1	* 5.5		HOURS	WORKED	STATE STATE	64.75%	Barakona a-koluya
FROM		то	*		to the Carlot All Carlot	Shop	Job	Travel	TOTAL	BILLING
CLEA	NED	□ τν	((FOOTAGE Circle if incomplete)	B. MOKK	75 2	9	10		
REMARI	KS .	· ·		· · ·	T Cando	加益	19	15		
SET-UP	r <u>=</u>			····	D 0	,	9	1		
NO.	☐ Jetter ☐ Hvdro	☐ Power Rodder ☐ Small Rodder	☐ T.V.	Diam.	KY BFNNF	77 章	7	15		· ·
()	Vac/Jet Rodde	l <u> </u>				and Season.				
ON			,	1.	7			-	_	
FROM		то			REMARKS:	herk.	TRUC		<u> </u>	
CLEA	NED	, οτν		FOOTAGE Circle if incomplete)		~	1 1	<u> </u>	007	
REMARI	(S		,		Deast	10 30	<u> </u>	19/1	<u> </u>	Tr. Terming
					36/	<u> </u>	5	/ 10 <u> </u>	711	Brd_
SET-UP	☐ Jetter	☐ Pówer Rodder	□ T.V.	Diam.	(I/A)~	5 // 1	<u> </u>	بر <u>گور</u> مر	Ling.	
-	Hydro		Winches		11/50	WENT	<u></u>		10/01	- 70
ON :	U vac/Jet Rodde	r 🗍 Vacuum Tanker	L Dry/Wet	Vac	Pick 1)	PH	id 1	ou m	10	
					STOVE CLEAN	IING REPOR	TARRE			
FROM		то			FURNACE NO:	STOVE N	O;	COIL	OF ROD O	PENED:
CLEA	NED	⊡ · TV		FOOTAGE Circle if incomplete)	NO. FLUES ATTEMPTED	Opened:				
REMARI	(S — 				7.1.0	Unopened:			····	
			· · · · · · · · · · · · · · · · · · ·		REMARKS:	501	۲ .	INC	mole	-TE
	□ 1-44	Power Rodder	☐ T.V.	Diam.		ū		,	0	
NO.	Jetter	III Concil Doddor	AAIIICUES	- I						
	JeπerHydroVac/Jet Rodde	☐ Small Rodder □ Vacuum Tanker	☐ Dry/Wet	: Vac	į,					•
NO.	☐ Hydro	1	☐ Dry/Wet	Vac		<u> </u>				
NO. 4	☐ Hydro	1	☐ Dry/Wet	Vac		· mitching as				
NO. 4 ON	☐ Hydro	r 🔲 Vacuum Tanker		FOOTAGE		1-1-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0		· · ·		
NO. 4 ON	☐ Hydro ☐ Vac/Jet Rodde	r 🔲 Vacuum Tanker			Footage is correct	t. Work and	hours indi	catad sh	OVO STORY	tisfactory
NO. 4 ON FROM	☐ Hydro ☐ Vac/Jet Rodde	r 🔲 Vacuum Tanker	(FOOTAGE	Footage is correc Work performed,	t. Work and debris remov	hours indi	cated ab	ove are sa	ntisfactory. ed by customer:

SHEET #	OF	_			PE CLEANI CORDER	NG CO.				START: 7.30 (AM)
		# 4500748	744	•	DATE: _	11-14	07			START: 7
,	005800)	. /				911. 3		20	1 965	-3407
WORK F		12FS T		<u> </u>	JOB NO: 372	7 7 - 4	PH	ONE: JU	X* //2	<u>-3907</u>
REPORT		ELIZABI EXLLER	<u> </u>	<i>/ //</i>			TIME TO	O REPORT	· ·	
	O BE DONE: /) /	FANTS	Til	. ,				- 1121 - 0111	· <u></u>	<u>-</u>
		<u> </u>	<i>(,U</i> ,			***************************************				
					•					
EQUIP	MENT REQUIRE	ED			Unit No		0			er No
SET-UP NO.	☐ Jetter	☐ Power Rodder	☐ T.V.	Diam.	Winch No Truck No. <u>292</u>	Hydro N	o ip <i></i>	Vac '}		er No. <u>/50</u> Other:
1	☐ Hydro ☐ Vac/Jet Rodder	Small Rodder Vacuum Tanker	☐ Winch ☐ Dry/We	4 :	Jetter No.	1	10. <u>56</u>			<u> </u>
ON		, 				HOURS	WORKED	Mark Salah	S-1945.4	
FROM		то	-			Shop	″ Job ∵	Travel	TOTAL	BILLING
CLEA	NED	□ 1 V		FOOTAGE (Circle if incomplete)	B. MORK	2r 9	62			
REMARI	KS				J Goodu	u: 5	65			
CET LID	·		I			<i>_L</i> .	/			
SET-UP NO.	☐ Jetter ☐ Hydro	☐ Power Rodder ☐ Small Rodder	T.V. Winch	Diam.	R. BENNE	77 4	62			
	Vac/Jet Rodder	☐ Vacuum Tanker	☐ Dry/W	et Vac						
ON				-						
FROM		To	•	FOOTAGE	REMARKS:	herki	TRO	KKS	00	7
CLEA		□ τν		(Circle if incomplete)	SET	10	Pung	0 (1600	<u> </u>
REMAR			· · · · · · · · · · · · · · · · · · ·		+ TV	UA	P100.	5 0	Kink	5
SET-UP	☐ Jetter	☐ Power Rodder	□ T.V.	Diam.	GANF	PE po	255	<u>To</u>		<u> </u>
No. 3	☐ Hydro	☐ Small Rodder	☐ · Winch	es	* 150	学 a 6_	1	<u>~ (o</u>	mply	<u> 17 </u>
ON	☐ Vac/Jet Rodder	☐ Vacuum Tanker	☐ Dry/W	et Vac	×8150	2 8 % (18 ° 18 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	5-5000 (a./.20)	46.45.75 (R)	ar amount	
FROM		то			STOVE CLEAN	STOVE N	A Property of the Control of the Con	COIL	S OF ROD O	PENED:
CLEA	NED			FOOTAGE		Opened:		100.0		
REMAR				(Circle if incomplete	NO. FLUES ATTEMPTED	Unopened:				
,	·				REMARKS:	<u> </u>				
SET-UP NO.	☐ Jetter	Power Rodder	☐ T.V.	Diam.	1					
4	☐ Hydro ☐ Vac/Jet Rodder	Small Rodder Vacuum Tanker	☐ Winch							
ON										
FROM		то								
	D 1	□ τ ν		FOOTAGE (Circle if incomplete)				•	

Footage is correct. Work and hours indicated above are satisfactory.

Work performed, debris removal and dump location arranged by customer:

CUSTOMER SIGNATURE: $\gamma'=\hat{k}_{\frac{1}{2}}\beta_{2}$

REMARKS

TOTAL FT. CLEANED:

TOTAL FT. TELEVISED:

JOB FOREMAN:

SHEET # _____ OF ____

ROBINSON PIPE CLEANING CO. WORK ORDER

START: 7,30 GM START: 7,00 GM

												~	ر چ-ئ
							f	, ,,,	љ s			START: 7	FINISH:
00	5800					DATE:		- 18-	03			STA	₹
WORK I	OR: HERC	ules I	ر م مر			JOB NO: 57	734.	-1	Pł	IONE:			
JOB LO	CATION: WAS	T ELIZA	6ETh										
REPORT							٠		TIME T	O REPOR	Γ:	_	
WORK T	TO BE DONE: C/	EAD & T.	v.										
						•							
													<u></u> :
EQUIF	MENT REQUIR	ED # 1 TO 1				Unit No.		Vac No	·		Tank	er No.	
SET-UP	☐ Jetter	Power Rodder		A CANCER	Diam.	Winch No		Hydro No	o. <i>119</i>	<u>∳</u> Vao	/Jet Rodd		
NO.	☐ Hydro	☐ Small Rodder	☐ Winch	es	Digin.	Truck No. <u>7-25</u>			р <u>#У/</u> Бене	<u> </u>	(Other:	
·	☐ Vac/Jet Rodder	Vacuum Tanker	☐ Dry/W	et Vac		Jetter No.		TV Trk. No	o. <u>56</u>				
ON				_		sus constitutions and	.55/\h	HOURS	WORKED :	的可能的	17.5		20-22
FROM		то		·			26	Shop	Job	Travel	TOTAL	(i) 5 (i) 15 €	LLING
CLE/	NED	☐ TV	:		TAGE incomplete)	B. MORRI	ic	7	75	15			
REMAR	KS					0 10:11			75	1至		_	
		•				<i>H111</i>		7	1				-
SET-UP NO.	☐ Jetter	☐ Power Rodder	□ T.V.		Diam.	L BENNET	7	Ÿ	罗文	1a			
	☐ Hydro Vac/Jet Rodder	Small Rodder Vacuum Tanker	☐ Winch ☐ Dry/W										
_/ _/	745/001 1104401	- Vocatii isiikti	10 01,711	Ct Vac									
FROM		то				<u> </u>	1	1				<u> </u>	
CLEA	NFD				TAGE	REMARKS: C	NEC		TRUCK		<u>-UT</u>		
REMAR				(Circle if	incomplete)	SET U	((P	gmp	Pu	mp	<u>wa7</u>	FR
nemAn				_		Down	cl	€A~	3Y'	Lis	LE 1	nd	
SET-UP	a	la	a			T.U. VA	216	145 2	(in e	3 /	7/50		
NO.	☐ Jetter ☐ Hydro	☐ Power Rodder ☐ Small Rodder	☐ T.V.	es	Diam.	GAUE	TA	Pes	4	RED	onTs	· 7	٥
3	☐ Vac/Jet Rodder	☐ Vacuum Tanker	☐ Dry/W	et Vac		Jab Complete							_
ON '	· · · · · · · · · · · · · · · · · · ·	·				STOVE CLEAN	VING	いのひんじんぞう しゃさんしゃ	ta a distribute and the second		in the second	Marky.	#1% (A)
FROM		то		_		FURNACE NO:	A CONTRACTOR OF THE PARTY OF TH	STOVE N	O:	COIL	S OF ROD (PENED	<u>againt institus</u> titud
CLEA	NED	O TV			TAGE incomplete)	NO. FLUES	Ор	ened:					
REMAR	Ks					ATTEMPTED	Un	opened:					
						REMARKS:	- 	Milag	, , , ,				
SET-UP NO.	☐ Jetter	☐ Power Rodder	☐ T.V.		Diam.	T.V. 56			11593	<u> </u>	C- 181	SLIP	13701
4	☐ Hydro ☐ Vac/Jet Rodder	☐ Small Rodder ☐ Vacuum Tanker	☐ Winch ☐ Dry/W			1.5.30			11595.				13423
ON		<u> </u>				T-243		hop					
FROM	•	то				1 012			5556				
()	D	□ 1 V			TAGE incomplete)			. · ·			 -		-
REMAR!	K\$,=		Footage is correc	ct. W	ork and I	hours ind	icated at	ove are s	atisfact	orv.
-				l		Work performed	, deb	ris remov	al and du	mp locat	ion arrang	ged by	customer:
•		-			·	CUSTOMER SIGN	IATUR	e: (<u>)</u>	4777		<u> </u>		
TOTAL I	T. CLEANED:	TOTAL FT	. TELEVIS	ED:				40	:00	-An	Carrier		•

ATTACHMENT B

PRE-CLEANING AND POST-CLEANING LOGS AND VIDEOTAPES



grade counter

photo

Inspection report

í '		4	•		
Date: 20031113	P.O.#	Weather: 5 Wet	Surveyor/Cert #: B MORRIS U-030-250	Section Number: 1	PSR:
Tot Pipe Length:	Survey Customer: HERCULES INC	System Owner: EASTMAN CHEM	Clean Date:	Pre-Cleaned: N No pre-cleaning	Rate:

Street: RT 837 Flow Control: MH: CATCH BASIN 1
City: WEST ELIZABETH Year Renewed MH: POND
Location Code: C Light highway Tape/Media #: BM 1 Length Surveyed: 323.2 ft

Reason for inspection: B Infiltration and Inflow investigation Dia/Ht: C Circular 36"

observation

Use: SW Storm Water Material: CP Concrete pipe (non-reinforced) Pipe Jt: Lining Material:

Drainage Area: : Enter Z if unknown

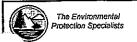
Comments:

1:561

position

code

	1.001	position	ooue	wood fallon	J		•
							:
		3.00	АМН	access points, manhole, Comments: Upstream MH	1	00:00:51	
CA	TCH BASH	3.00	WWL	miscellaneous, water level, 5 %		00:01:05	
		96.00	TBA	tap break-in/hammer, active at 09 o'clock	2	00:06:11	За
	\$ 100 miles	<u> 96.00</u>	TBA	tap break-in/hammer, active at 03 o'clock	2	00:07:01	4a
		105.10	DA	deposits attached from 05 to 06 o'clock		00:09:56	
		/// <u>115.20</u>	DAE	deposit attached, encrustation, < 20% from 05 to 06 o'clock	3	00:12:13	6a
		///, <u>115.60</u>	TBA	tap break-in/hammer, active at 07 o'clock	2	00:13:25	7a
		/// 123.40	ΙR	infiltration, runner from 03 to 04 o'clock	4	00:15:02	8a
ď		/// 127.60	IR	infiltration, runner from 02 to 03 o'clock	4	00:16:02	9a
		/// <u>131.00</u>	IG	infiltration, gusher from 02 to 03 o'clock	5	00:17:17	10a
	1//	143.40	IW	infiltration, weeper from 12 to 01 ofclock	2	00:19:21	
	Y #/	146.70	MWL	miscellaneous, water level PONDERING		00:20:06	12a
Ť	3// /	156.70	I/V/	infiltration weeper from 12 to 01 o'clock	2	00:21:21	
1	1//	167.50	ID	infiltration, thipper from 02 to 03 o'clock	3	00:22:41	14a
	1/	173.90	ID	infiltration, dripper from 12 to 01 o'clock	3	00:24:17	15a
		186.90	ID	infiltration, dripper from 12 to 01 o'clock	3	00:26:30	
		200.00	IR	infiltration, runner from 04 to 05 o'clock	4	00:27:45	17a
		204.20	1D	infiltration, dripper from 04 to 05 o'clock	3	00:29:01	18a
	1/	208.50	IW	infiltration, weeper from 03 to 04 o clock	2	00:30:25	
		212.00	IR	infiltration, runner from 03 to 04 o'clock	4	00:31:18	20a
		223.80	1D	infiltration, dripper from 12 to 01 o'clock	3	00:32:51	
		224.00	IW	infiltration, weeper from 97 to 98 ofclock	5	00:33:33	
	<u> </u>	233.00	١W	infiltration, weeper from 03 to 04 o'clock	2	00:34:35	



Inspection report

1			<u></u>		
Date: 20031113	P.O.#	Weather: 5 Wet	Surveyor/Cert #: B MORRIS U-030-250	Section Number: 1	PSR:
Tot Pipe Length:	Survey Customer: HERCULES INC	System Owner: EASTMAN CHEM	Clean Date:	Pre-Cleaned: N No pre-cleaning	Rate:

1:561	position	code	observation	grade	counter	photo	
	240,30	I R	infiltration, runner from 07 to 08 o´clock	4	00:35:49	24a	
	· <u>240.30</u>	IR	infiltration, runner from 04 to 05 o'clock	4	00:36:26	25a	
	244.70	lR	infiltration, runner from 04 to 05 o'clock	4	00:37:13	26a	
	308.00	1W	infiltration, weeper from 07 to 08 o´clock	2	00:41:01		
(b)	323.20	MSA	miscellaneous, survey abandoned WATER & MATERIAL		00:43:10	28a	



1	ľ				
	Citv:	Street:	Date:	Section Number:	PSR:
	WEST ELIZABETH	RT 837	20031113	1	

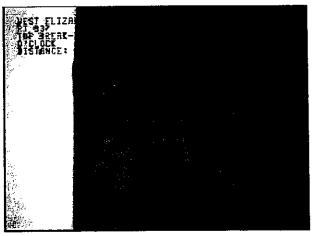


Photo: 3a, Tape No.: BM 1, 00:06:11 96FT, tap break-in/hammer, active at 09 o'clock



Photo: 4a, Tape No.: BM 1, 00:07:01 96FT, tap break-in/hammer, active at 03 o'clock



Photo: 6a, Tape No.: BM 1, 00:12:13 115.2FT, deposit attached, encrustation, < 20% from 05 to 06 o'clock

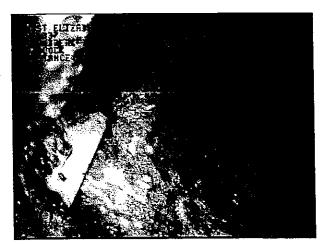
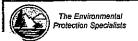


Photo: 7a, Tape No.: BM 1, 00:13:25 115.6FT, tap break-in/hammer, active at 07 o'clock



1				
City;	Street:	Date:	Section Number:	PSR:
WEST ELIZABETH	RT 837	20031113	1	

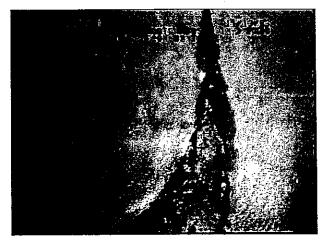


Photo: 8a, Tape No.: BM 1, 00:15:02 123.4FT, infiltration, runner from 03 to 04 o'clock



Photo: 9a, Tape No.: BM 1, 00:16:02 127.6FT, infiltration, runner from 02 to 03 o'clock



Photo: 10a, Tape No.: BM 1, 00:17:17 131FT, infiltration, gusher from 02 to 03 o´clock

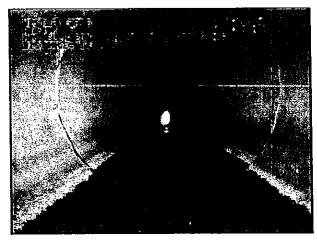


Photo: 12a, Tape No.: BM 1, 00:20:06 146.7FT, miscellaneous, water level PONDERING



1	-			
City:	Street:	Date:	Section Number:	PSR:
WEST ELIZABETH	RT 837	20031113	1	

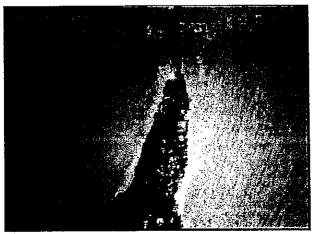


Photo: 14a, Tape No.: BM 1, 00:22:41 167.5FT, infiltration, dripper from 02 to 03 o'clock

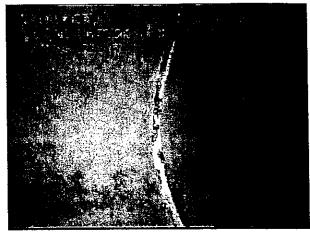


Photo: 15a, Tape No.: BM 1, 00:24:17 173.9FT, infiltration, dripper from 12 to 01 o'clock

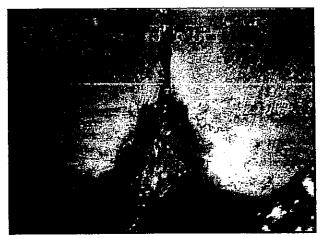
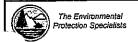


Photo: 17a, Tape No.: BM 1, 00:27:45 200FT, infiltration, runner from 04 to 05 o'clock



Photo: 18a, Tape No.: BM 1, 00:29:01 204.2FT, infiltration, dripper from 04 to 05 o'clock



•					
Ì	Citv:	Street:	Date:	Section Number:	PSR:
1	WEST ELIZABETH	RT 837	20031113	1	



Photo: 20a, Tape No.: BM 1, 00:31:18 212FT, infiltration, runner from 03 to 04 o'clock

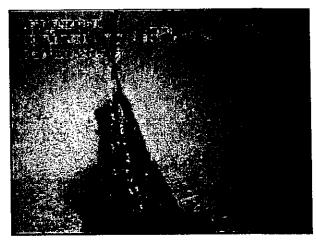


Photo: 24a, Tape No.: BM 1, 00:35:49 240.3FT, infiltration, runner from 07 to 08 o'clock



Photo: 25a, Tape No.: BM 1, 00:36:26 240.3FT, infiltration, runner from 04 to 05 o'clock



Photo: 26a, Tape No.: BM 1, 00:37:13 244.7FT, infiltration, runner from 04 to 05 o'clock



3	1	■ *			
	City:	Street:	Date:	Section Number:	PSR:
1	WEST ELIZABETH	RT 837	20031113	11	

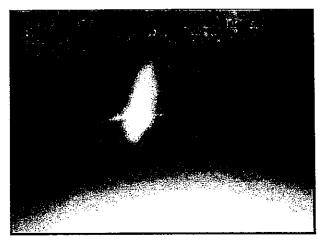


Photo: 28a, Tape No.: BM 1, 00:43:10 323.2FT, miscellaneous, survey abandoned WATER & MATERIAL

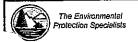


Inspection report

1		•			
Date: 20031113	P.O.#	Weather: 5 Wet	Surveyor/Cert #: B MORRIS U-030-250	Section Number: 2	PSR:
Tot Pipe Length:	Survey Customer: HERCULES INC	System Owner: EASTMAN CHEM	Clean Date:	Pre-Cleaned: N No pre-cleaning	Rate:

Street: RT 837 City: WEST ELIZABETH		Flow Control:	Flow Control: Year Renewed		CATCH BASIN 1
		Year Renewed			POND
Location Code: C Li	ght hìghway	Tape/Media #: E	3M 1	Length Surveyed:	202.3 ft
Reason for inspection: B Infiltration and Inflow investigation Use: SW Storm Water		flow investigation	estigation Dia/Ht:		
		Material: Lining Material:	CP Concrete pipe (non-reinforced) Pipe J		
Drainage Area:			:	Enter Z if unknow	1

Comm	ents:						
	1:500	position	code	observation	grade	counter	photo
CAT	CH BASIN	3.00	AMH	access points, manhole, Comments: Upstream MH	1	00:43:54	
		3.00	MWL	miscellaneous, water level, 5 %		00;44:08	
	100 E	19.60	IW	infiltration, weeper from 04 to 05 o'clock	2	00:45:20	
	9	32 <u>.40</u>	TBA	tap break-in/hammer, active at 12 o'clock	2	00:46:28	32a
		<u>51.30</u>	TBA	tap break-in/hammer, active at 04 o´clock	2	00:48:07	33z
		150 <u>.10</u>	ОВІ	obstacles, object protruding thru wall, < 10% from 11 to 12	2	00:52:02	34a
		151.20	HSV	o clock pipe failure, hole, soil visible from 12 to 01 o'clock	5	00:53:16	35a
		153.30	W	infiltration, weeper from 04 to 05 o'clock	2	00:54:17	
		169.50	IW	infiltration, weeper from 05 to 06 c clock	2	00:55:36	
		182.40	LLD	line, left/down, < 10 degrees	1	00:56:31	
	(2) (2)	196.40	MWL	miscellaneous, water level PONDERING		00:57:32	
İ		202.30	· MSA	miscellaneous, survey abandoned MATERIAL		00:58:37	40e



Robinson Pipe Cleaning Co.

519 and Rainey Road Eighty Four, PA 15330 Tel: (800) 553-4590, Fax: (724) 228-5624

1	-	-		
City:	Street:	Date:	Section Number:	PSR:
WEST ELIZABETH	RT 837	20031113	2	, <u> </u>

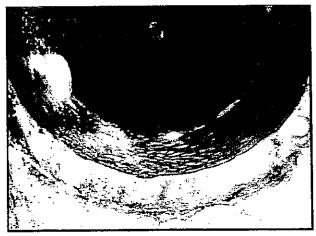


Photo: 32a, Tape No.: BM 1, 00:46:28 32.4FT, tap break-in/hammer, active at 12 o'clock



Photo: 33a, Tape No.: BM 1, 00:48:07 51.3FT, tap break-in/hammer, active at 04 o'clock



Photo: 34a, Tape No.: BM 1, 00:52:02 150.1FT, obstacles, object protruding thru wall, < 10% from 11 12 o'clock

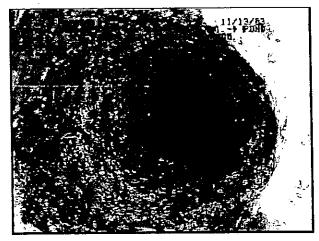
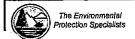


Photo: 35a, Tape No.: BM 1, 00:53:16 151.2FT, pipe failure, hole, soil visible from 12 to 01 o'clock



1	_			
City:	Street:	Date:	Section Number:	PSR:
WEST ELIZABETH	RT 837	20031113	2	

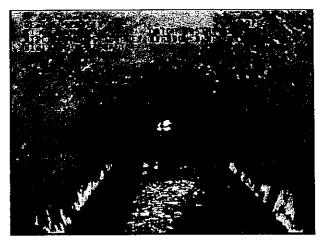
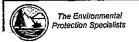


Photo: 40a, Tape No.: BM 1, 00:58:37 202.3FT, miscellaneous, survey abandoned MATERIAL

. ·

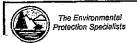


Inspection report

		· · · · · · · · · · · · · · · · · · ·	<u> </u>		
Date: 20031114	P.O.#	Weather: 5 Wet	Surveyor/Cert #: B MORRIS U-030-250	Section Number: 3	PSR:
Tot Pipe Length:	Survey Customer: HERCULES INC	System Owner: EASTMAN CHEM	Ciean Date:	Pre-Cleaned: N No pre-cleaning	Rate:

Street: RT 83	7	Flow Control:		MH:	CATCH BASIN 1
City: WEST	ELIZABETH	Year Renewed		MH:	POND
Location Code: C Ligi	nt highway	Tape/Media #: BN	11	Length Surveyed	i: 398.2 ft
Reason for inspection: B Infiltration and Inflow		investigation	Dia/Ht:	C Circular 36"	
Use: SW Storm Water			Material: Lining Material:	CP Concrete pipe (non-reinforced) Pipe Jt:	
1					

Use:		SW Sto	rm Water	Lit	ning Material:		•	
Draina	ge Area:			:	Enter Z	if unkno	wn	
Comm	ents:							
	1:975	position	code	observation		grade	counter	photo
ł								
CAT	CH BASIN	13.00	АМН	access points, manhole, Comme	ents: Upstream MH	1	00:59:34	
		3.00	MWL	miscellaneous, water level, 5 %			00:59:55	
i	8							
	Š							
	(주) 본							
 	1. 1						04-00-40	
	200	182.20	DAE	deposits attached, encrustation,			01:06:12	
		190,20	MWLS	miscellaneous, water level sag.	< 20%	2	01:07:03	
) ji		204.50	ID	infiltration, dripper from 04 to 05	o'clock	3	01:08:47	45a
¥	\$7 \$2	212.90	١ ٧ ٧	Infiltration, weeper from 03 to 04	ł o'clock	2	01:12:00	
1	<u> </u>	232.40	DAE	deposits attached, encrustation,	< 10% from 02 to 04 o'clock	: З	01:15:44	
		240.90	IR	infiltration, runner from 04 to 05	o´clock	4	01:17:56	48a
		240.90	ID	infiltration, dripper from 07 to 08	o clock	3	01:18:44	49a
		<u>244.80</u>	IR	infiltration, runner from 03 to 04	o'clock	4	01:20:14	50a
		245.00	ID	infiltration, dripper from 12 to 01	o clock	3	01:22:05	
1		245.20	CL	crack, longitudinal at 12 o'clock		2	01:22:41	
		248.10	cc	crack, circumferential from 02 to		2	01.24.45	53a
		308.80	ID	infiltration, dripper from 07 to 09		3	01:31:14	54a
			JSL	joint separated, large, from 04 to		2	01 43:05	55a, b
I	POND	393.20			JOED GIOUR OME	<u>~</u>	01:46:05	56a, b
4		398.20	Α	access point END AT POND			01. 40.00	JUS. U



1		•	<u> </u>		
i	City:	Street:	Date:	Section Number:	PSR:
	WEST ELIZABETH	RT 837	20031114	3	



Photo: 45a, Tape No.: BM 1, 01:08:47 204.5FT, infiltration, dripper from 04 to 05 o'clock



Photo: 48a, Tape No.: BM 1, 01:17:56 240.9FT, infiltration, runner from 04 to 05 o'clock

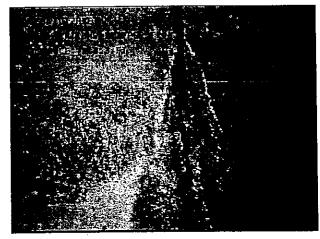
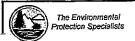


Photo: 49a, Tape No.: BM 1, 01:18:44 240.9FT, infiltration, dripper from 07 to 08 o´clock



Photo: 50a, Tape No.: BM 1, 01:20:14 244.8FT, infiltration, runner from 03 to 04 o'clock



City:	Street:	Date:	Section Number:	PSR:
WEST ELIZABETH	RT 837	20031114	3	

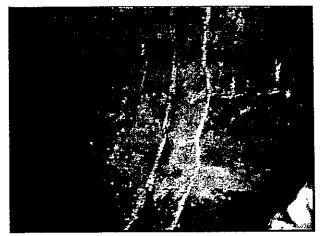


Photo: 53a, Tape No.: BM 1, 01:24:45 248.1FT, crack, circumferential from 02 to 05 o'clock

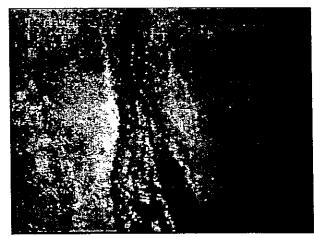


Photo: 54a, Tape No.: BM 1, 01:31:14 308.8FT, infiltration, dripper from 07 to 09 o´clock



Photo: 55a, Tape No.: BM 1, 01:43:05 393.2FT, joint separated, large, from 04 to 07 o'clock GAP



Photo: 55b, Tape No.: BM 1, 01:43:05 393.2FT, joint separated, large, from 04 to 07 o'clock GAP



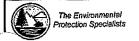
City:	Street:	Date:	Section Number:	PSR:
WEST ELIZABETH	RT 837	20031114	3	



Photo: 56a, Tape No.: BM 1, 01:46:05 398.2FT, access point END AT POND



Photo: 56b, Tape No.: BM 1, 01:46:05 398.2FT, access point END AT POND



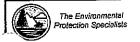
Robinson Pipe Cleaning Co. 519 and Rainey Road Eighty Four, PA 15330 Tel: (800) 553-4690, Fax: (724) 228-5624

Inspection report

•		•	<u>-</u>		
Date: 20031118	P.O.#	Weather: 1 Dry	Surveyor/Cert #: B MORRIS U-030-250	Section Number: 4	PSR:
Tot Pipe Length:	Survey Customer: HERCULES INC	System Owner: EASTMAN CHEM	Clean Date:	Pre-Cleaned: H Heavy cleaning	Rate:

Street:	RT 837		Flow Control:		MH:	CATCH BASIN 1	
City:	ty: WEST ELIZABETH		Year Renewed .		MH:	POND	
Location Cod	e: C Light h	ighway	Tape/Media #: BM 2		Length Surveyed: 270 ft		
Reason for in	Reason for inspection: B Infiltration and Inflo		investigation Dia/Ht:		C Circular 24"		
Use:	Use: SW Storm Water		Material: Lining Material:		CP Concrete pipe (non-reinforced) Pipe Jt:		
Drainage Are	a:			:	Enter Z if unkn	own	
Comments:							

	1:675	position	code	observation	grade	counter	photo
CA'	TCH BASIN	1 3.00	АМН	access points, manhole, Comments: Upstream MH	1	00:00:49	
		3.00	MWL	miscellaneous, water level, 5 %		00:01:09	
	6	30,20	TBA	tap break-in/hammer, active at 12 o'clock	2	00:03:36	59a
		49 <u>.40</u>	TFA.	tap factory made, active at 05 c clock, 6 in		00:05:25	60a
	9: 27: 38:						
וע	## CO						
	AUST	149. <u>10</u>	Н	pipe failure, hole from 12 to 01 o'clock	3	00:12:32	61a
1		149,20	OBZ	obstacles, other objects. < 10% from 12 to 01 o'clock PROTRUDING	2	00:13:18	62a
	<u>8</u>	184.30	ĻLD	line, left/down, < 10 degrees	1	00:16:34	
	April 1	<u>240.70</u>	IW	infiltration weeper from 11 to 12 o'clock	2	00:23:41	
		244.60	J	joint WITH OIL FILM	•	00:26:44	65a
	**************************************	254.40	Н	pipe failure, hole from 03 to 04 o'clock	3	00:31:21	66a, b
	POND	265.80	j	joint AT END OF PIPE WIDER		00:34:50	67a
	人	270.00	A·	access point END AT POND		00:37:51	58a



Robinson Pipe Cleaning Co. 519 and Rainey Road Eighty Four, PA 15330 Tel: (800) 553-4690, Fax (724) 228-5624

Inspection photos

		•	<u></u>		
	City:	Street:	Date:	Section Number:	PSR:
Ì	WEST ELIZABETH	RT 837	20031118	4	

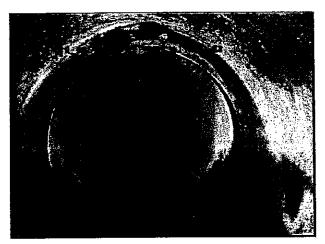


Photo: 59a, Tape No.: BM 2, 00:03:36 30.2FT, tap break-in/hammer, active at 12 o'clock



Photo: 60a, Tape No.: BM 2, 00:05:25 49.4FT, tap factory made, active at 05 o´clock, 6 in



Photo: 61a, Tape No.: BM 2, 00:12:32 149.1FT, pipe failure, hole from 12 to 01 o'clock

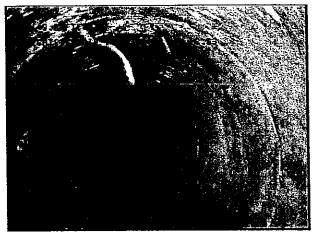


Photo: 62a, Tape No.: BM 2, 00:13:18 149.2FT, obstacles, other objects, < 10% from 12 to 01 o'clock PROTRUDING



Robinson Pipe Cleaning Co. 519 and Rainey Road Eighty Four, PA 15330 Tel: (800) 553-4690, Fax (724) 228-5624

Inspection photos

1					
1	0.4	Street:	Date:	Section Number:	PSR:
-	City:	oueet.	Date.	OCOMON (14111DON)	l
1		DT 927	20031118	A	<u>'</u>
ı	WEST ELIZABETH	K 1 83/	20031110	i —	



Photo: 65a, Tape No.: BM 2, 00:26:44 244.6FT, joint WITH OIL FILM

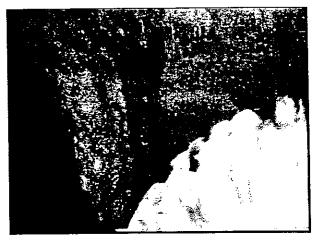


Photo: 66a, Tape No.: BM 2, 00:31:21 254.4FT, pipe failure, hole from 03 to 04 o'clock



Photo: 66b, Tape No.: BM 2, 00:31:21 254.4FT, pipe failure, hole from 03 to 04 o'clock

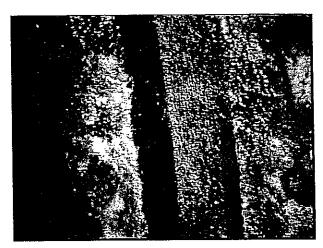
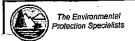


Photo: 67a, Tape No.: BM 2, 00:34:50 265.8FT, joint AT END OF PIPE WIDER



Robinson Pipe Cleaning Co. 519 and Rainey Road Eighty Four, PA 15330 Tel: (800) 553-4690, Fax: (724) 228-5624

Inspection photos

_		• • • • • • • • • • • • • • • • • • •		
City:	Street:	Date:	Section Number:	PSR:
WEST ELIZABETH	RT 837	20031118	4	

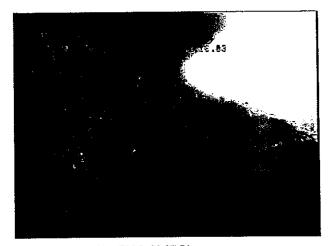
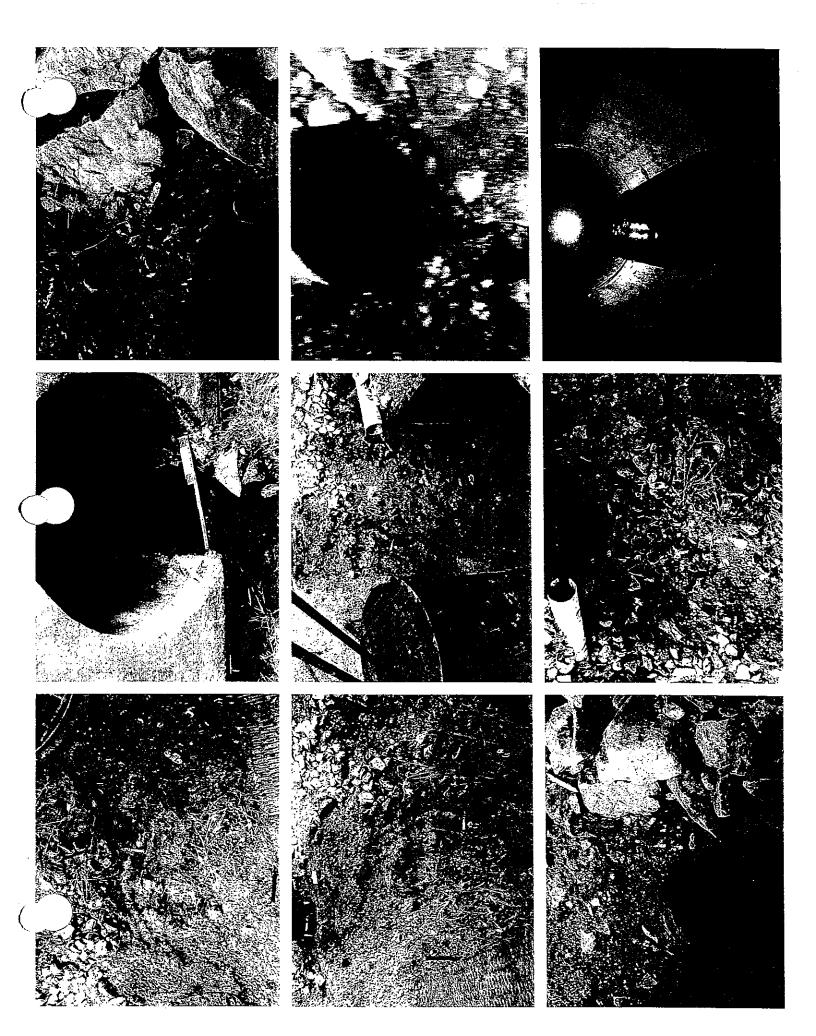
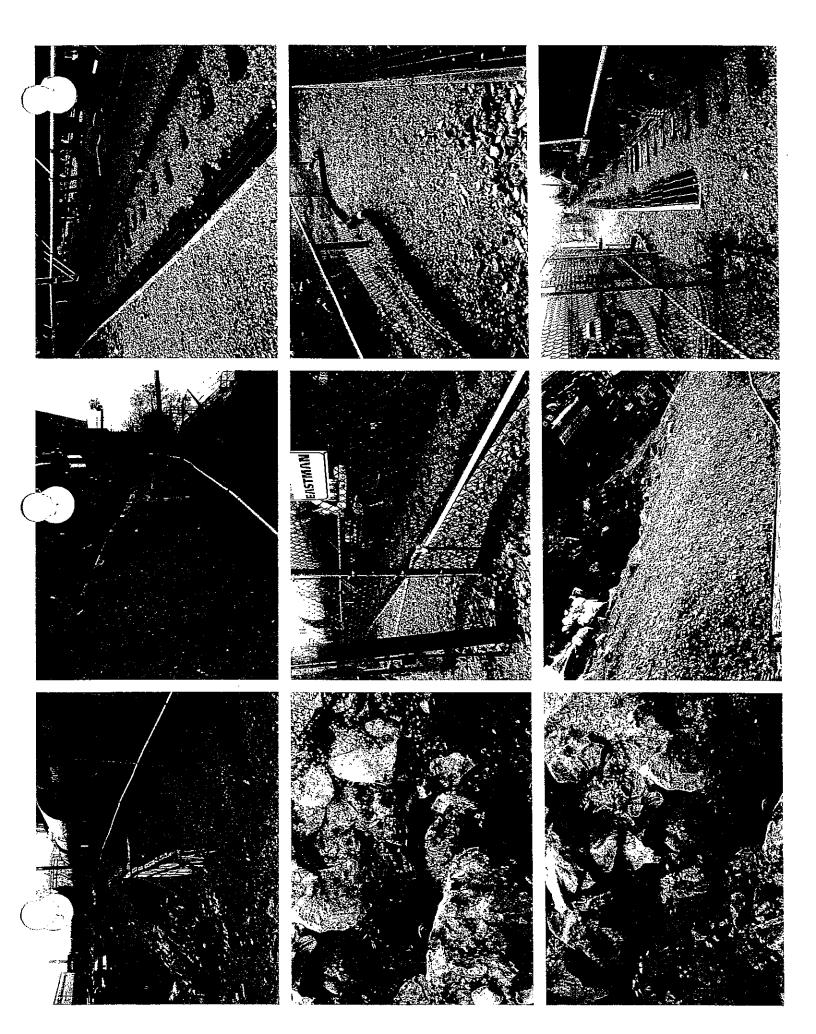


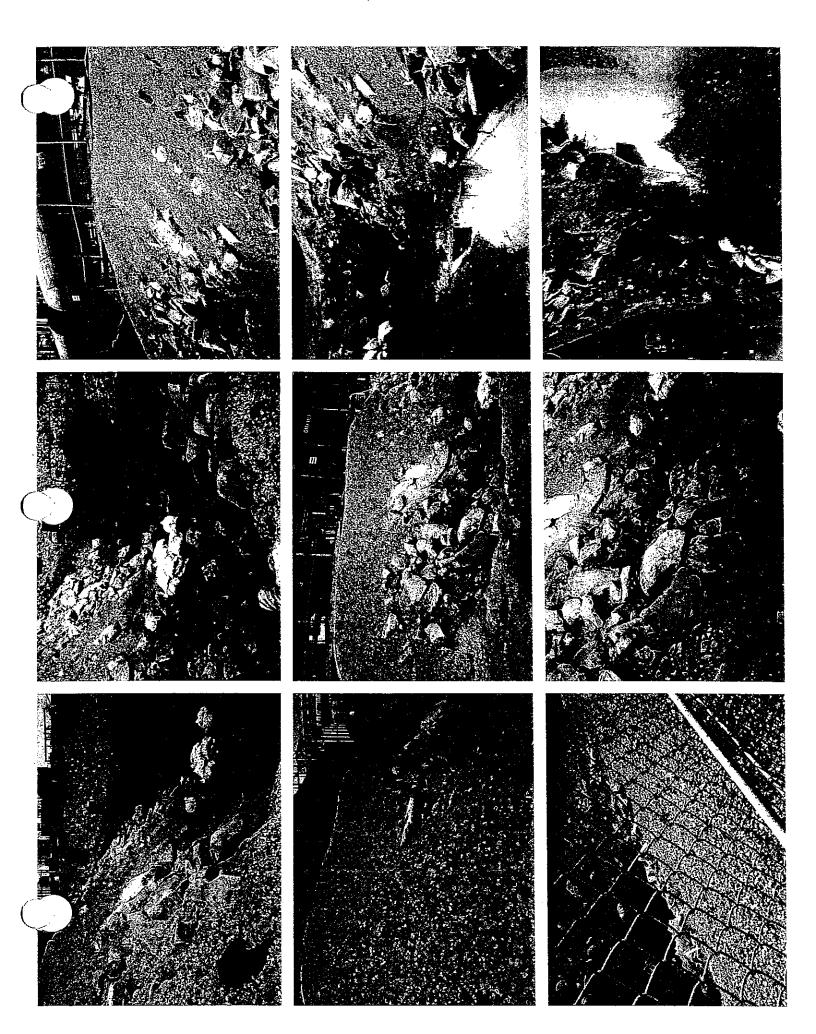
Photo: 68a, Tape No.: BM 2, 00:37:51 270FT, access point END AT POND

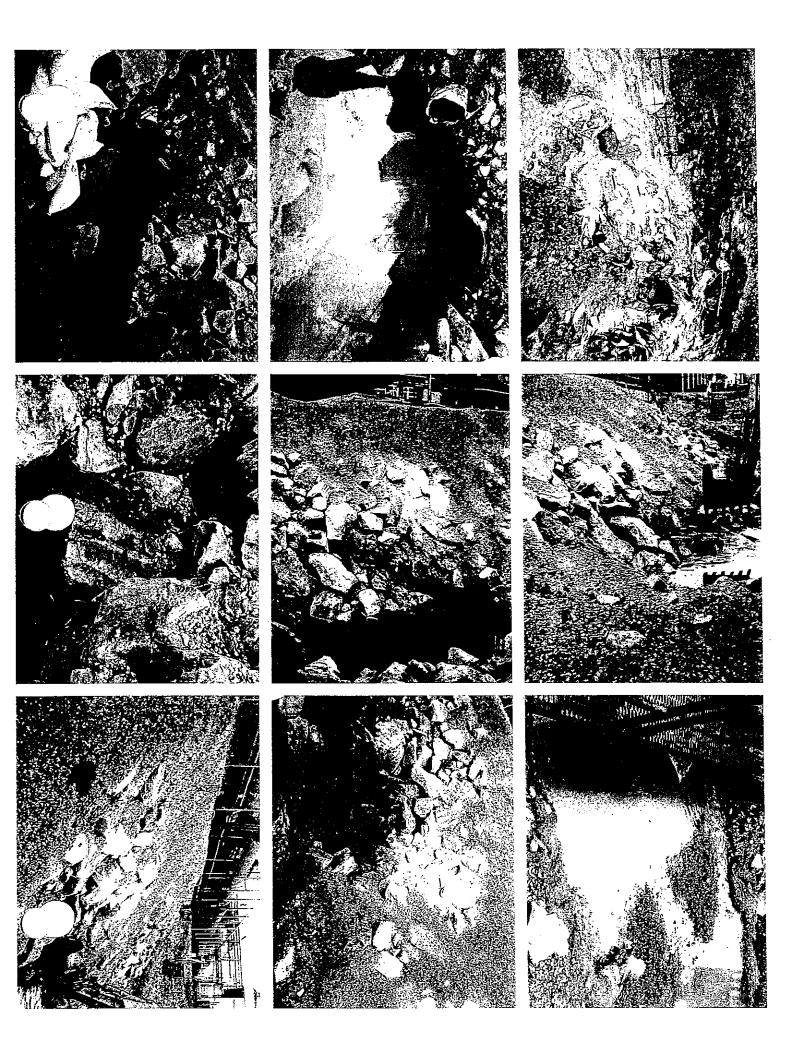
ATTACHMENT C PHOTOGRAPHS

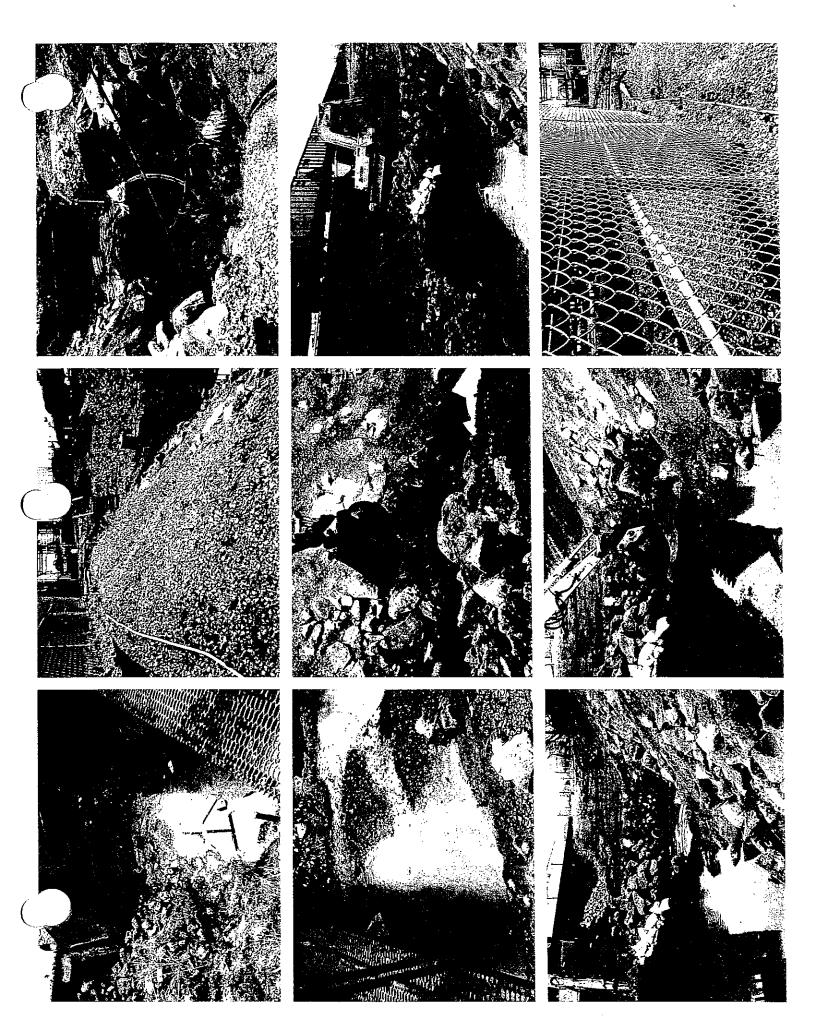


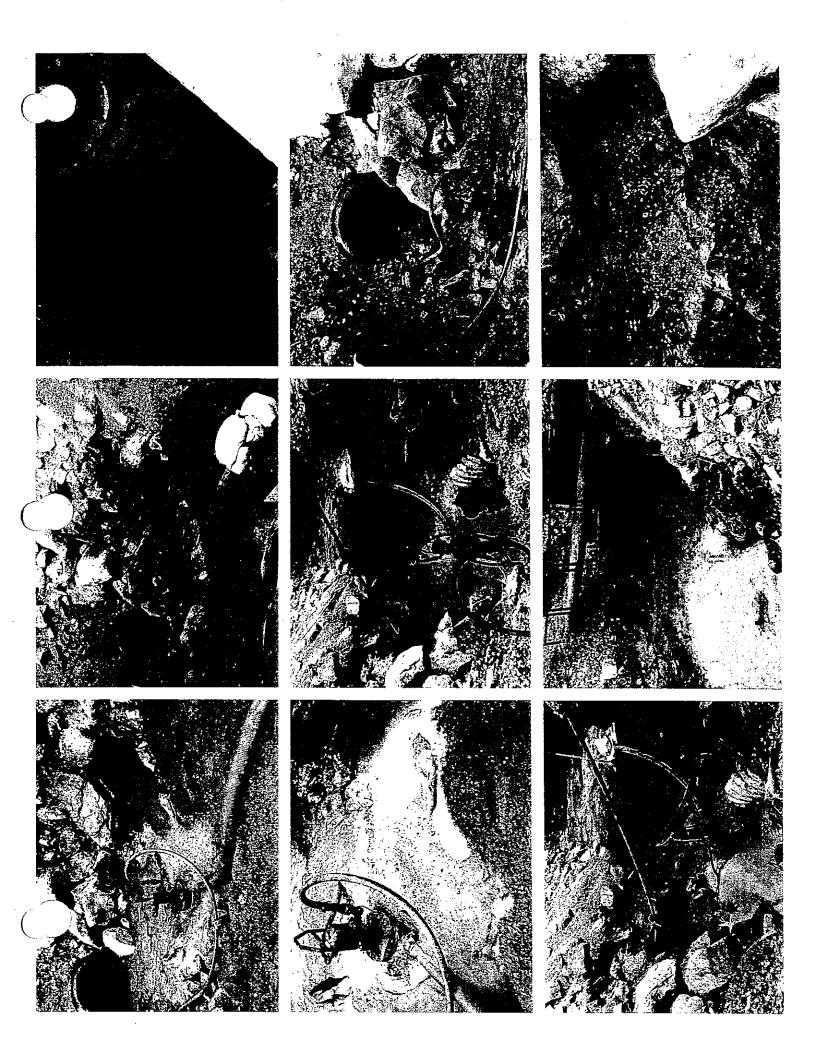


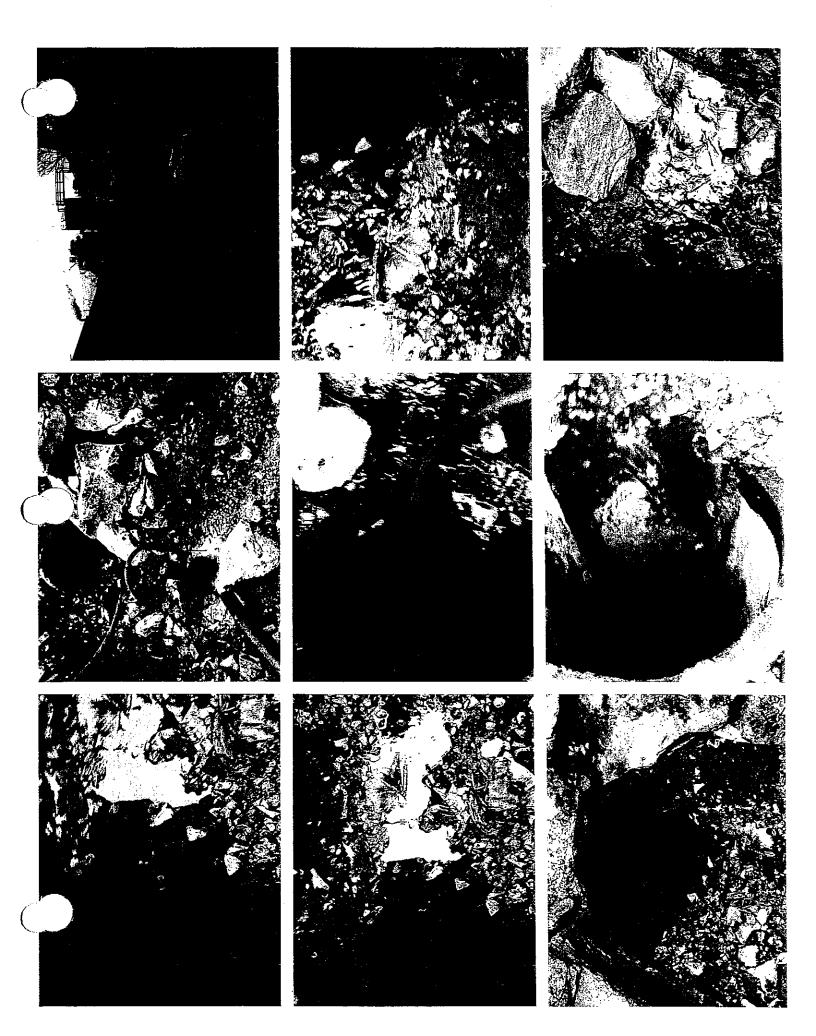


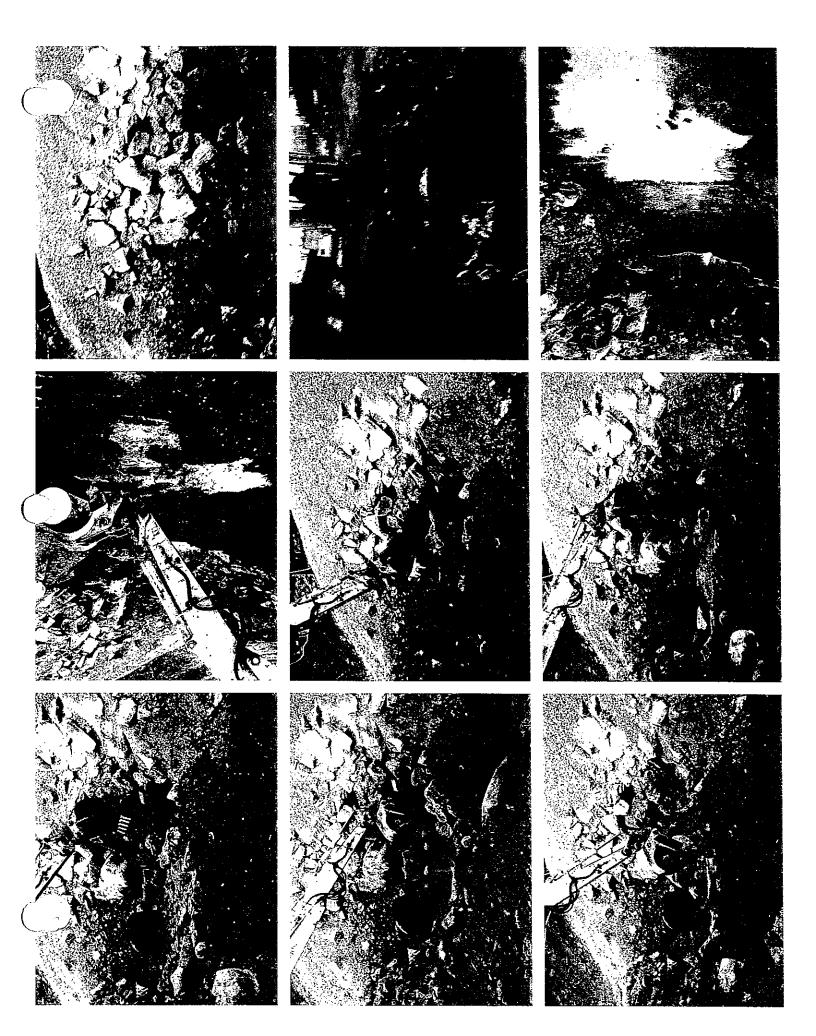


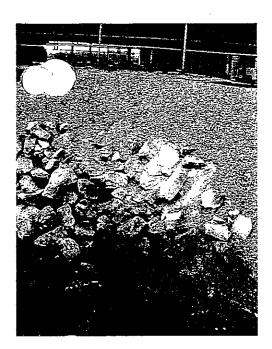












. .

