

## SWMU B-3 SOIL GAS SURVEY RESULTS JANUARY – FEBRUARY 2001

### INTRODUCTION

A soil gas survey was performed at SWMU B-3 located in the north-central portion of CSSA. This report contains a summary of the analytical results from the SWMU B-3 soil gas survey. A detailed description of the methodology is included behind the **Soil Gas Surveys** tab in **Volume 3-1.1**. This work was performed in conjunction with soil gas surveys performed at SWMU B-4, AOC 55, AOC 57, AOC 63, AOC 65 and the WWTP from January 2, 2001 through February 23, 2001.

The distribution and concentrations for the compounds detected are addressed below. Minor amounts of benzene, toluene, and xylene were detected in soil gas samples throughout the soil gas survey. The detection of these compounds is attributed to artifact contamination from the gas generator used to power the vacuum pump and/or the combustion engine of the geoprobe truck. The frequency of detectable BTEX compounds decreased substantially after the gas generator was moved to the front of the geoprobe rig, and the rig was shut down during sample collection. The BTEX concentrations detected during the soil gas survey are presented in the data tables, but are not discussed in the soil gas findings. The complete laboratory results are presented in **Appendix A**. Sample locations are presented in the SWMU B-3 Sample Location Map, **Figure B3-1**. Plume maps for SWMU B-3 are presented in **Figure B3-2** and **Figure B3-4**.

