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SITE-SPECIFIC WORK PLAN FOR THE PASSIVE DIFFUSION BAG SAMPLER DEMONSTRATION AT GRISSOM AIR RESERVE BASE, INDIANA

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Prepared for:

U.S. Army Corps of Engineers, Omaha District

and

Air Force Center for Environmental Excellence
Technology Transfer Division

and

Air Force Base Conversion Agency

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Delivery Order DK01

Prepared by:

PARSONS
1700 Broadway Suite 900
Denver, Colorado 80290

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LIST OF ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AFBCA	Air Force Base Conversion Agency
AFCEE/ERT	Air Force Center for Environmental Excellence, Technology Transfer Division
ARB	Air Reserve Base
BGMP	Basewide Groundwater Monitoring Program
bgs	below ground surface
BRAC	Base Realignment and Closure
BTEX	benzene, toluene, ethylbenzene, and xylenes
COC	contaminant of concern
COI	constituent of interest
DCE	dichloroethene
DERA	Defense Environmental Restoration Account
DoD	Department of Defense
gpd/ft^2	gallons per day per square foot
HASP	Health and Safety Plan
IDEM	Indiana Department of Environmental Management
µg/L	micrograms per liter
MWH	Montgomery Watson Harza
NAS	Naval Air Station
Parsons	Parsons, Inc.
PDBS	passive diffusion bag sampler
QAPP	Quality Assurance Project Plan
RAB	Restoration Advisory Board
RL	reporting limit
RPD	relative percent difference
RPO	remedial process optimization
SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedures
STL	Severn Trent Laboratories
SWMU	solid waste management unit
TCE	trichloroethene
USACE	US Department of the Army, Corps of Engineers
USAF	US Air Force
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VC	vinyl chloride
VOC	volatile organic compound
WAA	waste accumulation area

1.0 INTRODUCTION

1.1 Project Description and Location

On 22 January 2002, Parsons Engineering Science, Inc. (Parsons) was awarded delivery order DK01 under US Department of the Army, Corps of Engineers (USACE) Contract Number F44650-99-D-0005. The scope of this delivery order is to provide services, technical man-hours, and materials to support Remedial Process Optimization (RPO) evaluations and demonstrate the effectiveness of Passive Diffusion Bag Samplers (PDBSs) for sampling volatile organic compounds (VOCs) in existing groundwater monitoring programs at selected Base Realignment and Closure (BRAC) sites administered by the Air Force Base Conversion Agency (AFBCA). The Technology Transfer Division of AFCEE (AFCEE/ERT) has initiated the PDBS demonstration to introduce this technology to multiple Department of Defense (DoD) installations and to improve the cost effectiveness of groundwater monitoring programs for VOCs.

This site-specific work plan is for the demonstration of the PDBS technology at Grissom Air Reserve Base (ARB), Indiana. Grissom ARB also has been selected for assessment of diffusion sampling of inorganic constituents (i.e., metals). Therefore, the diffusion sampling demonstration program for Grissom ARB will include an evaluation of both VOCs and metals in groundwater.

Diffusion sampling is a relatively new technology designed to utilize passive sampling techniques that eliminate the need for well purging. Specifically, a diffusive-membrane capsule is filled with deionized/distilled water, sealed, suspended in a well-installation device, and lowered to a specified depth below the water level in a monitoring well. Over time (no less than 72 hours), the constituents in the groundwater diffuse across the membrane, and the water inside the sampler reaches equilibrium with groundwater in the surrounding formation. The sampler is subsequently removed from the well, and the water in the diffusion sampler is transferred to a sample container and submitted for laboratory analysis. Benefits of diffusion sampling include reduced sampling costs and reduced generation of investigation-derived waste.

1.2 Objectives

The diffusion sampling demonstration at the Grissom ARB has three primary objectives:

- Develop vertical profiles of VOC and metal concentrations across the screened intervals of the sampled monitoring wells;
- Assess the effectiveness of diffusion sampling by statistically comparing groundwater analytical results for VOCs and metals obtained using the current (conventional) sampling method with results obtained using the diffusion sampling method. VOC and metal results from the scheduled November 2002 Basewide Groundwater Monitoring Program (BGMP) event will be compared to the results obtained using the diffusion method; and
- Compare the costs of diffusion and conventional sampling.

Vertical contaminant profiles will be developed by placing diffusion samplers at discrete depths within the saturated screened interval of each monitoring well included in the demonstration, and analyzing the resulting samples. The resulting information will aid the Base in evaluating contaminant migration and fate in the saturated zone, and will allow optimization of the Basewide groundwater sampling and analysis program. The statistical comparison of the conventional and diffusion sampling results will allow assessment of the appropriateness of implementing diffusion sampling for VOCs and/or metals at each sampled well.

A secondary objective of this project is to evaluate the adequacy and appropriateness of a portion of the groundwater monitoring program at Grissom ARB using a three-tiered optimization approach (monitoring network optimization [MNO]). This approach consists of:

- A qualitative evaluation;
- An evaluation of temporal trends in contaminant concentrations; and
- A spatial statistical analysis.

The evaluation assesses the frequency of monitoring, as well as the number and location of wells in the monitoring network to determine an efficient and effective monitoring network for the site. Ultimately, recommendations are developed to optimize the groundwater monitoring program.

1.3 Scope

The sampling demonstration at the Grissom ARB will require two mobilizations to the site - one to place the diffusion samplers in the selected monitoring wells, and a second to retrieve the samplers from the wells. The diffusion samplers will be installed in early October 2002 to provide adequate equilibration time before the current sampling contractor for Grissom ARB, Montgomery Watson Harza Americas, Inc. (MWH) begins the scheduled BGMP sampling event in early November 2002. To the extent feasible, the diffusion samplers will be retrieved immediately prior to the conventional BGMP sampling at the selected locations to ensure temporal comparability of the analytical results obtained using the two methods.

For the MNO, locations and completion intervals of individual monitoring wells and sampling points will be examined, and the informational contribution of each well or sampling point to the network will be weighed against the cost of monitoring at that point. Monitoring protocols and analytical methods also will be evaluated. Where warranted, recommendations will be developed for optimization of the portion of the monitoring network that is evaluated. Methods to be used in the evaluation will include, but are not limited to, qualitative hydrogeologic and hydrochemical analyses, application of statistical optimization techniques, and application of decision-logic structures.

A maximum of 30 monitoring wells at this installation will be evaluated as part of the MNO task. Parsons will coordinate with Grissom ARB to determine which wells to include in the evaluation. Preliminary review indicates that the Fire Protection Training

Area and Building 407 are potential candidates for the MNO evaluation (based on the likelihood of long-term monitoring). The results of the complete evaluation will be included in the Site-Specific Diffusion Sampler Demonstration Report for Grissom ARB.

1.4 Document Organization

This work plan is organized into seven sections, including this introduction, and four appendices. A summary of the site description is presented in Section 2. Section 3 presents the scope of the diffusion sampling demonstration at Grissom ARB. Project organization, schedule, and an overview of the diffusion sampling site-specific results report are summarized in Sections 4, 5, and 6, respectively. References used in the preparation of this work plan are presented in Section 7. Appendix A provides a site-specific addendum to the Program Health and Safety Plan (HASP) (Parsons, 2002). Historic site-specific groundwater quality data for Grissom ARB are provided in Appendix B. Appendix C contains pertinent portions of MWH's (2002) Sampling and Analysis Plan (SAP) for use by the diffusion sampling field team, and Appendix D contains standard operating procedures (SOPs) for inorganic diffusion sampling.

2.0 SITE DESCRIPTION

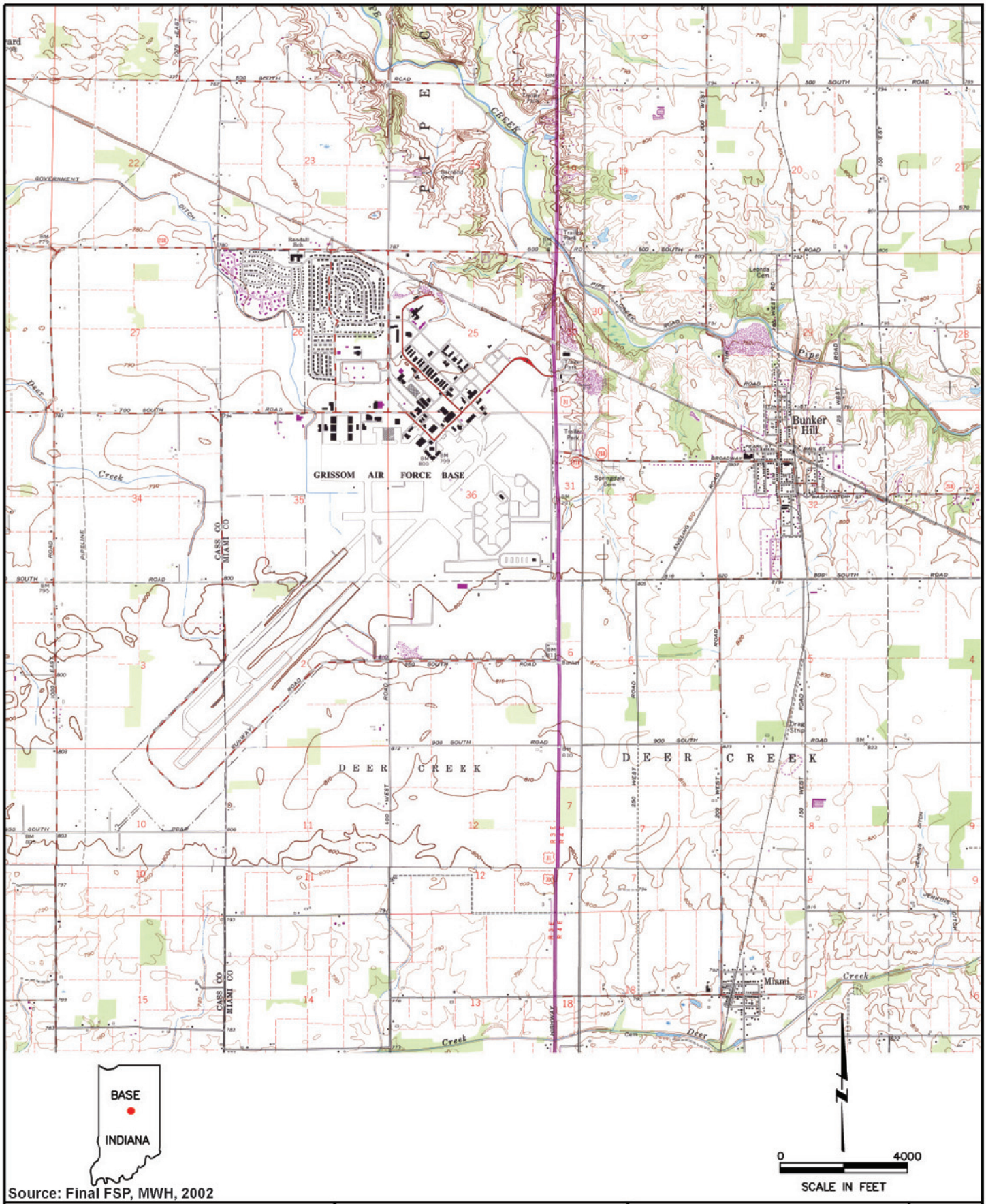
2.1 Location and Description of Grissom ARB