·

APPENDIX C

FIELD FORMS



RITER CONSULTANTS, INC.

SITE:		•	Ges A TUBING DIA			4	inches
PROJECT NO		05.40	DEPTH TO V		<u> 2. a</u>	08	ft TOR
SAMPLING I	DEVICE:	stalte p	DEPTH TO I	PUMP:	10	.0	ft TOR
DATE:	<u> </u>	1 100	FEET OF W	ATER IN LIN	E: 7.	.92	feet
WÊLL I.D.:	E	- 21"	VOLUME O	f Water in	LINE:	0.02	gallons
•			(0.005 gal/f	t for 3/8" tu	bing, 0.0023 g	al/ft for ¼" tul	bing)
ELAPSED TIME (min)	DEPTH TO WATER (ft TOR)	PH (s.u.)	SPECIFIC CONDUCTANCE	TEMPER- ATURE (°C)	DISSOLVED OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)
0	2.08	6.49	1.7	9.3	0.85	740	-41
5	2.08	6.60	1.7	9.2	0.48.	a50	-41
10	2.09	6.75	1.7	9,2	0.00	0	-4/
15	7.09	6.86	1.7	9.3	0.00	0	- 42
90	2.09	10.86	1.7	9.3	0.00	0	-42
95	8109	6.87	1.7	9.3	0.00	0	-42
30	2.09	6.87	1.7	9.3	0.00	0	-42
	·	<u> </u>					
	<u> </u>		 				
		· · · · · · · · · · · · · · · · · · ·					
							· ·
	<u> </u>		1		-		
	<u> </u>	 			 		
				<u> </u>			
				 			
	· · · · · · · · · · · · · · · · · · ·					 	-
,							
PPROXIMA'	te Purge Rati	E: <u> </u>	GE END TIME: Omlymin	PURGEI	SAMPLED BY	': <u>CGK</u>	

SITE:	Herri	les-Jeffe	TUBING DIA	METER:		3	8	inches	
PROJECT NO		30540				2	3,20	ft TOR	
	DEVICE: Wha				_		50.0	ft TOR	
DATE:	3		 ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	ATER IN LIN			₹6.80	· · · · ·	
		11/04			_		3.134	feet	
WELL I.D.:	E- 7	<u>රිරිට</u>		F WATER IN				gallons	
			(0.005 gal/f	t for 3/8" tu	bing, 0.00)23 ga	al/ft for ¼" tu	bing)	
ELAPSED	DEPTH TO		SPECIFIC	TEMPER-	DISSOL	VED			
TIME	WATER	PH	CONDUCTANCE	ATURE	OXYG		TURBIDITY	REDOX	ĺ
(min)	(ft TOR)	(s.u.)	(5/m)	(°C)	(ppm		(NTU)	(mV)	
0	23,23	6.28	0.17	13.	2.5		130	-C7	
5	23.26	6.60	0.17	12,5	0,80		490	-81	
10	23,24	6.67	0.17	13.6	0,6		420	-102	
15	23,24	6,73	0.17	14.0	0.59		140	-116	
20	23.24	6.81	011	14,2	0.58		90	-124	
<u>25</u>	23, 24	6.84	0.17	14.3	0,4		63	-158	
_30	23,24	6.85	0.16	14.4	0.38		ह्य	<u>- 136</u>	ļ
35	23.24	6.85	0.16	14.5	0.39		69	-131	
40	23.24	6.86	0.16	14,5	0.3	5	70	-132	
			<u> </u>		<u> </u>				-
		<u> </u>							1
				ļ ···		<u></u>			-
· · · · · · · · · · · · · · · · · · ·				<u> </u>				<u> </u>	-
··					-			<u> </u>	-
					_			<u> </u>	-
	· ·		<u> </u>						4
	ļ	<u> </u>		<u> </u>				<u> </u>	-
			-						4
,	<u> </u>								-
,	 								-
				<u> </u>				<u> </u>	4
L							<u> </u>		L
PURGE STAR	TTIME: 9 1	Z Purc	GE END TIME: O	9:42 ₁	TOTAL VO)LUM	e Purged: ~	3,17 8	al
			ml/min				~		_
	and the second s	_		TORGET	J. DAMIL DI	וענענ			_
WEATHER C	ONDITIONS:	JONNY!	<u> </u>	· · · · · · · · · · · · · · · · · · ·			•		
COMMENTS:		-			<u> </u>		· · · · · · · · · · · · · · · · · · ·		 -
		, ,, ,- ,- ,- , -, ,							



AMPLING 1	DEVICE: _pc-1	staltic p	DEPTH TO]	PUMP:	. <u>15</u>	,0	ft TOR
DATE:		1 1104	FEET OF W	ATER IN LIN		7,37	feet
WELL I.D.:		-174			LINE:	2.02	gallons
•				t for 3/8" tu	bing, 0.0023 g	al/ft for ¼" tu	bing)
ELAPSED TIME (min)	DEPTH TO WATER (ft TOR)	PH (s.u.)	SPECIFIC CONDUCTANCE (\(\setminus \) / \(\setminus \))	TEMPER- ATURE (°C)	DISSOLVED OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)
O*	7.63	7.60	84	1073	0-69	64	9
5	7-67	7.46	84	10.3	0-34	0	10
10	7-30	7.85	75	10.5	0.00	0	14
15	7.72	7-10	71	10.4	0.00	0	18
۵,	7-72	7-11	6.7	10.3	0.00	0	18
25	7.73	7./1	67	10.3	0.00	0	17
30	7-73	7.10	6.7	10,4	0.00	0.	18
,35							<u> </u>
·							-
:		· ·		<u> </u>			
·							
·	<u> </u>	<u> </u>		1			
			<u> </u>	 			
					· ·		
	·						
	· · · · · · · · · · · · · · · · · · ·						
			· · · · · ·				
·							
				,			
							1

SITE:	tere	Jec- Jef	nc(so)Tubing Dia	METER:	:	3/8	inches
PROJECT NO		25.40	 ДЕРТН ТО V		. [0	0,70	ft TOR
	DEVICE: Who	1 0				7 55.0	ft TOR
DATE:	3	/ 1 / 04		ATER IN LIN		14,30	feet
WELL I.D.:	F.	59		F WATER IN		72	gallons
11 888 1.21.	10		 .		bing, 0.0023 g	al/ft for ½" tu	
		•	(Wag Coo.o)	t 101 5/6 tu	omg, 0.0025 g	al/11 101 /4 tu	omg) į
ELAPSED	ДЕРТН ТО		SPECIFIC .	TEMPER-	DISSOLVED		
TIME	WATER	PH	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX
(min) *	(ft TOR)	(s.u.)	(5/m)	(°C)	(ppm)	(NTU)	(mV)
0	<u> 10.74</u>	6,93	0.12	14.3	0.62	OOR	-31
5	6.77	6.89	0.12	14.8	0.35	990	-32
10	10,76	6,89	0,12	14,9	0,34	990	-32
15	10,75	6,89	0.12	14,9	0.32	990	-31
70	10.75	6,90	0.12	15.0	0,32	990	-31
7:5	16,75	6,91	0.12	15.1	0,31	990	-32
30	10,75	6.91	0,12	15.1	0,31	670	-32
35	10.75	6,92	0,12	15.2	0.31	470	-32 ¹
40	10,75	6,91	0.12	15.2	0.31	390	-32.
45	10,75	6.91	0112	15/2	0,31	360.	-31
50	10,75	6.91	0.12	15.3	0(3)	3.50	1-31
55	10,75	6,91	0.11	15,3	0.30	340	-31
							}
•							
-			·				
	,						
	·						
	,						
APPROXIMAT WEATHER C	TE PURGE RATE	<u> </u>	EE END TIME: 1		OTAL VOLUM D/SAMPLED BY		5.81 gal
COMMENTS:			•				
÷			<u></u>			· · · · · · · · · · · · · · · · · · ·	

	}	+0,00	· les /) eff	TUBING DI	AMETER:	-1	14	inches
			05.40			13	.19	ft TOR
/ICE:	:	pen	steltic pu	рертн то	PUMP:	1.	ζ.0	ft TOR
•			11104		E: 4	1.81 .	feet	
		سا			F WATER IN	LINE: \mathcal{O}_{ℓ}	0.1	gallons
				(0.005 gal/	ft for 3/8" tu		al/ft for ¼" tu	bing)
DEPT Wa (ft T	ATE F	٦	PH (s.u.)	SPECIFIC CONDUCTANCE	TEMPER- ATURE (°C)	DISSOLVED OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)
13,5	J &		7.08	.0.16	10.8	3.58	3/	-89
13.5	25		7.10	0.16	1.0.4	0.27	31	-103
13.2	96		7.11	0.16	10.4	0.00	15	-133
13.2	96		7.11	0.16	10.3	0.00	15	-141
13-3	30		7./2	0.16	10-4	0-00	19	-141
13-3	3/2		7./2	0.16	10.4	0.00	15	-142
Purc	GE F	RATE:	135	GE END TIME: / ml/min	PURGED	/Sampled By	:	CGK

SITE:	Herci	ules/Jeffe	TUBING DIA	METER:	3/9		inches
PROJECT N		65.40	ДЕРТН ТО	Water:	20.	 SS	ft TOR
SAMPLING 1	DEVICE: ha		 Дертн то 1	PUMP:	<u></u>		ft TOR
DATE:		1 1 04		ATER IN LIN	-	1.45	feet
WELL I.D.:		,			Line: 0.1		gallons
** ELL 1.D		47 D.		•			
		•	(U.UUS gal/I	t 10r 5/8" tu	bing, 0.0023 g	al/It 10 r %" tu	oing)
ELAPSED	ДЕРТН ТО		SPECIFIC	TEMPER-	DISSOLVED		
TIME	WATER	PH	CONDUCTANCE (\(\langle \) / \(\sigma \))	ATURE	OXYGEN	TURBIDITY	REDOX
(min)	(ft TOR)	(s.u.)		(°C)	(ppm)	(NTU)	(mV)
	20.60	6.94	0-13	15.3	0.96	50	->
16	30.65	6-94	0-13	15.2	2.38	6	12
<u>15</u>	20.68	6.95	0-14	12-9	0-12	5	-43 -82
95	20.71	7.02	0.14	15.3 15.3	0.00	0	- 85
30	30.75	7.04	0.14	15.2	0.00	. 0	-86
35	20-77	7.05	0.14	15.2	0.00	0	-86
	, , ,	1.0)	0.17	13.4	0.00		
							
····					, ,		
•		,					` .
	· ·				-		
· · · · · · · · · · · · · · · · · · ·			 	<u> </u>		<u> </u>	<u> </u>
<u> </u>	<u> </u>					 	
			<u> </u>			.1	
APPROXIMA [*]	ΓE PURGE RATE	:	EE END TIME: 13	Purgei	SAMPLED BY		
COMMENTS:			60 ° F				
	·		,			•	

	. (4	1 \~	_			3/2					
SITE:	176mc	les- Jell	درج دا UBING DIA	METER:		78:	inches				
PROJECT NO		5.40	DEPTH TO V	VATER:		3.03	ft TOR				
SAMPLING I	DEVICE: What	E Pump	ДЕРТН ТО І	PUMP:	\sim	55.0	ft TOR				
DATE:	3.	11104	FEET OF W	ATER IN LIN	E:	31,97	feet				
WELL I.D.:		-46D	VOLUME 01	F WATER IN	Line:	0.16	gallons				
(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for ½" tubing)											
ELAPSED	ДЕРТН ТО		SPECIFIC	TEMPER-	DISSOLVED	FF	7777.01				
TIME	WATER	PH	CONDUCTANCE (5 / 1/2m)	ATURE	OXYGEN	TURBIDITY (NTU)	REDOX (mV)				
(min)	(ft TOR)	(s.u.)	, ,	· (°C)	(ppm)						
<u> </u>	23.15	6,97	0,23	15.0	8.72	28	160				
5	23.15	2.14	0.24	14,4	<u>6.58</u>	50	128				
10	23,14	17,16.	0.24	14,6	5,38	20	.91				
15	23.12	7,16	0,24	14.6	4.67	20	71				
70	23,10	5.10	0,24	14,6	3,88	21	57				
25	23,09	7,17	0,24	14,5	3.19	22	47				
30	23.09	7,17	0,25	14.5	2,70	23	39				
35	23.09	7.16	0,25	14.5	2.30	24	25				
40	23,09	7.12	0.27	14,5	1.91	22	-36				
45	23.09	111	0,28	14.5	1,55	71	-55				
50	23.09	7.10	0.28	14.6	1,28	21	-60				
55	23,09	2.10	0.28	14.6	0,93	21	-63				
0	23.09	7.10	0.28	14,6	0,91	20	-67				
65	73.09	2.10	0.28	14,6	0.89	20	-69				
<u> </u>	C-20-1	1110	0.00	1 10							
				 							
			<u> </u>								
					<u> </u>						
PURGE START TIME: 12:30 PURGE END TIME: 13:35 TOTAL VOLUME PURGED: ~4,29 gal APPROXIMATE PURGE RATE: 250 ml/min PURGED/SAMPLED BY: CLN											
	onditions: 🔔	\sim \sim	د س								
COMMENTS:					•						
				•	•						

SITE:	Har	ulus / set	Fers - TUBING DIA	AMETER:		18	inches
PROJECT N	0.: 013	75.40	DEPTH TO WATER:			20-18	
Sampling 1	DEVICE:	lenunp	DEPTH TO PUMP:			ς, σ	ft TOR
DATE:		1 1 1,04	FEET OF WATER IN LINE:			1-82	feet
WELL I.D.:	· · · · · · · · · · E	-170	VOLUME O	F WATER IN	LINE: 0.	12	gallons
			(0.005 gal/f	't for 3/8" tu	bing, 0.0023 g	al/ft for ¼" tu	bing)
ELAPSED TIME (min)	DEPTH TO WATER (ft TOR)	PH (s.u.)	SPECIFIC CONDUCTANCE (5 / ~)	TEMPER- ATURE (°C)	DISSOLVED OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)
5	20.24	5.51	75	16.9	3.10	700	97
10	20,24	5.40	76	16.8	2.64	960	101
15	20.24	5.50	76 .	16.8	2.51	930	102
20	20.25	5.58	79	17.1	6.18	960-1. defition	80
92	20.26	5.71	89	16.8	6.42	B50	49
30	20.26	5.75	90	16.8	6.39	5830	47
35 .	20.27	5:75	90	16.7	6.40	3. J .6	47
40	20.27	5.76	91	16.8	6.41	270	48
५ ऽ 	20.27	5.75	9/	16.7	6.39	270	48
							·
	· · · · · · · · · · · · · · · · · · ·	<u> </u>					<u> </u>
					·		
		<u> </u>					
	 		<u> </u>				
	<u> </u>			1			
,							
						1	

SITE: Hercules - Jefferson Tubing Diameter: 3/8 inches												
PROJECT NO	_	05,40			15.	, 7G	ft TOR					
SAMPLING I	. 1	1 0	—— ЭО Dертн то I	PUMP: .	~~	59,0	ft TOR					
DATE:		/ 1 / 0 4		ATER IN LIN		3.24	feet					
WELL I.D.:	=======================================	-60		F WATER IN		21	gallons					
(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for ¹ / ₄ " tubing)												
(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for ½" tubing)												
ELAPSED	ДЕРТН ТО		SPECIFIC	TEMPER-	DISSOLVED		_					
TIME	WATER	PH	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX					
(min)	(ft TOR)	(s.u.)	(5/m)	(°C)	(ppm)	(NTU)	(mV)					
0	15.81	7.28	0.1)	15.7	1.65	22	-)[3]					
5	15.82	6,95	0.12	16.5	0,46	990	-127					
10	15.81	6,93	0.12	(G.5	0,37	990	-133					
15	15.81	6,43	0.12	16.5	0,34	990	- 134					
20	15.81	6,93	0.12	16.5	0.31	990	-134					
25	15.81	6,93	0.12	16,5	35,0	990	-132					
30	15.81	6,93	0.12	16.5	85,0	990	-132					
35	15.81	6,93	0112	16.5	0,27	990	-131					
<u> </u>	15,80	G.93	0.12	16.3	0,27	940	-131					
					, in the second							
			1		·							
					·							
,												
			7									
		,										
·												
PURGE START TIME: 14727 PURGE END TIME: 15107 TOTAL VOLUME PURGED: ~3.69 gal APPROXIMATE PURGE RATE: 350 ml/min PURGED/SAMPLED BY: CLN WEATHER CONDITIONS: 5005 COMMENTS:												
<u> </u>		· · · · · · · · · · · · · · · · · · ·	<u> </u>									

AMPLING I	DEVICE		05.40 t p 4-p		Римр:		65.0	
DATE:	- 1027							ft TOR feet
			1 1 = 5				3.31	
WELL I.D.:		<u></u>	13 D			LINE:	•	gallons
				(0.005 gal/s)	ft for 3/8" tu	bing, 0.0023 g	al/ft for ¼" tul	bing)
ELAPSED	DEPTH	I TO		SPECIFIC	TEMPER-	DISSOLVED		
TIME	Wat		PН	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX
(min)	(ft TC	OR)	(s.u.)	(5 / ~)	. (°C)	(ppm)	(NTU)	(mV)
5	21.70		6.84	0.11	15 k	0.00	about detection	-94
10	21.70	? 	6.93	0.11	15.5	0.00	11	-95
15	21.76	<u> </u>	6.96	0.11	15.5	0.00	.7	-99
30	21.78	₹	4.96	0.11	15.5	0.00	"	-100
95	21.7	3	6.97	0.11	15.6.	0 00	1/	-101
30	21-7	3	6.98	0.11	15.5	0.00	11	-101
35	21.7		6.98	0.11	15.5	0.00	''	-101
40	21-7	Ý	6.98	0-11	15.5	0.00	*/	-101.
45	21.7		6.97	0.11	15.5	0.00	17	-101
50	81.7		697	0.11	11.5	0.00	17	-605
35	21.7	5	6.98	0.11	15.5	0.00	(1)	-103
· · · · · · · · · · · · · · · · · · ·	<u> </u>	·						
- · · - · · · · · · · · · · · · · · · ·	<u> </u>						ļ	
	<u> </u>				.		<u> </u>	
	ļ							ļ
			·			· · · · · · · · · · · · · · · · · · ·	ļ	
			 		1		<u> </u>	ļ
	-				<u> </u>			
•								
 	-		_				 	
					<u> </u>			

RITER CONSULTANTS, INC.

SITE:	SITE: Hercules - Jefferson Tubing Diameter: 3/8 inches											
PROJECT NO	•	05.40	ДЕРТН ТО		. 12	80	ft TOR					
SAMPLING I	DEVICE: Wha		—— О Бертн то 1	PUMP:	. N	U.S.	ft TOR					
DATE:	3	/1 /04	 	ATER IN LIN	E: '	35,2	feet					
WELL I.D.:	<u> </u>	450		F WATER IN		20178	gallons					
(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for 1/4" tubing)												
(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for ¼" tubing)												
ELAPSED	ДЕРТН ТО		SPECIFIC	TEMPER-	DISSOLVEI							
TIME (min)	WATER (ft TOR)	PH	CONDUCTANCE	ATURE (°C)	OXYGEN	TURBIDITY	REDOX					
(11111)	13.1)	(s.u.)	1 2		(ppm)	(NTU)	(mV) -9u					
5	13,47	0.31	16	15,4	1100	190	-111					
	13,75	7.40	112	14.2	0,33	990	-116					
15	14.64	7,44	1,6	14.1	0,31	<u>690</u>	-120					
20	14.29	7,46	1/5	14.3	0,28	370	-122					
25	14.72	7.46	1.6	14.2	0,26	390	-125					
30	14.94	7.50	1:6	14,3	0.76	380	-126					
:												
				·								
	· ·	<u> </u>			,							
				,								
	· ·		13		ļ							
							 					
		<u> </u>		<u> </u>			-					
				, , , , , , , , , , , , , , , , , , , ,								
				<u> </u>								
							1.					
				1 .								
PURGE STAR	т Тіме: <u> 6¦.0</u>	<u>ク</u> Purg	E END TIME: 16				0.79 gal					
APPROXIMAT	TE PURGE RATE	3, 1C	ml/min	PURGED	/SAMPLED B	Y: <u>UN</u>						
WEATHER C	ONDITIONS: <u>(</u>	Mady.	breezy	50°5		·	·					
COMMENTS:	<u> </u>		- ()		<u></u>		· .					
,	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			-						

SITE:	SITE: LECULY Jefferson Tubing Diameter: E inches											
PROJECT NO	· · · · · · · · · · · · · · · · · · ·	05,40	DEPTH TO V		7	1,30	ft TOR					
	. 1	le Dump			~		ft TOR					
DATE:		12104		ATER IN LIN	E: 38	2, 70	feet					
WELL I.D.:			···	F WATER IN		0.19	gallons					
(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for \(\frac{1}{4}\)" tubing)												
$(0.005 \text{ gal/ft for } 3/8\text{" tubing}, 0.0023 \text{ gal/ft for } \frac{1}{4}\text{" tubing})$												
ELAPSED DEPTH TO SPECIFIC TEMPER- DISSOLVED												
TIME	WATER	PH	CONDUCTANCE (MS/Cm)	ATURE	OXYGEN	TURBIDITY	REDOX					
(min)	(ft TOR)	(s.u.)	`	(°C)	(ppm)	(NTU)	(mV)					
0	22.07	G.59	<u> </u>	14.7	6.48	190	-163					
5	22.55	3.00	୍ଟ୍ରେ	14.5	0.65	<u> 610</u>	-50H					
10	53,05	ี ปรอ	65	14.8	0.47	790	-205					
<u>ı5</u>	23, 50	7.28	60	15,0	0,43	170	-206					
20	23.57	7,29	66	14.9	0,43	170	-206					
25	23,74	7.30	GU	19.9	0,39	190	206					
30	23.69	7.32	-64	150	0,37	210	-206					
35	23,94	7,34	e3	14.9	0,36	210	-506					
40	24.07	7.34	6'3	15,0	0,35	220	-20,					
	·				•		•					
		•					<u> </u>					
· · · · · · · · · · · · · · · · · · ·		<u> </u>										
.,							<u> </u>					
				ļ								
				<u> </u>								
				<u> </u>		·						
							<u>.</u>					
						<u> </u>						
		_	_	c0			1 -					
PURGE STAR	TIME: OPLC	2 <u>3</u> Purc	GE END TIME: $igodot$				1.06 gal					
APPROXIMATE PURGE RATE: 100 ml/min PURGED/SAMPLED BY: CLN												
WEATHER CONDITIONS: Sunny, Wrndy, 5003												
COMMENTS: Well confines to draw down despite low												
ANGE	vate					1						
1 7	1 = 1/Jen				-							

SITE:		40,00	us/ Vertfus	TUBING DIA	METER:		3/8	inches
PROJECT NO			05.40	ДЕРТН ТО V	VATER:	2	· as	ft TOR
SAMPLING I	DEVICE:	L. 4.	· le pun	, D ЕРТН ТО І	PUMP:		30.0	ft TOR
DATE:		3	12104	FEET OF W	FEET OF WATER IN LINE:			feet
WELL I.D.:	•		3 A D		F WATER IN	Line:	<i>4.75</i> ∙∂2	gallons
			7712			<u> </u>	gal/ft for ¼" tu	
					`.			
ELAPSED TIME (min)	DEPTH WAT: (ft TC	ER	PH (s.u.)	SPECIFIC CONDUCTANCE	TEMPER- ATURE (°C)	DISSOLVED OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)
5	5.30		6.24	86	13.6	1.02	0	-56
10	5.30		7-18	87	14.0	0.00	0	- 155
15	5.30		7-24	87	14-2	0.00	0	-[60
36	5.31	· .	7.26	87	14.3	0.00	0	-163
93	5-31		7.27	87	14.3	0.00	0	-164
30	5.31		7.27	87	14.4	0.00		-164
			· 			<u></u>		
				ļ			-	
			1					
								,
						<u> </u>		
	ļ		<u> </u>					ļ
								<u> </u>
	 		-					
	<u> </u>				<u> </u>	 		<u> </u>
	-						 	
	 	<u> </u>			 	<u>'</u>		<u> </u>
			1		:			
Approxima [,]	TE PURGI	ERATE	350	GE END TIME: _C ml/min	PURGE			3.77 ga
	OITION	NS:	nostly clas					

SITE:		Herc	ules Deffer	TUBING DIA	METER:		16.15		inches	
PROJECT N	0.:		5.40	 Дертн то V	Water:	•	l	6.15	ft TOR	
SAMPLING 1	DEVICE:			 Дертн то I	PUMP:	-1		0.0	ft TOR	
SAMPLING I DATE: WELL I.D.:		3	12104	FEET OF W	E:		3.85	feet		
WELL I.D.:		E-9		VOLUME O	 VOLUME OF WATER IN LINE:				gallons	
										
(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for ¼" tubing)										
ELAPSED TIME	DEPTE Wat		РΉ	SPECIFIC CONDUCTANCE	TEMPER-	Disso		Tringanini	Dunov .	
(min)	(ft TC		(s.u.)	(5 / ~)	ATURE (°C)	OXY (pp		TURBIDITY (NTU)	REDOX (mV)	
5	16.17		6.87	0-10	13.8	0.6		93	-137	
lo	16.1	7	6,79	0.10	14.2	0.0	0	30	-144	
15	16.18		6.78	0.10	14.3	0:00	2	0	-143	
90	16.18	•	6.79	0 10	14.3	0.00	,	0	-147	
92	16.18		6-79	0.10	14.3	0.00	, 	0	-147	
30	16.10	1	6.79	0.10	14.3	0.00		0.	-146	
	1					-		·		
			1			1			<u> </u>	
	<u> </u>			 		<u> </u>			· · · · · · · · · · · · · · · · · · ·	
<u>.</u>										
		<u> </u>		<u> </u>		 . 			 	
							_ 			
	<u> </u>	·-·				<u> </u>	<u>.</u>			
		· - · · · · · · · · · · · · · · · · · · ·		 		<u> </u>			1	
	1							1		
•	 	,		<u> </u>						
	1					+		-		
			1	· · · · · · · · · · · · · · · · · · ·	<u> </u>			· .		
Pürge Star	T TIME:_	1045	Purg	E END TIME:	<u> </u>	OTAL V	OLUM:	e Purged: <u>~</u>	2.77 gal	
APPROXIMATE PURGE RATE: 350 ml/min Purged/Sampled By: C 6 c										
				1.4-60°F	•					
COMMENTS:										

SITE: FORCULAR JOHASON TUBING DIAMETER: 3/8 inches												
PROJECT NO	o.: 0130	D5;40	 Дертн то V	WATER:		25,91	ît TOR					
SAMPLING I	SAMPLING DEVICE: Whele Pump Depth to Pump: N 95 ft TOR											
DATE: 3/2/09 FEET OF WATER IN LINE: 49.09 feet												
WELL I.D.:	<u> </u>	-63	VOLUME O	F WATER IN		0,25	gallons					
(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for 1/4" tubing)												
ELAPSED DEPTH TO SPECIFIC TEMPER- DISSOLVED												
TIME	WATER	PН	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX					
(min)	(ft TOR)	(s.u.)	(ms/m)	(°C)	(ppm)	(NTU)	(mV)					
) (S)	25,90	7.20	7)	15,7	1,65	SO	-149					
হ	25.95	7,08	71.	15.3	0.56	3	-164'					
10	25.95	7.06	01	15.4	0,48	. 3	-169					
15	25,95	205	7)	15,4	0,42	8	-171					
70	25,95	7,05	7)	15.4	0,40	14	-172					
25	25,94	7,05	7)	15.4	0,39	26	-125					
30 25,95 7,05 71 15,4 0,37 22 -173												
35	25,95	7.05	71	15,4	0.37	24	-172					
<i>j</i>		<u> </u>										
· .												
<u>-</u>		<u> </u>										
		<u> </u>										
· · · · · · · · · · · · · · · · · · ·		ļ·			ļ <u>.</u>							
				<u> </u>								
				<u> </u>		•						
							<u> </u>					
					<u> </u>		 					
				ļ <u> </u>			<u> </u>					
		<u> </u>					<u> </u>					
· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·		,							
		-	-	 								
<u> </u>				<u> </u>								
Purge Start Time: 6,50 Purge End Time: 11,25 Total Volume Purged: ~2,77 gal												
APPROXIMATE PURGE RATE: 300 ml/min PURGED/SAMPLED BY: CLN												
WEATHER C	ONDITIONS:	Juny	windy,	5000	<u> </u>							
COMMENTS:		· · · · · · · · · · · · · · · · · · ·					· · · · · · · · · · · · · · · · · · ·					
			·	· · · · · · · · · · · · · · · · · · ·								

SITE:	+	ercules Deffusion	, TUBING DIA	METER:	3,	14	inches				
PROJECT NO		1305.40		Water:	. 15.	85	ft TOR				
SAMPLING I		hale prop		PUMP:	60	· . o	ft TOR				
DATE:		3 12104		ATER IN LIN		1.15	feet				
WELL I.D.:		E-61	-	F WATER IN	LINE: 0		gallons				
			al/ft for ¼" tu								
ELAPSED DEPTH TO SPECIFIC TEMPER- DISSOLVED											
ELAPSED TIME	DEPTH TO WATER	PH	SPECIFIC CONDUCTANCE	TEMPER- ATURE	DISSOLVED	TURBIDITY	REDOX				
(min)	(ft TOR)	1 1	(5/^)	· (°C)	(ppm)	(NTU)	(mV)				
5	15.89	7.03	0.11	14.6	9.75	190	-132				
10	15.89	7.19	0.10	14.7	6.40	370	-159				
15	15-89	7,25	0.10	14.8	0.77	120	-167				
90	15.90	7, 28	0.11	14.8	0.65	0	-169				
30	15.90	7.28	0.11	148	0.00	0	-172				
	15,20	7.29	0.11	14.7	0.00	0	-172				
35	15.90	7-29	0.61	14.8	0.00	0	-173				
<u> </u>		<u> </u>		, .			<u> </u>				
					ļ		 				
			<u> </u>								
				<u> </u>			-				
				•							
					<u> </u>		 				
	<u> </u>				1		+				
	<u> </u>			`	<u> </u>		+				
<u> </u>					,						
		_									
	1				 		 				
				 	 						
- 	1		1		,						
	-			Ì							
			EEND TIME: _/								
		<u> </u>		=							
COMMENTS:			cloudy - 60			····					

RITER CONSULTANTS, INC.

2 2 0011	·	10, 114	· ·	•	·					
SITE:		Hercu	les/Jefferson	TUBING DIA	AMETER:		4	inches		
PROJECT N	0.:	01305	.40	ДЕРТН ТО	WATER:		14.58	ft TOR		
SAMPLING)	DEVICE:	Perist	altic num	p DEPTH TO	PUMP:		28	ft TOR		
DATE:			126/0	<i>'</i> .	FEET OF WATER IN LINE:			feet		
WELL I.D.:		<u> </u>	15		F WATER IN	LINE:	0.03	gallons		
		bing, 0.0023 g	al/ft for ¼" tul	oing)						
ELAPSED DEPTH TO SPECIFIC TEMPER- DISSOLVED										
TIME	WAT		PН	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX		
(min)	(ft TC		(s.u.)	(mS/m)	(°C)	(ppm)	(NTU)	(mV)		
0	15		6.52	72	13.7	10.6	88,4	77		
5		. ን ን	6.51	73	13,7	7.3	14.1	65		
	10 15,59			ا ا	13.7	5,7	247.00	42		
	15 15.75			74	13.6	5,0	64,7	34		
20	20 15,90		6.51	74	13.5	4,6	7,3	29'		
25	15.98		6-51	74	13.4	4.3	10.4	26		
30	16.03 6.52		6.52	75	13.4	4.1	9.9	23		
37	16.	08	6.52	74	13.9	3.9	10.1	-25		
40	16.	13	6.52	74	13.5	3.8	10,1	_2 3		
٠,	<u> </u>									
					·					
		,								
	<u>. ·</u>									
					<u> </u>	<u> </u>				
·		•								
		· · · · · · · · · · · · · · · · · · ·				1				
.							<u> </u>			
						l				
								4.0		
							 	•		
PURCE START	urge Start Time: 16.58 Purge End Time: 17.38 Total Volume Purged: ~ 528 gal									
	PPROXIMATE PURGE RATE: 500 ml/min PURGED/SAMPLED BY: MAL									
WEATHER CO				- min mim	I OKGED/	DAMIT DED DI	· <u> </u>			
										
COMMENTS:										
		•				•				

Crano.	* · · · · · · · · · · · · · · · · · · ·	1 (Y CC	. The same and the			0/0.11	
		lles/Jefferson TUBING DIAMETER:				2/8	inches
PROJECT No.: 01305		DEPTH TO WATER:		-	19,18	ft TOR	
SAMPLING DEVICE: Տևիտա		rsible whole pump DEPTH TO PUMP!				65.55	ft TOR
DATE:		12916	4 FEET OF W	ATER IN LIN	E:	46.37	feet
WELL I.D.:		E-62 VOLUME OF WATER IN LINE:			Line:	0 23	gallons
			 (0.005 gal/f	bing, 0.0023 g			
(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for 1/4" tubing)							
ELAPSED	DEPTH TO		SPECIFIC	TEMPER-	DISSOLVED		
TIME	WATER	PH	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX
(min)	(ft TOR)	(s.u.)	-	(°C)	(ppm)	(NTU)	(mV)
5	24,46	9.05	89.0	11.59	0.00	MAVLE	-/34
10	25.32	10.35	850	12:82	0.00	1.7	-174
	24.19	10.67	<i>E9.4</i>	13.50	000	11	-171
15 20		10.41	86.1	13.58	0.00	21	-184
25	25.88	10.48	85.5 83.8	12.56	0.00	1	-191
30	26.18	10.43		12.54	0.00	<i>μ</i> 1 .	-189
	26.45	16.41	86.2	13.42	0.00	1 (-189
 							
	:						<u> </u>
							
							
	······································						
				<u> </u>			
						<u> </u>	
		 -					
·							
Purge Start Time: 69:45 Purge End Time: 10:15 Total Volume Purged: 2357 gal							
APPROXIMATE PURGE RATE: 450 ml/min PURGED/SAMPLED BY: MAL							
WEATHER CONDITIONS:							
time for one well volume purged prior to low flow. Purge start							
- 19 10 11 11 11 11 11 11 11 11 11 11 11 11							



SITE:	•	Hercu	les/Jefferson	TUBING DIA		3/8"	inches			
PROJECT N	o.:	01305	5.40	ДЕРТН ТО	WATER:		5.70	ft TOR		
SAMPLING]	DEVICE:	subm	rsible whale	pump DEPTH TO I	CONT.		52.81	ft TOR		
DATE:)	129/04		ATER IN LIN	£:	47.11	feet		
WELL I.D.:			E-3AD	VOLUME O	WATER IN	LINE:	0:24	gallons		
				 (0.005 gal/f	t for 3/8" tul	 oing, 0.0023 ga	al/ft for ¼" tul			
					TEMPER-					
ELAPSED	DEPTH			SPECIFIC	DISSOLVED		_			
TIME	WAT		PH	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX		
(min)	(ft TC		(s.u.)		(°C)	(ppm)	(NTU)	(mV)		
0	٠ - ١	62	8.62	0.109	11.16	0.03	390	-111		
5	<u>C</u> . 5	5	9.60	0.114	11.57	0.00	280	-126		
10	د. ٠	55	9.92	0.115	11.83	0.00	200	-139		
15	٠. ٢		9.97	0.115	12-17	0-00	140	-140		
20			9.95	0.115	11.78	0.00	120	-142		
25	6-6		9.92	0.114	12.58	0.00	41	-143		
36	6.5		9.97	0-114	12.82	0.00	42	- 143		
`_ 35	6.5	18	9.95	0-115	13.01	0.00	40	-142		
,										
					,					
· · · · · · · · · · · · · · · · · · ·				-						
	<u>-</u>						·			
	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·								
	· ·					·				
····										
	*									
		· · · · · ·						<u> </u>		
						<u> </u>				
<u> </u>						<u> </u>	1.			
rin on Carro	Trans.	Энэ (га	. Drin on	The Three or	r stronger		Dum ann	412		
				END TIME:				/ L _ gal		
	PPROXIMATE PURGE RATE: 500 ml/min PURGED/SAMPLED BY:									
VEATHER CO				(. 5 .)			4.			
				. (7.54) pu				rge start		
Mme f	or in	د رب	Ul Valua	re is 11:4	<u>5. End</u>	time is	<u>12:15.</u>			
	More for one well values is 11:45. End time is 12:15.									

RUMMINGS RITER CONSULTANTS, INC.

SITE:	Hercu	ıles/Jefferson	TUBING DL	AMETER:		3/8" inches				
PROJECT N	O.: 01305	5.40	ДЕРТН ТО	Water:		20.90	ft TOR			
SAMPLING	DEVICE: Submersil	ale whole nu	mo DEPTH TO	PUMIP:		60.03	ft TOR			
DATE:		129 10	3	ATER IN LIN	Е:	39.13	feet			
WELL I.D.:		E-46D	VOLUME O	F WATER IN	Line:	0.20	gallons			
		•	(0.005 gal/f	t for 3/8" tul	bing, 0.0023 ga	al/ft for ¼" tu	bing)			
ELAPSED	ДЕРТН ТО		SPECIFIC	TEMPER-	DISSOLVED					
TIME (min)	WATER (ft TOR)	PH (s.u.)	CONDUCTANCE (S / M)	ATURE . (°C)	OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)			
	20.49	7.63	0.351	13-37	0-28	14	2			
<u> </u>	20.30	8.81	0.372	13.49	0.00	0	- 42			
10	20.28	9.05	0.376	13.49	0-00	0	-59			
13	20.30	9.06	0.375	13.77	0.00	0	-64			
	20.20	9.05	0.374	13.77	0.00	0	-64			
25	20.26	9-00	0.37.6	13.80	0.00	G	767			
30	20.30	9-04	3.377	13.83	0.00	0	-70	•		
					<u> </u>			-		
										
					<u> </u>	·	<u> </u>			
							· .			
										
-							·			
						<u>'</u>				
			-			·				
		_		-						
APPROXIMATI	E PURGE RATE:	- 5	END TIME: /	PURGED/	OTAL VOLUME SAMPLED BY:					
WEATHER CO			omfor Che	7.		1 .		1		
			low flow One.		•	it water wa 5:28	sclear. Pur	sta		
			——————————————————————————————————————	4		(* 1-***)				



•								
SITE:		Hercu	les/Jefferson	TUBING DIA	METER:		3/8"	inches
PROJECT N	0.:	01305	.40	D EPTH TO V			20.37	ft TOR
SAMPLING I	DEVICE:	5 Whomi	ursible whal	eximp DEPTH TO I	oth "UMP :		49.87	ft TOR
DATE:		1	13010	! 1	ATER IN LIN	E:	29.5	feet
WELL I.D.:			E-17D	VOLUME O	WATER IN	Line:	0-15	gallons
			· · · · · · · · · · · · · · · · · · ·	 (0.005 gal/f	t for 3/8" tul	oing, 0.0023 ga	l/ft for ¼" tub	ing)×. 16.
							٠	
ELAPSED	DEPTI			SPECIFIC	TEMPER-	DISSOLVED		
TIME	WAI	ER	PH	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX
(min)	(ft T(OR)	(s.u.)	(m) (2m)	(°C)	(ppm)	(NTU)	(mV) :
O	.70	3.72	6-89	0.100	13,76	0.00	MANCE	62
5		6-72	6.87	0-095	14.47		#-L	83.
10) o	・フル・	6-87	0.095	14.65	0.60	7.1	79
15	_20	· 72	6.93	0-097	14.62	0.00	#1	69
20	20	. >1	6.96	0-097	14.61	0.00	440	64
ی	20.	74	6.96	0.098	14.70	0.00	400	63
30	20	・フヱ	6-97	0.097	14.77	0-00	250	61
35	20.	7.1	7.04	0.099	14.69	0.00	180	55
1 .40	λÒ.	71	7.0%	0.100	14.76	- O 0	78	54
45	20.	フン	7.04	0-099	14.75	0.00	177	58
50	20	.74	702	0.098	14.85	0100	7 Z	5-9
								~ .
						,		
						·		
				-				
* L								
		,						
				-			_	
•		J.						
•	10					2.		₹
		-	1			1 22		
•	·			• .	<u> </u>		¥ i	
URGE START	TIME:_	12:1	O PURGI	E END TIME: 🔝	77:00 T	OTAL VOLUMI	PURGED: ~_	6-61 gal
APPROXIMAT	E PURGE	RATE:	50	o <u>ml/min</u>	PURGED	SAMPLED BY	·	
Veather Co	ONDITION	S: _	cold				(4) T	
COMMENTS:		-,1	volume	(4,72) ow	rged prio	r to low ?	a Journie	o Start
ine is			ton Lin	10'05	7			J
19.4		<u> </u>	10/1/ 1/2 1/3/	10/ 100.1/200			47 (10 10) 48 (10 10)	

RUMMINGSITER CONSULTANTS, INC.

						*	•	
SITE:	Hercu	les/Jefferson	TUBING DIA	AMETER:		3/8"	inches	
PROJECT N			ДЕРТН ТО	WATER:		16.48	ft TOR	
SAMPLING)	DEVICE: Submer	sible whale	pund DEPTH TO	eph		63.50	ft TOR	
DATE:		13010	FEET OF W	ATER IN LIN	E:	47.00		
WELL I.D.:		E-8D		F WATER IN	LINE:	0.24	gallons	
		<u> </u>			oing, 0.0023 g			
	·	·			<u></u>			
ELAPSED	ДЕРТН ТО		SPECIFIC	TEMPER-	DISSOLVED	,		
TIME	WATER	PH	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX	
(min)	(ft TOR)	(s.u.)	(&S/m)	(°C)	(ppm)	(NTU)	(mV)	
0	16.67	8.40	0.114	11.73	0.00	150	- 92	
ی	16.65	9.24	0.113	12.41	0.00	120	-115	
10	16.65	9.40	0.114	12-54	0.00	43	-124	
15	16.70	9.47	0-115	12.85	0.00	27	-130	
20	16.68	9.51	0-116.	12.77		0	- 134	
25	16.69	9.55	0.116	12.89	0-00	. 0	-138	
30	16.71	9.56	0.116	12.87	0.00	6	-140	
	•					•		
•								
•							·	
	·							
	·							
<u> </u>								
·								
•-		<u> </u>						
<u> </u>		• •						
				·				
	,		-					
						<u> </u>	· ·	
URGE STAPT	TIME: /4/2	с Ривсе	FND TIME: /	STAC TO	arat Martiner	···	7.04	
PRPOVIMATE PURCE PATE: 500 PURGE END TIME: 15:05 TOTAL VOLUME PURGED: 23.96 gal								
PPROXIMATE PURGE RATE: 500 ml/min PURGED/SAMPLED BY: MAL VEATHER CONDITIONS: COL								
			-7 H	<i>t.</i>	-01-1	WIOD F		
	Start più	ging or	w. Twell vo	Jume (7	52) at 1	14:20.E	<u>A</u>	
ine 1430.								

RUMMINGS RITER CONSULTANTS, INC.

WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

		TIEICU	iles/Jefferson	T ORING DI	AMETEK:		3,8 mone			
PROJECT NO	D.:	01305	5.40	DEPTH TO V		^	6.15 ft TOR			
SAMPLING I	EVICE:	500	WHOLE PU				53.40	ft TOR		
DATE:		/	1 30 104	FEET OF W	ATER IN LIN	E:	47.25	feet		
WELL I.D.:			E-45.0	VOLUME O	F WATER IN	Line:	0.24	f gallons		
		-		(0.005 gal/f	t for 3/8" tul	bing, 0.0023 ga	al/ft for ¼" tu	bing)		
ELAPSED	ДЕРТН ТО			SPECIFIC	TEMPER-	DISSOLVED		,		
TIME (min)	WAT (ft TO		PH (s.u.)	CONDUCTANCE	ATURE (°C)	OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)		
0	32.	70	4.25	1.45	12.34	0.00	OUT OF MANCE	136		
5	33.	8-2_	8.01	1.44	11.11	0.00	11	80		
10	34	.26	8.81	1.21	12.12	0.00	45	- 76		
15	34	.71	9.32	1.21	13.38	0.00	67	-96		
20	35.	50	9.36	1.21	13-17	0.00	450	- 98		
25	35	82	9.33	1.21	12.64	0.00	460	-96		
30	36.	10	9.34	1.21	12.75	0.00	450	-97		
		<u> </u>								
					<u> </u>					
										
										
· -			,							
			-		 					
				•				-		
							•	<u> </u>		
	•		1		ì		<u> </u>	<u> </u>		
	•	,		-				1		
·			,							
·	•									

TO 32.70 FT. THE PURCE KATE WAS KLOUCED TO 200-LIMIN TO MINIMIZE DRANGED.

RUMMINGS ITER CONSULTANTS, INC.

•							1/ (1		
SITE:		Hercu	les/Jefferson	TUBING DIA		<i>У</i> ч"	inches		
PROJECT N	0.:	01305	.40	 DEPTH TO V	WATER:		17,90	ft TOR	
SAMPLING 1	DEVICE:	peris	taltic pu	no DEPTH TO	UMIP:		29,84	ft TOR	
DATE:		12		1	ATER IN LIN	E:	11.94	feet	
WELL I.D.:			E-29	VOLUME O	F WATER IN	LINE:	0.03	gallons	
				 (0.005 gal/f	t for 3/8" tul	oing, 0.0023 ga	al/ft for ¼" tul	bing)	
				· · · · · · · · · · · · · · · · · · ·			· ·	· · · · · · · · · · · · · · · · · · ·	
ELAPSED	DEPTH			SPECIFIC	TEMPER-	DISSOLVED			
TIME	WAT		PH	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX	
(min)	(ft TC	PR)	(s.u.)	(m / cm)	(°C)	(ppm)	(NTU)	(mV)	
0	18	.23	5.57	0.124	12,63	0.49	74	237	
5	18	39	5,95	0.120	13,28	0.00	· &	215	
10	18	52	6.19	0.418	13,06	0.00	0	199	
15	18	57	6,23	0,117	13.03	0,00	\bigcirc	197	
20	18	,60	6.29	0.117	13.03	0.00	Ô	194	
25	18	,63	6,28	0.117	13.00	0.00	δ	193	
36	18	, ,	6.31	0.117	13.03	7.00	O	193	
<i>. N</i> _J		100		O I II	10107		<u> </u>	 	
	. ,								
								1	
-				· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			
<i>*</i>			<u></u>						
3.									
					<u> </u>			· .	
				,					
,									
								 	
				<u> </u>					
			-					<u> </u>	
-								 	
			t		1	I	·	<u></u>	
URGE START	TIME:	13:2	() Purge	END TIME:	3:50 T	OTAL VOLUMI	E PURGED: ~	/62 gal	
urge Start Time: 13', 20 Purge End Time: 13.50 Total Volume Purged: ~ 1.62 gal pproximate Purge Rate: 350 ml/min Purged/Sampled By: MAL									
VEATHER CONDITIONS: 30'S partly doudy									
OMMENDO:	A LLAN.	·		urry cloudy	40	Jugad da	176 ml/	20/10	
OMMENTS:	1 0-1	<u>ر م</u> مميلم	min pu	ging, flow	row rel	<u> </u>	110 1111/17	<u> </u>	
AO LINU	to minimize drawdown.								

RUMMINGS RITER CONSULTANTS, INC.

								٠,	
SITE:	•	Hercu	les/Jefferson		TUBING DIA	AMETER:		Y4"	inches
PROJECT N	o.:	01305	5.40		ДЕРТН ТО	VATER:		17.53	ft TOR
SAMPLING :	DEVICE:	أحس	staltic pu	mD	DEPTH TO Y	OUPTN OMP:		27.00	ft TOR
DATE:		72	1 2 1 6) 4	FEET OF W	ATER IN LIN	E:	9.47	feet
WELL I.D.:			E-48		VOLUME O	F WATER IN	LINE:		_ gallons
	•							al/ft for ¼" tu	
·									
ELAPSED	DEPTH			l	SPECIFIC	TEMPER-	DISSOLVED		
TIME (min)	WAT (ft TC		PH (s.u.)		NDUCTANCE S/ (A)	ATURE (°C)	OXYGEN	TURBIDITY	REDOX
(11111)	1				· ·		(ppm)	(NTU)	(mV)
<u> </u>	11.		4.89		0.302	12,53	0.00	0	260
10	18.0		4.81		0.305		0.00	0	274
15	18		4.65		0.313	14-18	0.00	0	282
20	18.2		4.57		2 320	14.16	0,00	0	285
25	18.2	•	4.58		9.320	14.26	0.00	0	288
30	18.3		4.53		2.319	14 25	0.00	0	286
` .					<u> </u>				
	-								-
			<u> </u>						
					·				,
••••			,			<u>. </u>			
							<u> </u>		
				<u> </u>	······································		<u> </u>		
						*.			
		<u>-</u>							
PPROXIMAT:	E PURGE]	RATE:	20	50 _	ml/min	PURGED/	SAMPLED BY:	EPURGED: ~_ MAL	
OMMEN 19:	7 m L	Ton.	SE FLAFE		AS THE DUCE	10 /	50 mc/m·N	AFTY- 10	MINUTUS

RUMMINGS RITER CONSULTANTS, INC.