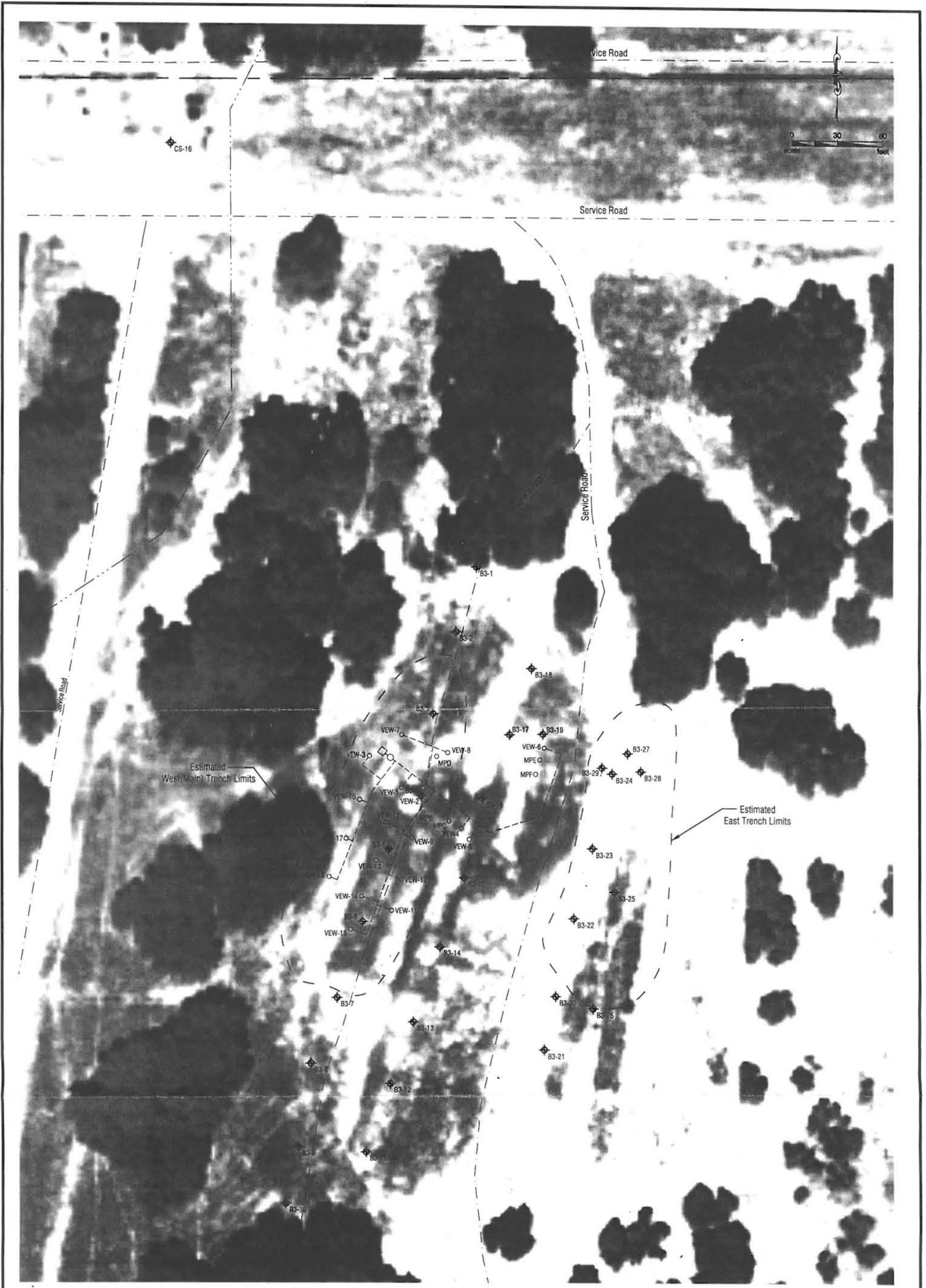
### DETERMINATION OF SAMPLING LOCATIONS

SWMU B-3 is the location of extensive SVE treatability testing. SVE is an existing active treatment system operating at the SWMU. The SVE system was initially installed based on results from the soil gas survey performed in June of 1995 (Phase I) and November/December of 1995 (Phase II). The 1995 soil gas survey grid covered all of the area reported in the current survey as well as the limestone outcrop to the east. Results from this report are located in the Environmental Encyclopedia (**Volume 3-1, SWMUs, Soil Gas Surveys, Technical Memorandum on Soil Gas Surveys, June 1996**). High levels of chlorinated VOCs were encountered in the trench at SWMU B-3, and continue to be removed by active SVE treatment. Most of the soil gas samples were collected at this SWMU to assess the relationship of VOC levels measured in the trench during the treatability study and subsequent operations and maintenance of SVE with levels measured using the soil gas survey techniques (maximum depth of 12 feet). They were also collected to investigate soil gas levels present in other portions of the SWMU such as the east trench. The locations of these additional grid points provide current soil gas data for the SWMU B-3 trench located to the east of the main trench, and provide additional data for the soil gas points located along the eastern edge of the main trench in the vicinity of the existing SVE system. Sample B3-4 was actually collected from vapor

eastern trench is more readily drained than the down-dip western trench. The higher levels encountered could be associated with better drained soils. The data provide definite indicators that additional VOC contamination exists within the second trench. The results also strongly suggests that PCE is the primary contaminant of concern associated with the eastern trench, and confirmed that TCE is the primary VOC associated with the western (main) trench. PCE concentrations detected during the current soil gas survey indicate significantly higher levels of PCE in the eastern trench than were measured in November 1995.