Grissom ARB is located in north-central Indiana approximately two miles west of the town of Bunker Hill and 15 miles north of Kokomo, Indiana on US Route 31. A portion of the Base is currently active as an Air Force Reserve military installation. The Base comprises 2,722 acres of land area and is surrounded by actively managed agricultural land. A prison currently occupies the southeast portion of the Base.

Grissom ARB was originally known as Bunker Hill Naval Air Station, and was established as a military installation in 1942 for flight training of naval pilots. The Base was renamed Grissom Air Force Base (AFB) in 1968 and today, the realigned Air Force Reserve facility is home to the 434th Air Refueling Wing. The excess Air Force property is being managed by the AFBCA and includes the Grissom Aeroplex, a business and industrial park. The site location is shown on Figure 2.1.

The following sites are included in the on-going Base-wide groundwater monitoring program:

- Fire Protection Training Areas 1 and 2 (FT01 and FT02);
- Landfill 1 (LF03) and Landfill 2 (LF04);
- Buildings 424, 407, and 14 (B424, B407 and B14);
- Former Small Arms Firing Range (SAFR);
- Oil Water Separator 896 (OWS 896);
- Abandoned Underground Storage Tank Area (ST-09);and
- Background monitoring wells (BKG01, BKG02 and BKG03).



Source: Final FSP, MWH, 2002

PARSONS	GRISSOM AIR FORCE BASE, INDIANA	BASE LOCATION MAP	FIGURE 2.1

The locations of these sites are included on Figure 2.2. Select groundwater monitoring wells from some of these locations will be included in the diffusion sampling program for VOC and metals analysis. A discussion of the areas selected, and the rationale for their inclusion in the diffusion sampling program, is presented in Section 3.

2.2 Geology and Hydrogeology

The geology of the Grissom ARB area consists of unconsolidated glacial till deposits overlying limestone bedrock. The glacial till is generally 60 to 80 feet thick and consists of clays and silty clays with low permeabilities and interbedded, discontinuous layers of sands and gravels with moderate to high permeabilities. Groundwater occurs in the glacial till and bedrock units at Grissom ARB. The glacial till is the uppermost water-bearing geologic unit underlying the Base, and groundwater in the till generally flows north/northeast (MWH, 2002). Localized gradients and flow directions, however, indicate that subsurface storm-water drain lines located at FT01 and FT02 influence the shallow groundwater flow system. Subsequently, groundwater flow at FT01 and FT02 is generally toward the southwest.

Shallow groundwater at the sites is encountered between approximately 4.5 feet below ground surface (bgs) and 18 feet bgs. The wells selected for use in this diffusion sampling demonstration at the Grissom ARB are screened in the upper 25 feet of the unconsolidated aquifer.

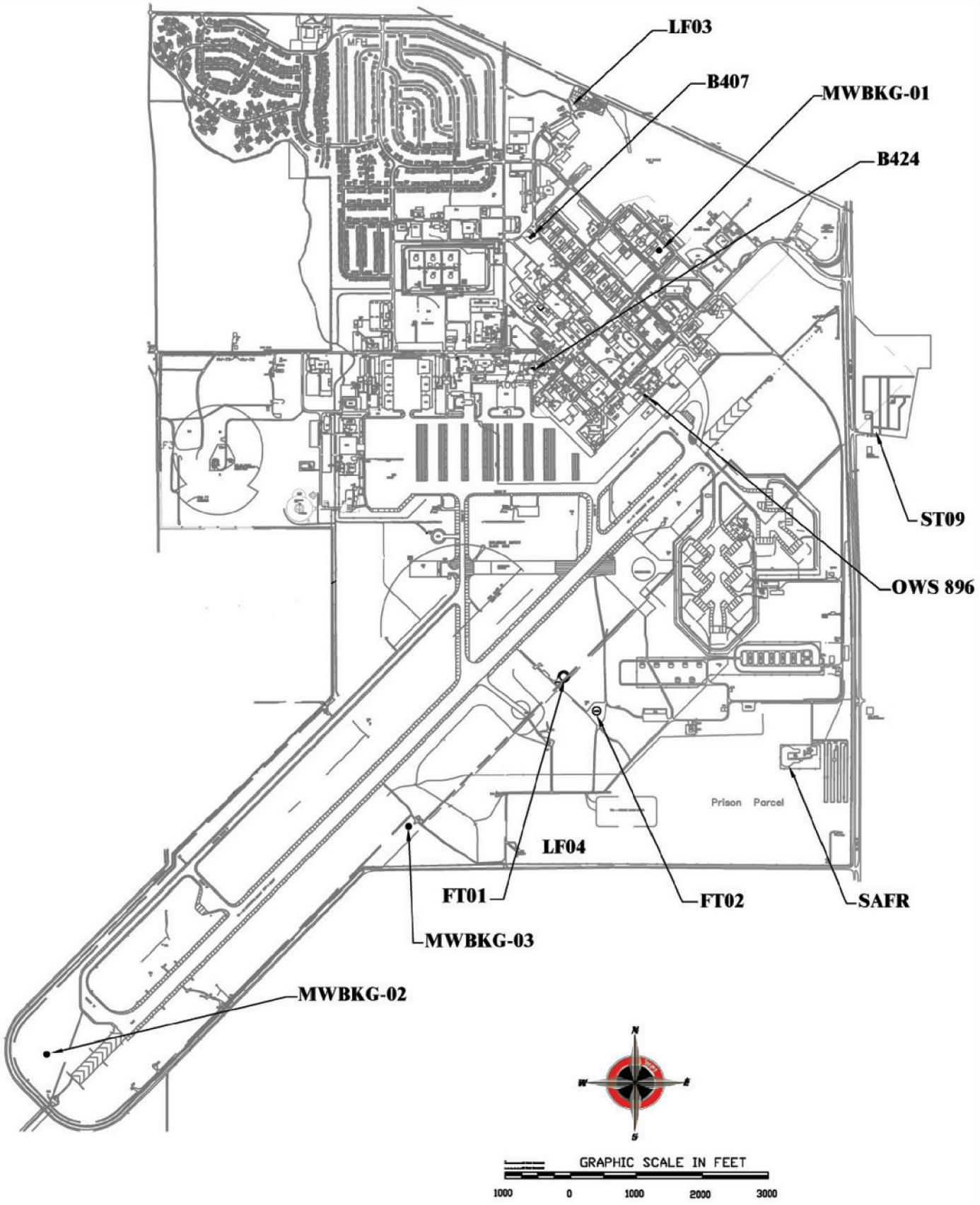
2.3 Nature and Extent of Contamination

The VOCs of concern in shallow groundwater beneath the Grissom ARB include benzene, ethylbenzene, cis-1,2-dichloroethene (DCE) and vinyl chloride (VC). These four VOCs have each exceeded their established drinking water standard in select wells. Metal constituents that have been detected at Grissom ARB at concentrations that exceed the established drinking water standard include arsenic, thallium and chromium.