SITE:		Hercu	iles/Jefferson	TUBING DL	AMETER:	<u> </u>	/4"	inches
PROJECT N	0.:	01305	5.40	ДЕРТН ТО	Water:		17,26	ft TOR
SAMPLING I	DEVICE:	peris	taltic pur	DEPTH TO	pth Pump:	 	30	ft TOR
DATE:		_ 2	, _ 1,	1 .	ATER IN LIN	E:	/2.74	feet
WELL I.D.:			W-2A	VOLUME O	F WATER IN	LINE:		gallons
•		<u> </u>			•	 bing, 0.0023 ga	<u> </u>	
ELAPSED	DEPTI	T TO	T	SPECIFIC	Tra com	Draggrann		
TIME	WAT		PН	CONDUCTANCE	TEMPER-	DISSOLVED		70
(min)	(ft T		(s.u.)	(a S / m ')	ATURE (°C)	OXYGEN	TURBIDITY (NTU)	/ REDOX
	17.	_	10.04			(ppm)	17 UT 0 F	(mV)
<u> </u>	17.		9.75	0.144	12.39	0.00	71.	-/29
10	17.9		9.70	0.142	13.99	0.00	31	-108
15	17.5		9.66	0 142	13.60	0.00	7	-105
20	/ 7.		9.66	0.142	13.53	0.00	4 :	-100
25	ر ا ح /		9.61	0142	13 49	0.00	7 :	- 53
30	17.5		9.64	0.141	13.50	0.00	0	- 93
35	17.5		9.70	0.141	13.51	0.00	<i>s/.</i>	- 53
					. `	· ;	·	
				•				
	<u>-</u>							
·		·				·		•
	•	1 <u>.</u>	ar .				·	
					,	<u> </u>		
·								
					•			·
,								
						<u> </u>	1	<u> </u>
URGE START	TIME: /	' ታ: ₋	PHRCE	END TIME:	/C'ac To	TAL VOLUME	י - אינוסמים בי	7 7 7 ~.
				o ml/min				
TOMMENTO-	NUITION	5: آساری	rouny /	Coro			·	
OMMENTS:		· · · · · ·	unge R	ATE WAS RE	ouces To	175 261 2	1. J AFTER	10
<u>.</u>	· Mi	VUTES	CE Pray	16 70 MISI	MIZE DAN-	~0c ~~/		<u> </u>

GUMMINGS *ITER*CONSULTANTS, INC.

SITE:		Hercu	les/Jefferson	TUBING DIA	AMETER:	•	1/2"	inches
PROJECT N	0.:	01305	5.40	—— Дертн то V			16.10	ft TOR
SAMPLING I			rund fos si	- / / / to / / to			63.20	ft TOR
DATE:	DETTER.	1	12810	nard	ATER IN LIN		47.10	
					-	-	·	feet
WELL I.D.:			E-61		F WATER IN		1.93	gallons
				(0.005 gal/f	t for 3/8" tu	bing, 0.0023 ga	al/ft for ¼" tu	bing)
ELAPSED	DEPTH			SPECIFIC	TEMPER-	DISSOLVED		
TIME	WAT		PH	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX
(min)	(ft TC		(s.u.)	(5/m)	(°C)	(ppm)	(NTU)	(mV)
5	17.		6.35	93	14.0	12.7	Konce	- 75
	18.0		6.95	90	14.4	.9.4	//	7130
10	18.0		7.11	90	14.5	9.2	//	-146
17	18.0		7.20	91	14.6	8.5	l)	-154
<u>25</u>	18.1		7.33	90	14.8	6.4	11	-165
 3ø	18.1		7.34	90	14.8	6.3	11	- / 70
	18.1	<i>a</i>	7.38	90	148	6.6	11	-173
		*		1				
		·		<u> </u>			 	
				·				· · · · · · · · ·
		· · · · · ·						
· ·								
				,				
			<u></u>		,			
PHRGE START	TIME.	በ።በ	Ривси	END TIME:	0.40 T	DTAT VOLUME	Piden	396 mal
APPROXIMAT:			· · · · · · · · · · · · · · · · · ·) m1/m:-	Drmcen	CAMPIE TOUGHI	ELUNGED. <u>~</u>	J' 1 5 gal
•			١ م .	ml/min	L OKCED!	OAIMPLED DY	·	·
		s:	very col	d, windy				
COMMENTS:				•			·	
<i>j</i>				<u> </u>				

GUMMINGS *TTER*CONSULTANTS, INC

SITE: Hercules/Jefferson			TUBING DIA	METER:		4	inches			
PROJECT N	0.:	01305	•	ДЕРТН ТО 			18,71	ft TOR		
SAMPLING 1	DEVICE:	Grun	Pum 10Fes 500	DEPTH TO I			35.00	ft TOR		
DATE:		/	1261 0	FEET OF W	ATER IN LIN	E:	16.20	feet		
WELL I.D.:			E-12	VOLUME O	VOLUME OF WATER IN LINE: 0.67 gallons					
				(0.005 gal/f	t for 3/8" tul	bing, 0.0023 ga	al/ft for ¼" tul			
ELAPSED TIME (min)	DEPTH WAT (ft TO	ER	PH (s.u.)	SPECIFIC CONDUCTANCE () / M)	TEMPER- ATURE (°C)	DISSOLVED OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)		
0	18.	71	4,60	52	[2,4	15.1	108	280		
5	20.	40	4.53	47	155	108	31.9	289		
10	20.	47	4.53	51	15.8	9-6	104	268		
15	20	. 49	4.61	50	16.3	9.4	90.8	240		
20	20.		4.70	50	17.1	7.6	65.9	217		
25	20		4.77	50	16.6	7.4	67.6	209		
30	20		· 4 ·ファ	50	16.6	7.5	647	202		
35	20		4.81	50	16.3	6.2	74.8	198		
40	20		7.86	50	169	6.0	74.0	190		
45	20	- تي ک	4.82	49	1 >. 3	6.0	753	_/93		
										
										
										
					,					
					<u> </u>					
APPROXIMAT WEATHER CO	E PURGE	Rate: s:	5	,·	Purged	/SAMPLED BY	:	ء د		
JOIMMEN 18:			· · · · · · · · · · · · · · · · · · ·			<u> </u>	· · · · · · · · · · · · · · · · · · ·	 -		



SITE:		Hercu	Hercules/Jefferson TUBING DIAMETER:				1/2	inches
PROJECT N	0.:	01305	.40	ДЕРТН ТО У	VATER:		24.00	ft TOR
SAMPLING 3	DEVICE:	Gran	d for sub	DEPTH TO	OMP:		80	ft TOR
DATE:		1	12610	4 FEET OF W	ATER IN LIN	E:	56	feet
WELL I.D.:			E-63	VOLUME O	F WATER IN	Line:	2.30	gallons
				(0.005 gal/f	t for 3/8" tul	bing, 0.0023 g	al/ft for ¼" tul	oing)
ELAPSED	DEPTH	I TO		SPECIFIC TEMPER- DISSOLVI				
TIME (min)	WAT (ft TC		PH (s.u.)	CONDUCTANCE (ゅう / m)	ATURE (°C)	OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)
0	24.		7,29	42	13.7	13.5	out of	-133
S		1.07	7.42	42	17.3	8.8	11	-140
10	2.4.	08	7.41	42	16.4.	5.4	11	-179
15	24	.09	7.41	42 ·	16.3	5.3	1]	-184
20		-11	7,46	42	16.2	6.5	17	-187
25	24	.13	7.50	42	15.7	0.0	/ /	-187
30.	كال	<u>.08</u>	7,41	43	15.4	0.0	//	-174
35	9-1	80,1	7,48	43	15.8	0,0	- 11	-169
40	24	1.08	7,49	43	16,4	0,0	! !!	-168
i			 				_	
	-	· a ••-						
					•		·	
				<u>·-</u>				
-					<u> </u>			
			· .					
			,					
	-							
					·			
PPROXIMAT	E PURGE	RATE:	5	EEND TIME: / Omelian	PURGED			
COMMENTS:				· · ·			<u> </u>	
<u>į </u>							<u>.</u>	
								•



SITE:	Hera	ules Jeffer	SON TUBING DIA	METER:	. <u></u>	Ya."	inches		
PROJECT NO	D:: 017	305,40	ДЕРТҢ,ТО Л	WĄŢER:	. (8,86	ft TOR		
SAMPLING I	-	ultos sub p	DEPTH TO	pth TUMP:		57.30	ft TOR		
DATE:	. \	12710	11	ATER IN LIN	E:	48.44	feet		
WELL I.D.:		E-59	VOLUME O	F WATER IN	Line:	1.99	gallons		
	· · · · 		—— (0.005 gal/f	t for 3/8" tul	bing, 0.0023 g	al/ft for ¼" tul	bing)		
			·	,		1			
ELAPSED TIME (min)	DEPTH TO WATER (ft TOR)	PH (s.u.)	SPECIFIC CONDUCTANCE (5 th /)	TEMPER- ATURE (°C)	DISSOLVED OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)		
0	8.97	6.05	FF	14.0	9.3	OUT OF	55		
5	8.97	6.80	93	14.6	7.4	,,	/~		
10	8.97	7.03	93	14.5	6.5	11	-10		
15	8.98	7.07	92	159	5.7	. 15	-14		
20	8.95	7-11	92	14.0	5.2	11	-21		
25	8.98	7-14	92	16.0	· 7.5.	,,	- 29		
30	<i>5.98</i>	7.17	92	16.0	3.9	11	36		
35	9.00	7.19	92	16:1	3.6	' '	39		
40	9.02	7.21	92	16.0	3.5	1 /	-41		
45	9.01.	7 22	91	16.0	3.3	1 1	-40'		
	<u> </u>					ļ			
		-				ļ			
	· _	ļ				·	<u> </u>		
· · · ·			-	1		 			
 .	<u> </u>					-	<u> </u>		
· .	 				<u> </u>				
<u> </u>	-	-			-		-		
	<u>.</u>				-		<u> </u>		
-	-	-					· ·		
			<u> </u>						
		<u> </u>	<u> </u>	<u> </u>					
PURGE START	Purge Start Time: 8:30 Purge End Time: 9:22 Total Volume Purged: ~ 5 9 7 gal								
APPROXIMAT	e Purge Rate:	=	ml/min	Purged	/SAMPLED BY	1: MAL			
WEATHER CO	ONDITIONS:		coldiay						
COMMENTS:	Measured	well d	10th 57.3	<i>SO</i>		•			
	COMMENTS: Measured well depth 57,30								

CUMMINGS RITERCONSULTANTS, INC.

٠.	,								
SITE:	Herci	ıles/Jefferson	TUBING DIA	AMETER:		1/2.	inches		
PROJECT N	O.: 0130	5.40	DEPTH TO			13,97	ft TOR		
SAMPLING I	DEVICE: حرير	ofee fu	DEPTH TO	PUMP:		64.17	ft TOR		
DATE:	- <u></u> [127/04		FEET OF WATER IN LINE: 50.20					
WELL I.D.:		E-60	· Volume o	F WATER IN	LINE:	2,06			
		 -			bing, 0.0023 ga				
			(0.000 5411		5				
ELAPSED	ДЕРТН ТО	-77	SPECIFIC	TEMPER-	DISSOLVED				
TIME (min)	WATER (ft TOR)	PH (s.u.)	CONDUCTANCE (March 12 March 2	ATURE (°C)	OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)		
0	13.99	7.55	8-2	15.2	10.5	QUT 02 2000	- 7 °		
	13.94	7.16	87	16.1	5.1	./ 1	- 94		
. 10	13.98	721	86	16.3	4-1	/ 1	-101		
15	13,99	7,25	85	16,2	3,3	7/	-107		
20	17.99	7.27	85	16.3	3-1	1)	-109		
25	13,99	730	84	16.2	2.9	, ,	-/1/		
30	13.55	7.31	84	16.2	27	11 .	-/13:		
· 35	<i>13.9</i> 9	7 32	83	16.1	27	/)	-115		
, /									
• •									
			<u></u>						
				· ·	<u> </u>				
					·		•		
- (
						·			
·····									
		<u> </u>				 			
		<u> </u>		1	<u> </u>		<u> </u>		
PPROXIMAT	E PURGE RATE:		EEND TIME: / SOO ml/min Sy, second	PURGED	/SAMPLED BY:	: MAL			
OMMENTS:	MEasu	red we	11 oup m	0111			 -,		
:	. Na	· Lucaso	- MACCONT	a i gaman	, ,				



SITE:	Hercu	les/Jefferson	TUBING DIA	AMETER:		1/2" inches		
PROJECT N	O.: 01305	.40	—— Дертн то ч	Water:		22.03	ft TOR	
SAMPLING 1	DEVICE: Grw	ndfossub pi	well DEPTH TO	PUMP:		68,99	ft TOR	
DATE:	. 1	127/0	٧	ATER IN LIN	E:	46.96	feet	
WELL I.D.:		E-13D	VOLUME O	F WATER IN	LINE:	1-93	gallons	
			 (0.005 gal/i	t for 3/8" tu	bing, 0.0023 g	al/ft for ¼" tul		
ELAPSED	ДЕРТН ТО	· · · · · · · · · · · · · · · · · · ·	SPECIFIC	TEMPER-	Dragary			
TIME (min)	WATER (ft TOR)	PH (s.u.)	CONDUCTANCE (MS/M)	ATURE (°C)	DISSOLVED OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)	
0	22.20	7.70	81	13.7	14.0	OUT OF MANCE	-53	
	22.14	7,43	85	15.2.	7.5	11	-65	
10	22.17	738	86	152	6.0	11	-69	
20	22.18	フ. 3ヵ	8-0	155	5. 9	/ 1	-67	
25	2219	7.43	FC	15.6	5.8	, ,	-64	
30	22.19	7.44	FC	15.8	5.4	11	-62	
			:					
								
	<u> </u>			<u></u>				
			\ 					
					<u> </u>			
· ·								
., <u></u>			<u></u>					
		·						
			END TIME:					
			ml/min		SAMPLED BY:		7/6	
			rainy					
COMMENTS:	Me	rasured we	ell depth be Ls present	3,99	· .			
	Λ	10 LNAP	Ls present				<u></u>	

GUMMINGS *ITER*CONSULTANTS, INC.

		Ψ.				,	
SITE:	Hercu	les/Jefferson	TUBING DIA	METER:		4	inches
PROJECT N	O.: 01305	.40	ДЕРТН ТО У	VATER:	•	5,85	ft TOR
SAMPLING 1	DEVICE: necist	altic nur	ng DEPTH TO I	WMP:		26.38	ft TOR
DATE:	1	12710	1 -	ATER IN LIN	E:	20.53	feet
WELL I.D.;	- F-40		VOLUME O	F WATER IN	LINE:	0.05	gallons
	· ·				bing, 0.0023 g:		· · · · · · · · · · · · · · · · · · ·
			(01000 Ball)		21.ng, 010020 g.		J
ELAPSED	ДЕРТН ТО	_	SPECIFIC	TEMPER-	DISSOLVED		
TIME	WATER	PH	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX
(min)	(ft TOR)	(s.u.)	(MS/m)	(°C)	(ppm)	(NTU)	(mV)
0	7.48	8.13	<i>73</i>	5.4	19.00	Romes	138
5	11.64	8.51.	フフ	<u> </u>	17.30	フフム	136
10	12.10	8.60	74	7.0	14.0	684	136
15	12.94	8.36	76	8.8	/2.3	771	138
20	14.20	7.99	フヱ	9.9	120	RANGE	141
25	14.92	7.81	ファ	. 8.7	12-7	PAJEC	142
30,	14.39	7.84	75	. 8.5	12.3	RANCE	142
75	14.54	7.91	76	7.8	12.7	RINCI	141.
, 					İ		
					<u> </u>		-4.
							, ,
	·						
				·-			
				· · · · · · · · · · · · · · · · · · ·			
				<u> </u>			
	<u> </u>						
			 _				
			· -				
			•	-			
			*		-		
APPROXIMATI		25	END TIME:				
VEATHER CO	NDITIONS:	<u>cola,</u>	snow	· · · · · · · · · · · · · · · · · · ·			
OMMENTS:	/+ F T & T	3 Mili	THE OF PURC TIME TO DANW.	CAL THE	e read R.	ire has R	EDULIO
10 10	O MU/MIJ	TO MIL	in.Ze DANW	000000	I THE MAR	THE WAS THE	LNARL
WAS FAR	, vest , 100	7 A 10 W E	,, 774C	MEASUREO	well Her	114 26	38 FT.

CUMMINGS RITERCONSULTANTS, INC.

SITE: Hercules/Jefferson TUBING DIAMETER: 3/8 " inches										
PROJECT N	O.: 01305	5.40	ДЕРТН ТО			18.30	ft TOR			
SAMPLING 1	DEVICE: Submur	sible whale r	DEPTH TO	ipth P ump:		60.10	ft TOR			
DATE:	2	I	. [ATER IN LIN	E: .	41,8	feet			
WELL I.D.:		E-47D		F WATER IN	Line:	0.21	gallons			
p		<u></u>		•	bing, 0.0023 g					
70										
ELAPSED TIME	DEPTH TO	-TT	SPECIFIC CONDUCTANCE	TEMPER-	DISSOLVED	·				
(min)	WATER (ft TOR)	PH	(ps / M)	ATURE	OXYGEN	TURBIDITY	REDOX			
	-	(s.u.)		(°C)	(ppm)	(NTU)	(mV)			
<i>S</i>	18.42	7.21 9.08	0.147.	12.79		130	6			
10	18.40		0.154	13.77	. 0.00	49	-69			
· · · · · · · · · · · · · · · · · · ·	18.42	9.24	0-154		0.00	//	-81			
<u>/5</u> 20	18.42	9.49	0.154	13.72	0.00	10	- 97 - 103			
25	18 44	9.51	0.152		0.00	0				
30	18.45	.9.54	0 150	13.75	0.00	0	-106			
20	70.73	./ . 2 7	0 730	13.77	0 00	-	-110			
							<u> </u>			
	·						<u> </u>			
	·	·								
· · · · · · · · · · · · · · · · · · ·			· ·	·	<u> </u>	<u> </u>				
	<u> </u>			· · · · · ·			·			
·										
		· · · · · · · · · · · · · · · · · · ·								
		· · · · · · · · · · · · · · · · · · ·								
	· · · · · · · · · · · · · · · · · · ·					-				
				<u> </u>			 			
							 			
· · - · ·				<u> </u>						
			<u>'</u>	<u> </u>	<u>l.</u>	<u> </u>	1			
URGE START	TIME: 7:15	Purge	END TIME:	7:45 Ta	TAL VOLUMB	Princen. ~	7 97 mal			
PPPOVIMATI	Plince Darre	~~~~~	ml/min	Drin one /	O LEADT NO DO	MAI	J./♥ gal			
			- m/min	FURGED/	oampled by:					
VEATHER CONDITIONS: COLD TO CO										
ONINTENTS:	<u>ure well voll</u>	ime (2)	r). Degin 1	tradiua o	ne well vol	urre, pt 4%	UD. End -			
ime, 9:09. Only purped 5 gallons water was clear. (4" in usu)										

RUMMINGS RITERCONSULTANTS, INC.

						•	•	
SITE:		Hercu	iles/Jefferson	TUBING DIA	AMETER:		4	inches
PROJECT N	0.:	01305	5.40	 Дертн то	Yater:		7,99	ft TOR
SAMPLING 1	DEVICE:	muci	staltic a) اعدا	tepth Tump:		24,88	ft TOR
DATE:		2	1410	. J	ATER IN LIN	E:	16.89	feet
WELL I.D.:			MW-FI	 .	F WATER IN		0.04	gallons
		<u> </u>	1 100		•		ıl/ft for ¼" tul	
				(0.005 gan1	t 10x 5/6 tu	omg, 0.0023 g		Jing)
ELAPSED	DEPTE	I TO		SPECIFIC	TEMPER-	DISSOLVED		
TIME	WAT	ER	· PH	CONDUCTANCE	ATURE	Oxygen	TURBIDITY	REDOX
(min)	(ft TC	OR)	(s.u.)	(mS/m)	(°C)	(ppm)	(NTU)	(mV)
0	8.	37	6.2	0.18	13.8	3,53	93	317
5	<i>B</i> '	44	5,9	0.18	13.6	1.46	<i>6</i> 5	305
10	<u> </u>	5ľ	5.9	0.18	13.9	0.82	51	295
15	ኤ	57	6.0	0.18	14.6	1,23	44	291
50	D	59	6.0	0.18	13.8	1.25	34	284
25	D	dd.	6.1	0.18	13.8	1.19	33	279
30		-62	6.1	0.18	13.9	1.18	33	277
<u> </u>								
		•						
						•		
	<u></u>							
								
						<u> </u>		
			<u>'</u>					
			,			<u> </u>		
:	_							
								
						 		
URGE START APPROXIMATI VEATHER CO	E PURGE	Rate:	25	EEND TIME: / ml/min	Purged/			1-98 gal
COMMENTS:								
, , , , , , , , , , , , , , , , , , , ,		···	<u> </u>					
								

GUMMINGS *ITER*CONSULTANTS, INC.

OIIE:		Heica	res/Jerrerson		21.0	inches		
PROJECT N	o.:	01305	5.40		77.33	ft TOR		
SAMPLING]	DEVICE:	WHALC	suns (s	DEPTH TO	OCPTN PUMP:		55.60	ft TOR
DATE:				→ FEET OF W	ATER IN LIN	E:	38.27	feet
WELL I.D.:		E-	28-0	VOLUME O	F WATER IN	LINE:	0.19	gallons
				 (0.005 gal/i	ft for 3/8" tu	bing, 0.0023 g	al/ft for ¼" tu	bing)
						1 F Len V	Parase - 6	.12 eac (2).
ELAPSED	DEPTE	I TO		SPECIFIC	TEMPER-	DISSOLVED		
TIME	WAT	ER	Нq	CONDUCTANCE	ATURE	Oxygen	TURBIDITY	REDOX
(min)	(ft TC	OR)	(s.u.)	(5/m)	(°C)	(ppm)	(NTU)	(mV)
O	17.	59	6.87	0.15	12.5	1.56	300	4
5	17.	53	7.46	0.15	13.7	0.92	480	- 47
10	17.	53	7.58	0.15	14.0	0.74	280	- 77
15	17.3	4	7.51	0.15	14.2	0.73	240	-76
20	17.5	3	7.56	0-15	14.2	0.72	210	- 90
25	17.5	3	7.66	0-17	14.2	0.53	130	-105
30	17.5	-3	7.65	0.14	14.2	0.40	89	-109
35	17.53 7.6			0.14	142	0.42	65	-115
40	17.	53	7.68	. 3.14	14.2	0.40	69.	-117
45	17.3	14	7.69	0.14	14.2	0.38	70	- /20
		······						
				- 11-111-111				
					ļ			
						. 4_		
		·				· ·	• •	
			·					
							, ,	
			-					
PURGE START	TIME:	8:50	Purge	E END TIME:	<i>9:35</i> To	OTAL VOLUMI	e Purged: 🗻	5.97 gal
APPROXIMAT	E PURGE	Rate:	5	oo ml/min	PURGED	/Sampled By	:	<u></u>
WEATHER CO	NDITIONS	S:	<u> </u>	مے	1000 Penny	conf		
COMMENTS:	Deens	· dus	circ 1"	were week	7 Vocume	8:4	1014	···
	END	Dun	4144 / 14	were V	evac at	- 6.47.		·
	<i>/</i>	•	· · · · · · · · · · · · · · · · · · ·		•	4		

RUMMINGS *ITER*CONSULTANTS, INC.

PROJECT N	0.:	01305	.40		ДЕРТН ТО	WATER:		19	.08	ft TOR		
Sampling 1	DEVICE:	Pe-15	teltic p	קרע	DEPTH TO PUMP:			32.00		ft TOR		
DATE:			12910	4	FEET OF WATER IN LINE:			17.	12	fee		
WELL I.D.:		E	E-14		VOLUME O	VOLUME OF WATER IN LINE: 0.030						
((0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for $\frac{1}{4}$ " tubing)							
ELAPSED TIME (min)	DEPTH WAT (ft TO	ER	PH (s.u.)	Co	SPECIFIC NDUCTANCE 5 / m)	TEMPER- ATURE (°C)	DISSON OXYO	GEN	TURBIDITY (NTU)	REDOX (mV)		
5	19:0		5.45		62	9.4	9.6		0	269		
10	19-10		5.30		6 Z	10,4	6.6.		0	287		
15	19.11	'	5,14		68	10.5	6.4		0	286		
3 <i>0</i>	19-4		5.10		61.	10.6	5.7		0	287		
35	19,11		5.10	1	- 1	10.6	3,7		0	287		
36	19.12	2	5:09	1 4	, 1	10.6	5.7		0	287		
		: 1		-			ļ	· · · · · ·				
				 		-		·				
	<u> </u>								<u> </u>			



SITE:	•	Herci	ıles/Jefferson	TUBING DI	METED.		1,	4	inches	
PROJECT N	.	0130			•	•		<u>.</u>	ft TOR	
						•	as.3/			
SAMPLING I	DEVICE:	Peri	stultic pu	<u>-ρ</u> DEPTH TO I	•	·	40	•	ft TOR	
DATE:			12710	$\frac{\varphi}{}$ FEET OF W	FEET OF WATER IN LINE: 14.69 f					
WELL I.D.:		E	23	VOLUME OF	F WATER IN	LINE:	0.0	734	gallons	
				(0.005 gal/f	t for 3/8" tu	bing, 0.0	0023 g	al/ft for ¼" tu	bing)	
ELAPSED	DEPT	OTF	<u> </u>	SPECIFIC	TEMPER-	Disso	LVED	· · ·		
TIME	WAT		PН	CONDUCTANCE	ł I		GEN	TURBIDITY	REDOX	
(min)	(ft T	OR)	(s.u.)	(5/m)	_(°C)	(pp	m)	(NTU)	(mV)	
5	25.3	4	5.03	69.4	6.82	0.00)	0	208	
10	a5.30	1	4.71	69.7	7.34	0.0	0	0	229	
15	92.32		4.28	69.9	7.64	0.0		0	237	
a 0	25.35		4.87	69.9	7.70	0,0		0	238	
as	25.35		4.28	70.1	7.70	0.0	0	0	238	
30	25.36		4,28	70.1	7.71	0.00		0	237	
35	25.36		4,27	70.0	7.71	0.0	0	0	239	
· · · · · · · · · · · · · · · · · · ·						ļ				
		·					·			
										
	<u> </u>					 		ļ		
		-			•			-		
<u> </u>				· · · · · · · · · · · · · · · · · · ·		 	· .			
			•							
										
			'							
						 				
				 	 	-	· · · · ·	<u>, , , , , , , , , , , , , , , , , , , </u>	 	
						 				
,						 				
APPROXIMAT	E PURGE	RATE:	120	E END TIME: <u> [</u> ml/min	PURGED	SAMPL	ED BY			
COMMENTS:	1.41	12014	= 44.9 5					,		
							•	***	·	

RUMMINGSITER CONSULTANTS, INC.

					•					
SITE:		Hercu	les/Jefferson		TUBING DL	AMETER:			1/4	inches
PROJECT N	o.:	01305	5.40		ДЕРТН ТО	Water:		15	7.20	ft TOR
SAMPLING:	DEVICE:	peris	taltic pa	در م	ДЕРТН ТО 3	PUMP:	,	<u> </u>		ft TOR
DATE:		<u>' 1</u>	13010	4	FEET OF W	ATER IN LIN	E:	1 4	1.80	feet
WELL I.D.:		E	-24		VOLUME O	F WATER IN	LINE:	0	.034	gallons
					(0.005 gal/f	t for 3/8" tu	bing, 0.0		al/ft for ¼" tu	bing)
ELAPSED TIME (min)	DEPTI WAT (ft TO	ER	PH (s.u.)		SPECIFIC ONDUCTANCE \[\qquad \qua	TEMPER- ATURE (°C)	DISSO OXY (pp	GEN	TURBIDITY (NTU)	REDOX (mV)
5	17.25		5.22		93	10.3	8.	5	U	269
10	17.24		5.28	93		17-3	5.0	!	0	280
15	17.24				98	12.5	4.0		0	286
90	17.83		5.37	9	16	12.9	3.5		0	285
95	17.03		5.40	_	77	12.9	3.4		0	285
30	17.23		5.40			17-9	3-4		0.	285
35.	17.23		3.71	9	6	19.8	3.4		0	285
`	·	* .		 			<u> </u>			
/				ļ. —		:				
			<u> </u>				<u> </u>			
· · · · · · · · · · · · · · · · · · ·					-		,			
-						-		-		
<u>-</u>										
		_	, , , , , , , , , , , , , , , , , , ,	<u> </u>						,
	:			ļ						
				_			ļ	<u> </u>		
			· · · · · · · · · · · · · · · · · · ·					· · · ·		<u> </u>
· .				<u> </u>						
PPROXIMAT EATHER CO	E PURGE :	RATE:	150 Cold [8 41		PURGED	/SAMPL	ED BY:	E PURGED: ~	



Hercules/Jefferson

01305.40

SITE:

PROJECT No.:

WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

inches ft TOR

•	-		(0.005 gal/i	it for 3/8" tu	bing, 0.0023 ga	al/it for ¼" tu	oing) .
CLAPSED TIME (min)	DEPTH TO WATER (ff TOR)	PH (s.u.)	SPECIFIC CONDUCTANCE	TEMPER- ATURE (°C)	DISSOLVED OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)
5	14.55	5.20	0.31	13.10	4.1	above detection	-57
10	14.56	5.22	0.32	14.21	6.1	610.0	-68
15-	14.56	5, 24	0.32	14.40	5-6	110.0	- 75
20	14.56	5. az	0.32	14.41	5.1	0	-81
95	14.57	5.22	0.32	14.40	4.7	.0	-87
30	14.57	5.23	0,32	14,40	4,6	U	-87
'5	14.57	5.23	0.32	14.40	4.6	0	-88
							<u>.</u>
		. <u>.</u> .					
		,					
·	ļ <u></u>						
						-	_
		3					
			·				
			6,				
GE STAR	г Тіме: <u> 10а</u> \$	Purgi	E END TIME: _/	100 T		e Purged: ~	1,39
IRGE STAR	г Тіме: <u> 10</u> 25		E END TIME: _/	(00 T		E PURGED: ∼	(,39

TUBING DIAMETER:

DEPTH TO WATER:

RUMMINGS TITER CONSULTANTS, INC.

		2 0, 211	.							•
SITE:		Hercu	les/Jefferson		TUBING DI	AMETER:		1/	4	inches
PROJECT N	o.:	01305	5.40	:	ДЕРТН ТО '	Water:		3.	50	ft TOR
SAMPLING)	DEVICE:	per	25+1/-c	0 in -17 -	ДЕРТН ТО	PUMP:	,	9		ft TOR
DATE:		<u> </u>	1210	9	FEET OF WATER IN LINE:				٠\$.	feet
WELL I.D.:		E -) 4 VOLUME OF WATER IN LINE: 0							7.013	gallons
					(0.005 gal/i	ft for 3/8" tu	bing, 0.0		al/ft for ¼" tul	oing)
ELAPSED TIME (min)	DEPTH WATI (ft TC	ER	PH (s.u.)	CON	PECIFIC DUCTANCE / ~)	TEMPER- ATURE (°C)	DISSO OXY (pp	GEN	TURBIDITY (NTU)	REDOX (mV)
5	3-52		2.34	1.	. 1	7.0	14.8	,	about dehota	88
10	3-52		a-88	1	- 9	10.6	14,8	<u> </u>	830.	88
13	3./d		2-79	1.	. 9	11-7	13,	7	110	85
3 a ·	3-53		2.74	1.	1 .	19.3	10,	£	0	84
9 }	3.53		2.74	1-	1	12.3	10,2	3	0	84
30	3.53		2-74	1.	1	10.2	10,7	7	0	84
· · · · · · · · · · · · · · · · · · ·			<u> </u>				<u> </u>			
·			<u> </u>		-		<u> </u>			
<u>·</u>			·				<u> </u>		-	
							 			
	<u> </u>			-						
						<u> </u>				
·				-						
					-					
						,				
						·				
	<u> </u>	ļ		<u> </u>			1			
URGE START PPROXIMATI VEATHER CO	E PURGE I	RATE:	150 cl /ou	1600+5	ml/min	PURGED	/SAMPLI	ED BY:	C PURGED: ~!	.19 gal
OMMENTS:	1074	A-77	4 = 7.	65	f+-+-r					

RUMMINGS PITER CONSULTANTS, INC.

SITE:	Hercules/Jefferson				TUBING DI	AMETER:	_	14		inches
PROJECT N	o .:	01305.40			DEPTH TO WATER:			7.85		ft TOR
SAMPLING]	SAMPLING DEVICE: purstille goop			ДЕРТН ТО РИМР:				27 ft		
DATE:	TE: 1 /27 / 0'Y			FEET OF WATER IN LINE:				19.15		
WELL I.D.:	WELL I.D.: E - 3 (VOLUME O	F WATER IN	LINE:	0	.044	gallons
					(0.005 gal/i	ft for 3/8" tu	bing, 0.0	023 ga	al/ft for ¼" tu	bing)
ELAPSED TIME (min)	DEPTH WAT (ft TO	ER	PH (s.u.)	1	SPECIFIC NDUCTANCE (5 / ~)	TEMPER- ATURE (°C)	DISSOI OXYO (ppi	GEN	TURBIDITY (NTU)	REDOX (mV)

ELAPSED .	ДЕРТН ТО		SPECIFIC	TEMPER-	DISSOLVED		
TIME	WATER	PH	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX
(min)	(ft TOR)	(s.u.)	(5/~)	(°C)	(ppm)	(NTU)	(mV)
3	17.851	11.84	0.173	10.74	0.00	abore defection	-254
6	17.43.	10.61	0-167	10,93	0.00	211	-262
9	7-93	12.34	0.150	11.19	-0.00	1110	- a 83
12	7.94	12,08	0.134	11.65	0.00	490	-283
15	7-93'	12,11,	0.130.	12.12	0.00	340	-279
18	7,91	19.38	0.134	11-01	0.00	250	-301
21	7-91	12.45	0.134	10.65	0.00	190	-307
24	7.91	12.46	0.134	10.64	0-00	190	-309
a7	7.41	12.46	0-134	10.64	0.00	190	-309
30	7,91	12.45	0-134	10.65	0.00	170	-287
33 .	7.91	12.44	0.133	10.64	0.00	120	-287
36	7.91	12.44	0.139	10.64	0,00	120	-307
39	7-91	12.45	0.134	10.63	0.00	120	-307
42	7.11	12.45	0.134	10,63	0.60	120	-307
45	7.91	12.45	0-134	10.64	0.60	120	-307
		<u> </u>					
							<u></u>
				,			
							,

Purge Start Time: <u>0 830</u> -	PURGE END TIME: 0915	TOTAL VOLUME P	URGED: ~ 1. 43	gal
APPROXIMATE PURGE RATE:	a o ml/min Pure	GED/SAMPLED BY: _	CGK	
WEATHER CONDITIONS:	1 / overcost			
COMMENTS: Strong suffer a de	r I NO LNAPL present 17	me//		
,			•	•

GUMMINGS ITERCONSULTANTS, INC.

WELL PURGING RECORD LOW-FLOW SAMPLING METHOD

SITE:			les/Jefferson		TUBING DIA		-		/4	inches
PROJECT N	0.;	01305	.40		DEPTH TO	WATER:	-	7	.56	ft TOR
SAMPLING 1	DEVICE:	pe-	15 to the	0 6 -p	DEPTH TO	PUMP:	_	30) 	ft TOR
DATE:	•		127 109			ATER IN LIN	E: _	Эə	.44	feet
WELL I.D.:		<u> </u>	33		VOLUME O	F WATER IN	LINE:	0	.052	gallons
	•				(0.005 gal/i	ft for 3/8" tu	bing, 0.0	023 ga	al/ft for ¼" tu	bing)
ELAPSED	DEPTH				SPECIFIC	TEMPER-	Dissoi	VED		<u>.</u>
TIME (min)	WAT		PH (s.u.)		NDUCTANCE	ATURE (°C)	Охус (ррі		TURBIDITY (NTU)	REDOX (mV)
5	7.56		9-61	0.	278	10-11	0.00		150	-139
10	7,56		266	 	275	9,91	0.00		140	-140
15	7.56		9.54	0	.387	9.86	0.00	2	310	-128
a •	7.56		9.49		399	9.84	0.00	2	300	-115
a s	7.56		9.17	+	.560	10.06	0.00		300	-92
30	7.56		8.73	0.	886	10.64	0.00		410	-61
35	7.56	•	8.72	_	959	11.01	0,83		410	-59
40	7.56		8.67		.981	11-88	2.14	<u>-</u>	410	- 53
45.	7,56		8.64		.05	12.56	3.82		410	-50
50 .	7,50:		8.64	 	,04	12.56	3.84		410	-49
55	7.56	.	8.65		,04	12.57	3.84		410	-50
60	7,56		8.65	L.	04	12.57	3,83		410	-50
	·									
<u>.</u>			<u></u>	<u> </u>						
	·	-								
· · · · · ·			<u>-</u>	-			-			<u> </u>
		-		+					 	

WEATHER CONDITIONS: cold/rain.



	ules/Jefferson	TUBING DIA			<u> </u>	inches
		—— D		W		ft TOR
DEVICE: pt/		/		,		ft TOR
	19810	y FEET OF W	ATER IN LIN	E:	1.41	feet
_ E-	35	VOLUME OF	F WATER IN	Line: 0	.026	gallons
	, '	(0.005 gal/f	t for 3/8" tu	bing, 0.0023 g	al/ft for ¼" tu	bing)
ДЕРТН ТО		Specific	TEMPER-	DISSOLVED		
		1	ATURE	OXYGEN	TURBIDITY	REDOX
			(°C)	(ppm)	(NTU)	(mV)
	6.61		8.23	0.00	0	122
	7.48	0.094	8,36	0.00	0	65
	8.00	0.094	8.23	0,00	0	27
10.50	8.17	0.095	8.23	0.00	0	10
10.50	8.36	0.024	8.24	0.00	0	4
10.50	8-40	0.094	8.49	0.00	0	-8
10.51	8.39		8.48	0.00	0	- 9
10.51	8.40	0.094	8.49	0.00	0	-10
10.51	8.40	0.093	8.49	0.00	0	-10
					•	
				<u> </u>	1	
			į		i	
	DEVICE:	DEVICE:	DEVICE:	DEVICE:	DEVICE:	DEVICE:

RUMMINGS ITER CONSULTANTS, INC.

, ·		,			•					
SITE:		Негси	les/Jefferson		TUBING DL	AMETER:	•		1/4	inches
PROJECT N	o.:	01305	5.40		ДЕРТН ТО	WATER:		10	1.16	ft TOR
SAMPLING 3	DEVICE:	pen	staltic pu	P	DEPTH TO	PUMP:		as	•	ft TOR
DATE:		' l	12810	4	FEET OF W	ATER IN LIN	E:	10	7.84	feet
WELL I.D.:		E	-37		VOLUME O	F WATER IN	LINE:		0 25	gallons
				·	(0.005 gal/i	ft for 3/8" tu	bing, 0.	0023 g	al/ft for ¼" tu	bing)
ELAPSED	DEPTE	OT			SPECIFIC	TEMPER-	Disso	LVED	[
TIME	WAT	ER	PН		NDUCTANCE	ATURE	OXY		TURBIDITY	REDOX
(min)	(ft TC	PR)	(s.u.)	(5 / 10)	(°C)	(pp	m)	(NTU)	(mV)
	14.27		5.43	0.	015	12.05	0.00	2	above, defection	222
()	14.20		4.95	0.	089	11.76	0.00	·		268
15	14-19		5,02	0	orl	19.13	0.00		11	269
30	14.19	<u>'</u>	5.11		091	12.26	0.00	7	11	268
25	14.19		5,23	8	9.5	12.27	0.0	0	310	261
30	14/19		5.24	8	9.6	13.26	0.0		0	262
32	14.18		5.25	8	9.5	12.27	0,0	_	0	262
40	1418		5.24	9.	1.5	12.27	0.0		0	262
		:	·	ļ						
	•			ļ	•		<u> </u>			
						· · ·	ļ			
			<u> </u>			,	ļ		·	
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,									
					· · · · · · · · · · · · · · · · · · ·					
										`
		-	<u> </u>				ļ <u>.</u>			
							-			
						· ·				
									<u> </u>	
							-		<u> </u>	
							 			
	E PURGE 1	RATE:	150		ml/min	PURGED	/SAMPL	ED BY:	E PURGED: <u>~</u>	
OMMENTS:	70+11 day	14 = 2	6.24 41-10	r						



SITE:	٠	TT	-1/T- <i>CC</i>		Thermone as the			1/		
PROJECT N			les/Jefferson		TUBING DL		-		Y	inches
	_	0130	· ·		DEPTH TO			17.	24	ft TOR
SAMPLING]	DEVICE:		state pu	•	DEPTH TO		-	26	>	ft TOR
DATE:		<u>a</u>	1210	94	FEET OF W	ATER IN LIN	E: _	8	.76	feet
WELL I.D.:		E	-40		VOLUME O	F WATER IN	LINE:	0	.020	gallons
					(0.005 gal/f	t.for 3/8" tu	bing, 0.0	023 g	al/ft for ¼" tu	bing)
ELAPSED TIME (min)	DEPTH WAT (ft TO	ER	PH (s.u.)	Co	Specific NDUCTANCE	TEMPER- ATURE (°C)	DISSOI OXYO (pp)	GEN	TURBIDITY (NTU)	REDOX (mV)
5	17. 2	6	3.51		0-15	12.1	19.		122	-69
10	17.2		3.40	 	2.15	13.1	13.8		177	-80
15	17.06		3.30		7.15	13.4	9.5		0	-90
<i>90</i>	17.07	7	3.28		115	13.4	8.5		0	- 94
85	17-27	7	3.29	0	115	13,5	8.4		0	- 95
30	17-27	<u> </u>	3.29	0	15	13.5	8.4		0	-95
	, <u> </u>									
				_	-					
			· ·				<u> </u>		<u> </u>	
·						·				<u> </u>
						· · · · · · · · · · · · · · · · · · ·			·	
							<u> </u>			
		· ·		-						
			!				<u> </u>			
			<u> </u>	_		· · · · · · · · · · · · · · · · · · ·				
									<u> </u>	
					 					
							<u></u>			
						·				
	<u></u>		<u> </u>							
PPROXIMATE VEATHER CO	E PURGE I	RATE: :	<u> 200</u>	V (1)	ml/min	Purged/	SAMPLE	D By:	PURGED: ~	
OMMENTS:	to to	drp +1	1 = 26.	90 9	t-tor	<u></u>				



SITE:		Hercu	les/Jeffersor	1	TUBING DL	AMETER:			14	inches
PROJECT N	0.:	01305	.40		DEPTH TO	WATER:	. ·	21	106	ft TOR
SAMPLING !	DEVICE:	peris	taltic prop	, ,	DEPTH TO	PUMP:		A8	•	ft TOR
DATE:		1			FEET OF W	ATER IN LIN	E:	6.	94	feet
WELL I.D.:		E	E-43		VOLUME O	F WATER IN	LINE:	0,	016	gallons
	•			•	(0.005 gal/i	ft for 3/8" tu	bing, 0.0)023 g:	al/ft for ¼" tu	bing)
CLAPSED	DEPTH	то		<u> </u>	SPECIFIC	TEMPER-	Disso	LVED		
TIME	WAT		PН		NDUCTANCE	ATURE	OXY	GEN	TURBIDITY	REDOX
(min)	(ft TC	OR)	(s.u.)	(5 1 ~)	(°C)	. (pp	m)	(NTU)	(mV)
0	alioe	2	4.51		0.7	9,45	0,0	0	0	298
3	21,10	7	4-69		0,9	9,92	0.0	0	0	287
6	31.10	,	4.81	3	0.7	10.46	0.0	0	0	264
9	21.17		4.89	3	0.4	11-32	0.0	0	0	260
19	3111		5.05		2-2	11.77	0,0	0	0	249
15	61411		5.34	3	7.2	13:14	0.0	0	0	847
18	a1.11		545	3	4,2	12.14	0,0	0	0	243
1	21./2	1	5,66	3	1:0	12.15	0.0	0	0	228
14	a1.12		5.69	3 -	a 1	12-15	ہ رمت	00	0	229
7	a1./2		5.69	3 .	7,0	12.15	0.0	0	0	229
0	a1.12		5.69	34	2.6	12-14	010	0	0	221
3	₹1.12		5.70	30	1	12-15	0.0	0	0	228
6	21.13		5.62	3 4	.0	10/15	0.0	20	0	228
· ·				<u> </u>						<u> </u>
	<u> </u>			-						
· <u>.</u>		<u> </u>					<u> </u>			
				- 			ļ			
				_						ļ
				ļ						1
				<u> </u>	· - · · · ·					
	<u></u>	•					<u> </u>			

RUMMINGS *ITER*CONSULTANTS, INC.

inches	4		AMETER:	TUBING DIA	ıles/Jefferson		SITE:
ft TOR	35		WATER:	DEPTH TO			PROJECT N
ft TOR		_ 22	Pump:	DEPTH TO]	faltic pung	DEVICE: peris	SAMPLING I
feet	 5	E: 8,6	ATER IN LIN	FEET OF W	1 30 1 0	1	DATE:
gallons	020	LINE: 0.	F WATER IN	VOLUME O	-51	E	WELL I.D.:
		oing, 0.0023 ga					
REDOX	TURBIDITY	DISSOLVED OXYGEN	TEMPER- ATURE	SPECIFIC CONDUCTANCE	PH	DEPTH TO WATER	ELAPSED TIME
(mV)	(NTU)	(ppm)	(°C)	(S / m)	(s.u.)	(ft TOR)	(min)
161	0	9.4	12.8	0.09	5,90	13.63	5
186	0	6.0	12.6	0.09	5.68	13.71	10
204	0.	5.0	12.6	0.09	5.61	13.73	15
214	0	4.5	12.5	0.09	5-61	13.76	20
219	0	0	13.5	0.09	5.6(13,84	25
220	0	0	19.6	0.09	5.60	13,86	30
220	0	0	12-6	0.09	5:61	13, 81	35
. <u>. </u>							
		<u>.</u>				•	
		<u> </u>					
		_		<u> </u>	<u> </u>		
			<u> </u>				
							
			•				
							
			-	· · · · · · · · · · · · · · · · · · ·			
	· ·						
					-		
					-		
		·····					
,							
9	Purged: ~^	OTAL VOLUME SAMPLED BY:	PURGED/	<u>ml/min</u>	100	TIME: 1520 PURGE RATE:	PPROXIMATE

CUMMINGS *ITER*CONSULTANTS, INC.

SITE:	Hercules/Jefferson	TUBING DIAMETER:	1/4.	inches
PROJECT No.:	01305.40	DEPTH TO WATER:	17-68	ft TÓR
SAMPLING DEVICE:	penstalticon	DEPTH TO PUMP:	37.0	ft TOR
DATE:	1 136104	FEET OF WATER IN LINE:	9.32	feet
WELL I.D.:	E-53	VOLUME OF WATER IN LINE:	0.021	gallons
		(0.005 gal/ft for 3/8" tubing, 0.0	0023 gal/ft for ¼"	tubing)

ELAPSED TIME (min)	DEPTH TO WATER (ft TOR)	PH (s.u.)	SPECIFIC CONDUCTANCE (S /)	TEMPER- ATURE (°C)	DISSOLVED OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)
.0	17.68	4.69	89.3	11.75	0.00	. 0	33 4
3	17.64	4.88	88.0	12.59	0.00	0	333
6	17.88	4.97	86.5	13.5(0.00	0	335
1	17.88	4.95	86,1	13,71	0.00	0	335
13	17.89	4.95	86.0	13.86	0,00	0	3.74
. 15	17.20	4.84	85.9	13.90 .	0,00	0	334
19	17.90	4.8a	85-8	13.89	0.00.	0	333
. 31	17.90	4.83	85.8	13.88	0,00	0	332
24	17.90	4,81	85.9	13.89	0.00	0	332
27	17.90	4.93	86.0	13.87	000	0	732
30	17.90	4.82	86.0	13.89	0.00	0	332
3}	17.90	4.82	85.9	13,90	0.00	0	37.7
						·	
						·	
	_						
	•						

Purge Start Time: 140	O PURGE EN	D TIME: <u>1433</u>	TOTAL VOLUME F	URGED: ~1-74	gal
APPROXIMATE PURGE RA	TE: <u>200</u>	ml/min	PURGED/SAMPLED BY:	CGK	
WEATHER CONDITIONS:	cold/fre	ezin rain			
COMMENTS:	<u> </u>		·	·	
	•		•		



SITE:	٠	Hercules/	Jefferson	TUBING DIA	AMETER:		' Y	inche
PROJECT N		01305.40		DEPTH TO	Water:		.78	ft TOF
SAMPLING	DEVICE:	peristel	tic pras	DEPTH TO	PUMP:		20	ft TOF
DATE:		' a /	3 104	FEET OF W	ATER IN LIN		5.27	fee
WELL I.D.:	•	E-5	-}	VOLUME O	F WATER IN	•	-14	gallon
							gal/ft for ¼" tu	
								
ELAPSED	DEPTH	ı		SPECIFIC	TEMPER-	DISSOLVED		
TIME (min)	WAT	1	PH	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX
ر (MIIII) ح			(s.u.)		(°C)	(ppm)	·(NTU)	(mV)
lo	13,81		1.19	0.38	11,00	19.8	618.0	127
	13,81		.50	0.38	11,56	10,0.	408.0	_///
20	13.82	1	.62	0.38	19.01	7.5	107.4	96
	13.83		04	0.38	12.01	7.4	0	84
52	13.83		04	0.38	12.00	7,4	0	84
30	13,83	<u> </u>	.03	0.38	12.01	7.4	0	85
		<u>_</u>						
				·				
							·	
		<u>·</u>						
		·						
								-
<u> </u>								
			<u>. </u>					
·	<u>_</u>							
						-		
		·						·
•								
RGE START PROXIMAT EATHER CO	TIME: 10 E PURGE F	0 0 ATE:	Purge	END TIME: _ ! \\ml/min	PURGED/	OTAL VOLUMI SAMPLED BY	E PURGED: ~ (119

RUMMINGS RITER CONSULTANTS, INC.

SITE: PROJECT No.:		Hercules/Jefferson 01305.40		TUBING DI DEPTH TO		•	1/4		inches ft TOR
								-84	ft TOR
DATE:	DEVICE.	1	1 201	All EDDE OD Y				<u> </u>	
					₹			9.16	
WELL I.D.:		<u> </u>	-514	VOLUME OF WATER IN LINE:					gallons
				(0.005 gal/s)	ft for 3/8" tu	bing, 0.0)023 g	al/ft for ¼" tu	bing)
ELAPSED	DEPTH	TO]	SPECIFIC	TEMPER-	DISSO	LVED		
TIME	WAT		PH	CONDUCTANCE	ATURE	OXY	GEN	TURBIDITY	REDOX
(min)	(ft TC		(s.u.)	(5/2)	(°C)	(pp	m)	(NTU)	(mV)
<u> </u>	17.84		6.05	73	10.3	19.7	<u> </u>	59.0	198
10	17.85		6-16	66	10.1	6.6		0	190
15	17.86		6.93	64	10.1	5.3		0	189
_2 <i>o</i>	17.86		6.27	64	10,0	4,4		0	187
21	17.86		6 28	64	10.0	4.3		0	187
30	17.86		6.27	6 4	10.0	4.3	_	0	186
.									<u></u>
· · · · · · · · · · · · · · · · · · ·								ļ	<u> </u>
		· · · · · · · · · · · · · · · · · · ·			<u> </u>	· · ·	<u> </u>		<u> </u>
								· · · · · · · · · · · · · · · · · · ·	<u> </u>
			<u> </u>						
			<u> </u>				_		
									-
						 			
								-	

RUMMINGS ITER CONSULTANTS, INC.

Every.		•			•	,	/.,	
SITE: Hercules/Jeffers				TUBING DIAMETER:			4	inches
PROJECT No.: 01305.40				ДЕРТН ТО	WATER:		<u>. a a</u>	ft TOR
SAMPLING DATE:	DEVICE:	perist	fulfic pun	DEPTH TO	DEPTH TO PUMP:			ft TOR
DATE:	-		130 10	Y FEET OF W	FEET OF WATER IN LINE:			feet
WELL I.D.:		<u> </u>	55	VOLUME O	VOLUME OF WATER IN LINE:			gallons
				(0.005 gal/s	ft for 3/8" tu	bing, 0.0023	gal/ft for ¼" tu	bing)
ELAPSED	DEPTH			SPECIFIC	TEMPER-	DISSOLVEI	<u> </u>	
TIME	WAT		PH	CONDUCTANCE	ATURE	OXYGEN	TURBIDITY	REDOX
(min)	(ft TC		(s.u.)	(5/4)	(°C)	(ppm)	(NTU)	(mV)
5	11,23		7.48	0,13	[a.a	17.9	171.0	-151
10	11,30		7.63	0 - 13	11.9	1.6.1	132.0	-162
15	11.30		7.66	0,13	17.0	4,6	145.0	-167
3 4	12.24		7.66	0.13	12.0	0.0	145.0	-168
30	12.30		7.67	0.13	12.0	0.0	74,7	-170
35	12.75		7.68	0./3	11-9	0,0	0	-/70
40	12-78	·	7-68	0.13	11.9	0,0	0	-170
	10-10	 .	7.07	0.1)	11.8	0.0	0	-170
								· · · · · · · · · · · · · · · · · · ·
	<u> </u>	· ·						<u> </u>
			· · · · · · · · · · · · · · · · · · ·	<u> </u>	· · · · · · · · · · · · · · · · · · ·	-		
	····							
	· · · · · · · · · · · · · · · · · · ·							· · · · · · · · · · · · · · · · · · ·
					· <u></u>			
					-			
					,			
						-	<u> </u>	
URGE START PPROXIMATE EATHER COI	PURGE F	RATE:	100	END TIME: 149 ml/min	PURGED/	SAMPLED BY	E PURGED: ~	.06 g
OMMENTS: _						•		
	1 11 0	11/1/2	- <u>a</u> 0.1/		······································			

RUMMINGS RITER CONSULTANTS, INC.