#### **SUMMARY OF FINDINGS AND RECOMMENDATIONS**

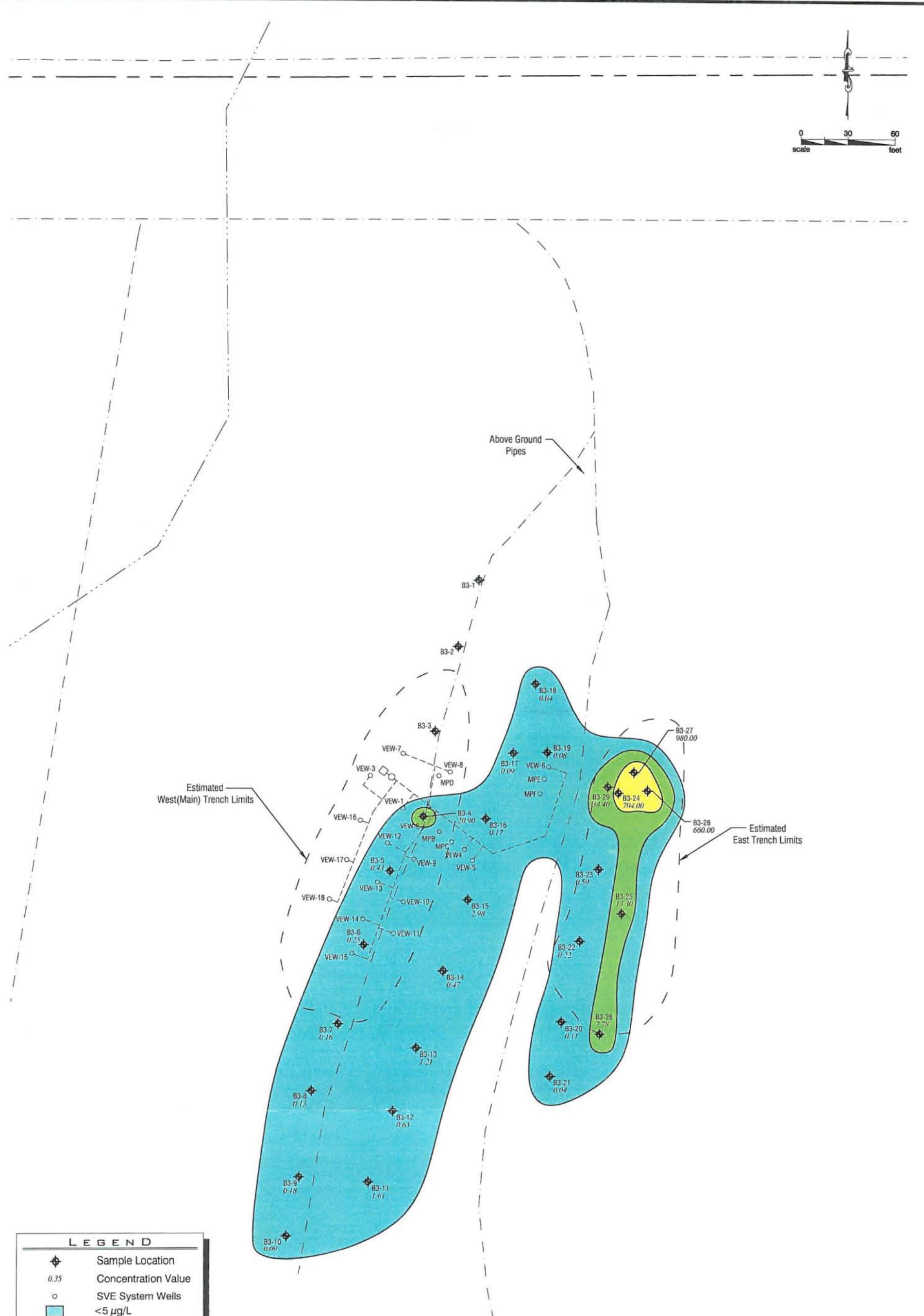
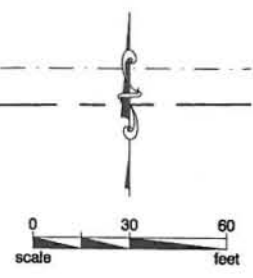
The soil gas survey results at SWMU B-3 re-affirmed the presence of VOCs within the western trench and identified a potential additional source area of PCE contamination within the eastern trench. The SVE system currently operating at SWMU B-3 will be continued while additional investigations or remedial actions are planned. The data indicate that additional investigations and/or remedial actions are necessary to address PCE levels detected in the eastern trench at SWMU B-3. Additional data required to expand the SVE system or to implement different remediation approaches at SWMU B-3 are discussed in the **SVE Treatability Study Report** and the **SVE Operations and Maintenance Assessment Report**, located in **Volume 4, Treatability Studies**.