2.3.1 VOCs – Fire Protection Training Area

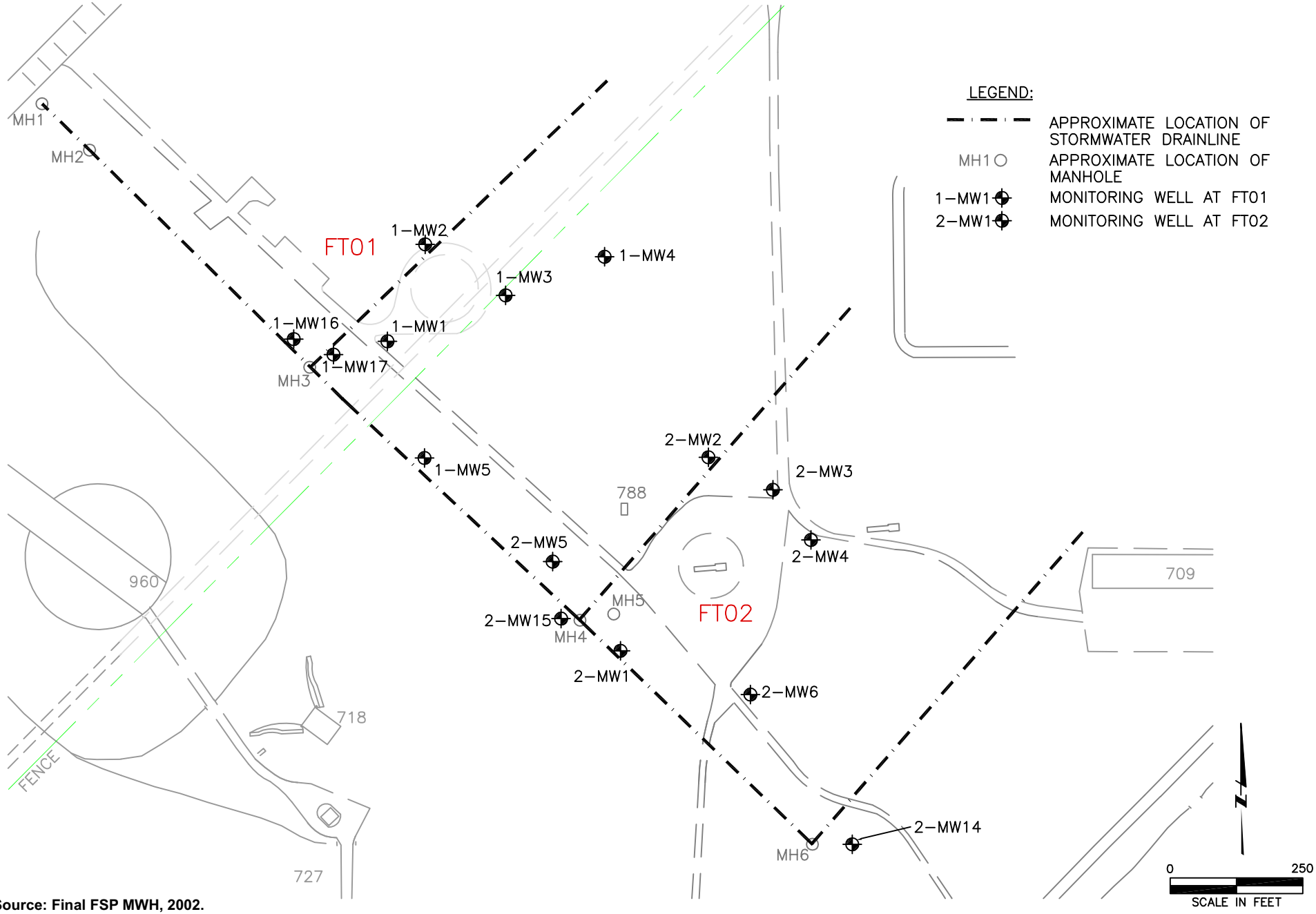
FT01 and FT02 consist of two shallow burn pits, each approximately 150 feet in diameter, located south of the runway and northeast of the flight control tower (Figure 2.2). Combustible fluids consisting of waste fuels, oils, paint thinners, and JP-4 fuel were reportedly used at FT01 during fire training exercises between 1957 and 1982. JP-4 was reportedly burned at FT02 during operations from 1982 to 1990. Both fire protection training areas are now inactive.

Quarterly sampling results for VOCs from FT01 and FT02, obtained from August 2000 through June 2002, are presented in Appendix B. Three wells from FT01 (MW-1, MW-3 and MW-5) are included in the PDBS demonstration for VOCs (Figure 3.1). Results from the June 2002 sampling event indicate a maximum VC concentration of 550 µg/L in FT01-MW5 and a maximum *cis*-1,2-DCE concentration of 220 µg/L at monitoring well FT01-MW1. Benzene also was detected in FT01-MW1 during the June 2002 sampling event, at a concentration of 9.4 µg/L.



Source: Final FSP, MWH, 2002

PARSONS	GRISSOM AIR FORCE BASE, INDIANA	SITE LOCATION MAP	FIGURE 2.2



Source: Final FSP MWH, 2002.

PARSONS	GRISSOM AIR FORCE BASE	FIRE PROTECTION TRAINING AREAS FT01 AND FT02 SITE MAP	FIGURE 3.1

Two wells from FT02 (MW-1 and MW-5) are included in the PDBS demonstration for VOCs (Figure 3.1). Low levels of benzene, toluene, ethylbenzene and xylenes (BTEX) have been detected in monitoring well FT02-MW1 (at concentrations less than drinking water standards), and VC was detected at a concentration of 27 µg/L during the June 2002 sampling event in FT02-MW5.

2.3.2 Metals – Buildings 407 & 424, ST-09, Landfills 1 & 2

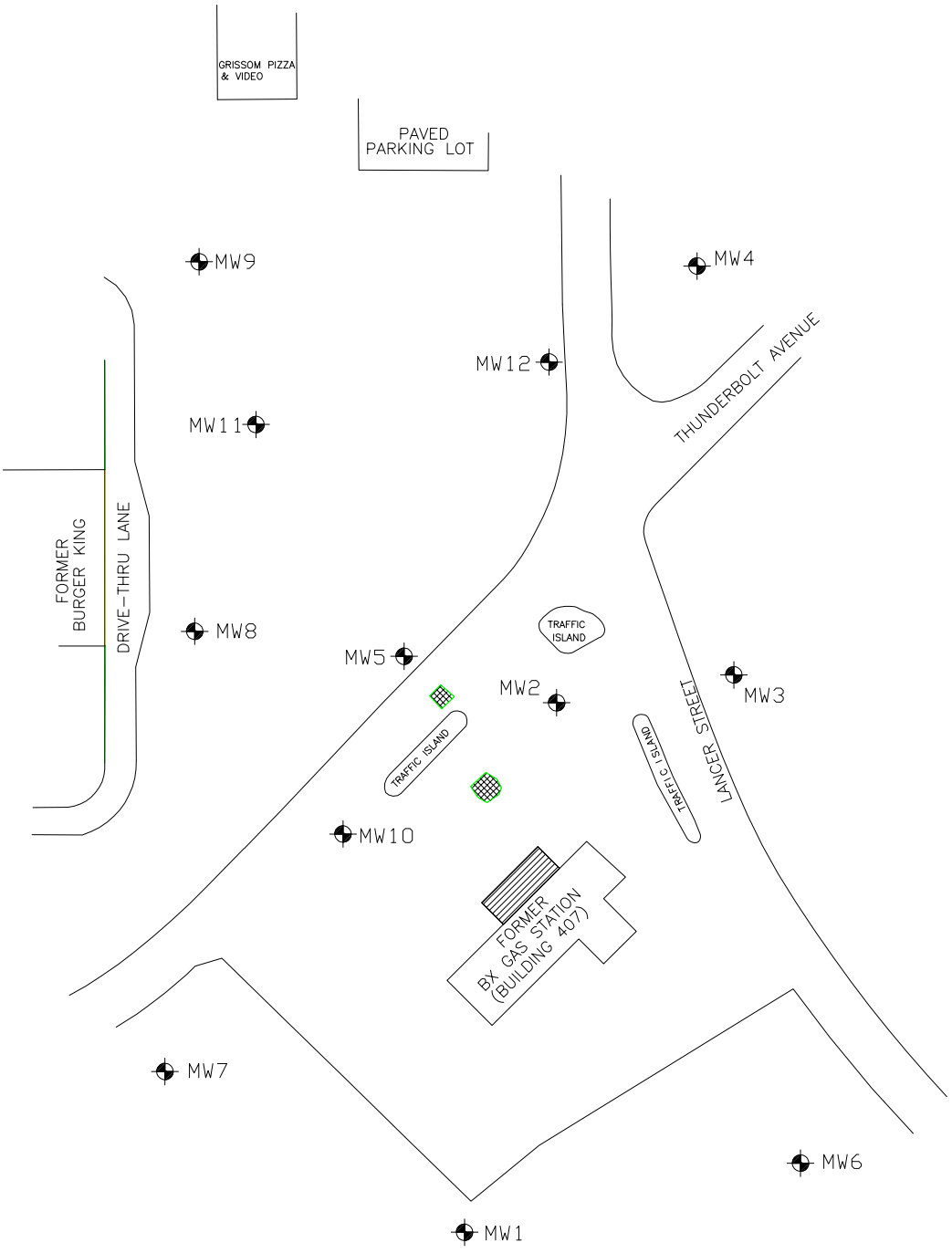
As noted previously, select metals (arsenic, thallium and chromium) have exceeded drinking water standards in certain monitoring wells. The locations of the areas of interest are listed below:

- Building 407, located southwest of Lancer Street and Thunderbolt Avenue, was previously used as a service station (Figure 3.2);
- Building 424 is located outside of the Grissom ARB restricted flight line area (Figure 3.3) and was formerly used as a pump room for dispensing fuel from underground storage tanks (USTs);
- Landfill No. 1 (LF03) is located on the northern boundary of Grissom ARB, west of the Base wastewater treatment plant (Figure 3.4). The landfill was used from the 1940s until 1958. Reportedly, hardfill, construction rubble, and possibly refuse and industrial waste were deposited in Landfill No. 1;
- Landfill No.2 (LF04) is located at the southern end of the Base, directly south of the control tower (Figure 3.5). The landfill was operated from approximately 1958 to 1963. The majority of the waste deposited in this landfill was reportedly Base refuse and construction rubble. Drummed industrial wastes also may have been deposited here; and
- Abandoned UST Site (ST09) is located near the northeast corner of U.S. Highway 31 and State Road 218 (Figure 3.6).

A complete listing of metals data for these locations is included in Appendix B.