	•							
SITE:	Herci		ıles/Jefferson	TUBING DI	AMETER:	<u> </u>	/ y	inches
PROJECT No.: 01303		5.40	ДЕРТН ТО	Water:		1,07	ft TOR	
SAMPLING DEVICE:			telticpun	ДЕРТН ТО	PUMP:	1		5
DATE:				Y FEET OF W	ATER IN LIN	E: 7	.93	feet
WELL I.D.:		Mac	MA E-	CA VOLUME O	F WATER IN		.018	gallons
		1 11000	VVVIA C-			-	al/ft for ¼" tu	
		•		(0.005 gan)	101 5/0 tu	Ding, 0.0025 g	al/11 101 /4 1U	omg)
ELAPSED	DEPTH			SPECIFIC	TEMPER-	DISSOLVED		
TIME	WAT		PH	CONDUCTANCE (5 / ~)	ATURE	OXYGEN	TURBIDITY	REDOX
(min)	(ft TC	 	(s.u.)		(°C)	(ppm)	(NTU)	(mV)
5	10:10		4.17	0.52	9.75	16.2	303.0	- 6a
10	10.11		4.40	0.53	11.41	13./	180-4	-80
17	10,11		क्रिक्रे	0.53	11.68	6. 9	0	- 86
90	10.12		4.48	0.63	11,94	5.7	0	-86
35	10.12		4.49	0.63	11.25	5.5	0	-86
3 V	10.13	-	 	0.63	11.95	5.5	0	-86
7,5	10,14		4.50	0.63	11.14	5.5	0	-87
	-							· · · · · · · · · · · · · · · · · · ·
			1			-		***
				<u> </u>		<u> </u>		
		· · ·						·
	-	<u> </u>			<u> </u>			
	·							-
								
								
		 · .				-		
,							 	
·		:			·			<u> </u>
							-	
	 .					<u> </u>		
RCR START) Time: k	525	Prince	END TIME: 6	. 0 0	OTAL VOLUM	e Duncen.	
PKUXIMATI	E PURGE I	KATE:	150	ml/min	PURGEDA	SAMPLED BY	: <u> </u>	
EATHER CO	NDITIONS	ያ ፡	coolfr	tin				
				st-tor				



Cross-	1	YY	1 /T. <i>CC</i>	Trippid Dr	METED.	1/		in the sec
SITE:	_		les/Jefferson	TUBING DIA			.61	inches
PROJECT No.: 01305.40				DEPTH TO WATER:			ft TOR	
SAMPLING I	DEVICE:	pro	staltic pu	DEPTH TO I	PUMP:	1.	7	ft TOR
DATE:	,				ATER IN LIN	E: 8	.37	feet
WELL I.D.:			E-57	VOLUME OF	F WATER IN	LINE:	.019	gallons
					t for 3/8" tu	bing, 0.0023 g	al/ft for ¼" tu	bing)
			, 			· 		
ELAPSED TIME	DEPTH WAT		PΉ	SPECIFIC CONDUCTANCE	TEMPER-	DISSOLVED OXYGEN	TURBIDITY	REDOX
(min)	(ft TC		(s.u.)	(5/5)	(°C)	(ppm)	(NTU)	(mV)
5	10,6		6.64	96	11.6	5.2	0	137
10	10.6		6.68	95	11.6	4.6	0	131
15	10.6		6.74	76	11.9	4.2	0	122
20	10.68		6.79	96	12.1	4.1	0	114
25	10.62		6,80	96	12.(91	0	114
30	10.62		6,40	96	13.1	9/1	0	113
300			,			1		
								,
				-				
į		 .	,					<u> </u>
	· · · · · · · · · · · · · · · · · · ·							
					,			
								
			<u> </u>		<u>l</u> ,	<u> </u>		<u> </u>
PURGE START	TIME:	1135	Purgi	E END TIME:	aos t	OTAL VOLUM	E PURGED: ~	0,95 gal
				ml/min	-			
Veature Co		C.		IIII IIIII	·	romin ded d'i		
COMMENTS:	<u> </u>	dip	the della	x ft-tar				

SITE:	Hercules/Jefferson	TUBING DIAMETER:	14	inches
PROJECT No.:	01305.40	DEPTH TO WATER:	21.25	ft TOR
SAMPLING DEVICE:	peristatic prop	ДЕРТН ТО РИМР:	. 28	ft TOR
DATE:	1 126104	FEET OF WATER IN LINE:	6.75	feet
WELL I.D.:	E-58	VOLUME OF WATER IN LINE:	0.016	gallons
		(0.005 gal/ft for 3/8" tubing, 0.0	023 gal/ft for ¼"	tubing)

ELAPSED TIME (min)	DEPTH TO WATER (ft TOR)	PH (s.u.)	SPECIFIC CONDUCTANCE (S / ~)	TEMPER- ATURE (°C)	DISSOLVED OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)
0	21.25	6.61	31.6	11-1.3	4.50	0	274
3	24.60	7.06	31.3	11.30	3.88	0	225
6	24.66	7-60	31-3	11.32	3.89	0	266
9	24,61	7.1.6	3.4.2	1.1.72	6.05	0	274
12	24.58	6.90	36.8	11.33	6.10	0	274
15	24.53	6.87	361.8	11.33	6.11	0	274
18	24,52	6.86	36.8	11.33	6.12	0	274
, <u>31</u>	24.52	6.86	34.8	11.32	6.11	0	274
, 24	24.51	6.86	36.8	11.32	6.11	0	274
a 7	24.11	6.86	36,9	11,32	6.11	0	274
30	24.51	6.85	36.8	11.32	6.11	0	274
	`						
`		_					
			·				
74	, , , , , , , , , , , , , , , , , , ,						
	<u> </u>						
							•

Purge Start Time: 1136	PURGE END TI	ME: 1000	TOTAL VOLUME PURG	ED: ~ O·SI gal
APPROXIMATE PURGE RATE: _	125	ml/min PURG	ED/SAMPLED BY: <	6 K
WEATHER CONDITIONS: < 0	ld/freezing	00/4		
COMMENTS: Cut flow r.	te brie to	100 nl/n.	- aft 3 7176	te.
•				

		20, 211	·						•
SITE:		Hercu	les/Jefferson	TUBING DI	AMETER:	_	1/4		inches
PROJECT N		01305		ДЕРТН ТО		_	5.,		ft TOR
SAMPLING :	DEVICE:	peris	fitic proj	рертн то	PUMP:	-	18	· · · · · · · · · · · · · · · · · · ·	ft TOR
DATE:			12910	DEPTH TO S	ATER IN LIN	UE:	1 2	· · · · · · · · · · · · · · · · · · ·	feet
WELL I.D.:		W-			F WATER IN		0.		gallons
				(0.005 gal/1	it for 3/8" tu	_		al/ft for ¼" tu	
ELAPSED	DEPTE	(TO	<u> </u>	SPECIFIC	TEMPER-	DISSOI	LVED	· · ·	
TIME	WAT		PH	CONDUCTANCE	ATURE	Oxyo		TURBIDITY	REDOX
(min)	(ft TC	OR)	(s.u.)	(5/m)	(°C)	(ррг	n)	(NTU)	(mV)
5	5-51		6.71	0.87	. 5.2	7.4	<u> </u>	0	-}/
10	5.51	•	6.73	0.37	5.7	6.9		0	-34
15	3.51		6.80	0.27	5.8	5-6		0	-46
95	5.51	··	6.83	0.37	6.0	5,0		ð	-50
30	5-51		6.82	0.27	6./	5.0		0	-51
30	5-51		6.83	0.37	6.1	5.1		0	-5/
						ļ	·····	<u> </u>	
								· .	ļ
	·- ·- ·-				 	<u> </u>			<u> </u>
								,	
									
-		· .			<u> </u>				
									
	 			-					
	·				···	 			
						·		<u> </u>	
			<u></u> _						
				<u> </u>					
				<u> </u>					
					 	 			
			· · · · · · · · · · · · · · · · · · ·				· -		
			<u>.</u>	<u></u>	•	<u></u>		<u> </u>	
URGE START	TIME:	540	Purge	END TIME: 16	10 To	OTAL VO	LUME	PURGED: ~4	9,95 gal
PPROXIMATE	PURGE F	CATE:	130	ml/min	Purged/	SAMPLE	d By:	CGK	
EATHER CO	NDITIONS	<u> </u>	old (cl	ear	···				
OMMENTS:	T.+.1	dipt	h = 19.0	0					
			·						



2 h: epth to Water	1411111 pun 14111 0 15-F2	YOLUME O		E:	8,74 22 13,26	ft TOR ft TOR feet
2 n: EPTH TO WATER	1410	FEET OF W VOLUME O	ATER IN LIN	E:	13.26	
EPTH TO WATER		VOLUME O				feet
EPTH TO WATER	√-Fà		F WATER IN	E.INIE+		
WATER		(0.005 gal/f)	•	TITIATE.	0.000	gallons
WATER			t for 3/8" tu	bing, 0.0023	3 gal/ft for ¼" tu	bing)
ft TOR)	PH (s.u.)	SPECIFIC CONDUCTANCE (S / ^)	TEMPER- ATURE (°C)	DISSOLVI OXYGEN (ppm)		REDOX (mV)
,77	4.13	0,45	9.57	9.1	0	-86
,77	4,46	0.50	10.47	6.6	0	-145
77	4,60	0.52	10.48	5,4	0	-153
76	4.91	0.53	10.48	5.3	0	-162
			10.47	 		-162
,76	4.92	0.53	10,48	3.2	0	-161
	· · · · · · ·					
					<u> </u>	<u> </u>
		-	· ·	-		
			1		· · · · · -	1
						
						
	,					-
	- 1.2.					
						<u> </u>
			·			
	.76	76 4.91	76 4.91 0.53 .76 4.92 0.53	76 4.91 0.53 10.48 76 4.92 0.53 10.47 76 4.92 0.53 10.48	76 4.91 0.53 10.48 5.3 .76 4.92 0.53 10.47 5.3 .76 4.92 0.53 10.48 5.2	76 4.91 0.53 10.48 5.3 0 .76 4.98 0.53 10.47 5.3

RITER CONSULTANTS, INC.

ROJECT N AMPLING DATE:		01305		/Jefferson TUBING DIAMETER:				1/4.		inches
AMPLING	Druce.				ДЕРТН ТО	WATER:	_	10	. 20	ft TOR
ATE:	DEVICE.	perist	lattic pur	p_	DEPTH TO]		_	25		ft TOR
			1301	oy FEET OF WATER IN LINE:				/4	.80	feet
VELL I.D.:		Mh	VOLUME OF WATER IN LINE:					0,	034	gallons
						t for 3/8" tu	bing, 0.0	023 g	al/ft for ¼" tu	bing)
LAPSED	DEPTH	I TO			SPECIFIC	TEMPER-	DISSOI	LVED	• ,	
TIME	WAT		PH		NDUCTANCE	ATURE	OXY	GEN	TURBIDITY	REDOX
(min)	(ft TC	OR)	(s.u.)	(<u> </u>	(°C)	(pp	m)	(NTU)	(mV)
	10.33		5.41	<u> </u>	0.16	11,3	18.5	•	0	263
10	10.23		5.35		0.16	9,9	16,1		0	275
15	10,33		5.33		0,16	9.6	7.4		0	276
9 0	10.55		5,30	4	0,16	9.5	6.0		0	279
95	10.22	 	5.32		1.16	9-6	0.0		0	279
30	10 99		2,35	0	.16	9.7	0.0		0	280
35.	10.59		5.79	0	.16	9,7	0,0		0	280
			<u> </u>	<u> </u>						
				ļ						
· · · ·	<u></u>	_		<u> </u>						
			<u> </u>	ļ	<u>.</u> .					
				ļ						
	<u> </u>			ļ						
				ļ <u>-</u>						<u> </u>
										
			·	<u> </u>			<u> </u>			
				<u> </u>		<u>.</u>	ļ			
			<u> </u>	<u> </u>						
	 		<u> </u>	-	·					
				<u> </u>			 -			
				-	··	<u> </u>				
					"		<u> </u>	•	<u> </u>	
CE START	Time. /	3 <i>1</i> c	Dringr	o Tentr	Markette 10	u (A ma	T7.		D	
DOVINE	THAT: _/	0	rungi	LENI) TIMTE: 19	<u> </u>	JIAL VC	LUME	PURGED: ~_	1.79
KOXIMATI	E PURGE I	KATE:	150		ml/min	Purged/	SAMPLE	ED BY:	COK	
					+					

SITE:		Hercı	ıles/Jefferson	TUBING DI	AMETER:		1/	Ý	inches
PROJECT NO	· .:	0130	5.40	 Дертн то `	WATER:		8-4	17	ft TOR
SAMPLING D	EVICE:	pc	istallic o	DEPTH TO	PUMP:		13		ft TOR
DATE:	•	, 2	1410	DEPTH TO:	ATER IN LIN	— E:	4.5	~ .	feet
WELL I.D.:	•		M ~- S VOLUME OF WATER IN LINE:						
	•	· · · · ·						/ft for ¼" tu	gallons
- 						omg, 0.002	S gai	1/11/10F 74" EU	oing)
ELAPSED	DEPTH			SPECIFIC	TEMPER-	DISSOLV	ED		·
TIME (min)	WATE		PH	CONDUCTANCE	ATURE	OXYGE		TURBIDITY	REDOX
	(ft TO	K)	(s.u.)	(,,,,,)	(°C)	(ppm)		(NTU)	(mV)
	8-48	· .	4.43	0.17	8,37	19.7		0	-121
	8.48		4.28	0.17	9.21	8.1		0	-121
	8-48		4.99	0.17	10.48	7.4		0	-140
	8.47	· ·	6.05	0-18	10.47	6,5		0	-145
_	8.47		6.06	0.18	10.47	6.5		0	-145
30	8.47		6.05	0-18	10.48	6,4		0	-145
									
`;				_ ·					
,									
									
				···································					
·									
					·	·			
					· · · · · · · · · · · · · · · · · · ·	···			
							_		
					· · · · · · · · · · · · · · · · · · ·				
· · · · · · · · · · · · · · · · · · ·		-							
							\perp		
						· .			
HRGE START T	TMTE: 10	n C	Prince	Tana Trans. 177	o ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		-	Torus	
DDD OYIMATD T	ини. <u> ()</u>	ATE:	I UKGE	END TIME: 14	10 <u>ده</u>	TAL VOLU	JME I ∽	'URGED: <u>~ 1</u>	.59 gal
TRUMINIATE P	ORGE R	AIE:	1111	ml/min	PURGED/	SAMPLED]	BY:	CGK	
			- 13 8a	2-125+		· · · · · · · · · · · · · · · · · · ·			

SAMPLING 1		. Pump	Дертн то І				ft TOR					
DATE:		111 104		ATER IN LIN	-		feet					
WELL I.D.:	<u>15- 2</u>	<u> 280</u>	VOLUME O	F WATER IN	LINE:		gallons					
(0.005 gal/ft for 3/8" tubing, 0.0023 gal/ft for ½" tubing)												
ELAPSED TIME (min)	DEPTH TO WATER (ft TOR)	PH (s.u.)	SPECIFIC CONDUCTANCE (MS/cm)	TEMPER- ATURE (°C)	DISSOLVED OXYGEN (ppm)	TURBIDITY (NTU)	REDOX (mV)					
0	16.34	4.91	1646	11,9	<u> </u>	458	0,6					
5	18,32	5,34	(586	11.8	_	43)	-94					
, O	18, 35	5.50	1574	12,4		394	-89					
	18.36	5 64	1564	15,7	_	140	-92					
20	18.37	5,72	1577	13.6		40,4	-100					
75	18,38	5.83	157	BIC		16.5	-105					
36 35	18.38 18.36	5,89	1554	13,2		8,28	-106					
40 40	18,34	5.98	1546	13.4		7,92	-105					
	1(), 2	10,00	10 %	101-1		7(3')	-104					
·												
		·										
												
												
<u> </u>				· · · · · · · · · · · · · · · · · · ·		·						
<u> </u>						·						
				 		<u> </u>						
					-	_						
						 						
PPROXIMAT			E END TIME:			, —						

ROJECT	Hercules/Jeffe	erson	SAMPLE ID		E-12	
PROJECT NO.	01305.40		WELL NO.		E-12.	
SAMPLE DATE		1/26/04	SAMPLED B	Υ	MAL	
SAMPLE TIME (ST	ART/END)/	2:00/ 12:15	SAMPLE SEC	QUENCE NO.	/	
SAMPLE COLLECT	TION EQUIPMENT	GRU-	ores Pump	With	OEOICATEO	Tuniuc
DEPTH TO WATER	PRIOR TO PURGI	NG/SAMPLING (FT)	·	18.71	1 20	. 5 3
RECHARGE TIME	·.	. 5 2	Measui	RED FROM C	TOC TO	DR □ GS
		FIELD MEASUR	REMENTS			
pH	Ĭ	Standard Uni	ts		1.82	
Specific Co	nductance	n n ho/e m	15/m		49	
Water Ten	nperature	<u>°C</u>		/	7.3	
Dissolved	Oxygen	ppm			6.0	
Red	ox	mV		·	143	
Turbi	dity	NTU			5.3	
	NCE, IMMISCIBLE	PHASES OR ODORS:		Scientry	CLEUNY	
SAMPLING FLOW			· · · · · · · · · · · · · · · · · · ·	100-4	/ ~ : ~	
	RATE:	SAMPLE TYP	ES COLLECT	TED	12:2	
PARAMETER	VOLUME	SAMPLE TYP # CONTAINERS	ES COLLECT	TED ERED?	PRESERVE	D?
	VOLUME 40 mL	SAMPLE TYP	ES COLLECT FIELD FILTE Y	TED	Preserve Y ■ HCL	D? N□
PARAMETER APIX VOC	VOLUME	SAMPLE TYP # CONTAINERS 4	ES COLLECT FIELD FILTE Y Y Y	TED ERED? N 🗵	PRESERVE Y■ HCL Y□	D? N□ N■
PARAMETER APIX VOC APIX SVOC	VOLUME 40 mL	SAMPLE TYP # CONTAINERS 4	ES COLLECT FIELD FILTE Y Y Y	TED ERED? N N	Preserve Y ■ HCL	D? N□
PARAMETER APIX VOC APIX SVOC APIX (0:55)	VOLUME 40 mL 1 L	SAMPLE TYP # CONTAINERS 4	ES COLLECT FIELD FILTI Y Y Y Y Y Y	TED ERED? N D N D	PRESERVE Y■ HCL Y□	D? N□ N■
PARAMETER APIX VOC APIX SVOC APIX (0:55) METALS	VOLUME 40 mL 1 L 250 mL	SAMPLE TYP # CONTAINERS 4	ES COLLECT FIELD FILTI Y Y Y Y Y Y Y Y Y Y Y Y Y	TED ERED? N D N D	PRESERVE Y ■ HCL Y □ Y ■ HNO3	D? N□ N■ N□
PARAMETER APIX VOC APIX SVOC APIX (0:55) METALS	VOLUME 40 mL 1 L 250 mL	SAMPLE TYP # CONTAINERS 4	ES COLLECT FIELD FILTI Y	TED ERED? N D N D	PRESERVE Y ■ HCL Y □ HNO3 Y □ HNO3	D? N□ N□ N□ N□
PARAMETER APIX VOC APIX SVOC APIX (0:55) METALS	VOLUME 40 mL 1 L 250 mL	SAMPLE TYP # CONTAINERS 4	FIELD FILTE Y	TED ERED? ND ND ND ND ND ND ND	PRESERVE Y ■ HCL Y □ HNO3 Y □ HNO3	D? N□ N□ N□ N□ N□
PARAMETER APIX VOC APIX SVOC APIX (0:55) METALS	VOLUME 40 mL 1 L 250 mL	SAMPLE TYP # CONTAINERS 4	FIELD FILTE Y	TED ERED? ND ND ND ND ND ND ND	PRESERVE Y ■ HCL Y □ HNO3 Y □ HNO3	D? N□ N□ N□ N□ N□ N□ N□
PARAMETER APIX VOC APIX SVOC APIX (0:55) METALS	VOLUME 40 mL 1 L 250 mL	SAMPLE TYP # CONTAINERS 4	FIELD FILTE Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	TED ERED? NO NO NO NO NO NO NO NO NO NO NO NO	PRESERVE Y ■ HCL Y □ HNO3 Y □ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y	D? N□ N□ N□ N□ N□ N□ N□ N□ N□ N
PARAMETER APIX VOC APIX SVOC APIX (0:55) METALS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2	ES COLLECT FIELD FILTE Y	TED ERED? ND ND ND ND ND ND ND ND ND	PRESERVE Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □	D? N□ N□ N□ N□ N□ N□ N□ N□ N□ N
PARAMETER APIX VOC APIX SVOC APIX (0:55) METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 FILTR	ES COLLECT FIELD FILTE Y	TED ERED? NO NO NO NO NO NO NO NO NO N	PRESERVE Y ■ HCL Y □ HNO3 Y □ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y	D? N□ N□ N□ N□ N□ N□ N□ N□ N□ N
PARAMETER APIX VOC APIX SVOC APIX (0:55) METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL NTAINERS STL-Savannah	# CONTAINERS 4 2 1 1 FILTR DELIV	ES COLLECT FIELD FILTE Y	TED ERED? NO NO NO NO NO NO NO NO NO N	PRESERVE Y ■ HCL Y □ HNO3 Y □ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y	D? N□ N□ N□ N□ N□ N□ N□ N□ N□ N



PROJECT	Hercules/Jeffers	on	Sample II	D <i>E</i> -	58		1
PROJECT NO.	01305.40		WELL NO.		 		. 1
SAMPLE DATE	1/26/04	-	SAMPLED		6 K	•	
SAMPLE TIME (STA	7	00 11220	SAMPLE S	. ———— EQUENCE NO			
SAMPLE COLLECTI		- Providantic			,		·
DEPTH TO WATER	PRIOR TO PURGING	G/SAMPLING (FT)	21.6	 ३ऽ	1 24.51		
RECHARGE TIME	s ninuf	9 ·	MEAS	SURED FROM	□тос хто	DR □ G	S
		FIELD MEASU	REMENTS				
pН		Standard Uni	ts	6,85			
Specific Con	iductance	. umho/cm	· .	36.8			
Water Tem	perature	<u>°C</u>		11,32			
Dissolved	Oxygen	ppm		6.11		<u>. </u>	
Redo)X	mV		274			
Turbic	lity	NTU		0		·	
METER CALIBRAT	ION PERFORMED?	N D Y	r psk	DATE	1/26/04		٠
		HASES OR ODORS:	Clea				
SAMPLING FLOW I	•	26/212				······································	(
		SAMPLE TYP	ES COLLE	CTED	• .		<u> </u>
PARAMETER	VOLUME	# CONTAINERS	FIELD FIL		Preserve	 D?	
APIX VOC	40 mL	4	Y 🗆	N 🔁	Y ■ HCL		-
APIX SVOC	1 L	2	Υ□	. N 🖪	Y 🗖	N =	
APIX			ΥŒ	Ν□	Y ■ <u>HNO3</u>	N□	
METALS	250 mL	_1				•	
TD\$	500 mL	1	Υ□	N 🚾	Y 🗆	N ■	
			Υ□	Ν□	Y 🗆	ΝП	٠.
			Υ□	ΝП	Y 🗖	ΝП	
<u> </u>			Y□	N□	Y 🗆	N□	
			Υ□	N□	Y 🗆	N□	
			Y□	N□	Y 🗆	N□	
NUMBER OF CON	ITAINERS 8	FILTR	ATION METH	OD 0145	nuces felte	-	
	STL-Savannah				Date <u>//</u>		. 1 .
WEATHER COND		,					- (
	ITIONS _cold,	frazin rein			·		ζ.

f21/corp

ROJECT	Hercules/Jeffe	erson	SAMPLE I	D E	-52	
PROJECT NO.	01305.40		WELL NO	D. <i>E</i> -	- <i>J</i>	
SAMPLE DATE	1/26/	oy	SAMPLEI	BY C	b K	
SAMPLE TIME (S		36 11455	SAMPLE	SEQUENCE N	o. 3	· ·
SAMPLE COLLEC	TION EQUIPMENT	p.c.istalti	i p			
DEPTH TO WATE	R PRIOR TO PURGI	1		17.68	11271	· · · · · · · · · · · · · · · · · · ·
RECHARGE TIME	5 nin,		MEA	SURED FROM	ZTOC IT	OR □ GS
		FIELD MEASU	DEMENTS		•	
<u> </u>	Н	Standard U	•	4.83		
	onductance	umho/cm	•	† · · · · · · · · · · · · · · · · · · ·		
	mperature	°C		13.9		
	d Oxygen	ppm ·		0.0		
	dox	mV		336		·
	oidity	NTU		0	3	
SAMPLING FLOV	V RATE: 1	SAMPLETY	PES COLLE	ECTED		
SAMPLING FLOV PARAMETER	VRATE: [SAMPLE TY # CONTAINERS		ECTED	Preserve	D?
		SAMPLE TY			PRESERVE Y ■ HCL	
PARAMETER	Volume	SAMPLE TY # CONTAINERS	FIELD FI	LTERED?		•
PARAMETER APIX VOC	VOLUME 40 mL	# CONTAINERS 4	FIELD FI	N 🗷	Y ■ <u>HCL</u>	N□
PARAMETER APIX VOC APIX SVOC	VOLUME 40 mL	# CONTAINERS 4	FIELD FI	NE NE	Y ■ <u>HCL</u> Y □	N ■
PARAMETER APIX VOC APIX SVOC APIX	VOLUME 40 mL 1 L	# CONTAINERS 4	FIELD FI	NE NE	Y ■ <u>HCL</u> Y □	N ■
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI Y Y Y Y	N ■ N ■ N □	Y ■ <u>HCL</u> Y □ Y ■ <u>HNO3</u>	N □ N ■
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	NEND NEND NEND NEND NEND NEND NEND NEND	Y ■ HCL Y □ Y ■ HNO3	N□ N■ N□
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	NEND NEND NEND NEND NEND NEND NEND NEND	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □	N□ N■ N□
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	NENED? NENED? NENED?	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □	N□ N□ N□ N□ N□
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI Y Y Y Y Y Y Y Y Y Y	NEND NEND NEND NEND NEND NEND NEND NEND	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □	N□ N■ N□ N□ N□ N□
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2	FIELD FI	NENED? NENED? NENED?	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □	N□ N■ N□ N□ N□ N□
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1	FIELD FI	NE NE NE NE NE NE NE NE NE NE NE NE NE N	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □	N
PARAMETER APIX VOC APIX SVOC APIX METALS TDS Number of Co	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 1 FILT DELI	FIELD FI Y Y Y Y Y Y Y Y Y Y	NEND O, 4)	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □	N

f21/corp

PROJECT	Hercules/Jeffe	erson	SAMPLE I	ID	E-63	٠.	· .	,
PROJECT No.	01305.40		WELL NO	·	E-63		, ·	(,,,
SAMPLE DATE	1/26	104	Samplei		MAL	••		
SAMPLE TIME (STA	RT/END) /	1:50 115:1	SAMPLE	 Sequence 1		•		
SAMPLE COLLECTION	ON EQUIPMENT		· 100 5 20 100 1	Pura wit	" DEDICATED	Tunio		
DEPTH TO WATER	PRIOR TO PURGI				1 2			_
RECHARGE TIME	·	5 min	•	•	u□TOC ☑TO		 3S	-
					·		_	
			ASUREMENTS	<u> </u>	·		┙.	
pH		Standar			7.49			
Specific Con		· · · · · · · · · · · · · · · · · · ·	o/em :5/m	,	43			
Water Temp		0	<u>C</u>		16.4			
Dissolved (om	9	0.0			
Redo			<u>v</u>	. *	-168			
Turbid	ity	N	<u>ru</u>		out of range			
METER CALIBRATI	ON PERFORMED	? NE	∃ Y.ᡚ	DATE	1/26/04	<u></u>		
WATER APPEARAN	ICE, IMMISCIBLE	E PHASES OR ODOF	RS: Vra	y claus	y, Tomais		1	
SAMPLING FLOW F				looner,	/			(
	,	SAMPLE	TYPES COLLE	CTED			 -	
PARAMETER	VOLUME	# CONTAINE			PRESERVE	 ED?		
APIX VOC	40 mL	4	Y 🗆	NØ	Y ■ HCL	N□		
APIX SVOC	IL .	2	Y 🗆	NE	Y 🗆	N■		
APIX (Diss)	··		Y 🗹	N□	Y ■ HNO3	N□		
METALS	250 mL	1 .	-	—				
TDS	500 mL	1	 Y 🗆	NØ	Υ□	N ■		
· · · · · · · · · · · · · · · · · · ·			Y 🗆	Ν□	Y 🗆	N□		
	. <u> </u>		Y 🗆	N□	Y 🗆			
			<u> </u>	N□	Y 🗆			
		 	—– Y □	ΝП				
			Y 🗆	Ν□	Y 🗆			
MIN (DED OF COM	EA DIEDO	Q ,	FILTRATION METH		15 . Che			
NUMBER OF CONT	-				•			
LABORATORY			DELIVERED VIA		_ DATE _			<i>(</i> "
WEATHER CONDI	TIONS	cold/	freezing rai	<u></u> ν,	• •		•	
COMMENTS	<u> </u>	· · · · · · · · · · · · · · · · · · ·				 		

f21/corp

COJECT	Hercules/Jeffe	erson	SAMPLE I	D	E-43		
PROJECT NO.	01305.40		WELL NO).	E-43		• •
SAMPLE DATE	1/26/	104	SAMPLED	BY C	5.k		- _
SAMPLE TIME (STAF	RT/END)	70/ 1/730	SAMPLE S	SEQUENCE N	o. <u> </u>		_
SAMPLE COLLECTION		•	altic pu-	·p			
DEPTH TO WATER P	RIOR TO PURGI	NG/SAMPLING (FT)		1.06	1 21.3	/	
RECHARGE TIME	<u>Snin</u>	·····	Mea	SURED FROM	☑TOC ☑TO	OR 🗆	GS
		FIELD MEA	SUREMENTS		<u></u>		\neg
_ pH		Standard	Units	5,69			
Specific Cond	luctance	umho	/cm	30.0			
Water Temp	erature	° <u>C</u>		12.15			
Dissolved O	xygen	ppr	n	0.00			
Redox	ζ .	/m	7	228			
Turbidi	ty į	NT	U	0		_	
		SAMPLE	TYPES COLLE	CTED		·	
PARAMETER		212122					
	VOLUME	# CONTAINER		LTERED?	PRESERVI	ED?	•
APIX VOC	VOLUME 40 mL				PRESERVI	ED? N □	,
		# CONTAINER	S FIELD FI	LTERED?		Ν□	·
	40 mL	# CONTAINER	S FIELD FI	N 🗹	Y ■ HCL	Ν□	
APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINER	FIELD FI Y Y Y Y Y THE STATE OF THE STA	N E N E N E	Y ■ <u>HCL</u> Y □ Y ■ <u>HNO3</u>	N □ N ■ N □	
APIX SVOC APIX	40 mL 1 L	# CONTAINER	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	NEN NEN NEN NEN NEN NEN NEN NEN NEN NEN	Y ■ <u>HCL</u> Y □ Y ■ <u>HNO3</u>	N □	
APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINER	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	NEN NEN NEN NEN NEN NEN NEN NEN NEN NEN	Y ■ _HCL Y □ Y ■ HNO3	N□ N■ N□	
APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINER	S FIELD FI Y Y Y Y Y Y Y Y Y Y	NEND NEND NEND NEND NEND NEND NEND NEND	Y ■ HCL Y□ Y ■ HNO3 Y□ Y□ Y□	N□ N■ N□ N■	
APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINER	S FIELD FI	NEN NEN NEN NEN NEN NEN NEN NEN NEN NEN	Y ■ _HCL Y □ Y ■ HNO3	N□ N□ N□ N□ N□	
APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINER	S FIELD FI	NEN NEN NEN NEN NEN NEN NEN NEN NEN NEN	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □	N	
APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINER	S FIELD FI	NEN NEN NEN NEN NEN NEN NEN NEN NEN NEN	Y ■ _HCL Y □ Y ■ HNO3	N	
APIX SVOC APIX METALS	40 mL 1 L 250 mL 500 mL	# CONTAINER 4 2	S FIELD FI	NE NE NE NE NE NE NE NE NE NE NE NE NE N	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □	N	
APIX SVOC APIX METALS TDS	40 mL 1 L 250 mL 500 mL	# CONTAINER 4 2 1 1 1 F	S FIELD FI	N	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □	N□ N□ N□ N□ N□ N□	
APIX SVOC APIX METALS TDS Number of Cont 'Aboratory S	40 mL 1 L 250 mL 500 mL AINERS STL-Savannah	# CONTAINER 4 2 1 1 1 F	S FIELD FI Y Y Y Y Y Y Y Y Y Y	NEND POR STATE OF THE PER CONTRACT OF THE PER	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □	N□ N□ N□ N□ N□ N□	

f21/corp

PROJECT	Hercules/Jeff	erson	SAMPLE	εID	E-15	ر ا
PROJECT No.	01305.40		WELL	-	E-15	- . (
SAMPLE DATE	1/26/04		SAMPLE		MAL	
SAMPLE TIME (STA		17:45 / 18:15		E SEQUENCE N		- :
SAMPLE COLLECTI				_		
DEPTH TO WATER	PRIOR TO PURG	ING/SAMPLING (FT)	70 9		1 16:13	•
RECHARGE TIME		フゕ・┙	ME	,	∥ TOC TOR □	GS
·			_	,		
		FIELD MEASUR	EMENTS	<u> </u>		
рН		Standard Unit		<u> </u>	6.52	
Specific Con	ductance	amho/cm	5/1		74	
Water Temp	perature	<u>°C</u>			13.5	
Dissolved (Oxygen	ppm			3.8	•
Redo	X	mV			23	
Turbid	ity	NTU			16.1	
METER CALIBRATI	ON PERFORMED	? N 🗆 Y	Ж	DATE	V26/04	
WATER APPEARAN	JCE IMMISCIBLE	PHASES OR ODORS:	-	•	ELVIN	
SAMPLING FLOW F		STIMODE ON ODORU.		100-1		. (
				100-11.		
		SAMPLE TYPI	ES COLL			
PARAMETER	Volume	SAMPLE TYPI # CONTAINERS			PRESERVED?	
PARAMETER APIX VOC	VOLUME 40 mL			ECTED		
APIX VOC APIX SVOC	 		FIELD F	ECTED	PRESERVED?	
APIX VOC	40 mL	# CONTAINERS 4	FIELD F	ECTED FILTERED? N 🗹	PRESERVED? Y ■ HCL N □	
APIX VOC APIX SVOC	40 mL	# CONTAINERS 4	FIELD F	ECTED filtered? N N	PRESERVED? Y ■ HCL N □ Y □ N ■	
APIX VOC APIX SVOC APIX Diss.	40 mL 1 L	# CONTAINERS 4	FIELD F	ECTED filtered? N N	PRESERVED? Y ■ HCL N □ Y □ N ■	
APIX VOC APIX SVOC APIX Diss. METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD F Y Y Y Y Y Y Y Y	ECTED FILTERED? N N N N N	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □	
APIX VOC APIX SVOC APIX Diss. METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD F Y Y Y Y Y Y Y Y Y	ECTED FILTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y □ N ■	
APIX VOC APIX SVOC APIX Diss. METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD F Y Y Y Y Y Y Y Y Y Y Y Y Y	ECTED FILTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □	
APIX VOC APIX SVOC APIX Diss. METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD F Y Y Y Y Y Y Y Y Y Y Y Y Y	ECTED FILTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y □	
APIX VOC APIX SVOC APIX Diss. METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD F Y	ECTED PILTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □	
APIX VOC APIX SVOC APIX Diss. METALS	40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1	FIELD F Y O Y O Y O Y O Y O Y O Y O Y O Y O Y O	ECTED PILTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
APIX VOC APIX SVOC APIX D: 55. METALS TDS Number of Cont	40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 FILTRA	FIELD F Y	ECTED FILTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
APIX VOC APIX SVOC APIX D: 55. METALS TDS Number of Cont	40 mL 1 L 250 mL 500 mL TAINERS STL-Savannah	# CONTAINERS 4 2 1 1 FILTRA	FIELD F Y O Y O Y O Y O Y O Y O Y O Y O Y O Y O Y O Y O	ECTED FILTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	

f21/corp

OJECT	Hercules/Jeffe	rson	SAMPLE	ID \mathcal{E}	- <i>59</i>		
PROJECT NO.	01305.40	WELL NO	o. <u>E</u>	-59			
SAMPLE DATE	1/27/	04	Samplei	SAMPLED BY MAL			
SAMPLE TIME (ST	SAMPLE TIME (START/END) 9:20 / 9:35			SAMPLE SEQUENCE NO. 7			
SAMPLE COLLECT	TION EQUIPMENT	Grandfoss	iub pumo	+ dodicas	ted tubing		
DEPTH TO WATER	R PRIOR TO PURGI	NG/SAMPLING (FT)		8.86	1 9.01	-	
RECHARGE TIME		52.0	MEA	SURED FROM	□ TOC Z TOR □ GS	_	
		FIELD MEASU	REMENTS	· · · · · · · · · · · · · · · · · · ·			
pŀ	I	Standard U	nits		7.22		
Specific Co	nductance	-umho/cn	1:5/m		91		
Water Ten	nperature	<u>°C</u>			16.0		
Dissolved	Oxygen	ppm			3.3		
Red	lox	mV			-40		
Turbi	idity	NTU	·	005	or Rouce		
METER CALIBRA	TION PERFORMED	?	YØ	Date _	1/27/04		
ATER APPEARA	NCE, IMMISCIBLE	PHASES OR ODORS:		ENY CCO	vry, Tundis	,	
ATER APPEARANCE, IMMISCIBLE PHASES OR ODORS: SAMPLING FLOW RATE:			100-11				
5. A.H 211. G 4 20 1.		<u>· </u>					
	10112.	SAMPLE TY	TES COLLE				
PARAMETER	Volume	SAMPLE TY # CONTAINERS			Preserved?		
				ECTED	Preserved? Y ■ HCL N □		
PARAMETER	Volume		FIELD FI	ECTED	· · · · · · · · · · · · · · · · · · ·		
PARAMETER APIX VOC	VOLUME 40 mL	# CONTAINERS 4	FIELD FI	ECTED LITERED? N □	Y■ <u>HCL</u> N□		
PARAMETER APIX VOC APIX SVOC	VOLUME 40 mL	# CONTAINERS 4	FIELD FI	ECTED LITERED? N N N N	Y■ <u>HCL</u> N□ Y□N■		
PARAMETER APIX VOC APIX SVOC APIX Diss.	VOLUME 40 mL 1 L	# CONTAINERS 4	FIELD FI	ECTED LITERED? N N N N	Y■ <u>HCL</u> N□ Y□N■		
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI Y Y Y Y Y Y Y Y	ECTED LTERED? N □ N □ N □	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □		
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	CCTED LTERED? N N N N N N N N N N	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □		
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	CCTED LTERED? N N N N N N N N N N	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □		
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	CCTED LTERED? N N N N N N N N N N	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □		
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	ECTED LITERED? N N N N N N N N N N	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □		
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1	FIELD FI	ECTED LITERED? N N N N N N N N N N	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □		
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 FILT	FIELD FI	ECTED LITERED? N N N N N N N N N N	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □		
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL NTAINERS STL-Savannah	# CONTAINERS 4 2 1 1 FILT	FIELD FI	CCTED LITERED? N N N N N N N N N N	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □		

f21/corp

Drovnes	XX 1 17 60				1000	t		
PROJECT	Hercules/Jeffe	erson	_ SAMPLE 1		-31 / DUP-	-	. (.
PROJECT NO.	01305.40		WELL NO			···		
SAMPLE DATE	1/27/0		 ,	BY C6				
	-	1920 / 0950	_	SEQUENCE N	10. <u>S</u>			
SAMPLE COLLECTION	•	. / - / / /	the pump					
DEPTH TO WATER	PRIOR TO PURGI		<u> </u>	85	1 7.9			
RECHARGE TIME	Sain		MEA	SURED FROM	TOC EXT	OR □ G	S	
		FIELD MEAS	UREMENTS				7	
pH		Standard U	Jnits	12.	45			
Specific Con-	ductance	umho/c	m		34			
Water Temp	perature	° <u>C</u>		10.6				
Dissolved (Oxygen	ppm		0.0	0			
Redo	x	mV		-307				
Turbid	ity	NTU		120	•			
METER CALIBRATI	ON PERFORMED	? и п	Y , ZÍ	DATE	1/27/04			
WATER APPEARAN	ICE, IMMISCIBLE	PHASES OR ODORS:	clear.	5-1	sulfer odor		1	
•		100 26/212		<i>y</i>			· (\
		SAMPLET	YPES COLLE	CTED				
PARAMETER	VOLUME	# CONTAINERS		LTERED?	PRESERVE	ED?		
APIX VOC	40 mL	# 8	Y 🗆	N	Y ■ HCL	N□		
APIX SVOC	1 L	14 4	_ Y 🗆	N 🗷	Y 🗆			
APIX	 .		<u>-</u> Ү @	ΝП	Y ■ <u>HNO3</u>			
METALS	-250 mL	A a						
TDS	500 mL	∌ ∂	- Y □	ΝE	Y 🗆	N ■		
			- Y □	N□				
		-	– Y □					
,			- 'Y□					
			 Y□				•	
			– Y□		Y 🗆			
			·		 	- · · -		
		1.0		m // -				
		FIL						
LABORATORY	STL-Savannah	DEI	LIVERED VIA	FedEx	DATE		.' \(<i>r</i> '
LABORATORY S	STL-Savannah TIONS <u>(Ad/</u>		LIVERED VIA	FedEx	Date <u>//</u>	137/04	.: \(<

LOJECT	Hercules/Jeffe	TOO D	SAMPLE I	D	E-60		:
	 	21 2011			E-60	_	
PROJECT NO.	01305.40	7/0//	WELL NO				
SAMPLE DATE	1	7/04	SAMPLED		MAL	<u> </u>	
SAMPLE TIME (STA		11:15 11:30	^	SEQUENCE N		<u> </u>	
SAMPLE COLLECTI	•	(prund-	tos sub	. 1	ledicated to	ubing_	
DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT)		 	13.97	1 13.9			
RECHARGE TIME 5 MIJ		MEA	SURED FROM	TOC TO	OR □GS		
		FIELD MEASUI	REMENTS	<u>-</u>			
pН		Standard Uni	ts		7.32		
Specific Con	ductance	_umho/cm	:5/m		83		
Water Tem	perature	° <u>C</u>			16.1		
Dissolved	Oxygen	ppm		_	2.7		
Redo	X	mV			-115		
Turbio	lity	NTU	-	007	- OF RANK	6	
METER CALIBRAT	ION PERFORMED	? · N□ Y	· d	DATE	1/27/04		
ATER APPEARAL	NCE. IMMISCIBLE	PHASES OR ODORS:		- 1/m2 4 0	·co-04, 7		•
SAMPLING FLOW 1	•			100-1	· .		
Of HAM DIFFO I DOWN	rarra.						
	· · ·					· · · · · · · · · · · · · · · · · · ·	
		SAMPLE TYP	ES COLLE	CTED			
PARAMETER	Volume	SAMPLE TYP	ES COLLE		Preservi	ED?	
PARAMETER APIX VOC	VOLUME 40 mL				Preservi Y ■ <u>HCL</u>	ED? N □	
			FIELD FII	LTERED?			
APIX VOC	40 mL	# CONTAINERS 4	FIELD FII	LTERED? N □	Y ■ HCL	Ν□	
APIX VOC APIX SVOC	40 mL	# CONTAINERS 4	FIELD FII	N □	Y ■ <u>HCL</u> Y □	N □	
APIX VOC APIX SVOC APIX Diss.	40 mL 1 L	# CONTAINERS 4	FIELD FII	N □	Y ■ <u>HCL</u> Y □	N □	
APIX VOC APIX SVOC APIX Diss	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y Y Y Y Y Y Y	N □ N □ N □	Y ■ <u>HCL</u> Y □ Y ■ <u>HNO3</u>	N □ N ■ N □	
APIX VOC APIX SVOC APIX Diss	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y	N □ N □ N □ N □	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □	N □ N ■ N □ N ■ N □	
APIX VOC APIX SVOC APIX Diss	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y Y	N D N D N D N D N D N D N D	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □	N □ N ■ N □ N □ N □ N □	
APIX VOC APIX SVOC APIX Diss	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y Y Y Y	N D N D N D N D N D N D N D	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □	N □ N □ N □ N □ N □ N □ N □ N □ N □	
APIX VOC APIX SVOC APIX Diss	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y Y Y Y	N D N D N D N D N D N D N D N D N D	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □	N □ N □ N □ N □ N □ N □ N □ N □ N □ N □	
APIX VOC APIX SVOC APIX Diss	40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1	FIELD FII Y Y Y Y Y Y Y Y Y Y	N C N C N C N C N C N C N C N C N C N C	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □	N □ N □ N □ N □ N □ N □ N □ N □ N □ N □	
APIX VOC APIX SVOC APIX Diss. METALS TDS	40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 FILTR	FIELD FII Y Y Y Y Y Y Y Y Y Y	N	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □	N	
APIX VOC APIX SVOC APIX Diss METALS TDS Number of Con	40 mL 1 L 250 mL 500 mL TAINERS STL-Savannah	# CONTAINERS 4 2 1 1 1 FILTR DELIV	FIELD FII Y Y Y Y Y Y Y Y Y Y	N C 45 FedEx	Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □	N	

PROJECT	Hercules/Jeffe	rson	SAMPLE 3	ID <i>E</i>	-33	16
PROJECT NO.	01305.40		WELL NO	•	-33	— <u> </u>
SAMPLE DATE	1/276	ry	SAMPLEI		GK	
SAMPLE TIME (ST.		155 / lalo	23	SEQUENCE N		_
SAMPLE COLLECT		peristitic		, ,		
DEPTH TO WATER	PRIOR TO PURGI	NG/SAMPLING (FT)	7 -7	7.56	1 7.56	
RECHARGE TIME 5717				⊿ □ TOC ▼ TOR □] GS	
<u></u>		FIELD MEASUR	EMENTS			
pH	I .	Standard Unit	S	8,	65	
Specific Co	nductance	umho/cm		1,4	04	
Water Ten	iperature	<u>°C</u>		19,	57	
Dissolved	Oxygen	ppm		3,	83	
Red	ox	mV		- ,	50	
Turbi	dity	NTU		4	10	
METER CALIBRAT WATER APPEARA SAMPLING FLOW	NCE, IMMISCIBLE	Phases or Odors: $\frac{ C ^{2} + C ^{2}}{ C ^{2}}$	<u> </u>	DATE .	1/27/04	
		SAMPLE TYP	ES COLLE	CTED		
PARAMETER	Volume	# CONTAINERS	FIELD FI	LTERED?	PRESERVED?	_
APIX VOC	40 mL	4	Υ□	ΝØ	Y ■ <u>HCL</u> N □	
APIX SVOC	<u>1 L</u>	2	Y□	N 🗷	Y □ N ■	•
APIX			Y 🗷	N□	Y ■ <u>HNO3</u> N □	
METALS	250 mL	1	,	-		
TDS	500 mL	1	$\mathbf{Y}.\square$	N 🖪	Y □ N ■	
			Y□	ΝП	Υ□ N□	
			Υ□	N□	Y 🗆 N 🗆	
			Y□	N□	Y 🗆 N 🗆	•
·			Υ□	Ν□	Y 🗆 N 🗆	
		· · · · · · · · · · · · · · · · · · ·	Y□	N□	Υ□ N□	
NUMBER OF COM	TAINERS	8 FILTRA	ATION METH	IOD <u>0,9</u>	15 mun filka	
LABORATORY	STL-Savannah	Deliv	ered Via	FedEx	DATE 1/87/04	1 1
WEATHER COND	OITIONS C	ld / rain -			/	
COMMENTS						

WATER SAMPLE COLLECTION REPORT

ROJECT	Hercules/Jefferson		SAMPLE 3	ID	E-13-D	
PROJECT NO.	01305.40		WELL NO		E-13-0	•
SAMPLE DATE	1/27/14		- Samplei		ML	
SAMPLE TIME (ST.	ART/END) /	3:35 14:00	SAMPLE	SEQUENCE N	o. // _	
SAMPLE COLLECT			. , 1 dig-	rundfos	sub pump with	<u>lidicated</u>
DEPTH TO WATER	PRIOR TO PURGI	ng/Sampling (ft)	·	22.03	1 22.19	tubi
RECHARGE TIME		50.1	MEA	ASURED FROM	TOC TOR D	I GS
		FIELD MEAS	UREMENTS	-		
pH	[Standard U	nits	ļ <u></u>	7.44	
Specific Con	nductance	u nthe/ er	5/1		86	
Water Tem	perature	<u>°C</u>			15.8	. •
Dissolved	Oxygen	· ppm			5,4	
Red	OX	mV	· .		-62	
Turbi	dity	NTU	· · · · · · · · · · · · · · · · · · ·	007	or RAJLE	
		E PHASES OR ODORS:			14, EXTREMELY	•
SAMPLING FLOW	RATE:	SAMPLE T	YPES COLLE	CTED		-
SAMPLING FLOW PARAMETER	RATE: Volume	SAMPLE TY			PRESERVED?	-
				ECTED		
PARAMETER	Volume	# CONTAINERS	FIELD FI	ECTED	Preserved?	
PARAMETER APIX VOC	VOLUME 40 mL	# CONTAINERS 4	FIELD FI	ECTED ILTERED? N	Preserved? Y■_HCL N□	_
PARAMETER APIX VOC APIX SVOC	VOLUME 40 mL	# CONTAINERS 4	FIELD FI	ECTED (LTERED? N □ N □	Preserved? Y ■ HCL N □ Y □ N ■	_
PARAMETER APIX VOC APIX SVOC APIX Diss.	VOLUME 40 mL 1 L	# CONTAINERS 4	FIELD FI	ECTED (LTERED? N □ N □	Preserved? Y ■ HCL N □ Y □ N ■	_
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	ECTED ILTERED? N □ N □ N □	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □	_
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	ECTED ILTERED? N □ N □ N □ N □	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □	
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	ECTED ILTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N ■	
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	ECTED ILTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	ECTED ILTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1	FIELD FI	ECTED ILTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 FIL	FIELD FI	ECTED LITERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX Diss. METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL VITAINERS STL-Savannah	# CONTAINERS 4 2 1 1 1 DEI	FIELD FI Y Y Y Y Y Y Y Y Y Y	ECTED LITERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	

f21/corp

f21/corp

PROJECT	Hercules/Jeff	erson	SAMPLE	ID	E-49		<i>_</i>
PROJECT NO.	01305.40		WELL N	O	E-49		
SAMPLE DATE	1/27/0	14	SAMPLE	D BY	MAL		
SAMPLE TIME (STA	ART/END)	7:05/ 17:40	SAMPLE	SEQUENCE 1	No. /2		
SAMPLE COLLECT		Pinis Pen	STALTIE	Pump			
DEPTH TO WATER	Prior to Purgi	NG/SAMPLING (FT)	T_{i+1}	5.85	1 19	154	
RECHARGE TIME 5 A. A			MEA	ASURED FRO	M □ TOC ☑T	OR □ GS	
		FIELD MEASUR	EMENTS				
pН		Standard Unit	:s		7.91		
Specific Cor	nductance	umho/em	05/14		76		
Water Tem	perature	° <u>C</u>			7.8		
Dissolved	Oxygen	ppm	· ·		12.7		
Redo	OX	mV			141		
Turbio	dity	NTU	<u> </u>	.00	TOP MANUE		
METER CALIBRAT	ION PERFORMED	? N□ Y	□ .	DATE	1/27/04	-	
WATER APPEARA	NCE, IMMISCIBLE	Phases or Odors:	V	eny cc	erry, minn	Y. Turois	
WATER APPEARANCE, IMMISCIBLE PHASES OR ODORS:			* *			/	
SAMPLING FLOW	Rate:			100-	1/mil		_
SAMPLING FLOW	RATE:				./.n.iJ		
	RATE:	SAMPLE TYP		ECTED			
PARAMETER	RATE: VOLUME	# CONTAINERS	FIELD F	ECTED	PRESERV	 .	
PARAMETER APIX VOC	VOLUME 40 mL	# CONTAINERS 4	FIELD F	ECTED ILTERED?	PRESERVI	N 🗆	
PARAMETER APIX VOC APIX SVOC	RATE: VOLUME	# CONTAINERS	FIELD FI	ECTED ILTERED? N □ N □	PRESERVI Y ■ HCL Y □	N □: N ■	
PARAMETER APIX VOC APIX SVOC APIX	VOLUME 40 mL 1 L	# CONTAINERS 4	FIELD F	ECTED ILTERED?	PRESERVI	N □: N ■	
PARAMETER APIX VOC APIX SVOC	VOLUME 40 mL	# CONTAINERS 4 2	FIELD FI	ECTED ILTERED? N □ N □ N □	PRESERVI Y ■ HCL Y □ Y ■ HNO3	N□ N■ N□	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4 2	FIELD FI	ECTED ILTERED? N □ N □ N □	PRESERVI Y ■ HCL Y □ Y ■ HNO3	N □ N ■ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4 2	FIELD FI	ECTED ILTERED? N □ N □ N □	PRESERVI Y ■ HCL Y □ Y ■ HNO3	N □ N ■ N □ N ■	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4 2	FIELD FI	ECTED ILTERED? N □ N □ N □ N □	PRESERVI Y ■ HCL Y □ HNO3 Y ■ HNO3	N □ N ■ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4 2	FIELD FI	ECTED ILTERED? N N N N N N N N N N	PRESERVI Y ■ HCL Y □ HNO3 Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ HNO3	N □ N ■ N □ N ■ N □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4 2	FIELD FI	ECTED ILTERED? N N N N N N N N N N	PRESERVI Y ■ HCL Y □ HNO3 Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y	N □ N ■ N □ N □ N □ N □ N □ N □ N □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1	FIELD FI	ECTED ILTERED? N N N N N N N N N N	PRESERVI Y ■ HCL Y □ HNO3 Y □ HNO3 Y □ HNO3 Y □ HNO3 Y □ HNO3	N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 FILTRA	FIELD FI	ECTED ILTERED? N N N N N N N N N N	PRESERVI Y ■ HCL Y □ HNO3 Y □ HNO3 Y □ HNO3 Y □ HNO3 Y □ HNO3	N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL TAINERS STL-Savannah	# CONTAINERS 4 2 1 1 FILTRA	FIELD FI	ECTED ILTERED? N N N N N N N N N N	PRESERVI Y ■ HCL Y □ HNO3 Y □ HNO3 Y □ HNO3 Y □ HNO3 Y □ HNO3	N □ N ■ N □ N □ N □ N □ N □ N □ N □ N □ N □ N □	