LEGEND	
◆	Sample Location
○	SVE System Wells
—	Service Road
- - -	Fence Line
~ ~ ~	Creek

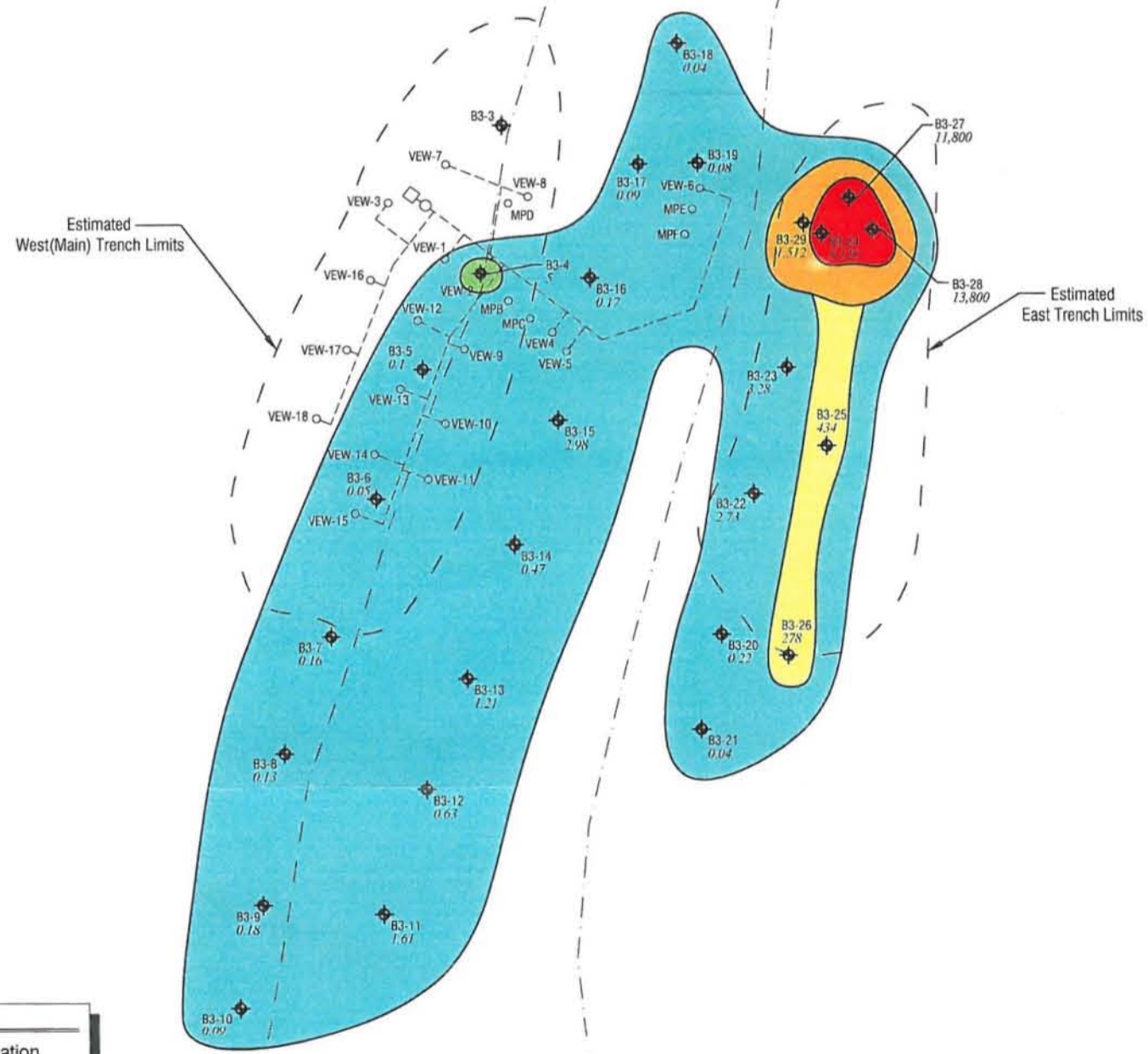
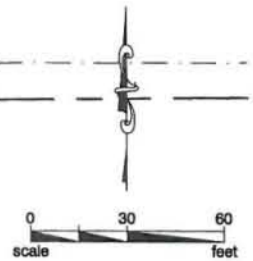
**Figure B3-1**  
 SWMU B-3 Soil Gas Survey  
 Sample Location Map  
 Camp Stanley Storage Activity  
**PARSONS ENGINEERING SCIENCE, INC.**