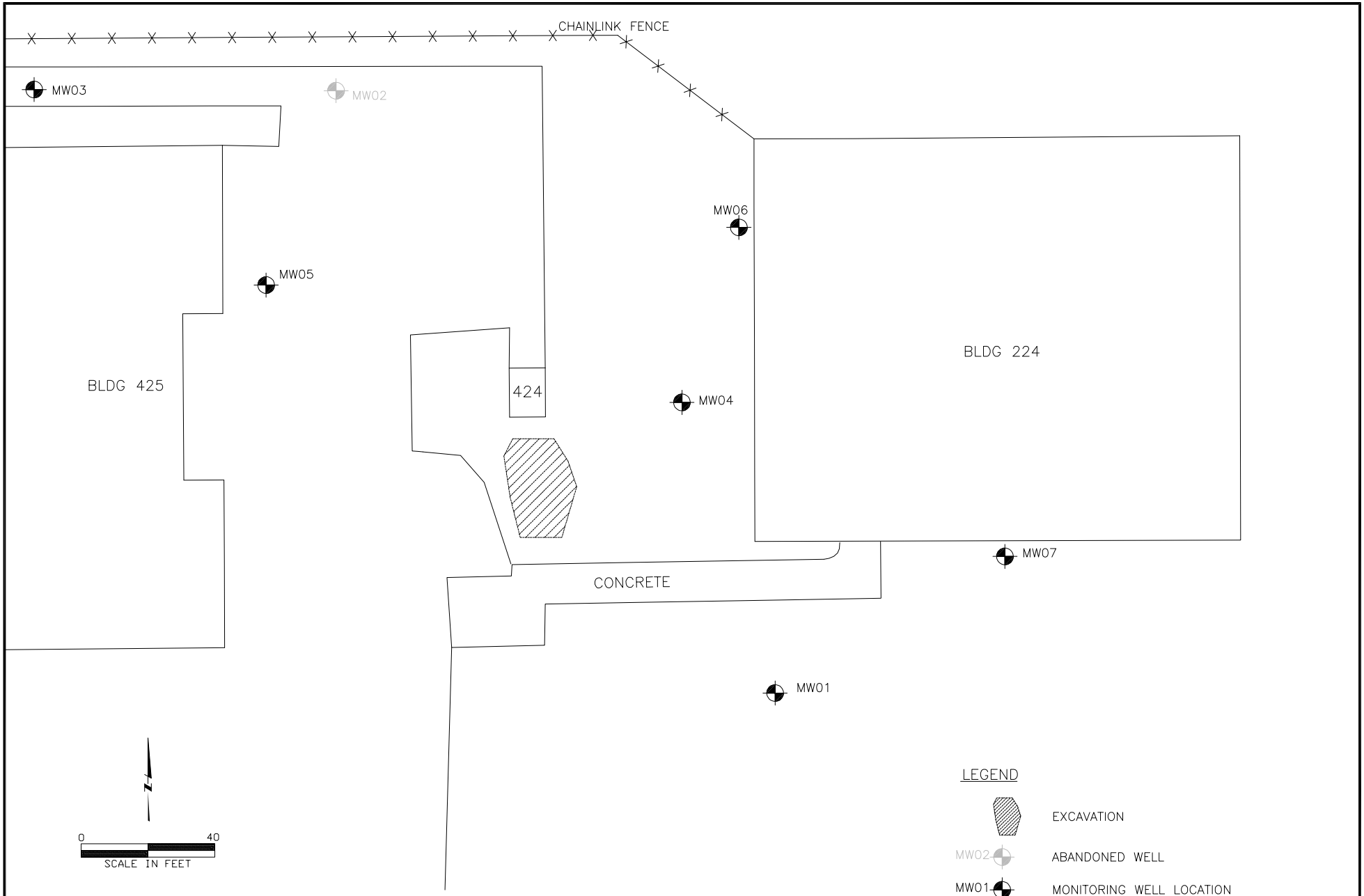
3.0 SCOPE OF THE DIFFUSION SAMPLING DEMONSTRATION

An estimated total of 48 samples will be collected from 18 monitoring wells located on and immediately adjacent to the AFBCA property as part of this project. The 18 monitoring wells have been chosen because they 1) are located on or next to the AFBCA property, 2) are sampled for VOCs or metals, and 3) are included in the BGMP sampling event scheduled for November 2002. Six of the wells will be sampled for VOCs (approximately 16 samples) and the remaining 12 wells will be sampled for metals (approximately 32 samples analyzed for both total and dissolved metals). All wells containing detectable concentrations of VOCs were selected for PDB sampling of these compounds. The monitoring wells that will be sampled during this diffusion sampling demonstration are summarized in Table 3.1. Figures of the individual areas of interest, including monitoring well locations for those areas, are included as follows:



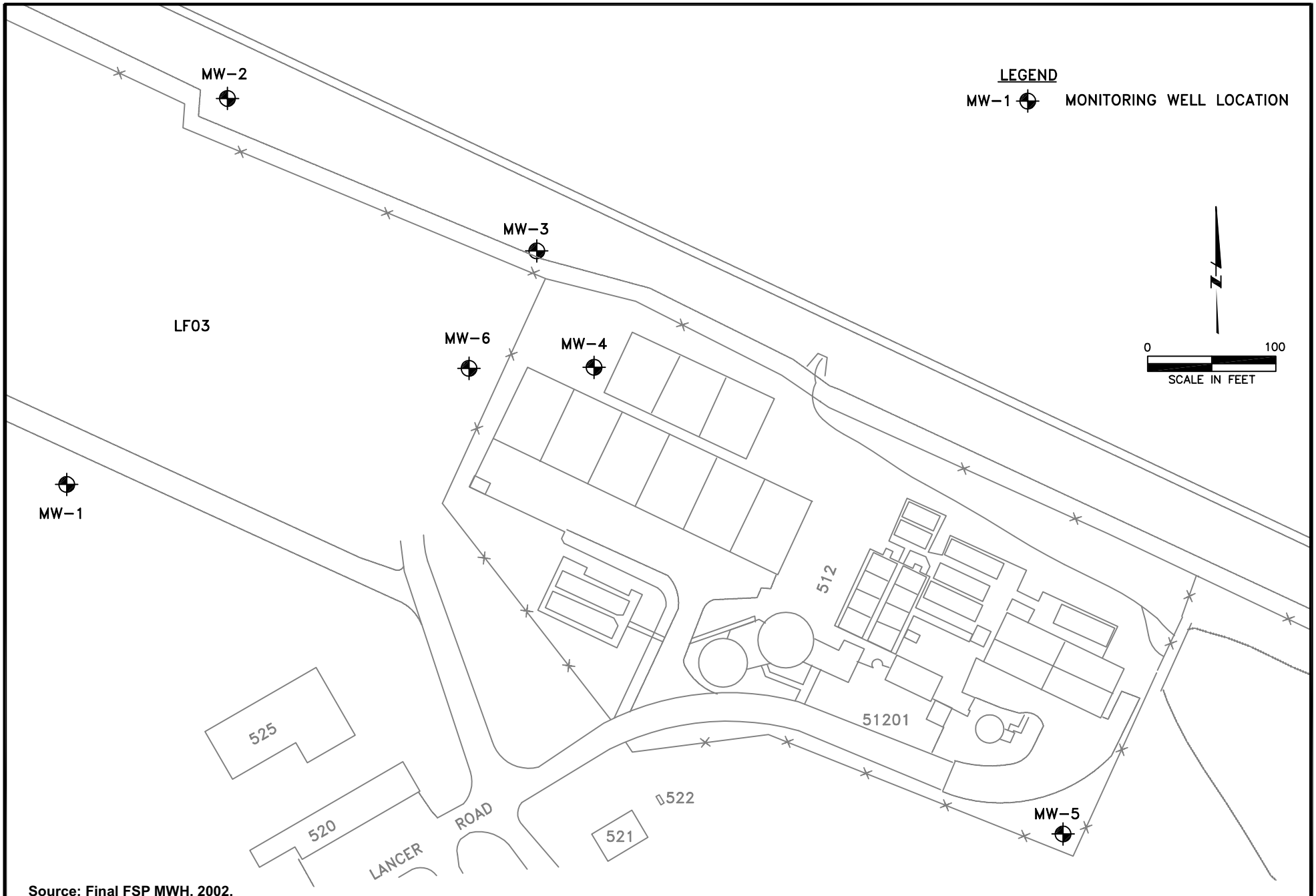
Source: Final FSP, MWH 2002.

PARSONS	GRISSOM AIR FORCE BASE, INDIANA	BUILDING 407 SITE MAP	FIGURE 3.2



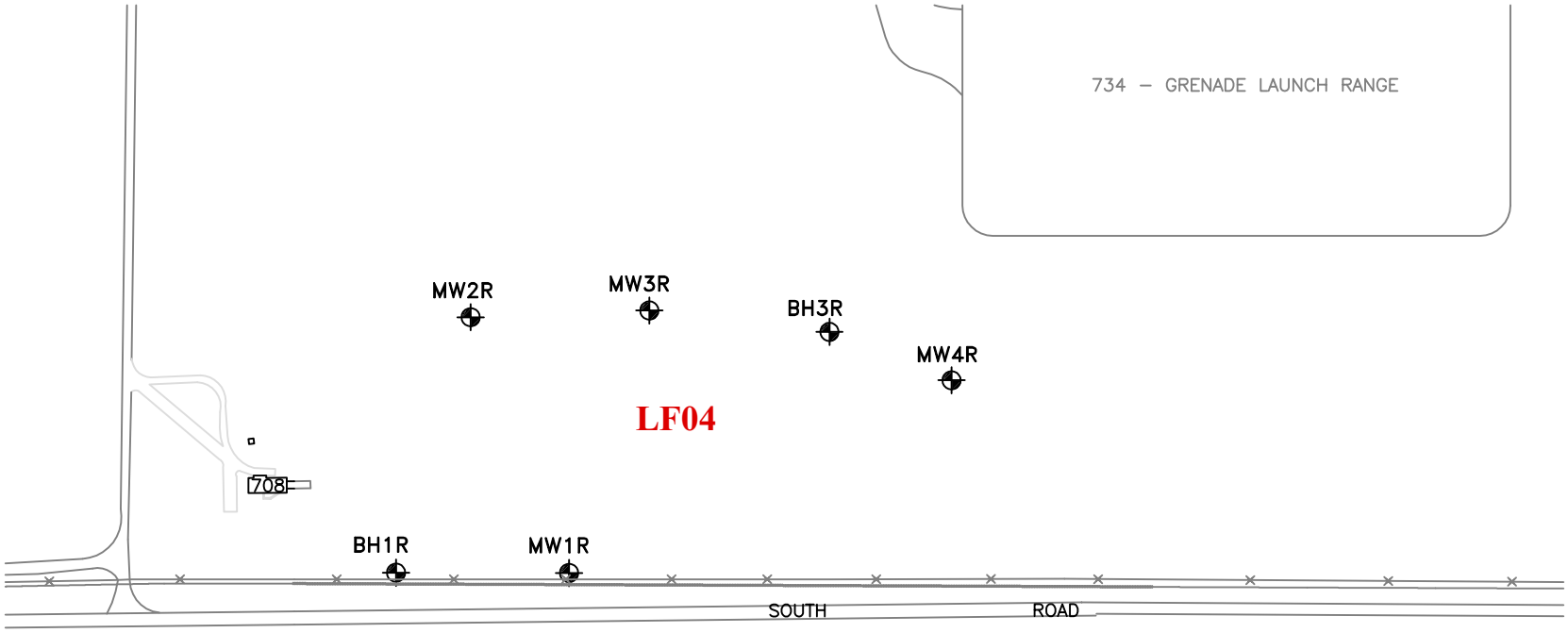
Source: Final FSP MWH, 2002.