.OJECT	Hercules/Jeffe	erson	Sampli	EID <u>E</u>	- 23			
PROJECT NO.	01305.40		Well i	No. <u>E</u>	-23	• • •		
SAMPLE DATE	1/27/	o Y	SAMPL	ED BY	6K	•		
SAMPLE TIME (ST	•	040 / 165		E SEQUENCE 1	To			
SAMPLE COLLEC	TION EQUIPMENT	pe-15-1	eltic pump			·		
DEPTH TO WATER	r Prior to Purgi	ng/Sampling (ft) ·	25,31	1 25,42	· .		
RECHARGE TIME	Snin		MI	MEASURED FROM □ TOC ☑ TOR □ GS				
		FIELD ME	ASUREMENT	S				
p!	pH Standard Unit		d Units	Ч. а	7			
Specific Co	Specific Conductance umho/cm		o/cm	70.	0			
Water Ter	nperature	0	<u>C</u>	7,7	<u>/</u>			
Dissolved	l Oxygen	pŗ	om .	0.0	0			
Red	lox	m	V	23	9			
Turb	idity	N'	ΓU	0	· .			
7	***		TYPES COLI					
PARAMETER	VOLUME	# CONTAINE		FILTERED?	PRESERVED?			
APIX VOC	40 mL	. 4	Y 🗆	N SS	Y■ <u>HCL</u> N□			
APIX	1 L		Y□ Y 20	•	Y 🗆 N 🗷			
METALS	250 mL	1	Y SA	ИП	Y ■ <u>HNO3</u> N □			
TDS	500 mL	1	—— Y□	N 😈	Y□ N■			
		<u> </u>	Y 🗆	N□	Y			
			^_	NП	YO NO	ē		
				N□	Y D N D			
			ΥU					
			Y 🗆 Y 🗆	N□	•			
					•			
NUMBER OF CO	NTAINERS _	8	Y 🗆	ИП	Y 🗆 N 🗆			
	NTAINERS STL-Savannah	. *	Y 🗆 Y 🗆	N □ N □ THOD <u> </u>	YO NO			
* ABORATORY	STL-Savannah		Y D Y D FILTRATION ME DELIVERED VIA	N □ N □ THOD <u>Y a</u> FedEx	YO NO			
* ABORATORY	STL-Savannah	. *	Y D Y D FILTRATION ME DELIVERED VIA	N □ N □ THOD <u>Y a</u> FedEx	Y - N - N - N - N - N - N - N - N - N -			

f21/corp

			• '			•
PROJECT	Hercules/Jeffe	erson	Sample I	ΙĎ	E-61 /ms/	Mro ! (
PROJECT No.	01305.40		WELL NO		E-61	
SAMPLE DATE	1/28/	04	SAMPLED	BY	MAL	
SAMPLE TIME (ST	ART/END) / 0	:55 / 11:20	SAMPLE S	SEQUENCE		
SAMPLE COLLECT	TION EQUIPMENT	Grundfos	sub nu	mp & d	edicated tubing	· .
DEPTH TO WATER	R PRIOR TO PURGI	NG/SAMPLING (FT)		16.10	J	
RECHARGE TIME	RGE TIME /5 / ~		Меа	SURED FRO	M □ TOC DYTOR	□ GS
		FIELD MEASUI	REMENTS			
pH	I	Standard Uni	ts		7.38	
Specific Co	nductance	umho/cm	ris/m		90	
Water Ten	nperature	<u>°C</u>			14.8	
Dissolved	Oxygen	ppm			C.C	
Red	ox	mV			-/73	
Turbi	dity	NTU		00	T OF KARE	
METER CALIBRAT	TION PERFORMED	? · N 🗆 Y	· 🗹 .	DATE	1/28/04	
WATER APPEARA	nce, Immiscible	PHASES OR ODORS:	Extrem	rey To	mooy	
SAMPLING FLOW	RATE:			calla.	•	
		SAMPLE TYP	ES COLLE	CTED		······
PARAMETER	VOLUME	# CONTAINERS	FIELD FI	LTERED?	Preserved?	
APIX VOC	40 mL	4 12	Υ□	Ν□	Y ■ HCL N	
APIX SVOC	1 L	2 6	Υ□	N□	Υ 🗆 N	[=
APIX	·		Y□	Ν□	Y ■ <u>HNO3</u> N	
METALS	250 mL	1				•
TDS	500 mL	1	Υ□	ИП	Y □ N	! =
			Υ□	ΝП	Y □ N	
			Υ□	ΝП	Y 🗆 N	
			Y□	Ν□	Y 🗆 N	
			Y□	ΝП	Y 🗆 N	
			Y□	ΝП	Y 🗆 N	
Number of Cor	NTAINERS	% 20 Filtr	ATION METH	IOD	45 micronfilter	. ·
LABORATORY	STL-Savannah	•	ERED VIA		DATE	
WEATHER CONI	DITIONS	ery cold, windy	·	· · · · · · · · · · · · · · · · · · ·	. <u> </u>	_ '
COMMENTS	A.	MS/MSO WAS	COLLECT	E0 01	THIS Samece.	_

OJECT	Hercules/Jeffe	erson	SAMPLE	ID \mathcal{E}	-35	
PROJECT NO.	01305.40		WELL NO		-رد-	<u></u>
SAMPLE DATE	1/28/	oy	Samplei	DBY (CGK	
SAMPLE TIME (ST	TART/END) /	030 1 1055	SAMPLE	SEQUENCE 1	No. /-	<u> </u>
SAMPLE COLLEC	TION EQUIPMENT	peris			 	
DEPTH TO WATE	R PRIOR TO PURG	ng/Sampling (ft)			1 10.5	1
RECHARGE TIME	- Snin	····	MEĀ	ASURED FROM	м 🗆 тос 🗷	TOR GS
 		FIELD MEASU	REMENTS			
pl	H	Standard Un	its	8.40		
Specific Co	onductance	umho/cm	. :	0.09		
Water Ter	nperature	° <u>C</u>		8.49		
Dissolved	l Oxygen	ppm		0.00		
Red	lox	mV		-10		
		NTU		0	• .]
Turb METER CALIBRA ATER APPEARA	TION PERFORMED	· · · · · · · · · · · · · · · · · · ·	Clea	-	1/28/04	
Turb METER CALIBRA ATER APPEARA	TION PERFORMED	? N□ Y	<u> </u>			
Turb METER CALIBRA	TION PERFORMED	? N□ Y PHASES OR ODORS:	C/EA			
Turb METER CALIBRA ATER APPEARA SAMPLING FLOW	TION PERFORMED ANCE, IMMISCIBLE RATE:	PHASES OR ODORS:	C/EA	ECTED		VED?
Turb METER CALIBRA ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC	TION PERFORMED ANCE, IMMISCIBLE RATE: VOLUME	? N□ Y PHASES OR ODORS: 100 mt/n SAMPLE TYPE # CONTAINERS	PES COLLE	ECTED	Preser	VED?
Turb METER CALIBRA ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX	TION PERFORMED ANCE, IMMISCIBLE RATE: VOLUME 40 mL 1 L	? N D Y PHASES OR ODORS: 100 mt/m SAMPLE TYPE # CONTAINERS 4	PES COLLE FIELD FI	ECTED ILTERED? N 🗷	Preser Y HCL	VED? N□
Turb METER CALIBRA ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	TION PERFORMED ANCE, IMMISCIBLE RATE: VOLUME 40 mL 1 L 250 mL	? N D Y PHASES OR ODORS: 100 mt/m SAMPLE TYPE # CONTAINERS 4	PES COLLE FIELD FI Y Y	ECTED LITERED? N N N	PRESER Y ■ HCL Y □ Y ■ HNO3	VED? N□ N■
Turb METER CALIBRA ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX	TION PERFORMED ANCE, IMMISCIBLE RATE: VOLUME 40 mL 1 L	? N D Y PHASES OR ODORS: 100 mt/m SAMPLE TYPE # CONTAINERS 4	PES COLLE FIELD FI Y Y Y Y Y Y Y T	ECTED (LTERED? N 🗷	PRESER Y ■ HCL Y □ Y ■ HNO3	VED? N□ N■
Turb METER CALIBRA ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	TION PERFORMED ANCE, IMMISCIBLE RATE: VOLUME 40 mL 1 L 250 mL	? N D Y PHASES OR ODORS: 100 mt/m SAMPLE TYPE # CONTAINERS 4	PES COLLE FIELD FI Y Y Y Y Y Y Y Y Y Y	ECTED ILTERED? N N N N N N N N N N	PRESER Y ■ HCL Y □ Y ■ HNO3	VED?
Turb METER CALIBRA ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	TION PERFORMED ANCE, IMMISCIBLE RATE: VOLUME 40 mL 1 L 250 mL	? N D Y PHASES OR ODORS: 100000000000000000000000000000000000	PES COLLE FIELD FI Y Y Y Y Y Y Y Y Y Y	ECTED SLTERED? N N N N N N N N N N	PRESER Y ■ HCL Y □ HNO3 Y □ HNO3	VED? N□ N□ N□ N□ N□ N□ N□
Turb METER CALIBRA ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	TION PERFORMED ANCE, IMMISCIBLE RATE: VOLUME 40 mL 1 L 250 mL	? N D Y PHASES OR ODORS: 100000000000000000000000000000000000	PES COLLE FIELD FI Y Y Y Y Y Y Y Y Y Y	ECTED ELTERED? N N N N N N N N N N	PRESER Y ■ HCL Y □ HNO3 Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y	VED?
Turb METER CALIBRA ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	TION PERFORMED ANCE, IMMISCIBLE RATE: VOLUME 40 mL 1 L 250 mL	? N D Y PHASES OR ODORS: 100000000000000000000000000000000000	PES COLLE FIELD FI Y Y Y Y Y Y Y Y Y Y	ECTED ELTERED? N N N N N N N N N N	PRESER Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □	VED? N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□
Turb METER CALIBRA ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	TION PERFORMED ANCE, IMMISCIBLE RATE: VOLUME 40 mL 1 L 250 mL	? N D Y PHASES OR ODORS: 100000000000000000000000000000000000	PES COLLE FIELD FI Y Y Y Y Y Y Y Y Y Y	ECTED ELTERED? N N N N N N N N N N	PRESER Y ■ HCL Y □ HNO3 Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y	VED? N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□
Turb METER CALIBRA ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	TION PERFORMED ANCE, IMMISCIBLE RATE: VOLUME 40 mL 1 L 250 mL 500 mL	? N D S PHASES OR ODORS: 100 mt/m SAMPLE TYPE # CONTAINERS 4 2	PES COLLE FIELD FI Y Y Y Y Y Y Y Y Y Y	ECTED ILTERED? N N N N N N N N N N	PRESER Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □	VED? N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□ N□

PROJECT	Hercules/Jeff	erson	Sample I	D E	· -37		
PROJECT No.	01305.40		WELL NO		-37	· · · · · · · · · · · · · · · · · · ·	<u></u>
SAMPLE DATE	1/28/	γγ.	— Sampled		GK.		
SAMPLE TIME (ST.	ART/END) /	340 / 1355	SAMPLE S	 Sequence N	10. /6		
SAMPLE COLLECT	TION EQUIPMENT	peristal	•				•
DEPTH TO WATER	PRIOR TO PURG	ng/Sampling (ft)			1 14.	18	_
RECHARGE TIME	Snin	<u>.</u>	MEA	SURED FROM	1 □ TOC XTO	R GS	-
		FIELD MEA	SUREMENTS				
рH			Units	۲. ۵	4		
Specific Co			/cm	87.	5		
Water Ten	iperature	° <u>C</u>		.1 2	. 27		
Dissolved	Oxygen	ppr	n	0,	00		
Red	ox	/m	7	. 20	, a		
Turbi	dity	NT	U	0) 		•
METER CALIBRAT		? N \square E Phases or Odors	, , ,		1/28/04		(
SAMPLING FLOW	RATE:	10001/014			·	<u>:</u>	<u> </u>
·		SAMPLE	TYPES COLLE	CTED	-		
PARAMETER	Volume	# CONTAINER	S FIELD FI	LTERED?	PRESERVE	D?	
APIX VOC	40 mL	4	Y 🗖	N 📆	Y ■ <u>HCL</u>	N□	
APIX SVOC	_1 L	2	Y 🗆	. N 🖪	Y 🗆	N■	-
APIX	•		Y	Ν□	Y ■ <u>HNO3</u>	ΝП	
METALS	250 mL				: ·		
TDS	500 mL	1	Y 🗆	N 🚾	Y 🗆	N■	
		<u> </u>	Y 🗆	ИП	Y 🗆	N□	
		-	Y 🗆	Ν□	Y 🗆	Ν□	
<u> </u>			Y 🗆	N□	Y 🗆	N□	
,		····	Y 🗆	N□	Y 🗆	ΝП	
		_	Y 🗆	Ν□	Y 🗆	N□	,
NUMBER OF CO	NTAINERS	<u>8</u> F	ILTRATION METH	IOD <u>0, 4</u>	I neces fit	fen .	
Laboratory	STL-Savannah		ELIVERED VIA	<u>FedEx</u>	_ DATE <u>1</u> /	27/04	(
WEATHER CONI	DITIONS	old (snow of	lurry			<u> </u>	. (
COMMENTS	· · · · · · · · · · · · · · · · · · ·					<u> </u>	

f21/corp

.OJECT	Hercules/Jeffe	erson	SAMPLE I	D	E-62	
PROJECT NO.	01305.40	•	WELL NO). · ·	E-62	
SAMPLE DATE	1/29/	04	SAMPLED	BY	MAL.	
SAMPLE TIME (STA	ART/END) /	0:20 / 10:40	SAMPLE	SEQUENCE N	o. /7	
SAMPLE COLLECT	ION EQUIPMENT	Submersible a	utale più	np		
DEPTH TO WATER	PRIOR TO PURGI	NG/SAMPLING (FT)		24.46	1 26.45	
RECHARGE TIME		5 3	MEA	SURED FROM	□ TOC □ TOR □ GS	
		FIELD MEASUR	REMENTS			
pH Standard Uni			ts		10.41	
Specific Cor	nductance	_umho/cm	5/m		86.2	
Water Tem	perature	° <u>C</u>			13.42	
Dissolved	Oxygen	ppm			0.00	
Redo	ox	. mV			-189	
Turbi	dity	NTU		,	OUT OK MANGE	
		? N□ Y E PHASES OR ODORS:	VERY	DATE _	Extracal Tunno	
SAMPLING FLOW	Rate:			loomil a	لد،	
SAMPLING FLOW	RATE:	SAMPLE TYP	ES COLLE			
PARAMETER	Volume	SAMPLE TYP # CONTAINERS	ES COLLE FIELD FI	CTED	PRESERVED?	
PARAMETER APIX VOC		• • • • • • • • • • • • • • • • • • • •		CTED		
PARAMETER APIX VOC APIX SVOC	Volume	# CONTAINERS	Y 🗆	CTED	Preserved?	
PARAMETER APIX VOC APIX SVOC APIX	VOLUME 40 mL 1 L	# CONTAINERS 4	FIELD FI	CTED LTERED? N □	Preserved? Y ■ HCL N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	CTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □	
PARAMETER APIX VOC APIX SVOC APIX	VOLUME 40 mL 1 L	# CONTAINERS 4	FIELD FI	CCTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	CCTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N ■	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	CTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ _HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	CTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	CTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N□ Y ■ HNO3 N□ Y ■ HNO3 N□ Y □ N■ Y □ N□ Y □ N□ Y □ N□ Y □ N□ Y □ N□ Y □ N□ Y □ N□	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	CTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1	FIELD FI	CTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N□ Y ■ HNO3 N□ Y ■ HNO3 N□ Y □ N■ Y □ N□ Y □ N□ Y □ N□ Y □ N□ Y □ N□ Y □ N□ Y □ N□	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 1 FILTR	FIELD FI	CTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL TAINERS STL-Savannah	# CONTAINERS 4 2 1 1 FILTR. DELIV	FIELD FI	CTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	

f21/corp

PROJECT	PROJECT Hercules/Jefferson			D	E-3AD	. (
PROJECT NO.	01305.40		WELL NO).	E-3AD	• (
SAMPLE DATE	1/a	29/04	SAMPLED	BY	MAL	- ·
SAMPLE TIME (ST	TART/END) /	3:10 / /3:25	SAMPLE	.		
SAMPLE COLLEC	TION EQUIPMENT	submersible wh	ale pump)		-
DEPTH TO WATE	R PRIOR TO PURGI	ng/Sampling (ft)		5.7	0 1 6.55	
RECHARGE TIME		ماسر ک	Меа	SURED FROM	TOC TOR .	GS
	×	FIELD MEASUR	EMENTS			
p.	Н	Standard Unit	s		9.98	
Specific Co	Specific Conductance umho/em		Silm		0.115	
Water Te	mperature	. <u>°C</u>			13.01	
Dissolve	d Oxygen	ppm	· .		0.00	
Rec	dox	mV			-142	
Turb	oidity	NTU			40	-
METER CALIBRA	TION PERFORMED	? N□ Y	a	DATE	1/29/04	
WATER APPEAR	ance, Immiscible	PHASES OR ODORS:	Seiz	HTLY CO	,ev1-/	• • •
SAMPLING FLOW	V RATE:	· · · · · · · · · · · · · · · · · · ·		· Inix	·	- (
		SAMPLE TYP	ES COLLE	CTED		
PARAMETER	Volume	# CONTAINERS	FIELD FI	LTERED?	PRESERVED?	
APIX VOC	40 mL	4	Υ□	NП	Y■ <u>HCL</u> N□	
APIX SVOC	1 L	2	Υ□	N□	Y□N■	
APIX			Υ□	N□	Y ■ <u>HNO3</u> N □	
METALS	250 mL	1			•	
TDS	500 mL	1	Υ□	N□	Y □ N ■	
			Y□	ΝП	Y 🗆 N 🗆	
		-	Υ□	ΝП	Y 🗆 N 🗆	
	<u></u>		Υ□	ИП	Y 🗆 N 🗆	
		<u> </u>	Υ□	N□	Y 🗆 N 🗆	
			Υ□	Ν□	Y 🗆 N 🗆	
NUMBER OF CO	NTAINERS	S FILTR	ATION METH	IOD L	15 micron filter	•
LABORATORY	STL-Savannah	Deliv	ered Via	FedEx_	DATE 1/29(04	
WEATHER CON	DITIONS (cold			/	,(
•	•					

f21/corp

SAMPLE COLLECTION EQUIPMENT P(-15 f * 1 f	E-57 F-57 Y
SAMPLE TIME (START/END) 1210 1335 SAMPLE SEQ SAMPLE COLLECTION EQUIPMENT pt-15f-1fic mg DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT) 10 RECHARGE TIME Soin MEASUREMENTS pH Standard Units Specific Conductance umho/cm Water Temperature °C	Y
SAMPLE TIME (START/END) 1210 1335 SAMPLE SEQ SAMPLE COLLECTION EQUIPMENT pt-15 f-1f1c mg DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT) 10 RECHARGE TIME Soin MEASUREMENTS pH Standard Units Specific Conductance umho/cm Water Temperature °C	QUENCE NO
DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT) 10 RECHARGE TIME SOLO MEASUREMENTS FIELD MEASUREMENTS pH Standard Units Specific Conductance umho/cm Water Temperature °C	RED FROM TOC TOR GS
DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT) 10 RECHARGE TIME FIELD MEASUREMENTS pH Standard Units Specific Conductance umho/cm Water Temperature °C	RED FROM TOC TOR GS
FIELD MEASUREMENTS pH Standard Units Specific Conductance umho/cm Water Temperature °C Time 1.00	6.80
pH Standard Units Specific Conductance umho/cm Water Temperature °C	
pH Standard Units Specific Conductance umho/cm Water Temperature °C	
Water Temperature °C	
	16
Dissolved Oxygen ppm	12-1
	4-1
Redox mV	113
Turbidity	0
SAMPLE TYPES COLLECT	TED
PARAMETER VOLUME # CONTAINERS FIELD FILTE	ERED? PRESERVED?
APIX VOC 40 mL 4 Y 🗆	N
APIX SVOC 1 L 2 Y 🗆	N ™ Y □ N ■
	N □ Y ■ <u>HNO3</u> N □
METALS 250 mL 1	
Y 🗆	
<u>. </u>	אר אר אר
	
Y 🗆	N 🗆 Y 🗆 N 🗅
Y 🗆 Y 🗆	N
Y 🗆 Y 🗆	N 🗆 Y 🗆 N 🗅
Y - Y - Y - Y - Y - D	N
	N 2 Y □ N ■ N □ Y □ N □ N □ Y □ N □
	
	NU AU NU
· · · · · · · · · · · · · · · · · · ·	NO YO NO
\cdot	ип уп ип
ΥП	
VΠ	
VΠ	IN I IN IN I
	NU AU NU
	
	
	
Y 🗀	N
ΥΠ	NU AU NU
$\frac{\text{TDS}}{\text{TDS}} = \frac{500 \text{ mL}}{\text{N}} = \frac{1}{\text{N}} = $	N 2 Y □ N 3
	ν□ и□
	
	ип ип ип
	NU AU NU
y =	NII YII NII
Υ□	
Y 🗆	· · · · · · · · · · · · · · · · · · ·
	
	
	
·	NO YO NO
Y 🗆	N
V [7]	NU AU NU
1DS 500 mL 1 Y L	N 2 2
TDS 500 mL 1 Y \Box	NE Y□N■
TDS 500 mL 1 Y	N 2 Y □ N ■
TDS 500 mL 1 Y	N 2 Y □ N ■
TDS 500 mL 1 Y 🗆	и № У□ и ≡
	NIED VEI NIE
	1 = 111105 11 1
APIX Y 🖸	N □ Y ■ <u>HNO3</u> N □
APIX Y 🖸	N□ Y■ <u>HNO3</u> N□
	•
APIX SVOC 1 L 2 Y D	N M Y □ N ■
APIX SVOC 1 L 2 Y 🗆	· -
, , , , , , , , , , , , , , , , , , ,	·
	·
APIX VOC 40 mL 4 Y □	N 2 Y ■ <u>HCL</u> N □
	
	
	
PARAMETER VOLUME # CONTAINERS FIELD FILTE	ERED? PRESERVED?
PARAMETER VOLUME # CONTAINERS FIELD FILTE	ERED? PRESERVED?
	
	
	
	
APIX VOC 40 mL 4 Y □	N
	
	
PARAMETER VOLUME # CONTAINERS FIELD FILTE	ERED? PRESERVED?
PARAMETER VOLUME # CONTAINERS FIELD FILTE	ERED? PRESERVED?

PROJECT	Hercules/Jeffers	son	SAMDIE I	n. F	-140	. (
PROJECT NO.	01305.40	3011	WELL NO			- \
SAMPLE DATE		1			-14 'GK	_
	T.	10 1 1525	**,	_		
	ION EQUIPMENT					_
		G/SAMPLING (FT)		17.08	/ 11/2	
RECHARGE TIME	•				☐ TOC ▼ TOR □	GS
	· · · · · · · · · · · · · · · · · · ·	FIELD MEASUI	REMENTS			
pH		Standard Uni	ts	5. 1	09.	
Specific Co	nductance	umho/cm	<u>.:</u>	G	,	
Water Tem	perature	<u>°C</u>		10.	6 .	
Dissolved	Oxygen	ppm		5. 7	7	
Rede	эx	mV		287	7	
Turbi	dity	NTU		0	·	·
METER CALIBRAT	ION PERFORMED?	N D Y	'¤	Date _	1/29/04	
		PHASES OR ODORS:	,			1 6
SAMPLING FLOW		100-L/712				. (
SAMPLING PLOW	RAIE.	10 70/715				
·	<u> </u>	SAMPLE TYP	ES COLLE	CTED	·	
PARAMETER	VOLUME	# CONTAINERS	FIELD FI	LTERED?	PRESERVED?	<u>-</u>
APIX VOC	40 mL	4	Υ□	N 🖭	Y■ <u>HCL</u> N□	
APIX SVOC	1 L	2	Y□	N 🗹	Y □ N ■	
APIX			Y- ®	N□	Y ■ <u>HNO3</u> N □	
METALS	250 mL	1			4	
TDS	500 mL	1	Υ□	ΝØ	Y□N■	
	· · · · · · · · · · · · · · · · · · ·		Υ□	ΝП	Υ□ и□	
			Y□	ΝП	Υ□ N□	
			Y□	N□	Υ□ N□	
			Υ□	Ν□	Y 🗆 N 🗅	
			<u>,</u> Y □	Ν□	_ У 🗆 И 🗆	:
NUMBER OF CO	NTAINERS S	7 FILTR	ATION METH	Юр <i>' 0,4</i> .	S necesfolde	
	STL-Savannah		ÆRED VIA		DATE //29/04	
WEATHER CONI			J. 22 7 11 1			
				1 . 4 . 5		
COMMENTS -	L1-11-6	<u></u>		4 2 4 9 4		

.OJECT	Hercules/Jeffe	erson	SAMPLE	ΙĎ	E-54
PROJECT NO.	01305.40		WELL NO	0. 4	=-54
SAMPLE DATE	1/30/04		Samplei		COK
SAMPLE TIME (ST	rart/end) c	·-	SAMPLE	SEQUENCE N	0. 21
	TION EQUIPMENT		. Itic punp		
DEPTH TO WATE	r Prior to Purgi) 17	7.84	1 17.86
RECHARGE TIME		·.			1 □ TOC ▼ TOR □ GS
		FIELD ME	ASUREMENTS		
n	H	- *		6	.27
	pH Standard Units Specific Conductance umho/cm		· · · · · · · · · · · · · · · · · · ·	 	5 4
	mperature		C	İ	0.0
	d Oxygen		om		,}
	dox		ıV	18	
Turb	idity	N'	TU	0	
Tax.		SAMPLI	E TYPES COLLE	ECTED	
PARAMETER	VOLUME	# CONTAINE	RS FIELD F	ILTERED?	Preserved?
APIX VOC	40 mL		Y 🗆	ΝØ	Y■ <u>HCL</u> N□
APIX SVOC	1 L		Y 🗆	N 🔯	Y □ N ■
APIX		·	Y 🗷	ΝП	Y ■ <u>HNO3</u> N □
METALS	250 mL		<u> </u>		•
TDS	500 mL		Y 🗆	N 🗷	Y □ N ■
			Y 🗆	Ν□	Υ 🗆 И 🗆
	·	· · · ·	Y 🗆	ИП	Υ□ И□
				ת וג	Y D N D
			Y 🗆	ИП	1 L N L
			Y 🗆	ИП	Y D N D
· · · · · · · · · · · · · · · · · · ·					
Number of Co	NTAINERS	8	Y 🗆 Y 🗅	Ν□	Y 🗆 N 🗆
			Y 🗆	ИП	
	•		Y D Y D FILTRATION MET	N □ N □ HOD <u>0,9</u>	YO NO YO NO
* ABORATORY	ONTAINERS STL-Savannah DITIONS		Y D Y D FILTRATION METE	N □ N □ HOD <u>0,9</u>	Y □ N □ Y □ N □

PROJECT	Hercules/Jeffe	rson	Sample I	D <i>E</i> -	-a 4		. (
PROJECT NO.	01305.40		WELL NO		24		
SAMPLE DATE	1/30/04		SAMPLED		CGK	-	
SAMPLE TIME (STA			SAMPLE S	 SEQUENCE N			
SAMPLE COLLECTI		peristo Itie					•
DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT)			•	1,20	1 17.23		
RECHARGE TIME					TOC X	OR □ GS	3
		FIELD MEASUR	EMENTS				
pН		Standard Unit	S	5.4	7		
Specific Con	ductance	umho/cm		96			
Water Tem	perature	<u>°C</u>		12.8	·		
Dissolved (Oxygen Oxygen	ppm		. 3.4			
Redo	x	mV		285			
Turbid	ity	NTU		0		• .	
METER CALIBRATI WATER APPEARAN SAMPLING FLOW F	ice, Immiscible	4	clea		1/30/04		, . (
	·	SAMPLE TYPI	ES COLLE	CTED	· .		
PARAMETER	VOLUME	# CONTAINERS	FIELD FI	LTERED?	PRESERVE	ED?	
APIX VOC	40 mL	4	Υ□	N	Y ■ <u>HCL</u>	∙ И 🗖	
APIX SVOC	1 L		Υ□	N 🗷	Y 🗆	N =	
APIX			Υ	ИП	Y ■ <u>HNO3</u>	ИП	
METALS	250 mL						
TDS	500 mL		Υ□	N 🖾	Y 🗆	N =	•
		· · · · · · · · · · · · · · · · · · ·	Y□	ИП	Y 🗆	ИП	•
		• -	Υ□	ИП	Y 🗆	ИП	
		, , , , , , , , , , , , , , , , , , , 	Υ□	N□	Y 🗆	ИП	
		·	Υ□	N□	Y 🗆	ΝП	
			Υ□	N□	. Y 🗆	Ν□ .	
Number of Con	TAINERS	8 FILTRA	TION METH	IOD OIY	5 micres fi	14-	
Laboratory	STL-Savannah	Delivi	ERED VIA	FedEx		130/04	, (
WEATHER COND	TIONS C.	ld fourtage					
COMMENTS							

KOJECT	Hercules/Jeff	erson	SAMPLE	ID ¿	E-17D	
PROJECT NO.	01305.40		WELL N	0.	E-17D .	
SAMPLE DATE	1/30/04		SAMPLE	DBY \	1 AL:	
SAMPLE TIME (STA	SAMPLE TIME (START/END) /3:05 / /3:20			SEQUENCE NO		
SAMPLE COLLECTION EQUIPMENT Submersible			whale	pump		·
DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT)				20-37	1 20.7	74
RECHARGE TIME		5 211	_ MEA	ASURED FROM	□ TOC \□\TC	OR GS
		FIELD MEASUR	EMENTS			
pH		Standard Unit	V	1	7.02.	
Specific Cor	nductance	umho/em			2-088	
Water Tem	perature	<u>°C</u>			14.85	_ .
Dissolved	Oxygen	ppm			0.00	•
Redo	ОХ	mV			59	
Turbio	lity	NTU			76	
METER CALIBRAT	ION PERFORMED	? NO Y		DATE \	120/04	· · · · ·
ATER APPEARANCE, IMMISCIBLE PHASES OR ODORS:				G C 8 2 14	FLY CL	1
SAMPLING FLOW:	₿₰₮₣∙				100-1-	I
SAMPLING FLOW	RATE:				100-11-1	
SAMPLING FLOW	RATE:	SAMPLE TYP	ES COLLI	ECTED	f 4 9 - 2 f - 2 f	· · · · · · · · · · · · · · · · · · ·
PARAMETER	VOLUME	SAMPLE TYP # CONTAINERS		ECTED	PRESERVE	•
					PRESERVE	•
PARAMETER APIX VOC APIX SVOC	Volume	# CONTAINERS	FIELD F	ILTERED?	PRESERVE	D?
PARAMETER APIX VOC APIX SVOC APIX	VOLUME 40 mL 1 L	# CONTAINERS 4	FIELD F	ILTERED? N □	PRESERVE Y ■ HCL	D? N□
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD F Y Y Y Y Y Y Y Y Y Y Y Y Y	ILTERED? N N	PRESERVE Y ■ HCL Y □	D? N□ N■
PARAMETER APIX VOC APIX SVOC APIX	VOLUME 40 mL 1 L	# CONTAINERS 4	FIELD F Y Y Y Y Y Y Y Y Y Y Y Y Y	ILTERED? N □ N □ N □ N □	PRESERVE Y ■ HCL Y □	D? N□ N■
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD F Y Y Y Y Y Y Y Y Y Y Y Y Y	ILTERED? N N N N N N N N N N	PRESERVE Y ■ HCL Y □ Y ■ HNO3	D? N□ N□ N□ N□ N□
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD F Y Y Y Y Y Y Y Y Y Y	ILTERED? N N N N N N N N N N	PRESERVE Y ■ HCL Y □ Y ■ HNO3	D? N□ N□ N□ N□ N□
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD F Y Y Y Y Y Y Y Y Y Y	ILTERED? N N N N N N N N N N	PRESERVE Y ■ HCL Y □ HNO3 Y □ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y	D? N□ N□ N□ N□ N□
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD F Y Y Y Y Y Y Y Y Y Y	ILTERED? N N N N N N N N N N	PRESERVE Y ■ HCL Y □ Y ■ HNO3	D? N□ N□ N□ N□ N□ N□ N□
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD F Y Y Y Y Y Y Y Y Y Y	ILTERED? N N N N N N N N N N	PRESERVE Y ■ HCL Y □ HNO3 Y □ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y	D? N□ N□ N□ N□ N□ N□ N□ N□ N□ N
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1	FIELD F Y Y Y Y Y Y Y Y Y Y	ILTERED? N N N N N N N N N N	PRESERVE Y ■ HCL Y □ HNO3 Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y	D? N
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 FILTRA	FIELD F Y Y Y Y Y Y Y Y Y Y	ILTERED? N N N N N N N N N N	PRESERVE Y HCL Y HNO3 Y HNO3 Y Y Y Y Y Y Y Y Y Y	D? N
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL TAINERS STL-Savannah	# CONTAINERS 4 2 1 1 FILTRA	FIELD F Y Y Y Y Y Y Y Y Y Y	ILTERED? N	PRESERVE Y HCL Y HNO3 Y HNO3 Y Y Y Y Y Y Y Y Y Y	D? N

PROJECT Hercules/Jeff	erson	Sample II) <u>E</u>	-46D	_ : (
PROJECT NO. • 01305.40		WELL NO.	·	E-460	_ ; (
SAMPLE DATE 1/29/6	DATE 1/29/04		SAMPLED BY MAL		
SAMPLE TIME (START/END)	16:55 / 17:15	SAMPLE S	EQUENCE NO		<u> </u>
SAMPLE COLLECTION EQUIPMENT	submerable	whale pu	imp		
DEPTH TO WATER PRIOR TO PURG			20.90	1 20.30	
RECHARGE TIME	5 W	MEAS	SURED FROM	TOC TOR I	I GS
	FIELD MEASU	REMENTS			
pН	Standard Uni	ts		9.04	
Specific Conductance	umho/c m	æS/m		0.377	
Water Temperature	° <u>C</u>	•		13.83	
Dissolved Oxygen	ppm			0.00	
Redox	mV			-70	
Turbidity	NTU			0	
METER CALIBRATION PERFORMED)? N□ Y		DATE _/	/29/04	
WATER APPEARANCE, IMMISCIBLI	E PHASES OR ODORS:		cue	· · · · · · · · · · · · · · · · · · ·	: (
SAMPLING FLOW RATE:			100mil	(mi)	
	SAMPLE TYP	ES COLLEG	CTED		
PARAMETER VOLUME	# CONTAINERS	FIELD FIL	TERED?	PRESERVED?	
APIX VOC 40 mL	4	Y 🗆	 N □	Y■ HCL N□	_
APIX SVOC 1 L	2	Υ□	N□	Y□ N■	
APIX		Υ□	7 t lead		
METALS 250 mL		1 🗀	Ν□	$Y = HNO3 \qquad N \square$	
	1	1 🚨	NΔ	Y ■ <u>HNO3</u> N □	
TDS 500 mL .	1 .	Υ□	ΝП	Y ■ <u>HNO3</u> N □ Y □ N ■	
	1 .				
	1 .	Y□	Ν□	Y□N■	
	1	Y 🗆 Y 🗈	N \square	Y□N□	· · · · · · · · · · · · · · · · · · ·
	1	Y 🗆 Y 🗆 Y 🗆	N 🗆 N 🗆	Y□ N□ Y□ N□	
	1	Y 🗆 Y 🗅 Y 🗅	N 🗆 N 🗆 N 🗆	Y N N N N N N N N N	
	1 1	Y	и и и и и и и и и и	Y□ N■ Y□ N□ Y□ N□ Y□ N□ Y□ N□	
TDS 500 mL		Y	и и и и и и и и и и	Y□ N ■ Y□ N □ Y□ N □ Y□ N □ Y□ N □ Y□ N □ Y□ N □	
TDS 500 mL Number of Containers		Y	N	Y□ N ■ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□	·y

f21/corp

ROJECT	Hercules/Jeffe	erson	SAMPLE	ID し	-15	
PROJECT NO.	01305.40			MPLED BY CGK		
SAMPLE DATE	1/89/0	4	- Samplei	DBY C	GK	
SAMPLE TIME (ST	TART/END) / g	20 / 1835	SAMPLE	SEQUENCE N		
SAMPLE COLLECT		prosta		,	· · · · · · · · · · · · · · · · · · ·	٠
DEPTH TO WATER	R PRIOR TO PURGI	NG/SAMPLING (FT)		80	1 5.51	•
RECHARGE TIME	5-11	۸.			□ TOC ØCTOR.□GS	
<u> </u>			TO TO MODATURE		<u> </u>	1
nF	<u> </u>	FIELD MEASU		((J
	pH Standard Uni Specific Conductance umho/cm			6.80		
Water Ten		° <u>C</u>		6.1		
Dissolved		ppm	· · · · · · · · · · · · · · · · · · ·	5-1	·	
Red		mV	<u> </u>	-51		
Turb		NTU		0	· .	
	- To					
SAMPLING FLOW	RATE:	SAMPLE TY	PES COLLE			
PARAMETER	RATE: VOLUME	· · · · · · · · · · · · · · · · · · ·			PRESERVED?	
		SAMPLE TY		ECTED	PRESERVED? Y■ HCL N□	·
PARAMETER	Volume	SAMPLE TY # CONTAINERS	FIELD F	ECTED	·	
PARAMETER APIX VOC	VOLUME 40 mL	# CONTAINERS 4	FIELD FI	ECTED ILTERED? N 2	Y■ <u>HCL</u> N□	
PARAMETER APIX VOC APIX SVOC	VOLUME 40 mL	# CONTAINERS 4	FIELD FI	ECTED LTERED? N 20 N 20	Y ■ <u>HCL</u> N □ Y □ N ■	
PARAMETER APIX VOC APIX SVOC APIX	VOLUME 40 mL 1 L	# CONTAINERS 4	FIELD FI	ECTED LTERED? N 20 N 20	Y ■ <u>HCL</u> N □ Y □ N ■	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI Y Y Y Y Y Y TO	ECTED LITERED? N 20 N 10 N 10	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	ECTED ILTERED? N 20 N 10 N 10 N 10	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	ECTED ILTERED? N 20 N 10 N 10 N 10 N 10 N 10 N 10	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	ECTED ILTERED? N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FI	ECTED ILTERED? N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10 N 10	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2	FIELD FI	ECTED LTERED? N 10	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 FILT	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	ECTED LTERED? N 20 N 10 N	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS Number of Cor	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 DEL	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	ECTED ILTERED? N 10 N	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	

f21/corp

PROJECT	Hercules/Jeff	erson	SAMPLE I	\mathbf{D}	5-8D			
PROJECT NO.	01305.40		WELL NO). · <u>/</u>	E-8D	(
SAMPLE DATE	1/30/04	SAMPLED		MAL	- ·			
. SAMPLE TIME (STA	SAMPLE TIME (START/END) /5:10 /			SAMPLE SEQUENCE NO. 26				
SAMPLE COLLECT	ION EQUIPMENT	submersible w	half pump			. '		
DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT)					1 14.71			
RECHARGE TIME	·	5 200	MEA		□ TOC ☑ TOR □	GS ·		
		FIELD MEASU	REMENTS	<u> </u>		\neg		
pH		Standard Uni	· · · · · · · · · · · · · · · · · · ·		9.56			
Specific Cor	ductance	. umho/cm			0.116			
Water Tem	perature	<u>°C</u>			12.87			
Dissolved	Oxygen	ppm		· · · · · · · · · · · · · · · · · · ·	0.00			
Redo	ЭХ	mV			-140	•		
Turbic	lity	NTU			0			
METER CALIBRAT	ION PERFORMED	? N 🗆 Y		DATE	1/30/04			
	•	PHASES OR ODORS:		ح	100101	:		
SAMPLING FLOW 1	•	· ·			LEAR			
	KAIE:			100				
STATE BANGTEON !	MATE:			100.				
		SAMPLE TYP	ES COLLE					
PARAMETER	Volume	SAMPLE TYP # CONTAINERS	ES COLLE	CTED	PRESERVED?			
PARAMETER APIX VOC	VOLUME 40 mL	# CONTAINERS 4		CTED TERED?				
PARAMETER APIX VOC APIX SVOC	Volume	# CONTAINERS	FIELD FII	CTED TERED? N □ N □	PRESERVED?			
PARAMETER APIX VOC APIX SVOC APIX Diss,	VOLUME 40 mL 1 L	# CONTAINERS 4	FIELD FII	CTED TERED?	PRESERVED? Y■_HCL N□			
PARAMETER APIX VOC APIX SVOC APIX Diss, METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y Y Y Y M	CTED TERED? N □ N □ N □	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □			
PARAMETER APIX VOC APIX SVOC APIX Diss,	VOLUME 40 mL 1 L	# CONTAINERS 4	FIELD FII Y □ Y □ Y □ Y □	CTED TERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y □ N ■ N ■			
PARAMETER APIX VOC APIX SVOC APIX Diss, METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y	CTED TERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■			
PARAMETER APIX VOC APIX SVOC APIX Diss, METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y Y Y	CTED TERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N ■ Y □ N □			
PARAMETER APIX VOC APIX SVOC APIX Diss, METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y Y Y Y	CTED TERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □			
PARAMETER APIX VOC APIX SVOC APIX Diss, METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y Y Y Y	CTED TERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □			
PARAMETER APIX VOC APIX SVOC APIX Diss, METALS	VOLUME 40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y Y Y Y	CTED TERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □			
PARAMETER APIX VOC APIX SVOC APIX Diss, METALS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1	FIELD FII Y Y Y Y Y Y Y Y Y Y	N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □			
PARAMETER APIX VOC APIX SVOC APIX Diss, METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 FILTR	FIELD FII Y Y Y Y Y Y Y Y Y Y	CTED TERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □			
PARAMETER APIX VOC APIX SVOC APIX Diss, METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL TAINERS STL-Savannah	# CONTAINERS 4 2 1 1 FILTR	FIELD FII Y Y Y Y Y Y Y Y Y Y	CTED TERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Micron filter			

OJECT	Hercules/Jeffe	rson		SAMPLE 1	ID MI	v-F3	
PROJECT NO.	01305.40			WELL NO	WELL NO. ⊓ W-F3		
SAMPLE DATE	1/3	0/04		SAMPLEI	SAMPLED BY CGE		
SAMPLE TIME (ST	TART/END)	245 /1	300		104	0. 27	
SAMPLE COLLECT	TION EQUIPMENT		peristal				
DEPTH TO WATER	R PRIOR TO PURGI	ig/Sampli	NG (FT)	./0	0.20	1 10.02	
RECHARGE TIME	Snin.		·			TOC TOR GS	 .
		FIEL	D MEASUI	REMENTS			
pI	pH Standard Uni		ts	5.3	d		
Specific Co	onductance		umho/cm		0.16		
Water Ten	nperature		° <u>C</u>	******	9.7		
Dissolved	l Oxygen		ppm		0,0		
Red	lox		mV		380		
Turb	idity		NTU		d		
	—		,				
SAMPLING FLOW	RATE:	100 ~ C /	MPLE TYP		CCTED		
SAMPLING FLOW PARAMETER	RATE:	SA		ES COLLE		Preserved?	
		SA	MPLE TYP	ES COLLE	CCTED		
PARAMETER	Volume	SA	MPLE TYP	ES COLLE FIELD FI	CCTED	Preserved?	
PARAMETER APIX VOC	VOLUME 40 mL	# Con	MPLE TYP	ES COLLE FIELD FI	CCTED LTERED? N 27	Preserved? Y ■ HCL N □	
PARAMETER APIX VOC APIX SVOC	VOLUME 40 mL	# Con	MPLE TYP	ES COLLE FIELD FI Y \textsquare Y \textsquare	CCTED LTERED? N 27	PRESERVED? Y ■ HCL N □ Y □ N ■	
PARAMETER APIX VOC APIX SVOC APIX	VOLUME 40 mL 1 L	# Con	MPLE TYP	ES COLLE FIELD FI Y \textsquare Y \textsquare	CCTED LTERED? N 22 N 12	PRESERVED? Y ■ HCL N □ Y □ N ■	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# Con 4 2	MPLE TYP	ES COLLE FIELD FI Y Y Y Y Y Y Y Y Z	CCTED LTERED? N 22 N 12	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# Con 4 2	MPLE TYP	ES COLLE FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	CCTED LTERED? N 20 N 10 N 10	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N ■	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# Con 4 2	MPLE TYP	FIELD FII Y Y Y Y Y Y Y Y Y Y Y Y Y	CCTED LTERED? N 27 N 27 N 27 N 27 N 27 N 27 N 28 N 10 N 20 N 10 N 10 N 10 N 10	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N ■	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# Con 4 2	MPLE TYP	FIELD FII Y Y Y Y Y Y Y Y Y Y	CCTED LTERED? N 22 N 12 N 12 N 12 N 12 N 12 N 12 N 12 N 12 N 12 N 12 N 12	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N ■ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# Con 4 2	MPLE TYP	ES COLLE FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	CCTED LTERED? N 22 N 12 N 12 N 12 N 12 N 12 N 12 N 12 N 12 N 12 N 12 N 12	PRESERVED? Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL	SA # CON 4 2 1 1 1	MPLE TYP	FIELD FII Y Y Y Y Y Y Y Y Y Y	CCTED LTERED? N 22 N 22 N 22 N 23 N 24 N 25 N 26 N 27 N 27 N 28 N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS Number of Con	VOLUME 40 mL 1 L 250 mL 500 mL NTAINERS STL-Savannah	\$A # CON 4 2 1 1 1 8	MPLE TYP TAINERS FILTR. DELIV	FIELD FI Y	CCTED LTERED? N 22 N 25 N 26 N 27 N 27 N 27 N 27 N 27 N 27 N 27 N 28 N 29 N 20 N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS Number of Con	VOLUME 40 mL 1 L 250 mL 500 mL	\$A # CON 4 2 1 1 1 8	MPLE TYP TAINERS FILTR. DELIV	FIELD FI Y	CCTED LTERED? N 22 N 25 N 26 N 27 N 27 N 27 N 27 N 27 N 27 N 27 N 28 N 29 N 20 N	PRESERVED? Y ■ HCL N □ Y ■ HNO3 N □ Y ■ HNO3 N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	

PROJECT	Hercules/Jeffer	*con	CARADI & I	D E	-55	
PROJECT No.	01305.40	Son	WELL NO		-55	(
SAMPLE DATE	1/30/0	4			CGR	_
		45 1		• •	0. 28	- :
SAMPLE COLLECT				33002110211		
SAMPLE COLLECTION EQUIPMENT Peris for 1/4 (4) DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT)			11.22	1 12.78		
				□ TOC ØTOR □	GS	
		FIELD MEASU	REMENTS			
Iq	I F	Standard Ur	its	7.6	7	
Specific Co		umho/cm		0.13	,	
Water Ten		° <u>C</u>		. 11.8		•
Dissolved	l Oxygen	ppm		0.0		
Red	lox	m/V		-170	'	
Turb	idity	NTU		0		•
•	RATE: 1	•	C/44			
PARAMETER	Volume	# CONTAINERS		LTERED?	Preserved?	
APIX VOC	40 mL	4	Y 🗆	N 🖸	Y ■ HCL N□	- :
APIX SVOC	1 L	2		N 🚾	Y□ N■	
APIX		<u></u>	ΥŒ	N□	Y ■ <u>HNO3</u> N □	
METALS	250 mL	1				
TDS	500 mL	1	Υ□	N 🖷	Y□ N■	
			Υ□	N□	Y 🗆 N 🗆	
			Υ□	Ν□	Y 🗆 N 🗆	
:			У 🗆	ΝП	Y 🗆 N 🗆	
-			Y 🗆	N□	Y 🗆 N 🗆	
			Υ□	ΝП	Υ□ Ν□	
NUMBER OF CO	NTAINERS	8 Filt	RATION METI	HOD O.Y	5 microsfilta	
LABORATORY	STL-Savannah	DEL	IVERED VIA	FedEx	DATE 1/30/0	y : (
Weather Con	DITIONS	ld fournest				, - (
COMMENTS						

f21/corp

. ROJECT	erson	Sample I	D ·	E-45D				
PROJECT NO.		WELL NO. E -450						
SAMPLE DATE 1/30/04			SAMPLED BY MAL					
SAMPLE TIME (ST		16:251 16:40						
SAMPLE COLLEC	TION EQUIPMENT	Submersil		e pump		_		
DEPTH TO WATE	R PRIOR TO PURG	NG/SAMPLING (FT)		1 1	1 36-10			
RECHARGE TIME	·	J m/4	Measured from □ TOC ☑ TOR □ GS					
	· · · · · · · · · · · · · · · · · · ·	FIELD MEASU	REMENTS	<u></u> .	·			
pl	Н	Standard Uni	ts	s 9.34				
Specific Co	onductance	umho/c m	6S/m		1-21			
Water Ter	nperature	° <u>C</u>		,	-,			
Dissolved	i Oxygen	ppm						
Rec	lox_	, mV						
Turb	idity	NTU						
		? N 🗆 Y E Phases or Odors:	Ven,	DATE / CLOUD	1/30/04 1, Turoso			
		SAMPLE TYP	ES COLLE	CTED		' -		
PARAMETER	Volume	SAMPLE TYP	ES COLLE FIELD FII		Preserved?			
PARAMETER APIX VOC	VOLUME 40 mL				PRESERVED? Y■ HCL N□			
· · · · · · · · · · · · · · · · · · ·		# CONTAINERS	FIELD FII	LTERED?				
APIX VOC	40 mL	# CONTAINERS 4	FIELD FII	N □	Y■ <u>HCL</u> N□			
APIX VOC APIX SVOC	40 mL	# CONTAINERS 4	FIELD FII Y Y	N □	Y ■ <u>HCL</u> N □ Y □ N ■			
APIX VOC APIX SVOC APIX	40 mL 1 L	# CONTAINERS 4	FIELD FII Y Y	N □	Y ■ <u>HCL</u> N □ Y □ N ■			
APIX VOC APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y T	N□ N□ N□	Y■ <u>HCL</u> N□ Y□ N■ Y■ <u>HNO3</u> N□			
APIX VOC APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y Y Y Y Y Y Y	N D N D N D	Y■ HCL N□ Y□ N■ Y■ HNO3 N□ Y□ N■			
APIX VOC APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y Y	N D N D N D N D N D	Y■ HCL N□ Y□ N■ Y■ HNO3 N□ Y□ N■			
APIX VOC APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FII Y Y Y Y Y Y Y Y Y Y	N D N D N D N D N D N D N D N D	Y■ HCL N□ Y□ N■ Y■ HNO3 N□ Y□ N■ Y□ N□			
APIX VOC APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FIELD	N D N D N D N D N D N D N D N D N D N D	Y■_HCL N□ Y□N■ Y■HNO3 N□ Y□N□ Y□N□ Y□N□			
APIX VOC APIX SVOC APIX METALS	40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1	FIELD FII Y Y Y Y Y Y Y Y Y Y	N D N D N D N D N D N D N D N D N D N D	Y■ HCL N□ Y□ N■ Y■ HNO3 N□ Y□ N■ Y□ N□ Y□ N□ Y□ N□ Y□ N□			
APIX VOC APIX SVOC APIX METALS TDS	40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 FILTR	FIELD FII Y Y Y Y Y Y Y Y Y Y	N D N D N D N D N D N D N D N D N D N D	Y■ HCL N□ Y□ N■ Y■ HNO3 N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□			
APIX VOC APIX SVOC APIX METALS TDS	40 mL 1 L 250 mL 500 mL NTAINERS STL-Savannah	# CONTAINERS 4 2 1 1 FILTR	FIELD FII Y Y Y Y Y Y Y Y Y Y	N D N D N D N D N D N D N D N D N D N D	Y■ HCL N□ Y□ N■ Y■ HNO3 N□ Y□ N■ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□			