LEGEND	
◆	Sample Location
0.35	Concentration Value
○	SVE System Wells
Light Blue	<5 µg/L
Green	5-99 µg/L
Yellow	100-999 µg/L
Orange	1000-4999 µg/L
Red	>5000 µg/L
—	Service Road
- - -	Fence Line
~ ~ ~	Creek

**Figure B3-2**  
 SWMU B-3, 2001 Soil Gas Survey  
 TCE Concentration Contour Map  
 Camp Stanley Storage Activity  
**PARSONS ENGINEERING SCIENCE, INC.**



LEGEND	
◆	Sample Location
0.35	Concentration Value
○	SVE System Wells
Light Blue	<5 µg/L
Green	5-99 µg/L
Yellow	100-999 µg/L
Orange	1000-4999 µg/L
Red	>5000 µg/L
—	Service Road
- - -	Fence Line
~ ~ ~	Creek

**Figure B3-3**  
 SWMU B-3, 2001 Soil Gas Survey  
 PCE Concentration Contour Map  
 Camp Stanley Storage Activity  
**PARSONS ENGINEERING SCIENCE, INC.**

Table B3-1 SWMU B-3 Detected Constituents

Sample ID	Sample Date	Benzene	DCE, cis-1,2-	DCE, trans-1,2-	Ethylbenzene	PCE	Toluene	TCE	Vinyl chloride	Xylene, m,p-	Xylene, o-
	MDL	0.02	0.03	0.04	0.06	0.07	0.04	0.03	0.09	0.06	0.06
	RL	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.51	0.20	0.20
B3-4	02/14/01	< 0.02 (2)	= 21.1 (2)	< 0.04 (2)	< 0.06 (2)	= 5 (2)	< 0.04 (2)	= 20.9 (2)	< 0.09 (2)	< 0.06 (2)	< 0.06 (2)
B3-5	02/14/01	< 0.02	= 0.24	< 0.04	< 0.06	= 0.1	< 0.04	= 0.43	< 0.09	< 0.06	< 0.06
B3-6	02/14/01	< 0.02	= 0.18	< 0.04	< 0.06	= 0.08	< 0.04	= 0.25	< 0.09	< 0.06	< 0.06
B3-7	02/14/01	< 0.02	= 0.14	< 0.04	< 0.06	< 0.07	< 0.04	= 0.16	< 0.09	< 0.06	< 0.06
B3-8	02/14/01	< 0.02	= 0.1	< 0.04	< 0.06	< 0.07	< 0.04	= 0.13	< 0.09	< 0.06	< 0.06
B3-9	02/14/01	< 0.02	= 0.14	< 0.04	< 0.06	< 0.07	< 0.04	= 0.18	< 0.09	< 0.06	< 0.06
B3-10	02/14/01	< 0.02	= 0.07	< 0.04	< 0.06	< 0.07	< 0.04	= 0.09	< 0.09	< 0.06	< 0.06
B3-11	02/14/01	< 0.02	= 0.11	< 0.04	< 0.06	= 0.44	< 0.04	= 1.61	< 0.09	< 0.06	< 0.06
B3-12	02/14/01	< 0.02	= 0.13	< 0.04	< 0.06	= 0.15	< 0.04	= 0.63	< 0.09	< 0.06	< 0.06
B3-13	02/14/01	< 0.02	= 0.06	< 0.04	< 0.06	= 0.2	< 0.04	= 1.21	< 0.09	< 0.06	< 0.06
B3-14	02/14/01	< 0.02	= 0.05	< 0.04	< 0.06	< 0.07	< 0.04	= 0.47	< 0.09	< 0.06	< 0.06