PARSONS	GRISSOM AIR FORCE BASE, INDIANA	BUILDING 424 SITE MAP	FIGURE 3.3



Source: Final FSP MWH, 2002.

PARSONS	GRISSOM AIR FORCE BASE	LANDFILL 1 (LF03) SITE MAP	FIGURE 3.4



LEGEND

BH1R ⊕ MONITORING WELL LOCATION

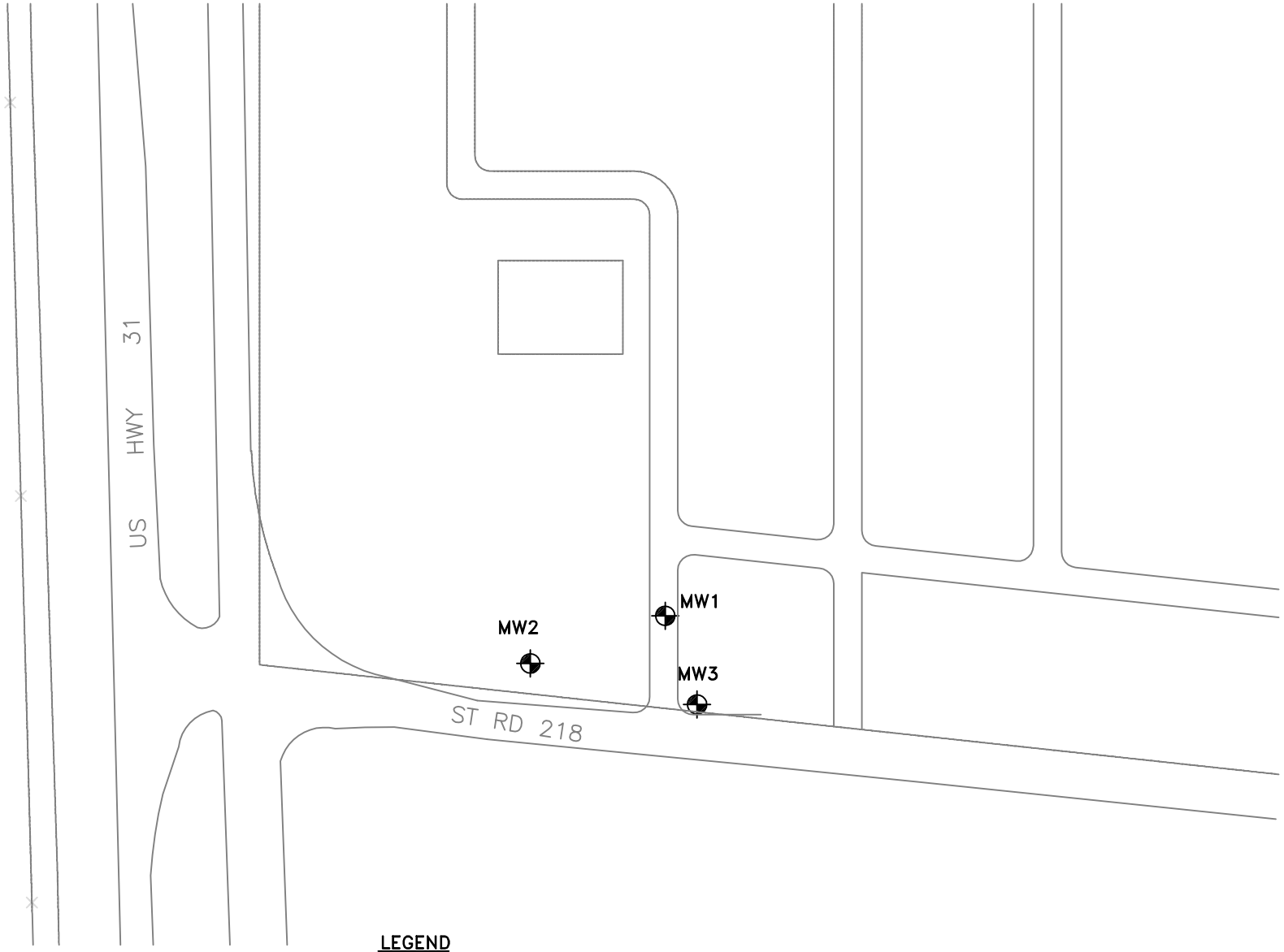
N

0 300

SCALE IN FEET

Source: Final FSP MWH, 2002.

PARSONS	GRISSOM AIR FORCE BASE	LANDFILL 2 (LF04) SITE MAP	FIGURE 3.5



Source: Final FSP MWH, 2002.

PARSONS	GRISSOM AIR FORCE BASE	ST09 (ABANDONED UST) SITE MAP	FIGURE 3.6

- Figure 3.1 - Fire Protection Training Areas FT01 and FT02 Site Map;
- Figure 3.2 - Building 407 Site Map;
- Figure 3.3 - Building 424 Site Map;
- Figure 3.4 - Landfill 1 (LF03) Site Map;
- Figure 3.5 - Landfill 2 (LF02) Site Map; and
- Figure 3.6 - ST09 (Abandoned UST) Site Map.

3.1 Field Activities

Monitoring wells selected for VOC and metals sampling using the diffusion sampling technique (Table 3.1) were chosen from the list of monitoring wells targeted for sampling by MWH beginning on 11 November 2002. Monitoring wells were selected based primarily on VOC and metals concentrations detected during previous sampling events. Each of the wells selected for sampling contain dedicated sample pump tubing. It is anticipated that the pump tubing will remain in place during the deployment of the diffusion samplers. If this is not feasible, then the tubing from each well will be removed from the monitoring well, placed inside it's own plastic bag, labeled, and set in a secured spot during sampler deployment and equilibration. Parsons will place the tubing back in the monitoring well(s) following sample collection.

Diffusion samplers for VOCs deployed during this investigation will be installed and retrieved in general accordance with the diffusion sampler installation and recovery SOPs presented in Appendix B of the AFBCA PDBS Project Work Plan (Parsons, 2002). Diffusion samplers for metals will be installed and retrieved in accordance with the SOPs contained in Appendix D. Diffusion samplers will be installed throughout the screened interval of each well (i.e., 1 VOC diffusion sampler or 1 inorganic diffusion sampler set per 3 feet of saturated screen) to obtain a vertical profile of contaminant concentrations. A diffusion sampler set is defined in Step 15 of SOP #1a (Appendix D). The diffusion samplers will be collected prior to the November 2002 conventional sampling event completed by MWH.

Sample aliquots from diffusion samplers installed in the 18 wells will be shipped to Severn Trent Laboratories, Inc. (STL) in University Park, Illinois (708-534-5200). VOC analysis will be conducted in accordance with US Environmental Protection Agency (USEPA) Method SW8260B. Metals analysis includes the following methodologies:

- USEPA Method SW6010B for aluminum, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, vanadium, and zinc;
- USEPA Method SW7041 for antimony;
- USEPA Method SW7470 for mercury; and
- USEPA Method SW7841 for thallium.