PROJECT NO. 01305.40	D=								: ,-	
SAMPLE DATE		Hercules/Jefferson					/		-; (
SAMPLE TIME (START/END) (600 16 (0) 6 (0)							·		*	
SAMPLE COLLECTION EQUIPMENT DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT) RECHARGE TIME FIELD MEASUREMENTS PH Standard Units Specific Conductance umbo/cm Water Temperature C Dissolved Oxygen Redox mV 2a Turbidity NTU METER CALIBRATION PERFORMED? WATER APPEARANCE, IMMISCIBLE PHASES OR ODORS: SAMPLE TYPES COLLECTED PARAMETER VOLUME # CONTAINERS FIELD MEASUREMENTS DATE 1/00-c/c SAMPLE TYPES COLLECTED PARAMETER VOLUME # CONTAINERS FIELD MEASUREMENTS DATE 1/00-c/c SAMPLE TYPES COLLECTED PARAMETER VOLUME # CONTAINERS FIELD MEASUREMENTS FIELD MEASURED FROM D TOC METALS 1 N N N N N N N N N N N N					SAMPLE	DBY C	3K .			
DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT) 13.35	SAMPLE TIME (START/END) [660 / 1610				Sample	SEQUENCE N	o <i>30</i>			
MEASURED FROM TOC	SAMPLE COLLEG	CTION EQUIPMENT	p.	istaltic	pin	e	·			
Standard Units	DEPTH TO WATE	ER PRIOR TO PURG	NG/SAMPLI	NG (FT)	13.35 / 13.89					
pH Standard Units S.6/ Specific Conductance umbo/cm 0.09 Water Temperature °C (2.6) Dissolved Oxygen ppm 0 Redox mV 22.0 Turbidity NTU 0 METER CALIBRATION PERFORMED? NTU ND YE DATE 1/30/09 WATER APPEARANCE, IMMISCIBLE PHASES OR ODORS: C/cxx SAMPLE TYPES COLLECTED PRESERVED? PARAMETER VOLUME # CONTAINERS FIELD FILTERED? PRESERVED? APIX VOC 40 mL 4 YD NE YD NE YD NE APPEARANCE N ■ APIX SVOC 1L 2 YD NE YD NE YD NE APPEARANCE N ■ APIX YUC 1 YD NE YD NE YD NE APPEARANCE, IMMISCIBLE PHASES OR ODORS: N ■ N ■ APIX YOC 40 mL 4 YD NE YD NE YD NE APPEARANCE, IMMISCIBLE PHASES OR ODORS: N ■ N ■ APIX YOC 40 mL 4 YD NE YD NE APPEARANCE, IMMISCIBLE PHASES OR ODORS: N ■ N ■ APIX YOC 1 Y ■ N ■	RECHARGE TIME 5 7/1.				Measured from □ TOC ▼TOR □ GS					
Specific Conductance			FIEL	D MEASUR	EMENTS	·				
Water Temperature °C 13.6 Dissolved Oxygen ppm 0 Redox mV 32.0 Turbidity NTU 0 METER CALIBRATION PERFORMED? N □ Y □ DATE 1/3.0/0.7 WATER APPEARANCE, IMMISCIBLE PHASES OR ODORS: C/ccc SAMPLETYPES COLLECTED SAMPLETYPES COLLECTED PARAMETER VOLUME # CONTAINERS FIELD FILTERED? PRESERVED? APIX VOC 40 mL 4 Y □ N □ Y □ N □ N □ APIX SVOC 1 L 2 Y □ N □ Y □ N □ N □ METALS 250 mL 1 Y □ N □ Y □ N □ N □ METALS 250 mL 1 Y □ N □ Y □ N □ N □ METALS 250 mL 1 Y □ N □ Y □ N □ N □ METALS 1 Y □ N □ Y □ N □ N □ METALS 250 mL 1 Y □ N □ Y □ N □ N □ METALS 1 Y □ N □ Y □ N □ N □ METALS 1 Y □ N □ Y □ N □ N □	F	pH Standard Units			s 5.6(_	
Dissolved Oxygen	Specific Conductance		<u>.</u>	umho/cm						
Redox	Water Te	mperature		° <u>C</u>						
METER CALIBRATION PERFORMED? N	Dissolve	d Oxygen	ppm			0				
METER CALIBRATION PERFORMED? N□ Y□ DATE 1/30/04 WATER APPEARANCE, IMMISCIBLE PHASES OR ODORS: C/cc SAMPLE TYPES COLLECTED PARAMETER VOLUME # CONTAINERS FIELD FILTERED? PRESERVED? APIX VOC 40 mL 4 Y□ N₺ Y□ N₺ Y□ N₺ APIX SVOC 1 L 2 Y□ N₺ Y□ N₺ Y□ N₺ METALS 250 mL 1 Y□ N₺ Y□ N₺ Y□ N₺ METALS 250 mL 1 Y□ N₺ Y□ N₺ Y□ N₺ METALS 250 mL 1 Y□ N₺ Y□ N₺ Y□ N₺ METALS 250 mL 1 Y□ N₺ Y□ N₺ Y□ N₺ METALS 250 mL 1 Y□ N₺ Y□ N₺ Y□ N₺ METALS 250 mL 1 Y□ N₺ Y□ N₺ Y□ N₺ Y□ N₺	Redox		mV .			220				
WATER APPEARANCE, IMMISCIBLE PHASES OR ODORS: C/ccc SAMPLING FLOW RATE: / 0 0 ~ C/c c c SAMPLE TYPES COLLECTED PARAMETER VOLUME # CONTAINERS FIELD FILTERED? PRESERVED? APIX VOC 40 mL 4 Y □ N □ Y □ N □ APIX SVOC 1 L 2 Y □ N □ Y □ N □ APIX NOC 250 mL 1 Y □ N □ Y □ N □ METALS 250 mL 1 Y □ N □ Y □ N □ TOS 500 mL 1 Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ N □ Y □ N □ Y □ N □ N □ WEATHER CONDITIONS 2 C A C A C A C A C A C A C A C A C A C	Turl	oidity		NTU		0				
PARAMETER VOLUME # CONTAINERS FIELD FILTERED? PRESERVED? APIX VOC 40 mL 4 Y □ N □ Y □ N □ APIX SVOC 1 L 2 Y □ N □ Y □ N □ APIX FILTALS 250 mL 1 Y □ N □ Y □ N □ METALS 500 mL 1 Y □ N □ Y □ N □ N □ TDS 500 mL 1 Y □ N □ Y □ N □ —	Sampling Flov	W RATE:				<u>.</u>				
APIX VOC 40 mL 4 Y □ N	Danasann	Morrison			_		<u> </u>		· · · · · · · · · · · · · · · · · · ·	
APIX SVOC 1 L 2 Y □ N ☑ Y □ N ☑ APIX Y ☑ N □ Y ■ HNO3 N □ METALS 250 mL 1 TDS 500 mL 1 Y □ N ☑ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ NUMBER OF CONTAINERS 8 FILTRATION METHOD 0.45 = 1/20/04 WEATHER CONDITIONS cold/oursef				TAINERS						
APIX METALS 250 mL 1 TDS 500 mL 1 Y□ N			·							
METALS 250 mL 1 TDS 500 mL 1 Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ N□ N□ N□ NUMBER OF CONTAINERS 8 FILTRATION METHOD 0.45 → 0.00 € 1/20/04 5:16 ← LABORATORY STL-Savannah Delivered Via FedEx Date 1/20/04 1/20/04		1 L		<u> </u>	•					
TDS 500 mL 1 Y□ N		. 250 1			Y	NΠ	Y ■ <u>HNO3</u>	N□		
Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Number of Containers 8 Filtration Method 0.45 2000 504 Laboratory STL-Savannah Delivered Via FedEx Date 1/30/04 Weather Conditions Cold / 000005f			· <u> </u>		**.	> . 				
Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Number of Containers 8 Filtration Method 0.45 7.5 5.14- Laboratory STL-Savannah Delivered Via FedEx Date 1/30/04 Weather Conditions cold/ourcest	108		- !							
Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ NUMBER OF CONTAINERS 8 FILTRATION METHOD 0.45 ¬1 5.14- LABORATORY STL-Savannah Delivered Via FedEx Date 1/30/04 WEATHER CONDITIONS cold/ourcest										
NUMBER OF CONTAINERS 8 FILTRATION METHOD 0.45 - 10. 1/30/04 LABORATORY STL-Savannah Delivered Via FedEx Date 1/30/04 Weather Conditions 100/04								,		
NUMBER OF CONTAINERS 8 FILTRATION METHOD 0.45 7.5 5.16- LABORATORY STL-Savannah DELIVERED VIA FedEx DATE 1/30/04 WEATHER CONDITIONS cold/ourcest										
Number of Containers 8 FILTRATION METHOD 0.45 -15.16- LABORATORY STL-Savannah Delivered Via FedEx Date 1/30/04 Weather Conditions cold/ourcest										
LABORATORY STL-Savannah DELIVERED VIA FedEx DATE 1/30/04 WEATHER CONDITIONS cold / ourcest		 	·		ΥΠ	N□	Y 🗆	N 🗆 .		
WEATHER CONDITIONS cold fourcest	NUMBER OF CO	ONTAINERS	8	FILTRA	TION MET	HOD 0.4.	Salerin fil	'A-		
	Laboratory	STL-Savannah		DELIVE	RED VIA	FedEx	DATE 1/	30/04	1.	
	WEATHER CON	IDITIONS <u>c</u>	old four	-c 95+					, [
COMMENTS	COMMENTS									

f21/corp

COJECT	Hercules/Jeffe	rson	SAMPLE I	D	E-29
PROJECT NO.	01305.40	•	WELL NO) .	E-29
SAMPLE DATE	2/2/0	14	SAMPLED	Вч	MAL
SAMPLE TIME (ST	ART/END)	3:55:1 14:30	SAMPLE S	SEQUENCE N	0. 31
SAMPLE COLLEC	TION EQUIPMENT	peristaltic pump			
DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT)				17.90	1 18,66
RECHARGE TIME		5 ~	Mea	SURED FROM	TOC TOT GS
<u> </u>		FIELD MEASUR	TMENTS	·	
Iq	· · · · · · · · · · · · · · · · · · ·	Standard Unit			6,3
	onductance	umho/cm			0.117
Water Ter		° <u>C</u>			13.03
Dissolved		ppm ·			0,00
Red		mV			193
Turb	idity	NTU			0
SAMPLING FLOW		Phases or Odors:		100-1-	
		SAMPLE TYP	re cottr	CTED	
		SAME LE LIE.	ES COLLE		
PARAMETER	VOLUME	# CONTAINERS	FIELD FI		PRESERVED?
PARAMETER APIX VOC	VOLUME 40 mL		•		PRESERVED? Y■ <u>HCL</u> N□
		# CONTAINERS	FIELD FI	LTERED?	
APIX VOC APIX SVOC APIX (o.ss)	40 mL	# CONTAINERS 4	FIELD FI	N □	Y■_HCL N□
APIX VOC APIX SVOC APIX (o.55) METALS	40 mL	# CONTAINERS 4	FIELD FI	N □ N □ N □ N □	Y■ <u>HCL</u> N□ Y□N■ Y■ <u>HNO3</u> N□
APIX VOC APIX SVOC APIX (o.ss)	40 mL 1 L	# CONTAINERS 4	FIELD FIELD	N □	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □
APIX VOC APIX SVOC APIX (o.55) METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FIELD	N D N D N D N D N D	Y■ <u>HCL</u> N□ Y□N■ Y■ <u>HNO3</u> N□
APIX VOC APIX SVOC APIX (0.55) METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FIELD	N D N D N D N D N D N D N D N D N D N D	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □
APIX VOC APIX SVOC APIX (0.55) METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FIELD	N D N D N D N D N D	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □
APIX VOC APIX SVOC APIX (0.55) METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FIELD	N C N C N C N C N C N C N C N C N C N C	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □
APIX VOC APIX SVOC APIX (o.55) METALS	40 mL 1 L 250 mL	# CONTAINERS 4	FIELD FIELD	N D N D N D N D N D N D N D N D N D N D	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □
APIX VOC APIX SVOC APIX (0.55) METALS	40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1	FIELD FIELD	N C N C N C N C N C N C N C N C N C N C	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □
APIX VOC APIX SVOC APIX (o.ss) METALS TDS Number of Co	40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 FILTRA	FIELD FIELD	NCOD 4	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □
APIX VOC APIX SVOC APIX (o.ss) METALS TDS Number of Co	40 mL 1 L 250 mL 500 mL NTAINERS STL-Savannah	# CONTAINERS 4 2 1 1 FILTRA DELIV	FIELD FIELD	NCOD 4	Y■ HCL N□ Y□ N■ Y■ HNO3 N□ Y□ N■ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□ Y□ N□

PROJECT.	Hercules/Jeffe	erson .	SAMPLE	ID	E-42	!
PROJECT No.	01305.40		– Well No	 D. ·	E-48	_
SAMPLE DATE	2/2/	04	 Samplei	BY .	MAL	_
SAMPLE TIME (STA	ART/END)	5:25/ 16:00	SAMPLE	SEQUENCE N	0. 32	-
SAMPLE COLLECT	ION EQUIPMENT	poristal	tic ownu) · · ·		
DEPTH TO WATER	PRIOR TO PURGI	NG/SAMPLING (FT)		17.5.	3 1 18.32	
RECHARGE TIME		5 m.n	MEA	SURED FROM	TOC TOR	GS
·		. FIELD MEAS	UREMENTS	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	<u> </u>
pH		Standard U			4.53	
Specific Con	ductance	umhe/ci	m as/m		0.319	
Water Tem	perature	<u>°C</u>	•		14.25	
Dissolved	Oxygen	ppm			0.00	•
Redo)X	mV			286	
Turbio	lity	NTU	•		0	
METER CALIBRAT	ION PERFORMED	? N 🗆	Y 🗹	DATE	2/2/04	,
WATER APPEARA	NCE, IMMISCIBLE	PHASES OR ODORS:		- -	LEAN	; /
SAMPLING FLOW]				Ocala	····	
	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			·
L	· .		YPES COLLE			
PARAMETER	VOLUME	# CONTAINERS		LTERED?	PRESERVED?	,
APIX VOC	40 mL	4	_ Y 🗆	N□	Y■ <u>HCL</u> N□	
APIX SVOC	1 L	2	_ Y 🗆	N□	Y □ N ■	
APIX	2501	1	ΥΠ	Ν□	Y ■ <u>HNO3</u> N □	
TDS	250 mL 500 mL	1	- 	NΠ	V	
ואס	300 ML	1 .	Y 🗆	ИП	Y 🗆 N 🔳	
· · · · · · · · · · · · · · · · · · ·			_ Y 🗆	ИП	Y - N - N - N - N - N - N - N - N - N -	
·			Y 🗆	ΝП	Y — N — N —	
		<u> </u>	_ Y 🗆	ИП	Y — N — N —	
	•		_ Y 🗆	ИП	Y [N [N []	
	· · · · · · · · · · · · · · · · · · ·	· -	_ Y 🗖	ИП	Y 🗆 N 🗅	
Number of Con	TAINERS	FIL.	TRATION METH	10D 45	micron filter	
LABORATORY	STL-Savannah	Dei	LIVERED VIA	FedEx	DATE 2/2/04	
WEATHER COND	ITIONS	30's, partly	daudy			
COMMENTS		, , , ,	1	•		

OJECT	Hercules/Jefferson		SAMPLE	ID E	- 40	
PROJECT NO.	01305.40		WELL NO	•	-40	- .
SAMPLE DATE	_ a/a/oy	·	SAMPLEI		6 K	<u> </u>
SAMPLE TIME (STA			SAMPLE		·····	
SAMPLE COLLECTI	ON EQUIPMENT	· Perteta	115 12 W	~ <i>p</i>		
DEPTH TO WATER	Prior to Purgi	NG/SAMPLING (FT)			1 17-27	
RECHARGE TIME	5 min	,			I □ TOC 🗷 TOR 🖸	I GS
		FIELD MEASUR	REMENTS			
pH		Standard Uni	ts	3.0	9	•
Specific Con	ductance	umho/cm		011	<u> </u>	
Water Temp	perature	° <u>C</u>		13.5		
Dissolved (Oxygen	ppm		8.4		
Redo	x	mV		-15		
Turbid	ity	NTU		0		·
METER CALIBRATI ATER APPEARAN SAMPLING FLOW R	ICE, IMMISCIBLE	? $N \square Y$ E PHASES OR ODORS: $\frac{ UU \sim \frac{1}{2} a_{12} }{ a_{12} }$	<u> </u>		3/3/04	
		SAMPLE TYP	ES COLLE	CTED		
PARAMETER	VOLUME	# CONTAINERS	FIELD FI	LTERED?	PRESERVED?	_
APIX VOC	40 mL	4	Υ□	N 🔯	Y■ <u>HCL</u> N□	
APIX SVOC	1 L	2	Υ□	И	Y□N■	
APIX			Y 🐼	Ν□	Y ■ <u>HNO3</u> N □	
METALS	250 mL	1				
TDS	500 mL		Υ□	N 🗷	Y □ N ■	
	<u> </u>		Υ□	ΝП	Υ□ N□	
 -	· -	-	Υ□	N□	Υ□ Ν□	
	<u>.</u>		Υ□	N□	Υ□ N□	
		<u> </u>	Υ□	ΝП	Υ□ N□	
			Υ□	ИП	Υ□ N□	
NUMBER OF CONT	TAINERS	8 FILTRA	ATION METH	IOD 0-4	5 mun folker	
ABORATORY	STL-Savannah			FedEx	DATE 2/3/07	•
WEATHER CONDI	TIONS C	collouncest				•
COMMENTS		• . —				

PROJECT	Hercules/Jeffe	rson	Sample I	D E	-34		1
PROJECT NO.	01305.40		WELL NO		-34		. (
SAMPLE DATE	2/2/04		SAMPLED		····		
SAMPLE TIME (STA		505 1 15.20	SAMPLE	SEQUENCE NO		, 	
SAMPLE COLLECT			'く・カレー	· 0	,	· .	
DEPTH TO WATER	PRIOR TO PURGIN	P 2-15 + 4 / 4. NG/SAMPLING (FT)	3	-50	1 3.53		
RECHARGE TIME	Snin.	<u> </u>				OR □ GS	
	· · · · · · · · · · · · · · · · · · ·	FIELD MEASUR	EMENTS			<u>. </u>	ë İ
рН		Standard Units		2.7	4		
Specific Con	iductance	umho/cm		1.9			
Water Tem	perature	° <u>C</u>		12.2			
Dissolved	Oxygen	ppm		10,7		,	
Redo	ox	mV		84			
Turbio	lity	NTU		0		, <u></u>	
METER CALIBRAT		N□ Y PHASES OR ODORS:	C/20.	•	12/04		· · ·
SAMPLING FLOW]	RATE:/	onl/nin	•				
		SAMPLE TYPE	S COLLE	ECTED	· · · · · · · · · · · · · · · · · · ·		
PARAMETER	VOLUME	# CONTAINERS	FIELD FI	LTERED?	PRESERVE	D?	
APIX VOC	40 mL	4	Y□	N 🖸	Y ■ <u>HCL</u>	N□	
APIX SVOC	1 L	2	Υ□	N 🛍	Y 🗆	N■	
APIX			Y 👨	ИП	Y ■ <u>HNO3</u>	N□	
METALS	250 mL	1					
TDS	_500 mL	1	Y□	N 🗷	Y 🗆	N =	
			Υ□	N□	Y 🗆	N□	
	-	****	Υ□	Ν□	Y 🗆	N□	•
			Υ□	N□	Y 🗆	N□	
· .			Y□	Ν□	Y 🗆	NΠ	
			Υ□	N□	Y 🗆	Ν□	
Number of Con	TAINERS	8 FILTRA	гіон Метн	IOD <u>0, 4</u>	5 -4-1- 511	· ~	
LABORATORY	STL-Savannah_	DELIVE	red Via	<u>FedEx</u>	Date 2	13/04	
WEATHER COND	ITIONS _ C . v ,	1 /ourse	•				/-(_
COMMENTS							

ROJECT	Hercules/Jeffe	erson	SAMPLE 1	ID	W-2A / DUE	7 - 7
PROJECT NO.	01305.40		WELL NO). ——	W-2A	_ < .
SAMPLE DATE	2/3/	74	Samplei	BY	MAL	<u> </u>
SAMPLE TIME (ST.	ART/END)	15:10 15:50	SAMPLE	SEQUENCE N		— .
SAMPLE COLLECT	ION EQUIPMENT	peristaltic	punp		· · · · · · · · · · · · · · · · · · ·	
DEPTH TO WATER	PRIOR TO PURGI	NG/SAMPLING (FT)		17.26	1 17.54	• •
RECHARGE TIME		5 m. m	Меа	SURED FROM	1 □ TOC ☑ TOR □	GS
		FIELD MEASU	REMENTS	<u>.</u>	·	
pН		Standard Un	its		9.70	
Specific Cor	nductance	-umho/cm	· S/m		0.141	
Water Tem	perature	° <u>C</u>			13.5%	
Dissolved	Oxygen	ppm			0.00	
Redo	ox	mV			- 93	
Turbie	dity	NTU			/	•
METER CALIBRAT 'ATER APPEARA SAMPLING FLOW	nce, Immiscible	? N□ `	x ⊠	DATE	······································	
		SAMPLE TY	PES COLLE	CTED		·
PARAMETER	VOLUME	SAMPLE TYI	PES COLLE	····	PRESERVED?	
PARAMETER APIX VOC	VOLUME 40 mL	·		····	PRESERVED? Y■ HCL N□	
		# CONTAINERS	FIELD FI	LTERED?		
APIX VOC	40 mL	# CONTAINERS 4	FIELD FI	LTERED?	Y■ HCL N□	
APIX VOC APIX SVOC	40 mL	# CONTAINERS 4	FIELD FI	N 🗹	Y ■ <u>HCL</u> N □ Y □ N ■	
APIX VOC APIX SVOC APIX	40 mL 1 L	# CONTAINERS 4	FIELD FI	N 🗹	Y ■ <u>HCL</u> N □ Y □ N ■	
APIX VOC APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINERS 4 2	FIELD FI	N D N D	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □	
APIX VOC APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINERS 4 2	FIELD FI	N D N D	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □	
APIX VOC APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINERS 4 2	FIELD FI	N D N D N D N D N D N D N D N D	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N ■	
APIX VOC APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINERS 4 2	FIELD FI	ND ND ND ND	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □	
APIX VOC APIX SVOC APIX METALS	40 mL 1 L 250 mL	# CONTAINERS 4 2	FIELD FI	ND ND ND ND ND	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
APIX VOC APIX SVOC APIX METALS	40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1	FIELD FI	ND ND ND ND ND ND ND ND ND ND ND ND ND	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
APIX VOC APIX SVOC APIX METALS TDS	40 mL 1 L 250 mL 500 mL	# CONTAINERS 4 2 1 1 FILTR	FIELD FI	ND ND ND ND ND ND ND ND ND ND ND ND	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	
APIX VOC APIX SVOC APIX METALS TDS	40 mL 1 L 250 mL 500 mL TAINERS STL-Savannah	# CONTAINERS 4 2 1 1 FILTR	FIELD FI	ND ND ND ND ND ND ND ND ND ND ND ND	Y ■ HCL N □ Y □ N ■ Y ■ HNO3 N □ Y □ N ■ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □ Y □ N □	

PROJECT	Hercules/Jeff	erson	SAMPLE	ID	E-53	: (
PROJECT No.	01305.40	,	WELL NO		E-53	_ (
SAMPLE DATE	2/3/0		Samplei		CGK	
SAMPLE TIME (ST		35 1 1450	SAMPLE		10. 36	
		perista i				_
DEPTH TO WATER	R PRIOR TO PURG	NG/SAMPLING (FT)		13.78	/ 13.83	•
RECHARGE TIME	•	nin,				⊐GS
		FIELD MEASU	REMENTS			
pI	H	Standard Uni	ts	5.0	}	
Specific Co	onductance	umho/cm		0,3	8	1
Water Ten	nperature	<u>°C</u>	•	12.	01	
Dissolved	l Oxygen	ppm		7.	4]
Red	lox	mV		8 9		
Turb	idity	NTU		C]
METER CALIBRA	TION PERFORMED	? N 🗆 Y	×	DATE	3/3/04	
WATER APPEAR	ANCE, IMMISCIBLE	E PHASES OR ODORS:	. ,		· · · · · · · · · · · · · · · · · · ·	: _
SAMPLING FLOW		Looal lain				-
		SAMPLE TYP	ES COLLE	CTED		 -
PARAMETER	VOLUME	# CONTAINERS	FIELD FI	LTERED?	Preserved?	
APIX VOC	40 mL	4	Υ□	N 🗷	Y ■ HCL N □	- '
APIX SVOC	1 L		Υ□	N 🗷	Y □ N ■	
APIX		•	Y 🗷	N□	Y ■ <u>HNO3</u> N □	
METALS	250 mL	_1	•		·	·
TDS	500 mL	1	· Y 🗖	N 🖫	Y □ N =	
			Υ□	N□	Υ□ Ν□	
·			Υ□	N□	Υ□ N 🗆	į ,
			Υ□	NΠ	Y□N□	
			_. Y 🗆	N□	Y 🗆 N 🗆	ļ
			Υ□	N□	Y 🗆 N 🗆	
NUMBER OF CO	NTAINERS	g Filtr	ATION METH	10D 0.4	S neces filh	
LABORATORY	STL-Savannah		ered Via		DATE \$/3/0	y .
WEATHER CONI	DITIONS C	1 /	•			· _(
COMMENTS			·			

f21/corp

OJECT	Hercules/Jeff	ferson		SAMPLE I	ω	DOMAND E-) 60 .
PROJECT NO.	01305.40			WELL NO	D. 150	DANDAR E-S	
SAMPLE DATE	2/3/0	У		SAMPLEI		C 6 /c.	
SAMPLE TIME (ST	rart/end)	605 1	1615	SAMPLE	·	₹0. <i>3</i>	7
Sample Collec	TION EQUIPMENT		ristoltic				
DEPTH TO WATE	R PRIOR TO PURG				7979 10	0.07 10.1	4
RECHARGE TIME	Sain	· •		MEA		M □ TOC 💆	****
		Tamax	, , , , , , , , , , , , , , , , , , ,		· .	<u></u>	<u></u>
	· · · · · · · · · · · · · · · · · · ·	T .	D MEASUR		11.0	<u></u>	
pl Specific Co			Standard Unit	TS .	4.5		
Specific Co	·		umho/cm		0.6	"-"	
Water Ter Dissolved	· · · · · · · · · · · · · · · · · · ·	<u> </u>	<u>°C</u>		(1.4		
Red			ppm 		5.5		
	idity		NTU		0	/	
METER CALIBRA 'ATER APPEARA	TION PERFORMED ANCE, IMMISCIBLE RATE:	E Phases of	•		DATE	a/3/04	
METER CALIBRA	ANCE, IMMISCIBLI	E PHASES OF	R ODORS:			a/3/04	
METER CALIBRA 'ATER APPEARA	ANCE, IMMISCIBLI	E PHASES OF	R ODORS:	ES COLLE		PRESERV	ED?
METER CALIBRA 'ATER APPEARA SAMPLING FLOW PARAMETER	ANCE, IMMISCIBLI 7 RATE:	E PHASES OF	R ODORS:	ES COLLE	CCTED		ED? N 🗆
METER CALIBRA 'ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC	ANCE, IMMISCIBLI VATE: VOLUME	E PHASES OF	R ODORS:	ES COLLE	CTED	PRESERV	Ν□
METER CALIBRA 'ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC	VOLUME 40 mL	SA # CON	R ODORS:	ES COLLE FIELD FI	CCTED LTERED? N	Preserv Y ■ <u>HCL</u>	Ν□
METER CALIBRA 'ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL	SA # CON	R ODORS:	ES COLLE FIELD FI Y □ Y □	CTED LTERED? N M N M	PRESERV Y ■ HCL Y □	N □ N ■
METER CALIBRA 'ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L	SA # CON	R ODORS:	ES COLLE FIELD FI Y □ Y □	CTED LTERED? N M N M	PRESERV Y ■ HCL Y □	N □ N ■
METER CALIBRA 'ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	SA # CON	R ODORS:	ES COLLE FIELD FI Y □ Y □ Y □ Y ■	CCTED LTERED? N M N M N M	PRESERV Y ■ HCL Y □ Y ■ HNO3	N □ N ■ N □
METER CALIBRA 'ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	SA # CON	R ODORS:	ES COLLE FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	CCTED LTERED? N M N M N M	PRESERV Y ■ HCL Y □ HNO3 Y □ HNO3	N □ N ■ N □ N ■ N □ N □
METER CALIBRA 'ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	SA # CON	R ODORS:	ES COLLE FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	CCTED LTERED? N M N M N M N M N M N M N M N	PRESERV Y ■ HCL Y □ HNO3 Y □ HNO3	N □ N ■ N □ N ■ N □ N □
METER CALIBRA 'ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	SA # CON	R ODORS:	ES COLLE FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	CCTED LTERED? N M N M N M N M N M N M N M N	PRESERV Y ■ HCL Y □ HNO3 Y □ HNO3	N □ N ■ N □ N □ N □ N □ N □ N □ N □
METER CALIBRA 'ATER APPEARA SAMPLING FLOW	VOLUME 40 mL 1 L 250 mL	SA # CON	R ODORS:	ES COLLE FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	CCTED LTERED? N M N M N M N M N M N M N M N	PRESERV Y ■ HCL Y □ HNO3 Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y	N □ N □ N □ N □ N □ N □ N □ N □ N □ N □
METER CALIBRA 'ATER APPEARA SAMPLING FLOW PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL 500 mL	SA # CON	MPLE TYP	ES COLLE FIELD FI Y	CCTED LTERED? N M N M N M N M N M N M N M N	PRESERV Y ■ HCL Y □ HNO3 Y □ HNO3 Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y	N □ N □ N □ N □ N □ N □ N □ N □ N □ N □

f21/corp

PROJECT	Hercules/Jeff	erson	SAMPLE	II) M		.
PROJECT NO.	01305.40	513011	WELL NO		⊷-F2 ~-F2	(
SAMPLE DATE	a/4/a					<u> </u>
	/	·/	SAMPLE		CGK.	
	TARTIEND) <u>B</u>	1 as 10240		SEQUENCE 1	No. 38	· · · · · · · · · · · · · · · · · · ·
	•	1,5 2 . 5 / 4	ilte prop	<i>- 11</i>		 .
		ING/SAMPLING (FT)				
RECHARGE TIME	2011	`,	MEA	ASURED FROM	M □ TOC TOR	GS
		FIELD MEA	ASUREMENTS			
р	H	Standard	l Units	4.92		
Specific Co	onductance	umho	/cm	0.53		
Water Te	mperature	°C		10,4		
Dissolve	d Oxygen	ppı	n , .	5,2		
Red	dox	m ⁷		-161		
Turb	idity	NT	U		0	
METER CALIDRA	TION PERFORMED	2 27 5		D	5 /11 / 531	
					2/4/04	
•		E PHASES OR ODOR:		ear	·	- '. (
SAMPLING FLOW	/ RATE:	108-6/nin	·			· · ·
		SAMPLE	TYPES COLLE	ECTED		<u> </u>
PARAMETER	VOLUME	# CONTAINER		LTERED?	PRESERVED?	
APIX VOC	40 mL	4	Y 🗆			
APIX SVOC	1 L	2	 Y 🗆	N 💆	Y 🗆 N	
APIX				N□		
METALS	250 mL	I				
TDS	500 mL	<u> </u>	 Y 🗆	ΝØ	Y□ N	1 =
			 Y 🗆	ΝП	Y 🗆 N	I 🗆
			Y 🗆	N□		· —
			 Y □	N□	Y 🗆 N	
			Y □	Ν□		1 □
		-	— Y□	Ν□		1 -
Number of Co	NIT A INIED S				· ·	· —
		-			Smicron filter	<u></u>
	STL-Savannah		ELIVERED VIA		_ DATE <u>3/4</u>	104
•	DITIONS <u>C</u>	ild/outrest				· _ (
COMMENTS			•			

LOJECT	Hercules/Jeff	erson	٠.	SAMPLE :	ID F	=-47D /n.	Imso
PROJECT NO.	01305.40			WELL NO		-47D	
SAMPLE DATE	2/4	104		SAMPLEI	DBY /	MAL	
SAMPLE TIME (ST	ART/END)	9:551 10	:10	SAMPLE	SEQUENCE N		· · · · · · · · · · · · · · · · · · ·
SAMPLE COLLECT							
DEPTH TO WATER	R PRIOR TO PURG			VV.12	18.30	1 18.4.	5
RECHARGE TIME		10 min	J	MEA		TOC TOT	□ GS
	٠.	FIELD N	MEASUI	REMENTS			
pH	I	Stan	dard Uni	ts	<u> </u>	9.54	
Specific Co	nductance	- UI	mho/cm	5/4		0.150	
Water Ten	perature		° <u>C</u>	•		/3.77	
Dissolved	Oxygen		ppm			0.00	-
Red	ox		mV			- 110	
Turbi	dity		NTU			0	
METER CALIBRATION PERFORMED? ATER APPEARANCE, IMMISCIBLE PHASES OR ODORS: SAMPLING FLOW RATE: 100-1/2.1							
OVIAL PHAG-L FO M	KATE:				/0	0-1-m.J	
DAIMI EING-T-LOW	RATE:	SAMD	TETVD	FS COLLE		ocal mid	
				ES COLLE	CTED		
PARAMETER	VOLUME	# CONTAI		FIELD FI	CCTED	PRESERVED?	
				FIELD FI	CCTED LTERED?	PRESERVED? Y M HCL N	
PARAMETER APIX VOC	VOLUME 40 mL	# CONTAI		FIELD FI	CCTED LTERED? N □ N □	PRESERVED? Y■_HCL N Y□N	
PARAMETER APIX VOC APIX SVOC	VOLUME 40 mL	# CONTAI		FIELD FI	CCTED LTERED?	PRESERVED? Y M HCL N	
PARAMETER APIX VOC APIX SVOC APIX	VOLUME 40 mL 1 L	# CONTAI		FIELD FI	CCTED LTERED? N □ N □	PRESERVED? Y■_HCL N Y□N	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAI		FIELD FI	CCTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N Y □ N Y ■ HNO3 N	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAI		FIELD FI	CCTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N Y □ N Y ■ HNO3 N	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAI		FIELD FI	CCTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N Y □ N Y ■ HNO3 N Y □ N Y □ N	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAI		FIELD FI	CCTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N Y □ N Y ■ HNO3 N Y □ N Y □ N Y □ N	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# CONTAI		FIELD FI	CCTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N Y □ N Y ■ HNO3 N Y □ N Y □ N Y □ N Y □ N	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAI	NERS	FIELD FI	CCTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N Y □ N Y ■ HNO3 N Y □ N Y □ N Y □ N Y □ N Y □ N Y □ N Y □ N	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL	# CONTAI -4 /2 -2	FILTR	FIELD FI	CCTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N Y □ N Y ■ HNO3 N Y □ N Y □ N Y □ N Y □ N Y □ N Y □ N Y □ N Y □ N Y □ N Y □ N Y □ N	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL TTAINERS STL-Savannah	# CONTAI -4 /2 -2	FILTR	FIELD FI	CCTED LTERED? N N N N N N N N N N	PRESERVED? Y ■ HCL N Y □ N Y ■ HNO3 N Y □ N Y □ N Y □ N Y □ N Y □ N Y □ N Y □ N	

PROJECT	Hercules/Jeffe	erson	SAMPLE	ID	<u>E</u> -a7	1
PROJECT NO.	01305.40		WELL NO		E-27	– (
SAMPLE DATE	a/4/04	·	Samplei		CGK	
SAMPLE TIME (ST		05 / 11/15	• •	SEQUENCE N		
SAMPLE COLLECT		_peristalti	•	, ,		_
DEPTH TO WATER	DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT)			4.51	1 14.57	
RECHARGE TIME			· . · · · · · · · · · · · · · · · · · ·	TOC TOR	l GS	
·	 :	FIELD MEASU	REMENTS	,		
pI	Ĭ	Standard Ur	nits	5.2	3	
Specific Co	nductance	umho/cm		0,32	·	
Water Ten	nperature	° <u>C</u>		14.40		
Dissolved	Oxygen	ppm		4,6		
Red	ox	mV		-88		
Turbi	idity	NTU		0		•
•	_		Y)X(3/4/04	i · (
DADAMENTO	Marine	SAMPLE TY				
PARAMETER	VOLUME	# CONTAINERS		LTERED?	PRESERVED?	-
APIX VOC APIX SVOC	40 mL	4	Υ□	N 🛮	Y■ <u>HCL</u> N□	
APIX	1 L	2 .	Υ□	NØ	Y□ N■	
METALS	. 250 mL	1	Y 🗗	Ν□	Y■ <u>HNO3</u> N□	
TDS	500 mL	1	VΠ) राज्य		
103	300 IIIL	<u> </u>	Υ□	N 🗹		
	<u> </u>	·	Υ□			
	·		Υ□			
			Υ□	•		•
·	- /-	-	Y 🗆		Υ□ и□	
· · · · · ·			Υ□	ΝП	Υ□ и□	
Number of Cor	NTAINERS	8 FILTE	RATION METH	HOD . 0.	45 micro filta	
LABORATORY	STL-Savannah	DELI	vered Via	<u>FedEx</u>	DATE 0/4/0	4.
WEATHER CONI	DITIONS	,		-		· · · · · <u>· - (</u> _

KOJECT	Hercules/Jeffe	erson		Sample I	D	MW-F)		
PROJECT NO.	01305.40			WELL NO)	mw-Fl		
SAMPLE DATE	2/4/04	L		SAMPLED	BY	MAL		
SAMPLE TIME (STA	ART/END)	2:40 1	13:05	SAMPLE S	SEQUENCE N	0. <u>4</u> ,	/	
SAMPLE COLLECT	ION EQUIPMENT	_ Qen	istaltic	oums		_	<u> </u>	_
DEPTH TO WATER	PRIOR TO PURGI	ng/Sampli	NG (FT)	<u> </u>	7.99	1 8.9	62	_
RECHARGE TIME		5 /	n. J	MEA	SURED FROM	TOC ZT	OR □ GS	
		FIEL	D MEASUI	REMENTS				
рН		5	Standard Uni	ts		6.1		
Specific Con	ductance		umho/em	5/~		0.18	· .	
Water Tem	perature	·	<u>°C</u>			13.9		
Dissolved (Oxygen		ppm			1.18		
Redo	x		mV		- · · · · · · · · · · · · · · · · · · ·	277		
Turbic	lity		NTU			33		
METER CALIBRAT	ION PERFORMED	?	и 🗆 У	, ₱	Date _	2/4/04		•
'ATER APPEARAI	NCE, IMMISCIBLE	PHASES OF	, .		CLEA	٠.	· ·	•
, ,		•						
SAMPLING FLOW I	Rate:				100-1	- in		
SAMPLING FLOW I	RATE:	CA	AADE EI ONO	TO COLLE		·+·'~		
				ES COLLE	CTED			
PARAMETER	Volume		MPLE TYP	FIELD FI	CTED	Preservi		
PARAMETER APIX VOC	VOLUME 40 mL	# Con		FIELD FII	CTED LTERED? N □	Preserve Y ■ HCL	ΝП	
PARAMETER APIX VOC APIX SVOC	Volume			FIELD FII Y Y	CTED LTERED? N □	PRESERVE Y ■ HCL Y □	N □ N ■	
PARAMETER APIX VOC	VOLUME 40 mL	# Con		FIELD FII	CTED LTERED? N □	Preserve Y ■ HCL	ΝП	
PARAMETER APIX VOC APIX SVOC APIX	VOLUME 40 mL 1 L	# Con		FIELD FII Y Y	CTED LTERED? N □	PRESERVE Y ■ HCL Y □	N □ N ■	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# Con		FIELD FII Y Y Y Y Y Y Y	CTED LTERED? N □ N □ N □	PRESERVI Y ■ HCL Y □ Y ■ HNO3	N□ N■ N□	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# Con		FIELD FII Y Y Y Y Y	CTED LTERED? N N N N N N N N N N	PRESERVI Y ■ HCL Y □ HNO3	N □ N ■ N □ N ■	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# Con		FIELD FII Y Y Y Y Y Y Y	CTED LTERED? N N N N N N N N N N	PRESERVE Y ■ HCL Y □ HNO3 Y ■ HNO3	N □ N ■ N □ N ■	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# Con		FIELD FII Y Y Y Y Y Y Y Y Y Y	CTED LTERED? N N N N N N N N N N	PRESERVE Y ■ HCL Y □ HNO3 Y ■ HNO3 Y □ HNO3	N □ N □ N □ N □ N □ N □ N □ N □ N □	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL	# Con		FIELD FII Y Y Y Y Y Y Y Y Y Y	CTED LTERED? N N N N N N N N N N	PRESERVE Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □	N□ N□ N□ N□ N□ N□	
PARAMETER APIX VOC APIX SVOC APIX METALS	VOLUME 40 mL 1 L 250 mL 500 mL	# Con	TAINERS	FIELD FII Y Y Y Y Y Y Y Y Y Y	CTED LTERED? N N N N N N N N N N	PRESERVE Y ■ HCL Y □ Y ■ HNO3 Y □ Y □ Y □ Y □ Y □ Y □	N□ N□ N□ N□ N□ N□	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL	# CON 4 2 1 1 1	FILTR	FIELD FII Y Y Y Y Y Y Y Y Y Y	CTED LTERED? N N N N N N N N N N	PRESERVE Y HCL Y HNO3 Y HNO3 Y HO HOO Y	N□ N□ N□ N□ N□ N□	
PARAMETER APIX VOC APIX SVOC APIX METALS TDS	VOLUME 40 mL 1 L 250 mL 500 mL TAINERS STL-Savannah	# CON 4 2 1 1 1	FILTR	FIELD FII Y Y Y Y Y Y Y Y Y ATION METHORERED VIA	CTED LTERED? N N N N N N N N N N	PRESERVE Y HCL Y HNO3 Y HNO3 Y HO HOO Y	N	

f21/corp

PROJECT	Hercules/Jeffe	erson	SAMPLE	ID , M	1W-5/ ns/ns0/ Dug	·-03 (
PROJECT NO.	01305.40		WELL NO		14-5	•
SAMPLE DATE	3/4/00	/	Samplei	DBY (CGK	•
SAMPLE TIME (ST	ART/END) / 4	140 1 1530	SAMPLE		No. 42	-
SAMPLE COLLECT	TION EQUIPMENT	proist ultre				-
DEPTH TO WATER	r Prior to Purgi	NG/SAMPLING (FT)	8,	47	1 8.47	
RECHARGE TIME	- Sain		MEA		M TOC TOR D	GS
		FIELD MEASUR	EMENTS	· · · · · · · · · · · · · · · · · · ·		
pI	-I	Standard Unit	ts .		6.05	
Specific Co	nductance	umho/cm			0.18	•
Water Ten	nperature	° <u>C</u>	_	,	0.48	
Dissolved	l Oxygen	ppm			6,4	
Red	lox	mV		_	145	
Turb	idity	NTU			0	•
		PHASES OR ODORS:			3/4/04	. (
		SAMPLE TYP	ES COLLI	ECTED		- · · · -
PARAMETER	Volume	# CONTAINERS		ILTERED?	PRESERVED?	
APIX VOC	40 mL	4 6	Y	N 🗷	Y ■ HCL N □	
APIX SVOC	1 L	20 8	 Y □	N 🗷	Y□ N■	•
APIX			Y	Ν□	Y ■ <u>HNO3</u> N □	
METALS	250 mL	1 4				•
TDS	500 mL	MY	Υ□	NE	Υ□ Ν■	
			ΥП	Ν□		
		•	Υ□	N□		•
			Υ□	Ν□		•
			Y□	N□	Y 🗆 N 🗅	
<u> </u>			. Y 🗆	Ν□	Y 🗆 N 🗆	
NUMBER OF CO	NTAINERS	3 2 FILTR/			45 min filter	·
	STL-Savannah		ERED VIA		DATE 2/4/04	
	DITIONS ()			- 44444		· · · · · ·
COMMENTS						
~~						

ROJECT	Hercules/Jeff	erson		SAMPLE I	D	E-28-D	
PROJECT NO.	01305.40			WELL NO		6.28.0	········· ,
SAMPLE DATE		15/04		SAMPLED	SAMPLED BY MAL		_
SAMPLE TIME (S	TART/END) (7:40 1 9:	55	SAMPLE S	 SEQUENCE N	lo. 43	
	TION EQUIPMENT		500	MENSIO L	e hus	LE Puni	
DEPTH TO WATE	R PRIOR TO PURG	ING/SAMPLING (1 17.54	
RECHARGE TIME	:	5 ~~~	,		•	TOC TOR	⊐ GS
		<u> </u>		<u> </u>			
		FIELD M	ŒASUR	EMENTS			
p	<u>H</u>	Stand	lard Unit	s .		7.69	
Specific C	onductance	-1417	rhe/en	5/m.	- <u>-</u>	0.14	
Water Te	mperature		° <u>C</u>		-	14.2	
Dissolve	d Oxygen		ppm :			0.38	
Re	dox		m.V			-/20	
Turt	idity	.,	NTU	·		70	
SAMPLING FLOV	/ RATE:				00-11	conf	
				ES COLLE		•	
PARAMETER	VOLUME	# CONTAIN	NERS		TERED?	PRESERVED?	
APIX VOC	40 mL	4		Υ□	Ν□	Y■ <u>HCL</u> , N□	,
APIX SVOC	1 L		<u> </u>	Υ□	N□	Y □ N ■	٠
APIX		•		Υ□	ΝП	$Y = HNO3 N \square$	
METALS	_250 mL		 .	•		•	
TDS	500 mL			Υ□		Y 🗆 N 🔳	
		-		Υ□	ИП	Y 🗆 N 🗆	
	-			Υ□		λ□ и□	
		.		Υ□	И□・	Υ□ N□	
		<u></u>		Υ□	. N□	Υ 🗆 И 🗆	
			· ·	Y□	N□	Y 🗆 N 🗆	
NUMBER OF CO	NTAINERS	8	FILTRA	TION METH	od 4	5 michas Firm	
* ABORATORY	STL-Savannah					DATE 2/s/o	
r	DITIONS			, ,			
COMMENTS			· · · · · · · · · · · · · · · · · · ·	•	-		

PROJECT	Herceles	efferen	SAMPLE 1	ID E-	ð/		· · · (
PROJECT No.	01305.4.0				7 /		
SAMPLE DATE	3 1.	1104	SAMPLEI	BY			
SAMPLE TIME (STA		125 10935		SEQUENCE N			
•		prostaltic		~ <i>•</i>		·	
		g/Sampling (ft)				_	
RECHARGE TIME					□ toc \article to	R □G	S
		FIELD MEASUR	EMENTS				
pН		Standard Units	3	6.	87		
Specific Con	ductance	umho/cm	. ·	1	. 7		
Water Temp	perature	° <u>C</u>		9	- 3		•
Dissolved (Oxygen	ppm			,00		
Redo	x	mV_		l	<u>42</u>		
Turbid	ity	NTU		(<i>)</i>		
METER CALIBRATI	ON PERFORMED?	и□ у	A	DATE _	3/1/04		
WATER APPEARAN	ICE, IMMISCIBLE I	PHASES OR ODORS:	clrx	- ; 5 m / fe	rade-		· (
SAMPLING FLOW F			-		·	·	
		SAMPLE TYPI	ES COLLI	ECTED			
PARAMETER	VOLUME	# CONTAINERS	FIELD F	ILTERED?	PRESERVE	D?	
APIX VOL	40 16	4	Υ□	N/Ø	YX HC/	ΝП	•
APIX Succ	14	<u> </u>	Υ□	NA	Y 🗆	N 🔯	
APIX Metals	25006		ΥÆ	ΝП	YM HNO	ИП	
TDS	SOOnl	<u> </u>	ΥΠ	ΝM	Y 🗆	N Z	
			Υ□	ИП	Y 🗆	ИП	
			ΥÜ	ΝП	Y 🗆	ИП	
·		·	Υ□				
		•	•		Y 🗆		
			ΑÖ		Y 🗆		÷
<u> </u>			Υ□	N- 🗆	Λ 🗆 ——	ΝП	•
NUMBER OF CON	TAINERS	FILTRA	TION MET	HOD <u>0.4</u>	5-111-511	14-	
LABORATORY	STE - Savenn	DELIVI	ERED VIA	F-dEx	DATE <u>3/</u>	3/07	'. (
WEATHER COND	itions <u>c/</u>	un 45°F					\
COMMENTS	4						

LOJECT HERCUES	- Jetterson Plant	SAMPLE ID	E-28D	
PROJECT No. <u>01305</u>	140	Well No.	E-280.	· ·
SAMPLE DATE <u>3</u>	11 104	Sampled By	CLN	·
Sample Time (start/end) $$	99:47/10:02	Sample Sequen	CE NO2	· ·
Sample Collection Equipmen	IT blogle pump	w/ dec	licated tub	MS
DEPTH TO WATER PRIOR TO PUR	GING/SAMPLING (FT)	1	23,20/23,24	1
RECHARGE TIME 5	MIN	MEASURED I	ROM TOC TTO	R □GS
	FIELD MEASURE	MENTS		
рН	Standard Units		6.86	
Specific Conductance	umho/cm S	/m	0,16	
Water Temperature	۰۲		14.5	
Dissolved Oxygen	ppm		0.35	
Redox	mV		-132	
Turbidity	NTU		70	
ATER APPEARANCE, IMMISCIB	LE PHASES OR ODORS:	Clear	3,71,01	
ater Appearance, Immiscib Sampling Flow Rate: <u></u>	LE PHASES OR ODORS: [OO ~[/m.Y] SAMPLE TYPES	Clear	3,71,01	
ATER APPEARANCE, IMMISCIB SAMPLING FLOW RATE: PARAMETER VOLUME	SAMPLE TYPES # CONTAINERS	COLLECTED FIELD FILTERED	? PRESERVE	
ATER APPEARANCE, IMMISCIB SAMPLING FLOW RATE:	SAMPLE TYPES # CONTAINERS	COLLECTED FIELD FILTERED Y \(\Omega\) N \(\omega\)	? Preserve	N□
TER APPEARANCE, IMMISCIB SAMPLING FLOW RATE: PARAMETER VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME	SAMPLE TYPES # CONTAINERS	COLLECTED FIELD FILTERED Y \(\text{N} \text{N} \text{N} \text{N}	? PRESERVE Y 23 _ [† _ [N 🖪
TER APPEARANCE, IMMISCIB SAMPLING FLOW RATE: PARAMETER VOLUME	SAMPLE TYPES # CONTAINERS	COLLECTED FIELD FILTERED Y N N N N N N N N N N N N N N N N N N N	? Preserve Y 2 [†] Y 12 [†] Y 22 [†] Y 23 [†]	N□ N⊠ N□
TER APPEARANCE, IMMISCIB SAMPLING FLOW RATE: PARAMETER VOLUME DS VOCS 40 m X SVOCS 14	SAMPLE TYPES # CONTAINERS	COLLECTED FIELD FILTERED Y N N N N N N N N N N N N N N N N N N N	? PRESERVE Y 12 17 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	N □ N 🗷 N □ N □
TER APPEARANCE, IMMISCIB SAMPLING FLOW RATE: PARAMETER VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME	SAMPLE TYPES # CONTAINERS	COLLECTED FIELD FILTERED Y N N N N N N N N N N N N N N N N N N N	? PRESERVE Y 25 170 Y 12 11003 Y 12 11003 Y 12 11003	N
TER APPEARANCE, IMMISCIB SAMPLING FLOW RATE: PARAMETER VOLUME TX SVXS 14	SAMPLE TYPES # CONTAINERS	CICCOLLECTED FIELD FILTERED Y O N M Y M N O Y M N O Y O N O	? PRESERVE Y 23 1701 Y 11003 Y 11003 Y 11003	N
TER APPEARANCE, IMMISCIB SAMPLING FLOW RATE: PARAMETER VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME	SAMPLE TYPES # CONTAINERS	CICCOLLECTED FIELD FILTERED Y O N M Y M N O Y M N O Y O N O	? PRESERVE Y 23 [17] Y 12 [1100] Y 12 [1100] Y 12 [1100] Y 12 [1100] Y 12 [1100]	N
TER APPEARANCE, IMMISCIB SAMPLING FLOW RATE: PARAMETER VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME	SAMPLE TYPES # CONTAINERS	CICCOLLECTED FIELD FILTERED Y N N N N N N N N N N N N N N N N N N N	? PRESERVE Y 23 _ [†] Y 24 _ [†] Y 25 _ [†] Y 27 Y 27 Y 27 Y 27 Y 27 Y 27 Y 27 Y 27	N
TER APPEARANCE, IMMISCIB SAMPLING FLOW RATE: PARAMETER VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME	SAMPLE TYPES # CONTAINERS	COLLECTED FIELD FILTERED Y N N N N N N N N N N N N N N N N N N N	? PRESERVE Y 23 [17] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11]	N D N D
TER APPEARANCE, IMMISCIB SAMPLING FLOW RATE: PARAMETER VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME VOLUME	SAMPLE TYPES # CONTAINERS U 2	COLLECTED FIELD FILTERED Y N N N N N N N N N N N N N N N N N N N	? PRESERVE Y 23 [17] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 12 [11] Y 13	N
PARAMETER VOLUME SUCS 40 m X SUCS 14 X Inorganits 500m Number of Containers	SAMPLE TYPES # CONTAINERS 2	COLLECTED FIELD FILTERED Y N N N N N N N N N N N N N N N N N N N	PRESERVE Y 25 17C1 Y 10 Y 27 17N03 Y 10	N
NUMBER OF CONTAINERS SAMPLING FLOW RATE: PARAMETER VOLUME YOM YOM NUMBER OF CONTAINERS BORATORY SAMPLING FLOW RATE: NUMBER OF CONTAINERS BORATORY STL- Jan	SAMPLE TYPES # CONTAINERS U 2	COLLECTED FIELD FILTERED Y N N N N N N N N N N N N N N N N N N N	? PRESERVE Y 12 1701 Y 12 171003 Y 12 171003 Y 12 171003 Y 12 171003 Y 12 171003 Y 12 171003	N