B3-15	02/14/01	< 0.02	= 0.83	= 0.06	< 0.06	< 0.07	< 0.04	= 2.98	< 0.09	< 0.06	< 0.06
B3-16	02/14/01	< 0.02	= 0.05	< 0.04	< 0.06	< 0.07	< 0.04	= 0.17	< 0.09	< 0.06	< 0.06
B3-17	02/14/01	< 0.02	= 0.04	< 0.04	< 0.06	< 0.07	< 0.04	= 0.09	< 0.09	< 0.06	< 0.06
B3-18	02/14/01	< 0.02	< 0.03	< 0.04	< 0.06	< 0.07	< 0.04	= 0.04	< 0.09	< 0.06	< 0.06
B3-19	02/14/01	< 0.02	< 0.03	< 0.04	< 0.06	< 0.07	< 0.04	= 0.08	< 0.09	< 0.06	< 0.06
B3-20	02/14/01	< 0.02	= 0.07	< 0.04	< 0.06	= 0.22	< 0.04	= 0.11	= 0.45	< 0.06	< 0.06
B3-21	02/14/01	< 0.02	< 0.03	< 0.04	< 0.06	= 0.1	< 0.04	= 0.04	< 0.09	< 0.06	< 0.06
B3-22	02/14/01	< 0.02	< 0.03	< 0.04	< 0.06	= 2.73	< 0.04	= 0.22	< 0.09	< 0.06	< 0.06
B3-23	02/14/01	= 0.02	< 0.03	< 0.04	< 0.06	= 3.28	< 0.04	= 0.59	< 0.09	< 0.06	< 0.06
B3-24	02/14/01	= 0.51	= 256 (200)	= 2.8	< 0.06	= 8120 (2000)	= 0.05	= 704 (200)	= 0.38	< 0.06	< 0.06
B3-25	02/14/01	< 0.02	= 3.53	< 0.04	< 0.06	= 434 (200)	< 0.04	= 13.3	< 0.09	< 0.06	< 0.06
B3-26	02/14/01	< 0.02	= 1.82	< 0.04	< 0.06	= 278 (200)	< 0.04	= 7.78	< 0.09	< 0.06	< 0.06
B3-27	02/20/01	< 0.02 (2000)	< 0.03 (2000)	< 0.04 (2000)	< 0.06 (2000)	= 11800 (2000)	< 0.04 (2000)	= 980 (2000)	< 0.09 (2000)	< 0.06 (2000)	< 0.06 (2000)
B3-28	02/20/01	< 0.02 (2000)	< 0.03 (2000)	< 0.04 (2000)	< 0.06 (2000)	= 13800 (2000)	< 0.04 (2000)	= 660 (2000)	< 0.09 (2000)	< 0.06 (2000)	< 0.06 (2000)
B3-29	02/20/01	< 0.02	= 1.4	< 0.04	= 0.12	= 1512 (200)	< 0.04	= 34.4	< 0.09	= 0.16	< 0.06

Notes:

BTEX detections are attributed to geoprobe rig and gas generator exhaust.

In the soil comparison criteria, the lab MDL and RL are based on a Dilution Factor of 1.

All results are based on a dilution factor of 1 unless otherwise noted in parenthesis below result value.

All samples with detections above the MDL are highlighted.

All samples with a J flag are in bold.

All samples are reported in ug/L.

Acronyms and Abbreviations:

MDL Method Detection Limit

RL Reporting Limit

**APPENDIX A**  
**LABORATORY ANALYTICAL RESULTS**