TABLE 3.1
SAMPLING LOCATION SUMMARY
PASSIVE DIFFUSION SAMPLER DEMONSTRATION
GRISSOM ARB, INDIANA

	Total Depth (ft btoc)[a/]	Well Diameter (inches)	Screened Interval (ft btoc)	Screen length (feet)	Top of Casing Elev. (ft amsl)[/b]	Groundwater Elevation (June 2002) (ft amsl)	Depth to Water (June 2002) (ft btoc)	Saturated Thickness 0f Screen (feet)	Estimated No. of PDSs	June 2002 Analytical Exceedances of Drinking Water Standards
VOCs										
Fire Protection Training Areas										
FT01-MW01	16	2	6-16	10	799.24	790.17	9.07	6.9	2	1,2-DCE 220 µg/L, benzene 9.4 µg/L
FT01-MW03	16	2	6-16	10	801.12	794.74	6.38	9.6	3	no exceedance, historic low VOCs
FT01-MW05	16	2	6-16	10	802.16	792.06	10.1	5.9	2	vinyl chloride 550 µg/L
FT02-MW01	17	2	7-17	10	801.30	791.48	9.82	7.2	2	no exceedance; BTEX < MCL
FT02-MW03	18	2	8-18	10	802.21	793.99	8.22	9.8	3	no exceedances, historic low VOCs
FT02-MW05	24.2	2	14.2-24.2	10	800.73	791.71	9.02	10.0	3	vinyl chloride 27 µg/L
								VOCs Subtotal	16	
Metals										
Building 407										
B407-MW05	13.45	2	NA[c/]	NA	787.27	781.14	6.12	7.3	2	Arsenic 57 µg/L
B407-MW10	17	2	6.5-16.5	10	787.35	782.29	5.06	10	3	Thallium 3.6 µg/L
Building 424										
B424-MW04	15.59	2	5.5-15.5	10	796.81	791.9	4.91	10	3	Thallium 3.3 µg/L
B424-MW05	16	2	6-16	10	797.96	792.22	5.74	10	3	Thallium 2.8 µg/L
Landfill 1										
LF03-MW04	14.2	2	9.2-14.2	5	780.86	771.52	9.34	4.9	1	Thallium 2.6 µg/L
LF03-MW06	18.9	2	8.9-18.9	10	785.49	774.21	11.28	7.6	2	Thallium 3.8 µg/L
Landfill 2										
LF04-MW2R	24.8	2	14.7-24.1	9.4	814.81	802.84	11.97	9.4	3	Thallium 2.6 µg/L
LF04-MW3R	27.8	2	17.7-27.1	9.4	814.61	801.53	13.08	9.4	3	Thallium 3.8 µg/L
LF04-MW4R	23.2	2	13.1-22.5	9.4	808.03	801.31	6.72	9.4	3	Thallium 2.0 µg/L
LF04-BH3R	26.1	2	16.1-25.6	9.5	812.55	800.06	12.49	9.5	3	Thallium 3.1 µg/L
Abandoned UST										
ST009-MW2	17.89	NA	NA	NA	NA	NA	9.26	8.6	2	Chromium 21 µg/L
ST009-MW3	17.14	NA	NA	NA	NA	NA	8.12	9	3	Chromium 192 µg/L
								Metals Subtotal	32	
								Total	48	

NOTES:
a/ ft btoc = feet below ground surface
b/ ft amsl = feet above mean sea level
c/ NA = information not available

The metals and VOC methods identified above are the same laboratory and analytical methods that will be used by MWH for their conventional sampling of the same wells. The analyses will be performed in accordance with the Final Quality Assurance Project Plan (QAPP) (MWH, 2002b). Field quality control samples will be collected at the following frequencies:

Sample Type	VOCs	Total Metals	Dissolved Metals
Matrix Spike	5%	5%	5%
Equipment Rinse Blank	1	NA	1
Source Water Blank	1	1	NA
Trip Blank	1 per cooler of VOC samples	NA	NA

The *Final Field Sampling Plan, Grissom Air Force Base, Indiana* (MWH, 2002) will be adopted as the site-specific SAP for the diffusion sampling demonstration, where appropriate. Appendix D from the site-specific SAP, which presents field procedures for groundwater sampling, including recording of groundwater elevations, is presented as Appendix C of this work plan. The diffusion sampling-specific methods and procedures outlined in the AFBCA Program SAP (Parsons, 2002) will be adhered to during all VOC-related diffusion sampling activities at Grissom ARB. SOPs included in the AFBCA Program SAP (Parsons, 2002) were developed for the installation, recovery and collection of VOC samples. As noted previously, however, the Grissom diffusion sampling demonstration program also will include the collection of samples for metal analysis. Therefore, modifications to the AFBCA Program SAP SOPs have been developed for inorganic samples. These modifications are included in Appendix D of this work plan.

As noted in the inorganic sampling SOPs, particular care must be taken when sampling for iron and other metals because of the potential for iron precipitation by oxygenation. Metals precipitation could occur if aerobic water used to fill the inorganic samplers is introduced into anaerobic groundwater within the well. If iron (II) is allowed to oxidize and precipitate in the diffusion samplers, then unfiltered water from the diffusion sampler can contain iron precipitate that can be incorporated into the total iron analysis during digestion, resulting in total iron concentrations that exceed the concentrations found in the ambient water (Vroblesky, 2002). The introduction of oxygenated water from the inorganic samplers into an anaerobic environment should be avoided. Therefore, if the dissolved oxygen concentrations within a well indicate anaerobic conditions (i.e., dissolved oxygen concentrations less than or equal 1 milligram per liter), then only anaerobic water should be used to fill the samplers for that well.

3.2 Analytical Results Comparison/Evaluation

Analytical results for groundwater samples collected using the diffusion sampling and conventional techniques will be compared, and the results will be evaluated. Typically, if maximum concentrations from the diffusion samplers are higher than concentrations in samples collected using the conventional method, it is probable that the diffusion samplers concentrations are more representative of ambient groundwater chemistry conditions than are the conventional-sampling data (Vroblesky, 2001). Considering this guidance, if the maximum analytical result obtained using diffusion sampling is greater than or equal to the conventional sampling result, it will indicate that the diffusion method is appropriate for use in that particular well. If, however, the conventional method produces results that are higher by a predetermined amount than the concentrations reported for the diffusion samplers, then the diffusion sampling method may not adequately represent local ambient groundwater conditions. In this case, the difference may be due to a variety of factors, including hydraulic and chemical heterogeneity within the saturated screened interval of the well, vertical flow of groundwater within the well, and/or the relative permeability of the well screen with respect to the surrounding aquifer matrix (Vroblesky, 2001).

Analytical results for all samples collected using the diffusion samplers will be compared to results from the conventional sampling using relative-percent-difference (RPD), as defined by the following equation:

$$RPD = 100 \cdot [abs(D-C)]/[(D+C)/2]$$

Where:

abs = absolute value

D = diffusion sampler result

C = conventional sample result.

Therefore, multiple RPD values will be computed for each well that contained multiple diffusion samplers, despite the fact that there will be only one conventional sampling result. Each RPD value will be compared to the acceptance criteria to determine whether it is within the acceptable range.

For this investigation, an RPD of less than 30 will be considered to demonstrate good correlation between sample results. In summary, the diffusion sampling acceptance criteria that will be used are:

- If at least one diffusion sampling result for a given well is equal to or greater than the conventional sampling result, passive diffusion sampling will be deemed appropriate for use in that well.

- If either the diffusion sampling or the conventional sample result is greater than three times the laboratory reporting limit (RL), and the diffusion sampling result is less than the conventional result, an RPD of 30 will be used as the acceptance criterion.

- If both the diffusion sampling and conventional sample results are less than three times the laboratory RL, a value of ± the lowest RL will be used as the range of acceptance between the two values.

4.0 PROJECT ORGANIZATION

Addresses and telephone numbers of the Grissom diffusion sampling project team are as follows:

Name	Title	Address	Phone/Email	Fax
Mark Mercier	USACE Project Manager	USACE, Omaha District CENWO-PM-HC 106 So. 15th St. Omaha, NE 68102	(402) 221-7664 email: mark.a.mercier@usace.army.mil	(402) 221-7796
Rafael Vazquez	AFCEE POC	AFCEE/ERT 3207 Sidney Brooks Brooks AFB, TX 78235-5344	(210) 536-1431 email: rafael.vazquez@brooks.af.mil	(210) 536-4330
David Becker	USACE POC	USACE CENWO-HXG 12565 West Center Road Omaha, NE 68144	(402) 697-2655 email: dave.becker@usace.army.mil	(402) 697-2595
Tom Barounis	EPA Remedial Project Manager	U.S. EPA, Region V, SRF-5J 77 W. Jackson blvd. Chicago, IL 60604	(312) 353-5577 email: barounis.thomas@epamail.epa.gov	(312) 353-8426
Dan Mooney	AFCEE Team Chief	AFCEE/ERB 3207 Sidney Brooks Brooks AFB, TX 78235-5344	(210) 536-5272 email:: dan.mooney@brooks.af.mil	(210) 536-3609
Ed Bishop	Parsons Program Manager	Parsons 10521 Rosehaven Street; Two Flint Hill Fairfax VA 22030	(703) 591-7575 email: edward.bishop@parsons.com	(703) 591-1305
Eieleen Buckley	Parsons Program Administrator	Parsons 10521 Rosehaven Street; Two Flint Hill Fairfax VA 22030	(703) 591-7575 email: eieleen.buckley@parsons.com	(703) 591-1305
Peter Guest	Parsons Project Manager	Parsons 1700 Broadway, Suite 900 Denver, Colorado 80290	(303) 831-8100 email: peter.guest@parsons.com	(303) 831-8208
Doug Downey	Parsons Technical Director for PDBS	Parsons 1700 Broadway, Suite 900 Denver, Colorado 80290	(303) 764-1915 email: doug.downey@parsons.com	(303) 831-8208
John Hicks	Parsons PDBS Task Manager	Parsons 1700 Broadway, Suite 900 Denver, Colorado 80290	(303) 764-1941 email: john.hicks@parsons.com	(303) 831-8208
John Tunks	Parsons PDBS Deputy Task Manager	Parsons 1700 Broadway, Suite 900 Denver, Colorado 80290	(303) 764-8740 email: john.tunks@parsons.com	(303) 831-8208
Bradley P. Varhol	PDBS Vendor	EON Products, Inc. P.O. Box 390246 Snellville, GA 30039	(800) 474-2490 web site: www.eonpro.com email: sales@eonpro.com	(770) 978-8661

Name	Title	Address	Phone/Email	Fax
Mario Ierardi	AFBCA POC	HQ AFBCA 1700 Moore St. Rosyln, VA 22202	(703) 663-5518 email: mierardi@afbda1.hq.af.mil	(703) 663-8828
Stephanie Riddle	IDEM [a/] Project Manager	IDEM 100 North Senate Ave. Indianapolis, IN 46206	(317) 234-0358 email: sriddle@dem.state.in.us	(317) 234-0428
Donna Ingersoll	STL [b/]-Chicago Project Manager	STL-Chicago 2417 Bond Street University Park, IL 60466	(708)-534-5200 T,W (217) 454-5315 M, Th, F email:dingersoll@stl-inc.com	(708)-534-5211 (217) 486-2134 (M, Th, F)
Chris ten Braak	Parsons Site Manager for Grissom ARB	Parsons 1700 Broadway, Suite 900 Denver, Colorado 80290	(303) 764-1923 email: chris.tenbraak@parsons.com	(303) 831-8208
Kyle Kirchner	Montgomery Watson Harza POC	Montgomery Watson Harza 27755 Diehl Road, Suite 300 Warrenville, IL 60555	(352) 332-3888 email: Kyle.H.Kirchner@us.mwhglobal.com	(352) 332-3222
Marlene Seneca	Grissom ARB Env. Coordinator/ POC	AFBCA/DA Grissom 1 Hoosier Blvd. Grissom ARB, IN 46971-5000	(765) 688-4305 email: mseneca@afbda1.hq.af.mil	(765) 688-2871

a/ IDEM = Indiana Department of Environmental Management
b/ STL = Severn Trent Laboratories

5.0 SCHEDULE

Work performed as part of this demonstration at the Grissom ARB will be completed according to the schedule summarized below.