PROJECT	Herenles /)	Steere	SAMPLE	ر ام	~-1A	• .	
PROJECT No.	,	2	WELL NO	 ,-	- 1 A		-
SAMPLE DATE		1 104		 ,	CGK		
SAMPLE TIME (STAF		020 / 1030		SEQUENCE			-
		prostaltic		•			<u>*</u>
DEPTH TO WATER P			3		1 7.70		
RECHARGE TIME	500	1	MEA	SURED FRO	M TOC TO	OR 🗆 (3S
		FIELD MEASUR	EMENTS				
pH		Standard Units	.	7-	10		•
Specific Cond	uctance	umho/cm	•	. 6	7		
Water Temp	erature	۰८		10	4		
Dissolved O	xygen	ppm		0.0	0		
Redox		mV	· ·	18			
Turbidi	ty	NTU		10			•
METER CALIBRATION WATER APPEARANCE SAMPLING FLOW R	CE, IMMISCIBLE	PHASES OR ODORS:			3/1/64	·.	
		SAMPLE TYPE	ES COLLE	CTED		· - · ·	<u>, </u>
PARAMETER	VOLUME	# CONTAINERS		LTERED?	PRESERVE	D?	
APIX VOG	40~6	4	Υ□	NØ	Y,⊠. <u>HC (</u>		
APIX Succe	16	2	Y□	N⊠	•		•
APIX Metaly	.250 ml		ΥØ	ΝП	Y M HNO2	N□	
TDS	300 nl	<u>.</u>	Υ□	N⊠	Y 🗆		•
	·	·	Υ□	ΝП	Y 🗆	N□	
		·	Υ□	ΝП	Y 🗆	N□	
	 .		. ·Y □	Ν□	Y 🗆	N□	:
<u> </u>			Y 🗖	N□	Y 🗆	N□	
	·	•	ΥD	- N □	Y 🗆	N□	
<u> </u>	<u></u>		Ϋ́	ΝП	Y 🗆	ΝП	
NUMBER OF CONT	AINERS	8 FILTRA	TION METH	IOD <u>0.9</u>	19 mun filts	<u>-</u>	
LABORATORY _	STL-So-ancel	DELIVE				2 4	. 1 6
		clia - so F					(
COMMENTS							

- NOTECT TETCULES	Jotherson SAI	MPLE ID	E-09	, -
PROJECT NO. 01305	WE	LL NO.	E-59	
Sample Date 3 /	1 / 04 SAI	MPLED BY	CLN	· -
SAMPLE TIME (START/END)	1140/12100 SA	MPLE SEQUENC	ce No. <u>4</u>	_
SAMPLE COLLECTION EQUIPMENT	Whale pump 1	~) dedi	called tubins	
DEPTH TO WATER PRIOR TO PURGI	NG/SAMPLING (FT)		10,76/10,75	·
RECHARGE TIME 5 m	nutes	MEASURED F	ROM 🗆 TOC 🕱 TOR 🗆	GS
	FIELD MEASUREME	NTS		
pН	Standard Units		6,9)	
Specific Conductance	umho/cm S/r	<u>, </u>	0,1)	
Water Temperature	Ç		15.3	
Dissolved Oxygen	ppm		0.30	
Redox	mV		-31	
Turbidity	NTU		340	•
* 'ETER CALIBRATION PERFORMED ATER APPEARANCE, IMMISCIBLE SAMPLING FLOW RATE:	(lwdy,	brown	
• 				<u> </u>
	SAMPLE TYPES C	OLLECTED		
PARAMETER VOLUME		OLLECTED ELD FILTERED	? PRESERVED?	
PARAMETER VOLUME	# CONTAINERS FII	··	11.01	
	# CONTAINERS FI	ELD FILTERED	YMHCI NO	
	# CONTAINERS FII	CLD FILTERED N 🗷	YMHCI NO	
PP IX VOCS 40ml	#CONTAINERS FII Y Z Y Y Y Y Y Y Y Y Y Y Y	CLD FILTERED N	у м <u>НС</u>] и п У и <u>НМО</u> 3 и п У и <u>НМО</u> 3 и п	
PP IX VOCS 40ml	#CONTAINERS FII Y Z Y Y Y Y Y Y Y Y Y Y Y	ELD FILTERED N	YMHCI NO YO NM YMHNO3 NO YO NO	
PP IX VOCS 40ml	#CONTAINERS FII Y Z Y Y Y Y Y Y Y Y Y Y Y	ELD FILTERED NO NO NO NO NO NO NO NO NO NO NO NO NO	YMHCI NO YO NO YO NO YO NO YO NO YO NO	
PP IX VOCS 40ml	#CONTAINERS FII	ELD FILTERED N	YMHCI NO YO NM YMHNO3 NO YO NO YO NO YO NO	
PP IX VOCS 40ml	#CONTAINERS FII	ELD FILTERED N	YMHCI NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO	
PP IX VOCS 40ml	#CONTAINERS FII	ELD FILTERED N	YMHCI NO YO NM YMHNO3 NO YO NO YO NO YO NO YO NO YO NO YO NO	
PP IX VOCS 40ml	#CONTAINERS FII	ELD FILTERED N	YMHCI NO YO NM YMHNO3 NO YO NO YO NO YO NO YO NO YO NO YO NO	
PP IX VOCS 40ml	#CONTAINERS FII	ELD FILTERED N	YMHCI NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO	
PPIX VOCS 40m1 PPIX SVOCS 1L PIX Inorganits 500m1	#CONTAINERS FII Y Z Y Y Y Y Y Y Y Y Y Y Y	ELD FILTERED NO NO NO NO NO NO NO NO NO N	YMHCI NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO	
PP IX VOCS 40m1 PP IX SVOCS 1L P IX Inorganics 500m1 Number of Containers	#CONTAINERS FII Y Z Y Y FILTRATION	ELD FILTERED NO NO NO NO NO NO NO NO NO N	YMHCI NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO YO NO	

PROJECT	Iterenles	Distant	SAMPLE I	ID 1	ン- フ	•	- (
PROJECT No.		0	WELL NO),	~~ <i>7</i>	· ·	(
SAMPLE DATE	3 /	1104		BY C			
SAMPLE TIME (STA	RT/END)	as / 1140	SAMPLE	SEQUENCE N	o. 5		
SAMPLE COLLECTION	ON EQUIPMENT	pr-15taltic	DUAR			· .	
DEPTH TO WATER					1 13.29		
RECHARGE TIME	Smin		_ MEA	SURED FROM	TOC TO	R □ GS	
		FIELD MEASUR	EMENTS				
pH		Standard Units	3	7.	/a		
Specific Con	ductance	umho/cm		0-1	6		
Water Temp	perature	° C		. 10.0	1		
Dissolved (Oxygen	ppm		0.00	· · · · · · · · · · · · · · · · · · ·		
Redo	x	mV		-142		·	
. Turbid	lity	NTU		1/5			
METER CALIBRATI WATER APPEARAN SAMPLING FLOW I	ION PERFORMED? NCE, IMMISCIBLE RATE:	N□ Y PHASES OR ODORS:		DATE	3/1/0y .da		(
		SAMPLE TYP	ES COLLI	ECTED			
PARAMETER	VOLUME	# CONTAINERS	FIELD F	LTERED?	PRESERVE	<u>)? </u>	
APIX voc	4000	4	_Y 🗖	NM	Y 🗖 HC/	N□	
APIX Metals	250-6	/	X X	ΝП	YX Hro	N□	
APIX SUUC	. 14		· Y 🗖	N 💆	Y 🗆	NX	
TDS	500-6		Υ□	N.E	Y 🗆	NA	
		·	Υ□	ИП	Y 🗆	ΝП	
		· · · · · · · · · · · · · · · · · · ·	Υ□	ИП	Y 🗆	Ν□	
·			Υ□	Ν 🗀	Y 🗆	, N 🗖	
···.		·	Y 🗆	Ν□	Y 🗆	N □	
		·	Y□	N	Y 🗆	N□	
		· · · · · · · · · · · · · · · · · · ·	Υ□	NΠ	Y 🗆	ΝП	
NUMBER OF CON	TAINERS	FILTRA	TION METI	HOD 0.4	S Micronfilk	<u>-</u>	
LABORATORY	STL-5	6 DELIV	ered Via	Frd Ex	DATE <u>3/</u>	3/04	(
WEATHER COND	ITIONS	4 clock - 56°F				•	. (
COMMENTS _		· ·					

OJECT	Herentes	1) efferses	Sample I	D <u>E</u> - 9	17 D	
PROJECT NO.	01305.4	<i>'0</i>	WELL NO). <u>E-4</u>	170	
SAMPLE DATE	3 /	1 1 04	SAMPLED	ВУ	CGK	· · · · · · · · · · · · · · · · · · ·
SAMPLE TIME (STA	RT/END) <u>13</u>	10 / 1325	SAMPLE S	SEQUENCE NO	o. <u> 6 </u>	· · · · · · · · · · · · · · · · · · ·
SAMPLE COLLECTION	ON EQUIPMENT	whole pur	p/ dad	icafed tob	<i>i</i>	
DEPTH TO WATER 1	PRIOR TO PURGIN	ig/Sampling (ft) '	30	1.55	1 20.70	· · · · · · · · · · · · · · · · · · ·
RECHARGE TIME	Simin		<u></u> МЕА	SURED FROM	птос дтог	R □ GS
		FIELD MEASUR	EMENTS	7		
рH		Standard Unit	S	7.0	5	· ·
Specific Con-	ductance	umho/cm		0.14		
Water Temp	perature	° <u>C</u>		15. a		·
Dissolved (Oxygen	ppm	·	0.00		
Redo	x	mV	•	-86	·	
Turbid	ity	NTU		0		·
•	·	PHASES OR ODORS:	<u> </u>	7/		
SAMPLING FLOW F	RATE:	SAMPLE TYP	ES COLLE	ECTED		
·		SAMPLE TYP	•	·····	Preserved	?
PARAMETER	Volume	·	•	LTERED?	PRESERVED YX Hc1	<u></u> <u></u> N □
·		SAMPLE TYP	FIELD FI	·····	YX HCI	
PARAMETER Apix voc, Apix svoc,	Volume	# Containers	FIELD FI	LTERED? N 🛛	Y X Hc1	ND
PARAMETER Apix voc, Apix svoc,	VOLUME 40~ C	# Containers	FIELD FI	LTERED? NØ NØ	Y X <u>Hc1</u>	N D N M
PARAMETER Apix voc, Apix svoc,	VOLUME 40~6 16 350~6	# Containers	FIELD FI Y D Y D Y X	LTERED? N⊠ N⊠ N□	Y D HCI Y D HNO Y D HNO	N D N M
PARAMETER Apix voc, Apix svoc,	VOLUME 40~6 16 350~6	# CONTAINERS 4 2	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	LTERED? N⊠ N⊠ N□ N□	Y DX HCI Y D HN 9, Y D HN 9, Y D HN 9	N D
PARAMETER Apix voc, Apix svoc,	VOLUME 40~6 16 350~6	# CONTAINERS 4 2	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	LTERED? NØ NØ NO NO NO NO NO NO	Y DX HCI Y D HN e, Y D HN e, Y D HN e,	N D N D
PARAMETER Apix voc, Apix svoc,	VOLUME 40~6 16 350~6	# CONTAINERS 4 2	FIELD FI Y Y Y Y Y Y Y Y Y Y Y Y Y	LTERED? N N N N N N N N N N N N N	Y X HCI Y C HNO Y C HN	N D N D N D
PARAMETER Apix voc, Apix svoc,	VOLUME 40~6 16 350~6	# CONTAINERS 4 2	FIELD FI Y Y Y Y Y Y Y Y Y Y	LTERED? N N N N N N N N N N N N N	Y	N D N D N D
PARAMETER Apix voc, Apix svoc,	VOLUME 40~6 16 350~6	# CONTAINERS 4 2	FIELD FI	LTERED? N N N N N N N N N N N N N	Y	N D N D N D N D N D N D
PARAMETER Apix voc, Apix svoc,	VOLUME 40~C 1 L 350~C	# Containers 4 2	FIELD FI Y Y Y Y Y Y Y Y Y Y	LTERED? N N N N N N N N N N N N N	Y D HCI Y D HN 9 Y D HN 9 Y D HN 9 Y D HN 9 Y D HN 9 Y D HN 9 Y D HN 9 Y D HN 9 Y D HN 9 Y D HN 9	ND ND ND ND
PARAMETER APIX UOC, APIX SUOC, APIX STALLS NUMBER OF CON	VOLUME 40 ~ C 1 L 350 ~ C	SAMPLE TYPE # CONTAINERS 4 3 / FILTRA	FIELD FI Y Y Y Y Y Y Y Y Y Y	LTERED? N N N N N N N N N N N N N	Y HCI Y HCI Y HNO Y HN	N □ N □ N □ N □ N □ N □ N □ N □ N □
PARAMETER APIX UOC, APIX SUOC, APIX SUOC, NUMBER OF CONBORATORY	VOLUME 40 ~ C 1 L 350 ~ C TAINERS 576 - 56 - 60 - 60	# Containers 4 2	FIELD FI Y Y Y Y Y Y Y Y Y Y	LTERED? N N N N N N N N N N N N N	Y D HCI Y D HN 9 Y D	N □ N □ N □ N □ N □ N □ N □ N □ N □

PROJECT HENCIG	- CAPECCON SAMPLE	ID E-460	~(
PROJECT No. 01305.	46 WELL N	F 1160	· · · · · · · · · · · · · · · · · · ·
SAMPLE DATE 3	/		
SAMPLE TIME (START/END)	3:40 / 14100 SAMPLE	SEQUENCE No. 7	•
SAMPLE COLLECTION EQUIPMENT	1 .1 1	dedrogted to	bing
DEPTH TO WATER PRIOR TO PURG	ING/SAMPLING (FT)	23.03 / 23.0	3
RECHARGE TIME 5	minutes ME.	ASURED FROM 🗆 TOC 🕱 T	OR □GS
	FIELD MEASUREMENTS		
pН	Standard Units	nilo	
Specific Conductance	umho/cm 5/m	0.78	٠.
Water Temperature	°_C	14,6	
Dissolved Oxygen	ppm	0.89	
Redox	mV	-69	<u> </u>
Turbidity	NTU	20	
METER CALIBRATION PERFORME	o? N 🗖 Y 🖼 🔍	DATE 3/1/64	·
WATER APPEARANCE, IMMISCIBL	e Phases or Odors:	V	(
Sampling Flow Rate: $ extstyle ext$	200ml/min		
	SAMPLE TYPES COLL	ECTED	
PARAMETER VOLUME	# CONTAINERS FIELD F	ILTERED? PRESERV	ED?
PIEVOCS 40ml	<u> </u>	NO YOLK	N□
PIX Slocs 16		N 🛛 Y 🗖	N 🗖
PIX Fraganis 500ml	Y 💆	NO Y DHUO	N□
. <i>J</i>	Y 🗆	N 🗆 Y 🗆	N□
	_ Y 🗆	Ν□ Υ□	N□
	Y 🗆	Ν□ Υ□	Ν□
	Y 🗆	· .N 🗆 Y 🗆	ΝП
	<u> </u>	N 🗆 Y 🗖	Ν□
	Y 🗆	N 🗆 Y 🗖	Ν□
	Y 🗆	ν 🗆	N□
Number of Containers	FILTRATION MET	THOD 0.454 [7]	ter
LABORATORY STL - Say	Sangh Delivered Via	FECEX DATE 3	<u> 2104</u>
Weather Conditions $\frac{\sum_{i}}{\sum_{j}}$	my, 500's		
COMMENTS	1 1	·	<u>.</u>

LOJECT	Herentes /)	efferson	SAMPLE I	D <u>E-1</u>	70	
PROJECT NO.	01305.40	·	WELL NO). <u>E-</u> (70	
SAMPLE DATE	37	1 104	SAMPLED	BY C	C6K	•
SAMPLE TIME (STA	RT/END)	505 / 1520	SAMPLE S	SEQUENCE N	o. <u>8</u>	
SAMPLE COLLECTI	ON EQUIPMENT	while purp	~/ Je	diented +	46/9	·
DEPTH TO WATER	Prior to Purgin	NG/SAMPLING (FT)	a	0.18	120.25	
RECHARGE TIME	. 500	<u></u>	MEA	SURED FROM	□ TOC ▼TOR □	3S
		FIELD MEASUR	EMENTS			
pH		Standard Uni	ts ·	5.75		
Specific Con	ductance	umho/cm		91		
Water Tem	perature	°C		16.7		٠
Dissolved	Oxygen	ppm		6.39		
Redo	ox	mV_		48		•
Turbio	lity	NTU_		40		
SAMPLING FLOW	RATE:	SAMPLE TYP		CCTED		
PARAMETER	Volume	# CONTAINERS		LTERED?	PRESERVED?	
APIX voc			· Y 🗆		Y X HCI NO	
APIX SUOC		2	Y□		Y 🗆 N 💆	
APIK molils		1	ΥД	N□	Y D HIUG NO	•
			Υ□	N□	Y 🗆 N 🗆	
			Y□	Ν□	Υ□ N□	
		· · · · · · · · · · · · · · · · · · ·	Y□	ΝП	Υ□ N□	
			. ·Y 🗀	N□	Y 🗆 N 🗅	
			: •Y 🗖	N□	Υ□ Ν□	
		<u> </u>	Y□	ΝП	Y 🗆 N 🗅	
· ——————	·		Y□	. N·□	Υ□ Ν□	
NUMBER OF COM	TAINERS	7 FILTR	ATION METH	HOD	Baum filt	
BORATORY	STL-Savanna	6 DELIV	ERED VIA	FrdEx	DATE <u>3/a/04</u>	
WEATHER CONT	OITIONS	e 60°F				
COMMENTS			· .			•

PROJECT TETCHES.	Jefferson Plant SAMPLE	id E-60	
PROJECT No. 01305	• = *		
SAMPLE DATE 3/	I / 04 SAMPLEI	DBY CLN	
SAMPLE TIME (START/END)	5:12 / 15:32 SAMPLE	Sequence No. 9	
SAMPLE COLLECTION EQUIPMENT	Whale Dump w/	dedicated tubing	<u></u> .
DEPTH TO WATER PRIOR TO PURGI	ng/Sampling (ft)	15,76/15,80	
RECHARGE TIME 5 %	mer	ASURED FROM 🗆 TOC 🔁 TOR	□ GS
	FIELD MEASUREMENTS		
pН	Standard Units	6,93	
Specific Conductance	umhe/em 5/m	0,12	
Water Temperature	€.	16.3	
Dissolved Oxygen	ppm	0.27	
Redox	mV	-131	
Turbidity	NTU	940	
METER CALIBRATION PERFORMED WATER APPEARANCE, IMMISCIBLE SAMPLING FLOW RATE:	· · · · · · · · · · · · · · · · · · ·	DATE 3-1-04 dy, brann	_
·			
	SAMPLE TYPES COLLI	<u> </u>	
PARAMETER VOLUME	# CONTAINERS FIELD F	ILTERED? PRESERVED?	
PARAMETER VOLUME PP IX VOCS 40ml	# CONTAINERS FIELD F Y	N ☑ Y ☑ HC	
pp IX vas 40ml pp IX svas IL	#CONTAINERS FIELD F Y Y Y Y Y T Y T Y T Y T Y T T	ILTERED? PRESERVED? N□ Y□ + C N□ N□ Y□ - N□	1 tgr
pp IX vas 40ml	#CONTAINERS FIELD F Y Y Y Y Y Y Y Y Y Y Y Y Y	N☐ Y☐ N☐ N☐ N☐ N☐ N☐ N☐ N☐ N☐ N☐ N☐ N☐ N☐ N☐	1 D
pp IX vas 40ml pp IX svas IL	#CONTAINERS FIELD F Y Y Y Y Y Y Y Y Y Y Y Y Y	PRESERVED?	10 10 10z
pp IX vas 40ml pp IX svas IL	#CONTAINERS FIELD F Y Y Y Y Y Y Y Y Y Y Y Y Y	PRESERVED? PRESERVED? N	1 D
pp IX vas 40ml pp IX svas IL	#CONTAINERS FIELD F Y Y Y Y Y Y Y Y Y Y	N	10 10 10 10
pp IX vas 40ml pp IX svas IL	#CONTAINERS FIELD F Y □ Y □ Y □ Y □ Y □ Y □ Y □ Y	N	10 10 10 10z
pp IX vas 40ml pp IX svas IL	#CONTAINERS FIELD F Y	PRESERVED? PRESERVED? N	
pp IX vas 40ml pp IX svas IL	#CONTAINERS FIELD F Y	PRESERVED? PRESERVED? N	
pp IX vas 40ml pp IX svas IL	#CONTAINERS FIELD F	PRESERVED? PRESERVED? N	
PP IX VOCS 40ml PP IX SVOCS IL TAGGINS 500ml NUMBER OF CONTAINERS	#CONTAINERS FIELD F Y	PRESERVED? PRESERVED? N	
NUMBER OF CONTAINERS	#CONTAINERS FIELD F Y	PRESERVED? PRESERVED? N	

f21/corp

DIECT Herente	1 Seffers	Sample I	D .	E-13D	•
PROJECT NO. 0/303.4	s / Jeffers-).		
· ·	1104.		•	•	
SAMPLE TIME (START/END)					
SAMPLE COLLECTION EQUIPMENT					
DEPTH TO WATER PRIOR TO PURGE		a	1.69	1 21.74	
RECHARGE TIME 5 ~ 1	<u>h</u>	MEA	SURED FROM	тос хто	OR □ GS
	FIELD MEASUR	EMENTS	<u></u>	····	
рН	Standard Unit	s	6.9	7	
Specific Conductance	umho/cm	•	0.11		<u> </u>
Water Temperature	۰(. 15.5		
Dissolved Oxygen	ppm		0.60		
Redox	mV		-102		
Turbidity	. NTU		above def	ection limit	
ATER APPEARANCE, IMMISCIBLE SAMPLING FLOW RATE:	PHASES OR ODORS:		(
	SAMPLE TYP	ES COLLE	CTED	· · · · · · · · · · · · · · · · · · ·	
PARAMETER VOLUME	# CONTAINERS			PRESERVI	
APIX VOC YORC	4		NM	;	•
APIX Succ IL		_	ΝM		
APIX refuls 250 nc		YE	ИП	YXHNO	
· · · · · · · · · · · · · · · · · · ·		Υ□	ИП	Y 🗆	N 🗆
			ΝП	Y 🗆	
		Υ□		Y 🗆	
		Y □		 .	
<u> </u>	· · · · · · · · · · · · · · · · · · ·		ΝП		
		Ϋ́		 _	
		Υ.□	N□	Y 🗆	Ν□
NUMBER OF CONTAINERS	7 · FILTRA	ATION METH	IOD _O.YS	nices \$114.	<u>:</u>
BORATORY STL-5900000	L DELIV	ered Via	Fed Ex	DATE 3/	12/04
WEATHER CONDITIONS	145+ - 56°F		·		
COMMENTS					· ·

Promo	- Jefferson SAMPLI		-450	
PROJECT TErcules			-450	
PROJECT No. 01305			$\frac{-130}{C(\Lambda)}$	
SAMPLE DATE 37		*****	To II	
		E SEQUENCE N		
SAMPLE COLLECTION EQUIPMENT	Whale pump w	/ dedica		 ·
DEPTH TO WATER PRIOR TO PURGI	\	12.		
RECHARGE TIME 5 MA	nutes M	EASURED FROM	u □ TOC □ TOR □ G	S
	FIELD MEASUREMENT	S		
рН	Standard Units	7.	50	
Specific Conductance	umho/em S/m	· l.i	6	
Water Temperature	°C	14.	3	•
Dissolved Oxygen	ppm	0,	7.6	
Redox	mV	- 13	26	
Turbidity	NTU	17.2	360	
METER CALIBRATION PERFORMED	? N□ Y ∑	DATE	3/1/04	م. م. ر. م. م. ر
WATER APPEARANCE, IMMISCIBLE	\sim	dy gra	V.	\ (
SAMPLING FLOW RATE: 10	o ml/min	(1)		
				· · · · · ·
	SAMPLE TYPES COL			
PARAMETER VOLUME		FILTERED?	PRESERVED?	
PLI vas 40m1	Y D	Z N	Y to to to to to to to to to to to to to	
bir 2100?		N 🗷	Y 🗆 N 🔯	
DIA Incregenty 500ml	Y X		ч № Н ООЗ и □	
	Y□		Y 🗆 N 🗆	
	Y 🗆		Y 🗆 N 🗖	
	Y 🗆	N□	Y 🗆 N 🗖	
	Y 🗆	N□	Y 🗆 N 🗅	
	Y 🗀 Y 🗅		YONO	
		I - N 🗆		
	Y 🗆		Y 🗆 N 🗅	
Number of Containers	Y 🗆 Y 🗆		Y N O	
Number of Containers Laboratory STL-Sove	Y D Y D Y D	ETHOD O.Y.	Y N O	
NUMBER OF CONTAINERS	Y D Y D Y D	I NO I NO I NO	YO NO YO NO YO NO	(

PROJECT NO. 0/305,40 WELL NO. 5-62 SAMPLE DATE 3/2/04 SAMPLED BY CLN SAMPLE TIME (START/END) 09:48/ SAMPLE SEQUENCE NO. 12 SAMPLE COLLECTION EQUIPMENT Whale pump w/ dedicated tubing DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT) RECHARGE TIME 5 MINUTES MEASURED FROM 10 TOC 15 TOR 11 GS	
SAMPLE TIME (START/END) OP: 48 / SAMPLE SEQUENCE NO. 12 SAMPLE COLLECTION EQUIPMENT Whale pump w/ dedicated tubing DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT) 21,30 /	•
SAMPLE COLLECTION EQUIPMENT Whale pump w/ dedicated tubing DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT) 21,30/	•
DEPTH TO WATER PRIOR TO PURGING/SAMPLING (FT) 21,30/	
	•
RECHARGE TIME TO MINUTES MEASURED FROM IT TOC INTOR IGS	-1
FIELD MEASUREMENTS	•
pH Standard Units 7.34	
Specific Conductance umho/cm_ m5/m 63	
Water Temperature °C 15.0	
Dissolved Oxygen ppm 0.35	
Redox mV -206	
Turbidity NTU 226	
ATER APPEARANCE, IMMISCIBLE PHASES OR ODORS: SAMPLING FLOW RATE: [OO m min	
SAMPLE TYPES COLLECTED	
PARAMETER VOLUME # CONTAINERS FIELD FILTERED? PRESERVED?	
PIR VOCS 40ml 4 YOUND YNITCH NO	
PIX SUCCS / L Z YO NO YO NO	
p IA Inorganiza 500m) YOU NO YOU HNOO NO	
YO NO YONO	
УО ИО УО ИО	
YO NO YONO	
YO NO YONO	
NUMBER OF CONTAINERS TILTRATION METHOD OUS TO TEST	
BORATORY STL-Squaman Delivered VIA Fedex Date 3/3/04	
WEATHER CONDITIONS Clary wydy, 5005	
COMMENTS	

PROJECT	Herenles ()	efferin	SAMPLE I	D F-	-3 AD / Oup-1	<u> </u>
PROJECT No.	01305.40). <u>E</u> -		
SAMPLE DATE	3 /	2104:	SAMPLED	BY C	G K	
SAMPLE TIME (STAI	RT/END)	55 / 1010	SAMPLE S	SEQUENCE N	o. <u>13</u>	<u></u>
SAMPLE COLLECTION	ON EQUIPMENT	whole pu-o	. 4/	dedicated	tubin	
DEPTH TO WATER I	PRIOR TO PURGING	G/SAMPLING (FT)		5.25		<u></u>
RECHARGE TIME	Smin.		MEA	SURED FROM	TOC TOR I	∃GS
		FIELD MEASUR	EMENTS			
pH		Standard Unit	5	7,8	7	<u> </u>
Specific Cond	ductance	umho/cm	•	87		
Water Temp	perature	° <u>C</u>		. 14.4	•	-
Dissolved (Oxygen	, ppm		0.0	0	4
Redo	x	mV	· · · · · · · · · · · · · · · · · · ·	-16	<u> </u>	<u> </u>
Turbid	ity	NTU		0		
METER CALIBRATI WATER APPEARAN SAMPLING FLOW F	NCE, IMMISCIBLE F	$N \square Y$ Phases or Odors: $150 \sim U / min$	<u> </u>		3/8/04	-
·		SAMPLE TYP	ES COLLE	ECTED		· · · · · · · · · · · · · · · · · · ·
PARAMETER	Volume	# CONTAINERS		LTERED?	PRESERVED?	
APIX VOC	York	8	Υ□	NM	YM HCI NO	
APIX SUCC	16		YΠ	N,KI	Y 🗆 N 🗷	r .
APIX Detale	25006		ΥØ	ΝП	Y M HIVG NE	j
		· .	Υ□	N□	Y 🗆 N 🗆]
		·	Υ□	ΝП	Y 🗆 N 🗆	l ·
			Y□	Ν□	Υ□ Ν□	1
		<u> </u>	. •Y □	ΝП	Y 🗆 N 🗆	1 .
· .			Y 🗖	N□	Y 🗆 N 🗆	3
	•		Υ□	ИП	Y 🗆 N 🗆	3
·			YΠ	N□	Y 🗆 N 🗆] .
NUMBER OF CON	TAINERS(4 FILTR	ATION METI	HOD _0.	45 microsfilter	
LABORATORY	371 - Savar	. 5 DELIV	ered Via	Frd Ex	Date <u>3/3/04</u>	: (
		by closery se				_
COMMENTS _			<u>.</u>			_

. ~OJECT	Hereales /) effersion _	SAMPLE I	D <u>E</u>	-8D	
PROJECT NO.			WELL NO), <u>E</u> -	-8P	_
SAMPLE DATE	3 1	0 1	SAMPLED	ВУ С	GK	
SAMPLE TIME (STAI	RT/END) 1	100 / 1135	SAMPLE S	Sequence 1	10. 14	
SAMPLE COLLECTION	N EQUIPMENT	while pur	·p v/	dedicates	d tobing	· · · · · · · · · · · · · · · · · · ·
DEPTH TO WATER F	RIOR TO PURGI	ng/Sampling (ft)				
RECHARGE TIME	Snin.		MEA	SURED FROM	u □ toc ¤tor □	I GS
	·	FIELD MEASUR	EMENTS			
pH		Standard Unit	S	6	. 79	
Specific Cond	luctance	umho/cm		0.	10	
Water Temp	erature	°.E		. 14.3	·	
Dissolved C)xygen	ppm		0.0	0	
Redo	Κ.	mV		-148	5	٠.,
Turbid	ity	. NTU		0		
SAMPLING FLOW R	ATE:	SAMPLE TYP		CCTED	· · · · · · · · · · · · · · · · · · ·	•
PARAMETER	Volume		•	LTERED?	PRESERVED?	
APIX VOC		4			YM He/ NO	-
APIX SUCC		2		N⊠	•	•
APIX Metals		,	ΥД	N□	Y M HNO NO	
			Ϋ́□	N□	Y 🗆 N 🗖	
	·		Υ□	ИП	Υ□ И□	
			Y□	ΝП	Y 🗆 N 🗅	
-			ΥΠ	. И 🗆	Υ 🗆 N 🗆	
· .			Υ□	.И 🗖	Υ□ NП	•
 .			Ϋ́	И□	Υ 🗆 И 🗆	
-			Υ□	N□	Y 🗆 N 🗆	
NUMBER OF CON	TAINERS	7 · FILTR	ATION METI	HOD O.S	15 necres filter	
BORATORY	STL- Squero.	-4 DELIV	ERED VIA	Fed Ex	DATE <u>3/2/0</u>	y
A second		mostly cloudy - 6				
COMMENTS	·					·

RITER CONSULTANTS, INC.

PROJECT Horales	- Jefferson Plant SAMPL	· > l	MSD - (
	VELL)		
SAMPLE DATE	12/04 SAMPL		
SAMPLE TIME (START/END)	230 / SAMPL	E SEQUENCE NO.	·
SAMPLE COLLECTION EQUIPMENT	Whale pump in	y dedicated	thing
DEPTH TO WATER PRIOR TO PURG			195
RECHARGE TIME 5 M;	nutes M	EASURED FROM 🏻 TOC	XI_TOR □ GS
	FIELD MEASUREMENT	S	
pН	Standard Units	1,05	
Specific Conductance	umho/cm M5/m	7(
Water Temperature	°_C	13.4	
Dissolved Oxygen	ppm	0.37	
Redox	mV	-175	
Turbidity	NTU	24	
METER CALIBRATION PERFORMED		DATE $\frac{3}{2}$	<u>54.</u>
WATER APPEARANCE, IMMISCIBLE	E PHASES OR ODORS:		
SAMPLING FLOW RATE:	· ·		
	SAMPLE TYPES COL	LECTED	
PARAMETER VOLUME	# CONTAINERS FIELD	FILTERED? PRES	ERVED?
TA vocs 40ml		MB YD IT	<u>с/</u> ип .
II SVOCS IL	_ <u>6</u> _ y 🛮	N 🖾 Y 🗆	ΝД
IX Tracing 500m	2 , , , , , , , , , , , , , , , , , , ,		
12 Inorganits 500ml		и□ У ⊠ <u>Н</u>	<u>Ю</u> 3 N 🗆
- Ino games Scorin	YD	ип лп— ип л <u>м</u>	· -
			и п
	Y 🗆	и п Ап [—]	ип
	Y 🗆 Y 🗆	ио уо ио уо ио уо	и п и п
	Y 🗆 Y 🗆 Y 🗅 Y 🗅	ио уо <u></u> ио уо_ ио уо_	и □ и □
	Y Y Y Y Y Y	N	N N N N
	Y Y Y Y Y Y Y Y Y Y	NO YO NO YO NO YO NO YO NO YO_	N N N N
Number of Containers	Y Y Y Y Y Y Y Y Y Y	NO YO	N N N N
Number of Containers	Y Y Y Y Y Y Y Y Y Y	NO YO	N
Number of Containers Laboratory STL-Sav	Y Y Y Y Y Y Y Y Y Y	NO YO	N

. KOJECT	Herenta) efferson	SAMPLE I	D <u>E</u> -	61	· · · · · · · · · · · · · · · · · · ·			
PROJECT NO.	01305.40		WELL NO). <u>E</u> -	61				
SAMPLE DATE		2104				·			
SAMPLE TIME (STA	RT/END)	290 / 1235	SAMPLE S	SEQUENCE NO	o. <u>16</u>				
SAMPLE COLLECTION	ON EQUIPMENT	white pu	np w/	dedient	d tubin				
		ng/Sampling (ft)							
RECHARGE TIME	Sain		MEA	SURED FROM	□ TOC ▼ TOR	□ GS			
		FIELD MEASUR	EMENTS						
pH		Standard Unit	s	7.29					
Specific Con	ductance	umho/cm		0.11					
Water Tem	perature	°C		14.8					
Dissolved (Oxygen	ppm		0.00	<u> </u>				
Redo	x	mV		-13					
Turbic	lity	NTU_	·	·	0				
SAMPLING FLOW I		E PHASES OR ODORS:	· - · · · · · · · · · · · · · · · · · ·						
PARAMETER	VOLUME	# CONTAINERS	•		PRESERVED	·			
		4		_	Y M HC/ N				
APIX SUOC	•			NØ	•				
APIX Metals			Y.Æ.	ΝП	Y M Hrog N	1 🗖			
	,		Υ□	Ν□	Y 🗆 1	1 🗖			
			Υ□	N□	Y 🗆 1	N 🗖			
		· · · · · · · · · · · · · · · · · · ·	Υ□	N□	Y 🗆 1	1 🗆			
·			. ·Y 🗆	ΝП	Y 🗆 1	4 □			
			Υ□	Ν□	Y 🗆 1	1 🗖			
			Υ□	ΝП	Y 🗆 1	1 🗆			
· · · · · · · · · · · · · · · · · · ·		· .	Y□	N□	Y 🗆 1	1 🗆			
NUMBER OF CON	ITAINERS	7 FILTR	ation Meti	HOD vy	S nicen filt	<u>-</u>			
:BORATORY	STL - 80-6-	DELIN	ered Via	ETH EX	DATE <u>3/3/</u>	log :			
WEATHER COND	ITIONS	the cloudy - 60-7	<u> </u>		· · · · · · · · · · · · · · · · · · ·	· 			
COMMENTS _	· · · · · · · · · · · · · · · · · · ·	·			· · · · · · · · · · · · · · · · · · ·				

. •

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 2.4-Trineshylbenzerse TIME 15 combounds REMARKS EXPEDITED REPORT DELIVERY (SURCHARGE) STANDARD REPORT DELIVERY Add High DATE DUE, DATE DUE كنكيالهمد DATE Website: www.stlinc.com Phone: (912) 354-7858 Fax: (912) 352-0165 PAGE, COUBL RELINQUISHED BY: (SIGNATURE) __ Phone: Fax: Serial Number NUMBER OF CONTAINERS SUBMITTED REQUIRED ANALYSIS Alternate Laboratory Name/Location Sistary bond 0221 (1 STL Savannah 102 LaRoche Avenue Savannah, GA 31404 ¥ SVOC (Appendix9 DATE \mathcal{C} \sim J -1 NONAQUEOUS LIQUID (OIL, MATRIX TYPE ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD SOLID OR SEMISOLID AQUEOUS (WATER) RELINQUISHED BY: (SIGNATURE) COMPOSITE (C) OR GRAB (G) INDICATE (') PROJECT LOCATION (STATE) P.A. CONTRACT NO. CLIENT FAX SAMPLE IDENTIFICATION 412-241-450 PROJECT NO. 61305 P.O. NUMBER んな 09 1 1 1 1 E-52 F-13 CLIENT E-MAIL E-15 ζ, COMPANY CONTRACTING THIS WORK (If applicable) Curricing Kr.ナ Brauchan 7. T. andhha STL (LAB) PROJECT MANAGER 17:45 09:20 14:36 14:50 06:20 RELINQUISHED BY: (SIGNATURE) 12:00 11.55 3:35 10:11 12:00 TIME TREN PROJECT REFERENCE SEVER SAMPLE CLIENT (SITE) PM CLIENT ADDRESS CLIENT NAME Bets11 401961 hO/LE 27/h 4 10/LE 1/26/04 127/04 10/19 C/ 170/96/ polod DATE

STL8240-680 (12/02)

뿚

DATE

RECEIVED BY: (SIGNATURE)

TIME

DATE

RECEIVED BY: (SIGNATURE)

5:55

127/04

DATE

RECEIVED BY: (SIGNATURE)

TOO!

RECEIVED, FOR ILABORATISMENT (1987)

Serial Number LOUDD

www.stl·inc.com 912) 354-7858 2) 352-0165		PAGE COF	STANDARD REPORT DELIVERY EXPEDITED REPORT DELIVERY (SURCHARGE) DATE DUE NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	REMARKS	Aphitapal VOC	analysis for 3#	, \	124 T : 124	126 Time Hill	crs 1,2 Dichlorach ene				DATE TIME	DATE TIME		J. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Website: www.stl·inc.cor Phone: (912) 354-7858 Fax: (912) 352-0165	cation Phone: Fax:	REQUIRED ANALYSIS		NUMBER OF CONTAINERS SUBMITTED		-								RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)		JABORATORY REMARKS
STL Savannah 5102 LaRoche Avenue Savannah, GA 31404	Alternate Laboratory Name/Location	REQUIRE	SOLL SOPERIOR	NUMBER OF CON			-					-	•	TIME	TIME		
<u>)</u>	O Alternate	E Š	HCZ VOC (Appentix9) HCZ VOC (Appentix9) QUEOUS LIQUID (OIL, SOLVENT,)	AIR	7	(C)	-							DATE	DATE	ABORATORY USE ONLY	WINNWAYS (ILL. L.)
ODY RECORD		CATION MATRIX	OR SEMISOLID OSITE (C) OR GRAB (G) INDICATE)3NÓA	k 1)	78	-							RELINQUISHED BY: (SIGNATURE)	(SIGNATURE)	LABORATO	COUSTODY SEAL NO
AIN OF CUSTO		PROJECT LOCATION (STATE) $\rho \mathcal{L}$		ATION	(trip blan					·					RECEIVED BY:		COUSTODY INTE
ANALYSIS REQUEST AND CHAIN OF CUST	_]	PROJECT NO.	P.O. NUMBER CLIENT PHONE L/1/2 - 3 L/1 - 4/500 CLIENT E-MAIL AMELAUGH, PH 15 able)	SAMPLE IDENTIFICATION	TB1 (10-dig	· · ·							7/M/ 15:55			FINE .
ANALYSIS REC			900 sik (if applice		-									DATE 1/27	DATE		DATE
A N	TRENT	PROJECT REFERENCE	STI (LAB) PROJECT MANAGER RESSU BEALCHAMP CLIENT (SITE) PM CLIENT NAME CLIENT ADDRESS CLIENT ADDRESS COMPANY CONTRACTING THIS WORK (If applicable)	SAMPLE						-				RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	経済の最近においては、1000年の日本のでは、1000年の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の	RECEIVED FOR ILABO RY BKI (SIGNATURE)

-			·	:		-				_		« <u>ن</u>			 		-			
	c.com 858 55) OF.	STANDARD REPORT DATE DUE EXPEDITED REPORT CSURCHARGE)	NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	REMARKS	00 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	# 2 7 W 1 7 W 10	23.000	4- Tribelly 12 Buch	3.100 B. 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	2-13- Dicheral Men					DAIE	DATE TIME		
er Lo∪o4	Website: www.stl·inc.com Phone: (912) 354-7858 Fax: (912) 352-0165	Phone: Fax:	PAGE	55분 <u>것</u> 유호	Name of the state	03						i)	,		2		RELINQUISHED BY: (SIGNATURE)	SIGNATURE)	是 100 · 100	
Serial Number		2/Location	REQUIRED ANALYSIS	1		NUMBER OF CONTAINERS SUBMITTED											RELINQUISHED	RECEIVED BY; ISIGNATURE)		ILABORATORY REMARKS:
	lvenue 1404	tory Name	REO	GATPING	188	UMBER OF			-			7	_	-			TIME	TIME		LABOR/
,	STL Savannah 5102 LaRoche Avenue Savannah, GA 31404	Alternate Laboratory Name/Location		57.	1	Z	7	7	~	(4	7	7	<u>-</u>				DATE	DATE		STI SAVANNAH LOG NO
		Alter	MATRIX TYPE		VONEONS FIN	ЯІ∀	1 7	77	7	. 17	[7]	7	7	7				÷	LABORATORY USE ONLY	
(A)	' RECORD) S GRAB (G) INDICATE	EOUS (WATER	IUQA	3	<u>.</u>	\ \ \	5	5	7,	70	>			: (SIGNATURE)	URE)	LABORA	GUSTODY SEAL NO
			PROJECT LOCATION (STATE)	CLIENT FAX	5235	*					SD		·	Ctrip blank 2	7-		relinquished by: (s	RECEIVED BY: (SIGNATURE)		USTODYNINTACT IES O
• ;	D CHAIN	£. ,	ij	T. P. I. E.	1/2/1/10	SAMPLE IDENTIFICATION	49	22	Ü	SW 19	, W 1 9	-35	27) 23	·		16,05			
	ANALYSIS REQUEST AND CHAIN OF CUSTODY		PROJECT NO.	P.O. NUMBER CLIENT PHONE	S. HZIV.	SAMPLE IDE	1	L	١,	١	1	F	E	 -			DATE 1/28/04 1			DATE TO SELECTION
:	ANALYSIS	SI		Gang.	WORK (if applic		-							÷						
: : (RENT	ENCE	ECT MANAGER L'EGULL AUGHANA	RACTING THIS	LE TIME	17:05	16:40	18.65	76 · E	10:65	10:30	13.40				LINQUISHED BY: (SIGNATURE)	GABLERS		ABORATORY BY
· Financial services		SEVERN	PROJECT REFERENCE	ST. (LAB) PROJECT MANAGER 12 (LENT (SITE) PM 12 (LENT NAME CLIENT NAME (LIENT N	CLIENT ADDRESS.	SAMPLE	110/12/1	1/27/04	1179 (174)	108/04	1/20/04	1/10/1	1/25/VI	1			RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)		RECEIVED FOR LABORATORY BY (Signature)

Serial Number LOUG (

AMAINSIS BEQUIEST AND CHAIN OF CLISTODY RECORD	(CTI Savannah		Website: www.st	www.stl-inc.com
)	5102 LaRoche Avenue Savannah, GA 31404			4-7858 1165
TRENT SIL	0	Alternate Laboratory Name/Location		Phone:	
PROJECT REFERENCE PROJECT NO. PROJECT LOCATION (STATE) P. J. C. To (Lo e. C.) (STATE) P. J.	MATRIX TYPE		REQUIRED ANALYSIS		PAGE OF
GER P.O. NUMBER CONTRACT NO.	(,11	5) 04 (b x)			STANDARD REPORT DELIVERY
CLIENT PHONE $ \psi = \psi = \psi $ CLIENT FAX	SOFAEN	. कार्या	[DATE DUE
CLIENT E-MAIL	ID (OIF)	,, -, -			DELIVERY (SURCHARGE)
18 52 34 PA 15235	(C) OB (L 3	22 12 14		DATE DUE NUMBER OF COOLERS SUBMITTED
TING THIS WORK (if applicable)	N SUO	S. Paris Mala Mala Mala Mala Mala Mala Mala Mal	Ladi u Suživita		PER SHIPMENT:
SAMPLE SAMPLE IDENTIFICATION	PÓNE PÓNE	NUMBER	NUMBER OF CONTAINERS SUBMITTED		REMARKS
	1			7	Additional VCC
					analysis for 3
14 13:10 E-3AD	27	₹ *			on plunds
13:10 E-57	7 / / / / /	3 1			24- Trively Mizer
14 15:10 E-14	5V 6	1 2 1			35-74 Rath Lanzen
15:45 EQB1	37	87	7		is-1,2-Didl. reeliene
			#		
			•		
			<u> </u>		a contract.
RELINQUISHED BY: (SIGNATURE) SAME TIME RELINQUISHED BY: (SIGNATURE)	URE)	DATE TIME	E RELINQUISHED BY: (SIGNATURE)	(' (Signature)	DATE TIME.
DATE		DATE TIME	E RECEIVED BY: (SIGNATURE)	NATURE)	DATE TIME
	ABORATORY/USE ONLY			建筑设施设施	
RECEIVED! FOR LABORATE ON BY SOUTH STATES OF SOUTH STATES OF THE S	SEALUNO SEALUNO	BYAN HANNAYS	LABORATOR/EREMARKS		
ST CAMPARAM INVESTMENT AND AND AND AND AND AND AND AND AND AND	STATE OF THE PARTY	ANNESS AND AND AND AND AND AND AND AND AND AND	AND THE PROPERTY OF THE PROPER	Weeksparking was manuser and	. (8240-680 (12/02)

n	
a C C C	
α H	
<u>_</u>	
Number	
Z R	
Seria	

: , i-

STIL All CHANN OF CUSTOON PECOND Signature and the state of the s							-		
STL		S REQUEST AND CHAII	N OF CUSTODY RE	080 080	STL Savannah 5102 LaRoche A Savannah, GA 31	venue .404	Website: www Phone: (912) Fax: (912) 35	v.stl·inc.com 354-7858 2-0165	
STATE OF THE DESTRUCTION OF THE STATE OF THE		7		1	Alternate Labora	tory Name/Location	Phone:		
PRODUCT OF THE LAND GRAPH PRODUCT CONTINUES TO A MATRIX REQUIRED NATIONS OF THE LAND GRAPH PRODUCT CONTINUES TO A MATRIX REQUIRED NATION OF THE LAND GRAPH PRODUCT CONTINUES TO A MATRIX REQUIRED RECORD FROM THE LAND GRAPH PRODUCT CONTINUES TO A MATRIX REMANDER OF CONTINUES AS A MATRIX REMANDS GRAPH PRODUCT CONTINUES TO A MATRIX R									
SAME DEVICED BY SOUTH AND ALL STATES	PROJECT REFERENCE	ν <u>ς</u>	PROJECT LOCATION (STATE)	MATRIX TYPE		REQUIRED ANALYSIS	·	PAGE	
CLEATERING PART P	STL (LAB) PROJECT MANAGER		1	7/1	(b)	河 河	-	STANDARD REPO	Ž
CLEAT EAVAL. CLEAT EAVAL. SAMPLE DEVITED TO THE TEACH CONTINUES SUBMITTED SAMPLE DEVITED TO THE THREE OF CONTINUES SUBMITTED FOR STANDARD TO THE THREE OF CONTINUES SUBMITTED FOR STANDARD TO THE THREE OF CONTINUES SUBMITTED FOR STANDARD TO THE THREE OF THREE OF CONTINUES SUBMITTED FOR STANDARD TO THE THREE OF THREE OF CONTINUES SUBMITTED FOR STANDARD TO THE THREE OF THREE OF THREE OF CONTINUES SUBMITTED FOR STANDARD TO THE THREE OF THREE OF CONTINUES SUBMITTED FOR STANDARD TO THE THREE OF THREE OF THREE OF CONTINUES SUBMITTED FOR STANDARD TO THE THREE OF THREE OF CONTINUES SUBMITTED FOR STANDARD TO THE THREE OF THR	CLIENT (SITE) PM	CLIENT PHONE		INDICA	xi);X/x	14.7J	·	DATE DUE_	
Section Control Con	<u> </u>	CLIENT E-MAIL		(5) 8(MAY IA)	Dank		EXPEDITED REP DELIVERY	() E
10 10 10 10 10 10 10 10	1			(0C V	ddy Ossi		(SURCHARGE)	
TRAIL PAR SHIPMINN: PAR	CLENT ADDRESS FROM SOLIKE	Parlow	15235	NATER	S	/ Sp. 37 1	1.5 1.5	DAILE DUE	LERS SUBMITTED
SAMPLE DENTIFICATION \$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	COMPANY CONTRACTING THIS WORK (If app	plicable)) snc	1		rak a-	PER SHIPMENT:	
TOUL	SAMPLE	SAMPLE IDENTIFICATION		20CID VÓNEC	ANON	IMBER OF CONTAINERS SU	BMITTED		
E-43 Sheres of the state of the	1 1/4	704	(5	-	17			Addition	40,0
E-34 E-17D DATE Mill-F3	17/11	43	3					- Si	(O
E - 17 D SV 4 3 1 3.41-17 (ringhly) Barrenge W - 15 5 1 3 1 3 1 3.41-17 (ringhly) Barrenge E - 46 D 5 1 2 1 3 1 3.41-17 (ringhly) Barrenge E - 8 D 1 2 1 3 1 3 1 3.55-1,3- Drahlarosehlar E - 5 D 5 4 3 1 3 1 4 3.55-1,3- Drahlarosehlar E - 5 D 5 4 3 1 4 3 1 4<	77	,		>	,				mis.
E-4 6D	1 76	1 ' '		-				4-17	with I Jenzene
W - 15	17()	E-461)		1	,			. N	eshy benzene
F8 M. 1		W-15) / C				۲,	chlero ether e
Mill F2 5 5 4 2 1	-	E-8D		1 / "			*		
E-L55 E-L5D F-S1	1	MILL F3		7					
E-45D F-51	/rd 1)/(,				
DATE TIME RELINQUISHED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SI	70 1	E-45D)/	1 2 7				
DATE TIME RELINQUISHED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SI		E-5		\.\.	421		``		
DATE TIME RELINQUISHED BY: (signature) DATE TIME RELINQUISHED BY: (signature) DATE DATE TIME RECEIVED BY: (signature) DATE TIME RECEIVED BY: (signature) DATE TIME RECEIVED BY: (signature) DATE TIME RECEIVED BY: (signature) DATE TIME RECEIVED BY: (signature) DATE TIME RECEIVED BY: (signature) DATE TIME RECEIVED BY: (signature) DATE TIME RECEIVED BY: (signature) DATE TIME RECEIVED BY: (signature) DATE TIME RECEIVED BY: (signature) DATE	1				e V				
DATE TIME RECEIVED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SIGNATURE) DATE TO SIGNATURE) DATE TIME RECEIVED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SIGNATURE) DATE TIME RECEIVED BY: (SIGNATURE) DATE TIME TIME RECEIVED BY: (SIGNATURE) DATE TIME TIME RECEIVED BY: (SIGNATURE) TIME TI	RELINQUISHED BY: (SIGNATURE) リー・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・	1-0,	RELINQUISHED BY: (SIGN	ATURE)	DATE		SHED BY: (SIGNATURE)	DATE	IME
ILOGINO PARESTRA RELIABELE DE CONTROCA DE	RECEIVED BY: (SIGNATURE)		IGNAŢURE		DATE) BY: (signature)	DATE	TIME
TO THE PART OF THE		特別的時間與	1856年第一次,1958年	ABORATORY	USEIONINY	Programme Control of the Control of	治療をなるのの		18 Company of the Com
	RECEIVED!FORIU/ABORATORY BY (1977) (SIGNATURE)	I DATE: CON & STIME OF			I STIP SAVANNAH	ILLABORATORY REMARKS			
							, sev	,	