- Submittal of the Draft Site-Specific PDBS Work Plan: 06 September 2002
- Receipt of Draft Site-Specific PDBS Work Plan Comments: 25 September 2002.
- Submittal of the Final Site-Specific PDBS Work Plan: 04 October 2002
- Install diffusion samplers at the Grissom ARB: 07 October 2002
- Retrieve diffusion samplers at Grissom ARB: 04 November 2002.
- Submittal of the Preliminary Internal Draft Site-Specific PDBS Report: April 2003.

6.0 REPORTING

The site-specific results report will provide a table identifying the location and depth for each diffusion sample collected. The analytical results collected by Parsons as part of this study will be compared to conventional-sampling analytical results collected by MWH using the procedures described in Section 3.2. The results of the statistical comparisons will be clearly and logically presented in the site-specific results report. Comparison methods will include calculation of RPDs between diffusion sampler and conventional sampling results. In addition, the relative costs of diffusion sampling and conventional groundwater sampling will be compared.

The report will include a qualitative review of data sets when the correlation criteria for a well or compound are met in less than 70 percent of the comparisons. The purpose of this review will be to attempt to determine the most likely reason(s) for the lack of correlation. The arbitrary threshold value of 70 percent is not intended to indicate success or failure of diffusion sampling, but rather to focus further review on those wells or analytes where a lower correlation was observed. If there are wells or compounds for which the correlation criteria were not as consistently met, and it's not clear that the poor correlation was due to a one-time, explainable occurrence (e.g., air bubbles in the sample vials for a particular sample), then the report will likely state that further evaluation of those wells/compounds should be performed before the diffusion sampling method is used for those wells/compounds. The draft version of this report will be distributed according to the schedule shown in Section 5.0.

7.0 REFERENCES

Montgomery Watson Harza, Inc., 2002. *Final Field Sampling Plan Base-Wide Groundwater Sampling for Metals and Monitored Natural Attenuation Study at FT01 and FT02, Revision 1, Grissom AFB,* August.

Montgomery Watson Harza, Inc., 2002b. *Final Quality Assurance Plan Base-Wide Groundwater Sampling for Metals and Monitored Natural Attenuation Study at FT01 and FT02, Revision 1, Grissom AFB,* August.

Parsons, 2002. *Draft Work Plan for the Air Force Base Conversion Agency Passive Diffusion Sampler Demonstration*. February.

Vroblesky, D.A., 2001. *User's Guide for Polyethylene-Based Passive Diffusion Bag Samplers to Obtain Volatile Organic Compound Concentrations in Wells*. US Geological Survey Water-Resources Investigations Report 01-4060. Columbia, South Carolina.

Vroblesky, D.A., Petkewich, M.D., Campbell, T.R., 2002. *Field Tests of Diffusion Samplers for Inorganic constituents in Wells and at a Ground-Water-Discharge Zone*. US Geological Survey Water-Resources Investigations Report 02-4031. Columbia, South Carolina.

APPENDIX A

HEALTH AND SAFETY PLAN ADDENDUM

ADDENDUM TO THE PROGRAM HEALTH AND SAFETY PLAN FOR REMEDIAL PROCESS OPTIMIZATION SUPPORT AND DEMONSTRATION OF PASSIVE DIFFUSION BAG SAMPLING TECHNOLOGY AT SEVERAL DEPARTMENT OF DEFENSE INSTALLATIONS

AT

GRISSOM AIR RESERVE BASE
INDIANA

August 2002

Prepared by:

PARSONS
1700 Broadway, Suite 900
Denver, Colorado 80290

Reviewed and Approved By:

	Name	Date
Project Manager	_____	_____
Office Health and Safety Representative	_____	_____

1.0 INTRODUCTION

This addendum modifies the existing Program Health and Safety Plan (HASP) entitled *Program Health and Safety Plan for Remedial Process Optimization Support and Demonstration of Passive Diffusion Bag Sampling Technology at Several Department of Defense Installations* (Parsons Engineering Science, Inc., [Parsons] 2002) for the evaluation of the use of passive diffusion bag samplers (PDBSs) in existing groundwater monitoring programs at selected U.S. Air Force (USAF) and other Department of Defense installations across the United States. This work is being performed under contract number F44650-99-D-005 Delivery Order DK01, for the U.S. Department of the Army, Corps of Engineers, Omaha District, and Air Force Base Conversion Agency (ARBCA), Roslyn, Virginia.

This addendum to the Program HASP was prepared to address the upcoming tasks at Grissom Air Reserve Base (ARB) in Indiana. Included or referenced in this addendum are the scope of services, site specific description and history, project team organization, hazard evaluation of physical hazards and of known or suspected chemicals, and emergency response information. All other applicable portions of the Program HASP remain in effect.

2.0 SCOPE OF SERVICES

Site activities will involve the placement of a water-filled diffusive membrane capsule in a well installation device at a specific depth in an existing groundwater monitoring well. The wells are located in various areas throughout the base. After a specified period of time, the water in the sampler is transferred to a sample container and submitted for laboratory analysis. No drilling or ground-intrusive activities are anticipated under the current scope of work.

3.0 SITE SPECIFIC DESCRIPTION HISTORY

The descriptions, history, and maps for the various sites are contained in the work plan entitled *Site-Specific Work Plan for the Passive Diffusion Bag Sampler Demonstration at Grissom ARB, Indiana (*Parsons, 2002).

4.0 PROJECT TEAM ORGANIZATION

The project team assigned to the PDBS demonstration activities at the former Grissom ARB is identified in the Program HASP. The following personnel also will be involved in this project.

Mr. Peter Guest	Project Manager
Mr. John Hicks	Task Manager
Mr. Chris TenBraak	Site Manager
Ms. Lynette Lamenskie	Health and Safety Officer
Ms. Marlene Seneca	Grissom ARB Contact

5.0 HAZARD EVALUATION

5.1 Chemical Hazards

The primary contaminants of concern at the various sites are benzene, ethylbenzene, metals, and chlorinated compounds including 1,2-dichloroethene (1,2-DCE), and vinyl chloride. Health hazard qualities for these and other compounds are presented in Table 5.1 at the end of this addendum. If other contaminants are found to exist at the site, this addendum will be modified to include the necessary information that will then be communicated to the onsite personnel.

5.2 Physical Hazards

Potential physical hazards at the former Grissom ARB include hazards associated with motor vehicles; slip, trip, and fall hazards; noise; and heat and/or cold exposure. These hazards are discussed in the Program HASP.

5.3 Biohazards

The following is in addition to the information presented in the Program HASP.

West Nile virus is spread by the bite of an infected mosquito, and can infect people, horses, many types of birds, and some other animals. Most people who become infected with West Nile virus will have either no symptoms or only mild ones. On rare occasions, West Nile virus infection can result in a severe and sometimes fatal illness known as West Nile encephalitis (an inflammation of the brain). The risk of severe disease is higher for persons 50 years of age and older. There is no evidence to suggest that West Nile virus can be spread from person to person or from animal to person.

Human illness from West Nile virus is rare, even in areas where the virus has been reported. The chance that any one person is going to become ill from a mosquito bite is low. You can further reduce your chances of becoming ill by protecting yourself from mosquito bites. To avoid mosquito bites, apply insect repellent containing DEET (N,N-diethyl-meta-toluamide) when you're outdoors. When possible, wear long-sleeved clothes and long pants treated with repellents containing permethrin or DEET since mosquitoes may bite through thin clothing. Do not apply repellents containing permethrin directly to exposed skin. If you spray your clothing, there is no need to spray repellent containing DEET on the skin under your clothing. Also, consider staying indoors at dawn, dusk, and in the early evening, which are peak mosquito biting times.

6.0 EMERGENCY RESPONSE PLAN

6.1 Emergency Contacts

In the event of any emergency situation or unplanned occurrence requiring assistance, the appropriate contacts should be made from the list below. A list of emergency contacts must be posted at the site.