000	
4	
Number	
Serial	

.stlinc.com 354-7858 2-0165		PAGE OF	STANDARD REPORT DELIVERY DATE DUE	EXPEDITED REPORT DELIVERY (SURCHARGE)	NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	REMARKS	Additional NOC	Crys1618 for 37	> Spenazini J	124- Tenish, Bush	25-Timeshi 12-261	is - 1, 2 - Nichtadhere						DATE TIME	DATE TIME			. (8240-680 (12/02)
Website: www.stl-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165	ocation Phone: Fax:	REQUIRED ANALYSIS				NUMBER OF CONTAINERS SUBMITTED												RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)		KY KEMAKKS.	
STL Savannah 5102 LaRoche Avenue Savannah, GA 31404	Alternate Laboratory Name/Location	REQUIRE		VIDE XIIX VICEOPAG VICE (VIDE		NUMBER OF CON	2111	7		2		211	8	ر ا	2111			DATE TIME	DATE TIME		ANNAHAS LABURATURY REMARK	
Y RECORD STL 8	Altern	MATRIX TYPE	(b)/!!	17/5/1/3/2/3/2/3/2/3/2/2/3/2/2/2/2/2/2/2/2/2	OR SEMISO	SOLID SOLID	12	7 / / /	97 4	3/	17 1 1 1 1 1 1	011	21 4	2/ 4	77					M.	SEALINO INO	
OF CUSTODY RE		PROJECT LOCATION (STATE)	CONTRACT NO.		15225)		(tripblents)))					RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)		eusropy Integral	Č.
ANALYSIS REQUEST AND CHAIN OF CUSTODY		PROJECT NO.	P.O. NUMBER	1/13-34)]-4/500	RHS COLD VA	SAMPLE IDENTIFICATION	E-29	87-7	E-40	PE-34	TB5	DUP-02	W-2A	E-53	E-56	,	, .	12/14 TIME	 - .		TIME	
ANALYSIS REQ	S	Terffy (C () PRO.	dinaci		S THIS WORK (if applicable)					10					5			4 C	<u> </u>			
N 2 H 2 H 2	TRENT	PROJECT REFERENCE	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	CLIENT ADDRESS COMPANY CONTRACTING THIS WORK (If applicable)	SAMPLE	<u> </u>	13/07	13/04	10/0/	4_	-	01:51 11/4/2.	13/4 14:35	<u> </u>			RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)		RECEIVED FOR LABOR (SIGNATURE)	STATE OF THE STATE

STANDARD REPORT DATE DUE EXPEDITED REPORT DATE DUE DATE DUE NUMBER OF COOLERS SUBMITTED PER SHIPMENT: REMARKS AAA I TO DAY VOC COMPOUNTS COMPOUNTS 134-Tringthy Denzere 135-Tringthy Denzere 135-Tringthy Denzere 135-Tringthy Denzere 135-Tringthy Denzere 155-Tringthy Denzere	Additional analysis for compounds 134-Trinethy 135-Trinethy 15-1, 2-Dichloro			ATURE) DATE TIME) DATE TIME	STL8240-680 (12/02)
	LING.	COUNTAINERS SUBMIT LED		RECEIVED BY: (SIGNATURE) RECEIVED BY: (SIGNATURE)	JABORATORY REMARKS
REQUIRED ANALYSIS	AND (Appendix9) SYOC (Appendix9)	0N	1	DATE TIME DATE TIME	avannahi O
VIION MATRIX	MPOSITE (C) OR GRAB (G) INDICATE (C) OR GRAB (G) INDICATE (C) OR SEMISOLID	V	X 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	TURE)	
PROJECT NO.	CLIENT PHONE CLIENT E-MAIL CLIENT E-MAIL 200 PHESPLANGH Bile)	Callon	TB6 (tripbleak E-27 E0B3 MW-F1 E0B3 DUP-03 MW-5	DATE TIME RELINQUISHED BY: (SIGNATURE) $\begin{vmatrix} f_1/(\lambda) - G & f_1/(\lambda) \\ f_2/(\lambda) 2 \sqrt{L} f_1/(\lambda) \\ TIME & RECEIVED BY: (SIGNATURE) \\ RECEIVED BY: (SIGNATURE) RECEIVED BY: (SIGN$	POATER OF STRINKE OF S
TRENT CAREFERENCE T P	STL (LAB) PROJECT MANAGER CLIENT (SITE) PM CLIENT NAME CLIENT ADDRESS CLIENT ADDRESS CLIENT ADDRESS COMPANY CONTRACTING THIS WORK (if applicable) SAMPLE	2/4/04 09:35 2/4/04 09:55 3/4/64 09:55 3/4/04 09:55	3/4/64 17:40 3/4/64 12:40 3/4/64 15:30 3/4/64 14:40	RELINQUISHED BY: ISIGNATURE: (OUL YO XINNES) RECEIVED BY: ISIGNATURE: RECEIVED BY: ISIGNATURE: FROM ENTRY OF STANDANION OF S	RECEIVED: FOR ILABORATORY BY (SIGNATURE)

Serial Number LOU/L

w.stl-inc.com) 354-7858 52-0165			PAGE	STANDARD REPORT DELIVERY	DATE DUE	EXPEDITED REPORT DELIVERY (SURCHARGE)	· DATE DUE	NOMBER OF COLLERS SUBMITTED PER SHIPMENT:	REMARKS	Marticol VCC	0.00,65 67 3#	3 4- Trungallander	135-Tringer, Denzene	SS-13- Die kurge diene				- Concording	DATE TIME	DATE TIME			18240.680 (12,02)
Website: www.stHinc.com Phone: (912) 354-7858 Fax: (912) 352-0165		Fax:	REQUIRED ANALYSIS						NUMBER OF CONTAINERS SUBMITTED				-				-		RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)		REMARKS	
STL Savannah 5102 LaRoche Avenue Savannah, GA 31404	Alternate Laboratory Name/Location		REQUIRE	(bx)	padi		\$!C 	5011	NUMBER OF CONT	7				1					DATE TIME	DATE TIME	对我们是是次	SAVANNAH: NO NOSANAH: RESERVED	
ODY RECORD S	0		ON MATRIX TYPE		PARTICIPATE	(OIF'	C) OB C	OSITE (WAS CONTECT OF SER	aorid Võnec	17 /5									D BY: (SIGNATURE)	ATURE)	* LABORATORY USE ON	I CUSTOBY A TANK	
			PROJECT LOCATION STATE)		SU CLIENT FAX		25 CS1 11/1 1/2		CATION	5 mSD									RELINQUISHE	RECEIVED BY: (SIGNATURE)		EN IGUSTODIVINTACIT FINESCO INO TO	
ANALYSIS REQUEST AND CHAIN OF CUST			PROJECT NO. 2/15	 	CLIENT PHONE 11-4/500	CLIENT E-MAIL	5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		SAMPLE IDENTIFICATION	MW-5									DATE TIME	 - - - -		I DATE TO TIME	
	り 関		10E - 1, 1, 1, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2,	T MANAGER	2	ENT NAME /		HIS WORK (if ap	TIME	0/7:1-1									(SIGNATURE)	CONTRACTOR OF THE STATE OF THE	《公》的"以 》《《关》。) (B)	
N & H > H S	TRENT		PROJECT REFERENCE	STL (LAB) PROJECT MANAGER	CLIENT (SITE) PM	CLIENT NAME	CLIENT ADDRESS	COMPANY CONTRA	SAMPLE	17	277					-			RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)		RECEIVEDIFORUIABO	

Serial Number 18U / 2

72	www.stl-inc.com 912) 354-7858 2) 352-0165		PAGE OF	STANDARD REPORT DELIVERY	DATE DUE	EXPEDITED REPORT DELIVERY	(SURCHARGE) DATE DUF	NUMBER OF COOLERS SUBMITTED	PER Shirmeidi:	REMARKS	ADDITIONAL VOC	ANALYSIS FOR 3th	500000	12,4 THINGTHY CBENZENE	(3,5 THIMESHYLMENZENE	Cis-1-2 DICHLEADENIENE	·	機能の かっと 大きな			DATE	DATE TIME		
Serial Number 18U	Website: www.stl·inc.cor Phone: (912) 354-7858 Fax: (912) 352-0165	ation Phone: Fax:	REQUIRED ANALYSIS					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ener	NUMBER OF CONTAINERS SUBMITTED									:		RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)		IORY REMARKS
	STL Savannah 5102 LaRoche Avenue Savannah, GA 31404	Alternate Laboratory Name/Location	REQUIRE	(X)	* 1000 * 100	0.00	(V) 0.520 (VU) 5 (VU)		H		4 2 1 1	4									DATE TIME	DATE TIME	DSE ONLY A STATE OF THE BEAUTY	STUSSAVANINAH
	OF CUSTODY RECORD	· .	(STATE) MATRIX (STATE)	NO.	OIGNI	(5) 8/		SEMIS	EOUS	SOLI SOLI SOLI SOLI	× .9	min searle >") X									RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	ORATORY	USTODY INTACT ES 1 O
	ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD	77	PROJECT NO.		CLIENT PHONE 4/2	CLIENT E-MAIL		Soo Pirtformen	ppincaule)	SAMPLE IDENTIFICATION	E28-D	1 5-8-			-						TIME /3:/5	TIME /3:15		DATE PROTECTION TIMBER AND THE PROTECTION OF THE
- ·	ANALYS S F V E K V	TRENT	PROJECT REFERENCE	STL (LAB) PROJECT MANAGER	I ==	CLIENT NAME (************************************	Commined / Kritice	SOCDUFF 100 SUITE SOC	טוותאכיוווט וחוט שכונו פאוויס	SAMPLE	2/5/04 9:40	-									RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)		RECEIVED FOR LABORATORY BY: SIGNATURE:

E		. OF	STANDARD REPORT DELIVERY	EXPEDITED REPORT CS. IRCHARGE)	DATE DUE	REMARKS			Management of the State				*** Taleston (*)	TENAC	DALE	DATE TIME	
Website: www.stl-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165	Phone: Fax:	PAGE	STAND		- 1-1 - 1-2				The second						RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	
wenue 1404	Alternate Laboratory Name/Location	REQUIRED ANALYSIS			(2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	BER OF CONTAINE			20						TIME RELINQUISH	TIME RECEIVED B	LABORATORY REMARKS
STL Savannah 5102 LaRoche Avenue Savannah, GA 31404	Alternate Labora	×			ainòin sno	RIA MONAQUEC									DATE	DATE	LABORATORY, USE ONLY CUSTODY SEALINO GINO GINO TO THE OFFICE OF THE OFFICE OFFI
I OF CUSTODY RECORD		STATE) PA TYPE	CONTRACT NO.	CLIENT FAX (413) 24/-7500 AB	E (C) OB GB	SOCID OR COMPOSIT	9								RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	CUSTODY INTACT SEAL NO NO.
ANALYSIS REQUEST AND CHAIN OF CUSTOD		PROJECT NO.	P.O. NUMBER	CLIENT PHONE C4(12) 34 1-45 6 6 CLIENT E-MAIL	Ag. 2000 Cillians	plicable) SAMPLE IDENTIFICATION						-			DATE TIME	ATE	I DATE TO THE TOTAL TO THE TOTA
ANALYSI	TRENT	PROJECT REFERENCE	JECT MAI	CLIENT (SITE) PM C @ N X X X Y X X CLIENT NAME	CLIENT ADDRESS	CONTRAC	DAIE IIME 13CO F 2 2 CO		7-						RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	RECEIVED FOR I DAY (BY (BY (BY (BY (BY (BY (BY (BY (BY (B

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: TIME TME REMARKS EXPEDITED REPORT DELIVERY (SURCHARGE) STANDARD REPORT DATE DUE. DATE DUE DATE DATE Website: www.st-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165 PAGE RELINQUISHED BY: (SIGNATURE) Phone: Fax: RECEIVED BY: (SIGNATURE) NUMBER OF CONTAINERS SUBMITTED REQUIRED ANALYSIS Alternate Laboratory Name/Location TIME CO <u>__</u> STL Savannah, 3 102 LaRoche Ayenue Savannah, GA 31404 TIME 3-1-8 DATE 3-1-5-1 S NONAQUEOUS LIQUID (OIL, COMPOSITE (C) OR GRAB (G) INDICATE
AQUEOUS (WATER)
AIR
AIR
AUROUS OR SEMISOLID MATRIX TYPE : ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD REDINQUISHED BY: (SIGNATURE CLIENT FAX (417)2411-17500 :[VED;BY: (SIGNATURE) P. Kirch Phossi PROJECT LOCATION (STATE) MYNONE CONTRACT NO. mylman(f) amuspasarter acm SAMPLE IDENTIFICATION CLIENT PHONE O PROJECT NG. O1305, Y. (ĭ₩ Ŧ CLIENT E-MAIL 5 DATE DATE ロナー川 COMPANY CONTRACTING THIS WORK (if applicable) 1 Phant Ercules - Jethersen 057 REMINQUISHED BY: (SIGNATURE) STL (LAB) PROJECT MANAGER P 1-1-P() 0,20 5.05 09:25 5:12 福州の東京の からい SEVERN ۍ ق ر ان جر TIME RECEIVED BY: (SIGNATURE) TRENT PROJECT REFERENCE RECEIVED FOR ILABOR CLIENT (SITE) PM CLIENT ADDRESS て CLIENT NAME 3 70 70/ 70 DATE

ローロロン

Serial Number

STL8240-680 (12/02)

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD	-	STL Savannah 5102 LaRoche	STL Savannah 5102 LaRoche Avenue		Website: www.stl·inc.cor Phone: (912) 354-7858	www.stłinc.com 312) 354-7858	
TRENT STL		Alternate	Savaillall, OA 31404 Alternate Laboratory Name/Location	-ocation	Phone:	5010-2	,
	MATRIX		REQUI	REQUIRED ANALYSIS	- av.	PAGE	JO.
AGER P.O. NUMBER		>X	52'0'			STANDARD REPORT DELIVERY	0
CLIENT (SNE) PM CLIENT PHONE CLIENT FAX	e) indicy	OC 2	<i>ף</i> יאמינלפי			DATE DUE	
CLIENT E-MAIL	D		Ā			DELIVERY (SURCHARGE)	0
CLIENT ADDRESS F ROSA SUITE FOR P. IRMAN	MATER)	opiz-suo				DATE DUE	S SUBMITTED
G THIS WORK (if applicable)	OUS (νόπεο				PER SHIPMENT:	
SAMPLE IDENTIFICATION	SOLIE SOLIE AIR	√NON .	NUMBER OF CO	NUMBER OF CONTAINERS SUBMITTED	٠.	REMARKS	
(い) は	X 0	7	6			Asoth T.	4
	. ×	2				he Cald	الماسي ساهات
/	×					Ms 5 7 7 3 1 1	フノブー
	X					M. K. X. S.	0
		717				Ara IT Vicks	12 C 180
1.20						12 l. de 124	\$ 135
12.20 F-C	× .						
3 F.R-1	X					C.5-1, 2- DX	(4)
1-Q-7			~			Train Blan	27
1-0-10	$ \mathcal{C}(\mathcal{N}) $	7 7				Dale te	H
) -	-			<u>-</u>	•
				-		Amendment (S)	
FD BX:	GNATURE	DATE 7-2	TIME 16, 15	RELINQUISHED BY: (SIGNATURE)	: (Signature)	DATE	TIME
RECEIVED BY: (SIGNATURE) DATE TIME TRECE, VEID-BY: (SIGNATURE) TO C C)	БАТЕ 3-2-С		RECEIVED BY: (SIGNATURE)	IATURE)	DATE	TIME
	LABORATORY USE ONLY	USE ONLY					
RECEIVED FOR!LABORATion BY; (SIGNATURE) YES NO	CUSTODY SEAL NO.	STL SAVANNAH NO.		LABORATORY REMARKS	4 A+A		*****
		~ , , , ~	``.\	- James - Jane			8240-680 (12/02)
The second secon			· · · · · · · · · · · · · · · · · · ·				

• '	
* . <i>-</i>	
S I	
, c u	
` '	
•	
٠,	
\leftarrow	
•	
t .	
(0)	
` ⊏	
=	
=	
_	
.=	
<u>w</u>	
Ξ.	
ുയ	
ĊΩ	
٠,	
Serial Number 11112	
·	
	•
1.	

c.com 858 55	PAGE 0F	STANDARD REPORT DELIVERY EXPEDITED REPORT DELIVERY (SURCHARGE) DATE DUE NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1	REMARKS	Am A Vas to	also melude	12 48 135-	1.2				2	DATE TIME	
Serial Number 1112 1 1 1 1	REQUIRED ANALYSIS		II. W R R R R R R R R R R R R R R R R R R								RELINQUISHED BY: (SIGNATURE)	REGENER, ESIGNATURE.	BY RELIABLE CONTRACTOR
Ser. Savannah 5TL. Savannah 5102 LaRoche Avenue Savannah, GA 31404 C Alternate Laboratory Name/Location	REQUIF	OUS LIQUID (OIL, SQLVENT,)		1 2 7	1 2 1	7					DATE	SZZICI IOCO	
RECORD	N MATRIX TYPE	(WATER)	ИК	·	X	**					Y: (SIGNATURE)	SNATURED	
	REQUECT LOCATION (STATE)	CONTRACT NO.) Noil			h				から から かん かん かん かん かん かん かん かん かん かん かん かん かん	RELINQUISHED BY:	BECEIVED BY: (SIGNA)	0.0
ANALYSIS REQUEST AND CHAIN OF CUSTOD	1 7	R.O. NUMBER CLIENT PHONE 4/12 - 74/1 - 450 CLIENT E-MAIL S.C. C. S.C.O. P.	SAMPLE IDENTIFICATION	ြိ	Carll	٦					SOLO 10: CC		
SEVERN GT	PROJECT REFERENCE	STI (LAB) PROJECT MANAGER CLIENT (SITE) PM CLIENT NAME CLIENT ADDRESS CLIE	SAMPLE	DATE TIME 2/ " D.C.	91.0	\vdash					JUSHED BY: GIGNATURE)	RECEIVED BY, ISIGNATURED.	RECEIVED FOR LABORAL BRUSH

STL (LAB) PROJECT MANAGER CONTRACTOR OF STREET, RELINQUISHED BY: (SIGNATURE) 12/11/03 CLIENT NAME CLIENT (SITE) PM RECEIVED BY: (SIGNATURE) COMPANY CONTRACTING THIS WORK (if applicable) PROJECT REFERENCE が結構を存在に行動 CLIENT ADDRESS Carrin CEIVED FOR 60000 DATE SEVERN TRENT SAMPLE 600 뚪 5 4. t. 500 ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD NP-516-8 DATE P.O. NUMBER PROJECT NO. CLIENT E-MAIL CLIENT PHONE 005h 1/16(811) 01305,40 19/11/63 Pittebujh, SAMPLE IDENTIFICATION 630 M RECEIVED BY: (SIGNATURE) RELINQUISHED BY: (SIGNATURE) PROJECT LOCATION (STATE) PA113)341-7500 CLIENT FAX CONTRACT NO. 00 COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER)
SOLID OR SEMISOLID MATRIX TYPE AIR NONAQUEOUS LIQUID (OIL, SOLVENT,...) 7 102 LaRoche Avenue Savannah, GA 31404 Alternate Laboratory Name/Location 1X vocs DATE DATE Hel 11 NUMBER OF CONTAINERS SUBMITTED 룶 붎 REQUIRED ANALYSIS RECEIVED BY: (SIGNATURE) RELINQUISHED BY: (SIGNATURE) Circular Transfer ISSUES! Phone: Website: www.stl-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165 EXPEDITED REPORT DELIVERY (SURCHARGE) STANDARD REPORT DELIVERY PAGE NUMBER OF COOLERS SUBMITTED PER SHIPMENT: DATE DUE DATE DUE DATE DATE REMARKS ريو ىع II. IIME 유

SEALING (SIGNATURE)	The state of the s	DATE	Ö	np-5("	1055 40-5(0-0)/115	(10) 1222 Ub-2(0-9)	Dup-4	7 (14-16)	Dup-3	11 1055 LP-3 (19.5-31.5) CX	11 0975 LP-2 (147-16.7) C X	LP-3 (0-2)/1750	-0) E-d7 868	11 0822 11	7/03	AQUI SOLI	COMPANY CONTRACTING THIS WORK (if applicable)	VI ADDRESS	CLIENT E-MAIL	4500 (419) 3 41-4500	MANAGER P.O. NUMBER CONTRACT NO.	PROJECT REFERENCE PROJECT NO. PROJECT LOCATION MATRIX H & (~ 1, ~) eff () (~ 1) es (~ 1) e		ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD
					2 4			7	7	7	2	7-	4	7		AIR NON	AQUEOUS			-		×	0	9
NO.	ONLY	DATE		DATE				-							w		Hel	+		VO			Alternat	STL Savanna 5102 LaRocho Savannah, GA
	HANINA	Fi.		_												Z			'/'		-		e Labora	STL Savannah 5102 LaRoche Avenue Savannah, GA 31404
ACCUMENTED AND ADDRESS OF THE PARTY OF THE P	- 124 Z	IME		TIME .		-									-	NUMBER OF CONTAINERS SUBMITTED						REC	Alternate Laboratory Name/Location	ih e Avenue 31404
	AHORATORY REMARKS	7	,	R	-					-		·-grass				CONTAIN		-				REQUIRED ANALYSIS	e/Location	
	NAPK S	RECEIVED BY: (SIGNATURE)	. '	RELINQUISHED BY: (SIGNATURE)												ERS SUB						VALYSIS	3	
		BY: (SIGNA		HO BY:					-						-	MITTED		-	_			-	77.77	אוויי
		TURE)		SIGNATURE			,							-		- - - -	-,1-3-4;-						Phone: Fax:	Website: www.stl-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165
				<u>"</u>					· .													<u> </u>		www.st 912) 35 2) 352-0
		UA	2	DS .					, :			to a fork	mati				YOMBER SHIP	DATE DUE	SURCHAI	XPEDITED RE	DATE	PAGE		-inc.com 4-7858 165
		DAIE	1	DATE	(and)maker:						1	* 2 10 1 to	×			REMARKS	NOMBER OF COOLERS SUBMITTED PER SHIPMENT:	DUE.	(SURCHARGE)	D REPOR	DELIVERY	D REPOR		
8240.680 (12/02)		IIME	1	TIME	Ī							the d	12, 15			¥S	EKS SOB	2 5	()		၂၀၁		'

SEVERN

STL (LAB) PROJECT MANAGER TO THE REAL PROPERTY AND ADDRESS OF THE PARTY RECEIVED BY: (SIGNATURE) RELINQUISHED BY: (SIGNATURE) 12/11 COMPANY CONTRACTING THIS WORK (if applicable) CLIENT ADDRESS CLIENT NAME CLIENT (SITE) PM PROJECT REFERENCE 2/11/03 1 8164 113-) 6 ff 11364 O Dust Ru 600191 0 77707 = ~ = : DATE -TRENT 1 0 SAMPLE 0833 6880 0837 1255 5860 1600 20 % 0 1355 3/2 ケッグ 젊 Su1/4 500 Crasultak ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD 5-07 MP-5(0-2) Dupup-5(0-2) 4P-5(0-a 1 0 40 - 4 4-7 رم م 5 E - Q 6-0 نه 6-8 19.5-21.5 14.7-16.7 0-3) 0-2 14-16 (0/11/6) DATE DATE P.O. NUMBER PROJECT NO. 0-3 CLIENT E-MAIL CLIENT PHONE 113 841-4500 01305.40 Ţ 11100000 SAMPLE IDENTIFICATION MSD 3 7 <u>}</u> 11630 뚩 TIME RECEIVED BY: (SIGNATURE) RELINQUISHED BY: (SIGNATURE) (412)841-7560 **CLIENT FAX** CONTRACT NO. PROJECT LOCATION (STATE) PA15 8 21 COMPOSITE (C) OR GRAB (G) INDICATE ABORATORY USE ONLY AQUEOUS (WATER) MATRIX TYPE SOLID OR SEMISOLID $\overline{\times}$ \times AIR NONAQUEOUS LIQUID (OIL, SOLVENT, APIX Alternate Laboratory Name/Location /102 LaRoche Avenue Savannah, GA 31404 Metals \TL Savannah DATE DATE APIX SUUC Constant Constant NUMBER OF CONTAINERS SUBMITTED III. 뚪 REQUIRED ANALYSIS RECEIVED BY: (SIGNATURE RELINQUISHED BY: (SIGNATURE) 1 8 J Website: www.stl-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165 Phone: Fax: EXPEDITED REPORT DELIVERY (SURCHARGE) PAGE NUMBER OF COOLERS SUBMITTED PER SHIPMENT: STANDARD REPORT DELIVERY DATE DUE DATE DUE DATE DATE REMARKS ₹ 60 IIME Ħ

RECEIVED FOR LABORA

()

L8240-680 (12/02)												(
				NO		SEALINO	SE	ਵੇਂ ਛੋ 00					(SIGNATURE)
	KS *	LABORATORY REMARKS		SAVANNAH		YOUY		CUSTODYINTAG	TIME	DATE	YBY	R/LABO	RECEIVED FOR LABOR
					SECON	ARORATORY	N A A						STATE OF THE STATE
CALL	NECELATE DI VISIGNATIONEI			Ņ	; ~.		SIGNALURE)	NECEIVED DT: (SIGNATURE)	IME	DAIL	iga:	*: (SIGNATURE)	RECEIVED BY: (SIGNATURE)
DATE	VED DV. (CONTROL)		1	2/1				מינים מינים	1630	19/9/03		Property of the second	1
DATE	RELINQUISHED BY: (SIGNATURE)		- I	DATE		Õ	BY: (SIGNATUI	RELINQUISHED BY: (SIGNATURE)	TIME	DATE	TURE)	D BY: (SIGNAT	RELINQUISHED BY: (SIGNATURE)
			-									5.	
				- 4	_	×	^			P-5 (21-33)	~	563	11
					_	×	<u> </u>		٠	P-5 (0-2)	7	0 451	-
				1 4	_	×	C			P-7 (18-20)	7	1505	
				- 4	-	×	C			-7(o-a)	, LP-	1400	11
. e. c. de de de central de centr				-	_					· 6(as-34)	LP-	1317	11
				7	-	×	<u>C</u>			-6(o-a)	LP-	1135	11
-			-		_	×	_			-8(15-17)	1 LP-	0910	11
			7		_	×	^			-8(0-a)	LP-	0810	11
			W				 			8-8	T	1	19/4/03
KEMPINA	SOBMILIED	NUMBER OF CONTAINERS SUBMITTED	NUMBER		NO	SOI		Ž	SAMPLE IDENTIFICATION	SAMP		JAMPLE	DATE
DEMARKS	STIDMITTED	OF CONTAINING	1		NAÇ	LID (n n	2
NUMBER OF COOLERS SUBMITTED PER SHIPMENT:					QUEOUS I	OR SEMIS	OSITE (C)	15335	, RA	COMPANY CONTRACTING THIS WORK (if applicable)	THIS WORK	ONTRACTING	COMPANY C
DATE DUE					LIQU A 1	SOLI				2/5	(P ~ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	14.	CHENT ADDRESS
(SURCHARGE)			IX IX	ΙX			GRAB (•	CLIENT E-MAIL		•	CLIENT NAME
EXPEDITED REPORT				5			7500	(413)841-	1-4500	(412) 841-	_	"> NIX	Caner
DATE DUE			00,		LVEN (/ «		IDICA	CLIENT FAX	E	CLIENT PHONE		PM	CLIENT (SITE) PM
DELIVERY REPORT							·	CONTRACT NO.	اند	P.O. NUMBER	- [•	Ĭ.	STL (LAB) PROJEC
PAGE OF	SIS	REQUIRED ANALYSIS	-			MATRIX TYPE		PROJECT LOCATION (STATE) ρ_A	40	PROJECT NO.	Fixen		PROJECT REFERENCE
	Phone: Fax:	•					٠.					TRENT	TR
		Alternate Laboratory Name/Location	oratory N	ernate Lab	0	· —						VERN	SE
w.st-inc.com 354-7858 i2-0165	Website: www.stl-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165		ah ne Avenue N 31404	5102 LaRoche Avenue Savannah, GA 31404	స్ట్ లు త్రి	~ }	DY REC	N OF CUSTO	AND CHAI	ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD	•		
													1

DATE

Ξ =

(SIGNATURE)

/L8240-680 (12/02)

STL (LAB) PROJECT MANAGER CLIENT NAME CLIENT (SITE) PM PROJECT REFERENCE COMPANY CONTRACTING THIS WORK (if applicable) CLIENT ADDRESS RELINQUISHED BY: (SIGNATURE) C4.76.62 Herewhere Jefferson SHAMMAN ALEMS RECEIVED BY: (SIGNATURE) SIGNATURE AND WILLTHAM 2/5/03 CHARLOS 2/5/07 SEVERN DATE EIVED FOR -= TRENT SAMPLE 0745 1405 1330 Ses 1990 1120 <u>ه</u> اه Ĭ 5 mite 500. Crareltuit ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD V-3 ر د د د UP-9(16.5-18.5 いこ П D 40-2 < <u>-</u> 8 15-17 0-a) 12.9-6-0 P.O. NUMBER 0011-14e (81h) PROJECT NO. CLIENT E-MAIL DATE DATE CLIENT PHONE 01305.40 1a/s/03 O SAMPLE IDENTIFICATION 1150-25 Ē -2 1630 Ħ ME Q M PROJECT LOCATION (STATE) PA RECEIVED BY: (SIGNATURE) RELINQUISHED BY: (SIGNATURE) (412) 241.7500 CONTRACT NO CLIENT FAX 15275 COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) MATRIX TYPE SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT,...) Alternate Laboratory Name/Location STI, Savannah 5102 LaRoche Avenue Savannah, GA 31404 Petals .1X DATE DATE رو SUUC p i teac Acid AP IX NUMBER OF CONTAINERS SUBMITTED nefals Ħ ¥ REQUIRED ANALYSIS Marine State of th Cotton Lanineci RELINQUISHED BY: (SIGNATURE) RECEIVED BY: (SIGNATURE) ر المعادلة المستقدمة 160,070 Phone: Fax: Website: www.stl-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165 EXPEDITED REPORT DELIVERY (SURCHARGE) PAGE STANDARD REPORT DELIVERY Field Plan PER SHIPMENT: NUMBER OF COOLERS SUBMITTED DATE DUE DATE DUE DATE DATE REMARKS TIME 읶 I M

3118240-680 (12/02)	: '			•	•		(:	(
10 CO 10 CO						THE PARTY OF THE P								10000000000000000000000000000000000000
														(SIGNATUR
			EMARKS	LABORATORY REMARKS	VANNAH	WSKILSTI.	A CODIC	SOO	COVINI AGOIS		DATE	BY: 11.2	RECEIVED FOR LABO RY	RÉCEIVEI
						ise only	TORY L	,LABORA						
	i c	. and one	י מרוידים מיי ומיי					ĀĘ)	RECEIVED BT. (SIGNATURE)	IME	DAILE		RECEIVED BY: (SIGNATURE)	RECEIVE
TIME	DATE	CACHITAN	DECEIVED BY: (SIGNATINES)		DATE				770	1630	13/4/01		SOLVENING THE SECOND SE	0
TIME	DATE	Y: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	TIME	DATE			GNATURE	RELINQUISHED BY: (SIGNATURE)	TIME	DATE		RELINQUISHED BY: (SIGNATURE)	RELINQU
-	and the state of t													
											,			
				·				į		:	٠.			
														-
					+			+						
								-						
	:									- 1	110	2	CEC	
						7	<u>×</u> .	<u>. </u>		(2)	(a	1.0-4	-	*
						1	~	Ü			(e-o)	4-92	9151	7/1/61
REMARKS	REM	- -	NERS SUBMITTEL	NUMBER OF CONTAINERS SUBMITTED	\ 		SOL AIR		ON	SAMPLE IDENTIFICATION	SAM		SAMPLE	DATE
8			1	10 X 10 X 10 4 X 15		-	D OF						72	
NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	PER SHIPMENT:	PĤ-					SEM	TE (C	15235	PA	P:I:Lb:	S WORK (if and	COMPANY CONTRACTING THIS WORK (if applicable)	10 C
	DATE DUE			-	•		ISOLI					(, , , , , , , , , , , , , , , , , , ,	SS	CLIENT ADDRE
	(SURCHARGE)		<u>-</u>					GRAE		i	, ,	11 11	10	CLIENT INMINE
	EXPEDITED REPORT						II . S	(G)	CA19. 19. (811)	11-4500	CI JENT E-MAII		AVE JUIX	CHICATT NAME
	DATE DUE_				æ	00) I VFI	NDIC	CLIENT FAX	ONE	CLIENT PHONE	,	ŀ	CLIENT (SITE) PM
	DELIVERY	-					VT)	ATE	CONTRACT NO.	ER	P.O. NUMBER	R7	STL (LAB) PROJECT MANAGER	STL (LAB
නප	PAGE A	- - - -	NALYSIS	REQUIRED ANALYSIS			MATRIX TYPE		PROJECT LOCATION (STATE) PA	40	PROJECT NO.	,	PROJECT REFERENCE	PROJECT
-		Phone: Fax:	ion	Alternate Laboratory Name/Location	nate Laborai	U Alter						U	TRENT	1
	2-0165	Fax: (912) 352-0165		404	Savannah, GA 31404	Sava	<u> </u>				-)	SHVERZ	S
	v.stl-inc.com 354-7858	Website: www.stl-inc.com			STL Savannah	STL TIS		ECO!	ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD	T AND CHAI	S REQUES	ANALYSIS		

RECEIVED FOR LABO YBY (SIGNATURE)	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)							1 13 (16)	_	SAMPLE :: IMF	CLIENT ADDRESS 10 0 1. L. R. M. Sin Le So e COMPANY CONTRACTING THIS WORK (if applicable)	Currys/Riter Consultate	CLIENT (SITE) PM	ROJECT M.	PROJECT REFERENCE	TRENT	ANALYSIS
DATE: TIME!	DÂTE TIME	DATE TIME		,					7	(96-116)	SAMPLE IDENTIFICATION	$\frac{P_{1}f_{1}f_{2}b_{-1}s_{1}B_{1}}{\text{cable}}$		CLIENT PHONE CLIENT E-MAIL	P.O. NUMBER	PROJECT NO. 01305.40		ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD
CUSTODY/NITACT CONSTRUCTION OF STATE OF	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)								0	COMP	OSITE (C) 0	R GRA	CLIENT FAX ((413) 2 1/-7500 ED	, S	PROJECT LOCATION (STATE) PA	·	N OF CUSTODY REC
CUSTODY USE ONLY USE		URE)								×	SOLID AIR	OUS (WATER OR SEMISO	DLID			MATRIX TYPE		
USEON											NONA	QUEOUS LIC		OIL, SOLVE) A#	51 Sa
SAVANINAH NO	DATE	DATE									N.	A			0 (3		Alternate Laborat	STL Savannah 5102 LaRoche Avenue Savannah, GA 31404
UABORATORY REWARKS	IIME	IME									MBER OF CONTA					REQUIRED ANALYSIS	boratory Name/Location	/enue 404
REMARKS	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)									NUMBER OF CONTAINERS SUBMITTED	A STATE OF THE STA			·	ANALYSIS	ation	
	SIGNATURE)	BY: (SIGNATURE)) 	10 AND 1					Phone: Fax:	Website: www.stlinc.com Phone: (912) 354-7858 Fax: (912) 352-0165
			`	-	-			-	-		·	NUN PER	100		DELL	PAGE		vw.stl-inc 2) 354-78 152-0165
	DAIE	DAIR				apinos a					REMARKS	BER OF COOLER SHIPMENT:	DATE DUE:	EXPEDITED REPORT DELIVERY	DELIVERY	NDARD REPORT		com 358
—d(L8240-680 (12/02)	IIVIC										Š	NUMBER OF COOLERS SUBMITTED PER SHIPMENT:		0,		مو		

STL (LAB) PROJECT MANAGER COMPANY CONTRACTING THIS WORK (if applicable) CLIENT NAME CLIENT ADDRESS CLIENT (SITE) PM PROJECT REFERENCE SEMPLEMENT ALVEN RECEIVED BY: (SIGNATURE) RELINQUISHED BY: (SIGNATURE) 1a/4/63 RECEIVED FOR LABORATION = -= DATE SEVERN = = = = TRENT SAMPLE 0930 78 % O 65 9.5 1450 1425 1250 030 مجوا -050 I E ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD 2-4n 1p-4-9 W 4-92 U.D. 1-9 L 1 P-1-0 M -β-700 P-10 P-1 P - 1 (0-2 11:1:12 16-18 P. Itchest 6.0 ر الع: ال 01305.40 5056-1heleing 19/4/0) 6-0 CLIENT E-MAIL P.O. NUMBER PROJECT NO. 5.3-CLIENT PHONE 13.5-15.5 رة ا 3.7-15. SAMPLE IDENTIFICATION [7.] 7 ĦME 1630 黑 PROJECT LOCATION (STATE) PARECEIVED BY: (SIGNATURE) (418) 3 41-75++ RELINQUISHED BY: (SIGNATURE) CONTRACT NO. CLIENT FAX ∇ COMPOSITE (C) OR GRAB (G) INDICATE 7 AQUEOUS (WATER) TYPE TYPE SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT, Alternate Laboratory Name/Location APIX Details STL Savannah \$102 LaRoche Avenue Savannah, GA 31404 DATE DATE روا AP IX SUUCS Parity Target parity NUMBER OF CONTAINERS SUBMITTED North R Ħ ¥ APIX netal REQUIRED ANALYSIS STATE OF THE PROPERTY OF THE P RECEIVED BY: (SIGNATURE) RELINQUISHED BY: (SIGNATURE) ENERGY CHARLES Phone: Fax: Website: www.stl-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165 PAGE EXPEDITED REPORT DELIVERY (SURCHARGE) STANDARD REPORT NUMBER OF COOLERS SUBMITTED PER SHIPMENT: Matrix DATE DUE DATE DUE DATE DATE REMARKS . . 蓔 ائ روغ ME

סבוומו ואחוזוחבו

しいいしょ

	RECEIVED FOR LIABOT WBY GUSTON SEALIN TIME 1 (QUSTON SEALI	ANOBALI	RECEIVED BY: (SIGNATURE) ASSOCIATE STATES ASSOCIATED BY: (SIGNATURE)	13/3/03 1630	RE) DATE TIME			11 1555 Tb-A(14-18)	11 1800 C-1 (17.5-19.5) C X	C-1 (0-a)	11 1385 C-3 (14-16)	(e-0) e-3 shell	x x	11 1100 C-3(0-a)	13/3/03 TR-4	AQUE	ACTING THIS WORK (if applicable)	ER)	CLIENT E-MAIL CLIENT E-MAIL GRAPH	CLIENT FAX	P.O. NUMBER CONTRACT NO.	PROJECT NO. PROJECT LOCATION (STATE) PA	TRENT	ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD
	SEAL NO.	LABORATORY USE QNE	-					 ×	×	×	χ.	×	×	×		AIR	O OR SEMI			OLVE	NT,)	MATRIX TYPE	0	8
Ì		E ONE							-	_	-	_		_) /x .) Alterna	
	AVANNAH 10 10)AIt		DATE			 4	4	4	4	1	4	-	w	- - - -		<u>4 P</u> 1 P	1X 1X	vo]	ite Labora	STL Savannah 5102 LaRoche Avenue Savannah, GA 31404
	LABOR		, IMIE		TIME											IMBER OF	1					R	tory Nami	wenue 1404
	RATIORY REMARKS		RECEIVED BT: ISIGNATURE	חביייים פעי הי	RELINQUISHED BY: (SIGNATURE)									``		NUMBER OF CONTAINERS SUBMITTED						REQUIRED ANALYSIS	Alternate Laboratory Name∕Location	
			IGNALOREJ .	Carlotting.	BY: (SIGNATURE)											D E							Phone: Fax:	Website: www.stl-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165
(מאוני	DATE.	DATE	ole me a con		-			- Indian Account					REMARKS	NUMBER OF COOLERS SUBMITTED PER SHIPMENT:	DATE DUE	EXPEDITED REPORT DELIVERY (SURCHARGE)	DATE DUE	DELIVERY	PAGE		stl-inc.com)54-7858 -0165
/L8240-680 (12/02)			INC	TIME	TIME	1			-		,					₹KS	ERS SUBMITTED		0		•			

												~ ·! '~!	
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD	OK D	7 (510, 510,	STL Savannah 5102 LaRoche Avenue Savannah. GA 31404	ih e Avenue 31404			m -10 -≤	Phone: (912) 354-7858 Fax: (912) 352-0165)12) 35)13) 352-C	Phone: (912) 354-7858 Fax: (912) 352-0165	(ميسيدي
TRENT STL		0	Alter	Alternate Laboratory Name/Location	atory N	ame/Loc	ation	יסר חד	Phone: Fax:				· .
PROJECT REFERENCE PROJECT NO. PROJECT LOCATION (STATE) PA	MATRIX TYPE					REQUIRED	REQUIRED ANALYSIS				PAGE /		- OF
CONTRACT NO.		VT,)	<i>a 15</i>		3					• •	SIANDAKU KEPUKI DELIVERY	ו היינות כאו	
CLIENT (SITE) PM CLIENT PHONE CLIENT FAX CAN 1119 PM CLIENT (VIA) 341-4560 (VIA) 2 VI-7500 G CAN 1119 PM CLIENT FAX CAN 111		, SOLVE	m+t	5 U							EXPEDITED REPORT	REPORT	
AAME CLIENT E-MAIL	D	ID (OIL) 1x	1.7				•			(SURCHARGE)	D	(
CLIENT ADDRESS		LIQU	Af	AP						-	DATE DUE		S SIMMITIED
ACTING THIS WORK (if applicable)	OR SEM	QUEOUS			8 8 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						PER SHIPME	NT:	PER SHIPMENT:
SAMPLE IDENTIFICATION	SOLID	AIR NONA		Z	UMBER	OF CONT	NUMBER OF CONTAINERS SUBMITTED	MITTED				REMARKS	8
3	\leq		-	4	-					<u> </u>			
`. `.	×.		_	4				-					in the second se
0.0-1	×		_	4									37.00
17-2-02 1300 FP-1 (13.6-15.6)	X			7	-		 			_			
2-03 Pro/JAO C-6 (0-3)	<u>×</u>		_	4	+-								
-> 0 h { 1	×	1		4	+								
3-03 1340 C-6 C	×	1		4	-				ŀ				
12-2-03 1450 C-C (13.5-15.5) C	×	-		-	-								
2-03 1520	*			7									
12-2-03 1610 C-4 (14-16)	7	1		-	-	-							
TB	×	_		W	\dashv			.				-	
	5			DATE	Ħ M	FM	RELINQUISHED BY: (SIGNATURE)	SHED BY:	SIGNATURE	<u>"</u>	DATE		TIME
<u> </u>													
BY: (SIGNATURE) DATE	e. 1			DATE	- IME	FF.	RECEIVED BY: (SIGNATURE)	BY: (SIGNA	ORE)			•	
	ABORATOR	. €			-								And The Control
TODY INTACT	OUSTODY			STE SAVANNAH	154	ORATIORY	LABORATORY REMARKS	66183					
	i A S												

(():4: :4:::0(:

F (() ()

RECEIVED: FOR COMPANY CONTRACTING THIS WORK (if applicable) CLIENT ADDRESS CLIENT NAME CLIENT (SITE) PM STL (LAB) PROJECT MANAGER THE REAL PROPERTY OF THE PARTY RECEIVED BY: (SIGNATURE) が施行を行うがある。 RELINQUISHED BY: (SIGNATURE) PROJECT REFERENCE 11/24/03 ungel Rite Conjultants DATE ~ -= SEVERN ~ TRENT SAMPLE Jefferson 0410 0924 1118 05 135 ¥ ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD Ç Ų ىو 005h-1he(21h) DATE P.O. NUMBER PROJECT NO. DATE CLIENT E-MAIL CLIENT PHONE 03366.10 124 6-0 6-2 11/12/11/11/11 0-2 SAMPLE IDENTIFICATION 630 Ħ RECEIVED BY: (SIGNATURE) 412 341-7500 RELINQUISHED BY: (SIGNATURE CONTRACT NO. PROJECT LOCATION (STATE) PA 18881 CLIENT FAX 0.0FLABORATORY USE JONEY COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER)
SOLID OR SEMISOLID TYPE TYPE AIR NONAQUEOUS LIQUID (OIL, SOLVENT,...) Alternate Laboratory Name/Location STL Savannah 5102 LaRoche Avenue Savannah, GA 31404 IX VOG DATE DATE 775-84 100 APIX Metals NUMBER OF CONTAINERS SUBMITTED 2 1 ĭME Ħ REQUIRED ANALYSIS RECEIVED BY: (SIGNATURE) RELINQUISHED BY: (SIGNATURE) Phone: Website: www.stl-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165 EXPEDITED REPORT DELIVERY (SURCHARGE) PAGE STANDARD REPORT DELIVERY NUMBER OF COOLERS SUBMITTED PER SHIPMENT DATE DUE DATE DUE DATE DATE REMARKS . TIME. 景

VES O	TAME OF THE PROPERTY OF THE PR	DATE TIME	RELINQUISHED BY: (SIGNATURE) DATE TIME RELINQUISHED BY: (SIGNATURE)					· "		100 SO SO SO SO SO SO SO SO SO SO SO SO SO	NSO /MSO	05 19.15 ND - M	I WIL	SAMPLE SAMPLE IDENTIFICATION S	RACTING THIS WORK (if applicable)	O TO TO TO TO TO TO TO TO TO TO TO TO TO	CLIENT NAME CLIENT EMAIL CLIENT EMAIL CLIENT EMAIL	CLIENT PHONE CLIENT FAX	NAGER P.O. NUMBER CONTRACT NO.	VCE PROJECT NO. PROJECT LOCATION (STATE)	TRENT SIL	ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD	
SEAU NO	SE		URE)					X	X	X	×	X		AQUE SOLID AIR	OUS (WATO OR SEM	rer) Isolic)			MATRIX TYPE	0		
	AVANNAVA	DATE TIME	DATE TIME			審			121		1211		1211	NUMBER C		App Apr TA	DS DS	SVC Fta		R	Alternate Laboratory Name/Location	STL Savannah 5102 LaRoche Avenue Savannah, GA 31404	
	<u>L'ABORATORY REMARKS</u>	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)				*					e		NUMBER OF CONTAINERS SUBMITTED						REQUIRED ANALYSIS	me/Location		C C
		SIGNATURE)	BY: (SIGNATURE)								W	-2	,						DE	PAGE	Phone: Fax:	Website: www.stl-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165	! [
18240.6		DATE		Vendinas				H AMPLY	Topic + Bls	-	M-14-X 77-16-1	KIN'X JAIKS		REMARKS	PER SHIPMENT:	DATE DUE	(SURCHARGE)	DATE DUE	DELIVERY	GE OF		nc.com 7858 65	
LB240-680 (12/02)				`			,	1	<u></u>	-		<u> </u>				NITTED	· · ·						

コーノンゴ

RECEIVED FOR LABRY NABY SEAL NO SEAL N		DATE	RELINQUISHED BY: (SIGNATURE) 2-2-3 6:30						1R-1	.	10.32 SD-1	CX CX CX CX CX	15.5 A A A A A A A A A A A A A A A A A A	DATE THE PARTY OF	SAMPLE SAMPLE IDENTIFICATION C Q	ACTING THIS WORK (If applicable)	0 1 0 1 1 0 1 1 0 OR TER	CLIENT E-MAIL GRAB GRAB	TELPM (RG) CLIENT PHONE CLIENT FAX:	CT MANAGER P.O. NUMBER CONTRACT NO.	EFERENCE PROJECT NO.	TRENT	
SiNo	7 F	DATE		DATE			***			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		421	14/2	421	AIR NON	AQUEOUS	Ap Ap	JID (OIL,	V	Χς <i>Ι</i> (Χς		Alternate Labora	STL Savannah 5102 LaRoche Avenue Savannah, GA 31404
	I I KARORATORY IDEMARKS	RECEIVED BY: (Signal DRE)		TIME RELINQUISHED BY: (SIGNATURE)	\ \frac{1}{2}								\$2.		NUMBER OF CONTAINERS SUBMITTED			DS			REQUIRED ANALYSIS	Laboratory Name/Location Phone: Fax:	
TL8240-680 (12/02)			DATE TIME	TURE) DATE TIME				2	TO DEAK H	The many Wish		Make X Strait	Mighix Spike		KEMAKKA	PER SHIPMENT:	NIMBER OF COOLERS SUBMITTED	(SURCHARGE)	EXPEDITED REPORT	DELIVERY PATE DUF	STANDARD REPORT		Website: www.stl-inc.com Phone: (912) 354-7858 Fax: (912) 352-0165

Custody Record Chain of

TRENT

STL Pensacola 3355 McLemore Drive Pensacola, FL 32514

Severn Trent Laboratories, Inc.

STL4124-400 (12/02)

	. (9 Sample: PINK - Field Copy	Returned to Client with Report, CANARY - Stays with the Sample; PINK - Field Copy	N:
of so pario	becioning	enresents the	my time VI	-he period Sam	collected over 11 D-	Comment
Date Time			3. Received By	Däle		3. Relinquished By
Date Time			2. Received By	Date Time		2. Relinquished By
201			<u> </u>	Date 12 OH Time	\$1.5°	8 8
		3	QC Requirements (Specify)	Other	7 Days 14 Days \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Turn Around Time Required 24 Hours 48 Hours
(A fee may be assessed if samples are retained fonger than 1 month)		Archive For Months	Disposal By Lab	Sample Disposal Sample Disposal Return To Client	Skin Irritant Poison B Sur	Possible Hazard Identification
			`			
الجري					,	
		•				
		7				-
		NXXXXX		on: 55 X	10 04	11-8 Contral B
		To Eth	Unpres. H2SO4 HNO3 HCI NaOH ZnAc/ NaOH Summer	Air Aqueous Sed. Soil	Date	Sample I.D. No. and Description (Containers for each sample may be combined on one line)
Conditions of Heceipt		ene Ive	Containers & Preservatives	Matrix	sammer se	Contract/Purchase Order/Quote No.
Special Instructions/		ne nzer nzer		Carrier/Waybill Number	esson Plant	Project Name and Legation (State)
	rach list if 's needed)	Analy:	Lavice Lavson	,	Sph 5235	
Page of			(412)241-7500	O Code)	1, Suite 5,00	
07605	10/6	Date /) quehman	Project Manager	(Consultants	COMMINCS / P. TEr
The sale of the sa						3114124400(12/02)

Chain cord

3355 McLeniere Drivo Pensacola, FL 32514

TRENT

Severn Trent Labora Jries, Inc.

,			C	·	. •		-	- Field Copy	jort, PINK	ent with Rep	Returned to CI	CANARY - I	WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy	ITE - Stays w	DISTRIBUTION: WH	DISTRIE
na period.	the sampling	besing of th	be sint	11/6	. S.	time	Sample	od, S	Per joo	8-hr	4 (2)	SV&C	collected	INFICE C	iv ^k	Comments CS
Time	Date			4		3. Received By	3. Rec	Time		Date					3. Relinquished By	3. Relin
Time .	Date				•	Received By	2. Rec	Time		Date				:	2. Relinquished By	2. Relin
Time	Date					1. Received By	1. Rec	Time	면 연	Date			36/	00	Relinquished By	Relin
					Topicon's				her		X 21 Days	☐ 14 Days	□ 7 Days	48 Hours	Hours 🔲	24 Hours
	hs)	is longer than 3 months)	Months	Archive For	Spe	OC Requirements (Specify)		Return To Client		□ Uпклоwп	☐ Poison B		e 🔲 Skin Irritant	☐ Flammable	☐ Non-Hazard ☐ Fla	Turn Ar
re retained	ssed if samples a	(A fee may be asse					<	Sample Disposal					-	tification	Possible Hazard Identification	Possibl
								•								
					_							_				
						•		·								
	•	·	· · ·													
1,					_			;				!				
			×	× ×	×				×	8150	10/04			KINIK	eld B	
中世	Duplizer		XXX	\ X X	X				×	1	80	_			UP-1	0
	•		X	\(\frac{1}{2}\)	<u> </u>				~	8,40	10 04		W	ehouse	5 Huarel	
			\times	7					<	8:25	103	=		lant	ilot P	D
			$\frac{1}{2}$		X				×	8:15	HO. 19	-		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	P P0	M
	3.		X	X X X	×				×	%:IO	10/3	·		V	N Pol	2
	January Contraction of the second		17 J	TOI Eth	ZnAc/ NaOH	HNOS HCI NaOH	Unpres.	Sed. Soil	Air Aqueous	Time	Date	one line)	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	I.D. No. and sample may t	Sample I	(Conta
ions of Kecelpt	Condi		irene hthe	JZEr UEn Ylber	G.	Containers & Preservatives	30	Matrix			,		, 0	rder/Quote N	Contract/Purchase Order/Quote No.	Contra
Special Instructions/	Specia			、 <u>@</u> モ コモモィ				Konnogi	Санталивауын манист	Carita	th , P/	7900	17 + 5.	cation (state)	Tercules - Lie	Project
		is needed)	more space is needed)		5	Larson	FUNCE F)e()	be Kell	300	15 235	PA Lip Co	-	5	Hsbur	, Çê
of	Page	thanh list if	Applicatio (A		-7500	241)-1		-4500 -4500) 241-4:	C412)	00		1 (V)	700		Address
2609	062609	108) S			man man	```			 _	SULANTS	Consc) Riter	1955 July		37 2
tv Number	T Chain of Custod	-	Date				-		anana a	Donie		·		(OOLD NEE	STL-4124 (1200)	STL-412

APPENDIX D

LABORATORY ANALYTICAL REPORTS (ON COMPACT DISK)