Contingency Contacts	**Telephone Number**
Site/Medical Emergency	911
Poison Control Center	(800) 222-1222
Base Contact: Marlene Seneca	(765) 688-4305

Medical Emergency: (Figure 6.1)

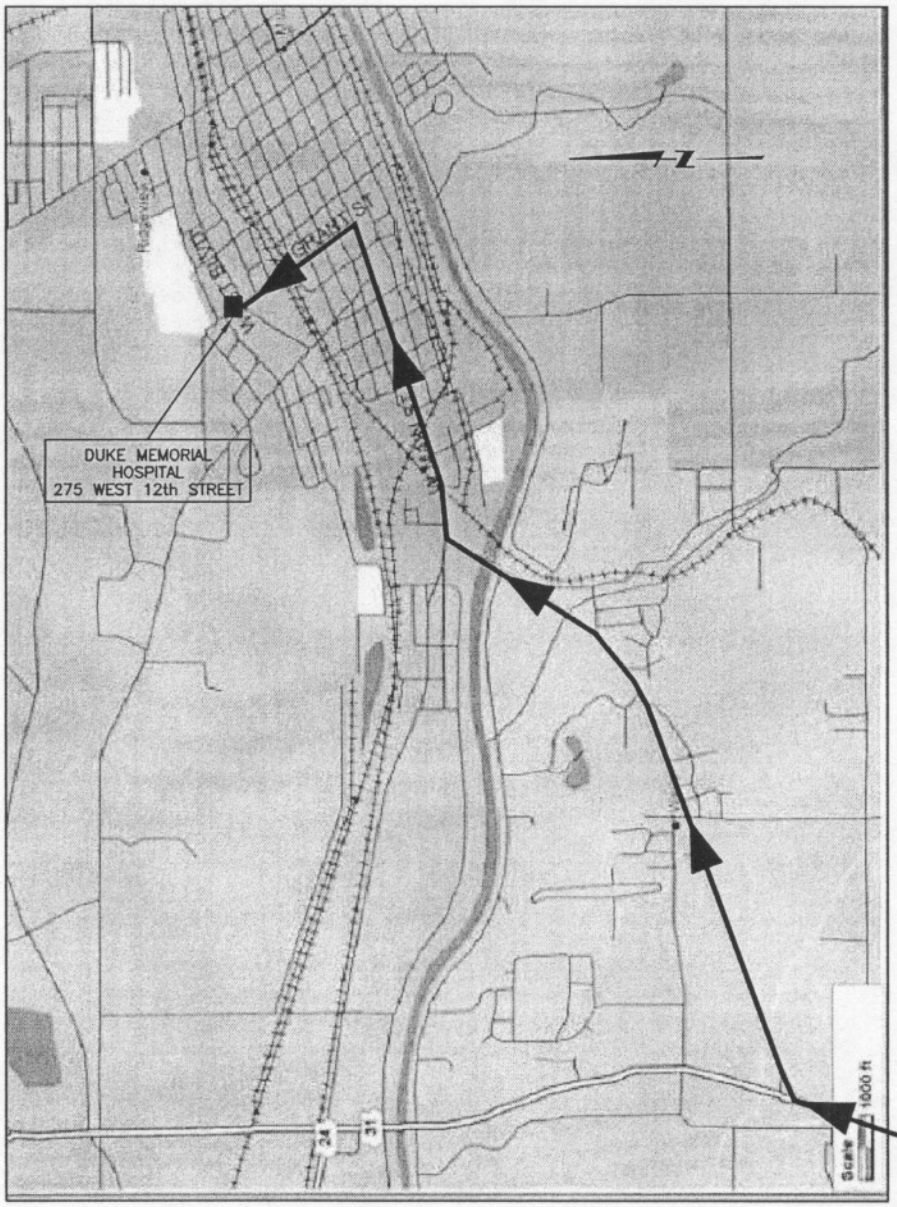
Hospital Name	Duke Memorial Hospital
Address	275 West 12th Street, Peru, IN 46970
Telephone Number	911 or (765) 472-8000 Emergency Room: Ext.2176#
Ambulance	911

Parsons Contacts	**Telephone Number**
Peter Guest Project Manager	(303) 831-8100 or 764-1919 (Work)
John Hicks Task Manager	(303) 831-8100 or 764-1941 (Work) (303) 279-3698 (Home)
Tim Mustard, CIH Program Health and Safety Manager	(303) 831-8100 or 764-8810 (Work) (303) 450-9778 (Home)
Ed Grunwald, CIH Corporate Health and Safety Manager	(678) 969-2394 (Work) (404) 299-9970 (Home)
Judy Blakemore Assistant Program Health and Safety Manager	(303) 831-8100 or 764-8861 (Work) (303) 828-4028 (Home) (303) 817-9743 (Mobile)
Parsons 24-Hour Emergency Contact Service	(866) 727-1411 (toll free)

7.0 LEVELS OF PROTECTION AND PERSONAL PROTECTIVE EQUIPMENT REQUIRED FOR SITE ACTIVITIES

The personal protection level prescribed for field activities at the former Grissom ARB is Occupational Safety and Health Administration (OSHA) Level D with a contingency for the use of OSHA Level C or B, as site conditions require. The following will be used to select respiratory protection at each of the sites.

Sustained air monitoring readings in the worker-breathing zone indicate vapor concentrations greater than or equal to 1 part per million, volume by volume (ppmv) above background for 30 seconds or longer will require the use of a Dräger® tube or the equivalent to determine if vinyl chloride is present. If vinyl chloride is found to exist at concentrations at or greater



GRISSOM AIR FORCE BASE IS APPROXIMATELY FIVE MILES SOUTH ON U.S. HIGHWAY 31

MWH MONTGOMERY WATSON HARZA	GRISSOM AIR FORCE BASE, INDIANA	HOSPITAL ROUTE MAP	FIGURE 6.1

J:\209\0752 Grissom-32\Basewide- FTAs QPP\Final HSP\HOSPITAL ROUTE FIG 1.dwg

than 1 ppm above background, additional work must be performed in OSHA Level B, due to the inadequate warning properties of the compound.

If vinyl chloride is not present, and field activities continue with Level D protection, a reading of 5 ppmv above background in the worker breathing zone will require the use of a Dräger® tube or the equivalent to determine if benzene is present at a concentration greater than or equal to the PEL of 1 ppmv. The flow chart presented in Figure 7.1 and appropriate text in the Program HASP then will be used to select respiratory protection against volatile hydrocarbon constituents.

Due to the nature of the field activities to be performed, the metals historically present are not expected to pose a health hazard to field personnel.

Section 7 of the Program HASP contains guidelines for selection of personal protective equipment (PPE). PPE will be required when handling contaminated samples and when working with potentially contaminated materials. See page 7-4 of the Program HASP for PPE to be used.

8.0 FREQUENCY AND TYPES OF AIR MONITORING

A photoionization detector (PID) with an 10.2 electron volts (eV) (HNU®) or equivalent lamp will be used for air monitoring during this project since the ionization potentials of the contaminants of concern are below 10.2 eV.

TABLE 5.1 HEALTH HAZARD QUALITIES OF HAZARDOUS SUBSTANCES OF CONCERN

Compound	PEL [a/] (ppm)	TLV [b/] (ppm)	IDLH [c/] (ppm)	Odor Threshold [d/] (ppm)	Ionization Potential [e/] (eV)	Physical Description/Health Effects/Symptoms
Arsenic (Inorganic, as As)	0.01 mg/m^3 [f/] (29 CFR 1910.1018) [g/]	0.01 mg/m^3	5 mg/m^3	NA [h/]	NA	Silver-gray or tin-white, brittle, odorless solid. Causes ulceration of the nasal septum, dermatitis, gastrointestinal disturbances, nervous system degeneration, respiratory irritation, skin spots, and lung and lymphatic cancer. Mutagen, experimental teratogen, and carcinogen.
Benzene	1 (29 CFR 1910.1028) [f/]	0.5 (skin) [i/]	500	4.7	9.24	Colorless to light-yellow liquid (solid<42^{o}F) with an aromatic odor. Eye, nose, skin, and respiratory system irritant. Causes giddiness, headaches, nausea, staggered gait, fatigue, anorexia, exhaustion, dermatitis, bone marrow depression, and leukemia. Mutagen, experimental teratogen, and carcinogen.
Chromium metal	1 mg/m^3	0.5 mg/m^3	250 mg/m^3	NA	NA	Blue-white to steel gray, lustrous, brittle, hard, odorless, metallic solid. Irritates eyes, skin, and respiratory system. Causes lung fibrosis. Explosive.
Chromium (II) and (III) Compounds (as Cr)	0.5 mg/m^3	0.5 mg/m^3	250 mg/m^3(II) 25 mg/m^3 (III)	NA	NA	Properties vary with compound. Irritates eyes and causes sensitization dermatitis.
1,2-Dichloroethene (DCE) (cis- and trans-isomers)	200	200	1,000	0.085-500	9.65	Colorless liquid (usually a mixture of cis- and trans- isomers), with a slightly acrid, chloroform-like odor. Irritates eyes and respiratory system. CNS depressant. Cis- isomer is a mutagen.
Ethylbenzene	100	100	800 (10% LEL) [j/]	0.25-200	8.76	Colorless liquid with an aromatic odor. Irritates eyes, skin, and mucous membranes. Causes dermatitis, headaches, narcosis, and coma. Mutagen and experimental teratogen.
Thallium (soluble compounds as Tl)	0.1 mg/m^3 (skin)	0.1 mg/m^3 (skin)	15 mg/m^3	NA	NA	Metal is bluish-white, soft, and malleable. Appearance and properties vary with specific compound. Used as a rodenticide and fungicide. Causes nausea, diarrhea, abdominal pain, vomiting, drooping of upper eyelids, strabismus[k/], degeneration of the nervous system, tremors, chest tightness behind the sternum, chest pain, pulmonary edema, seizures, spasms of the face and extremities, psychosis, liver and kidney damage, hair loss, and tingling skin on the legs.
Vinyl Chloride	1 (29 CFR 1910.1017) [f/]	1	NA	260	9.99	Colorless gas (liquid<7°F) with a pleasant odor at high concentrations. Severe irritant to skin, eyes, and mucous membranes. Causes weakness, abdominal pain, gastrointestinal bleeding, enlarged liver, Also attacks lymphatic system. Mutagen, experimental teratogen, and carcinogen.

TABLE 5.1 HEALTH HAZARD QUALITIES OF HAZARDOUS SUBSTANCES OF CONCERN

Compound	PEL [a/] (ppm)	TLV [b/] (ppm)	IDLH [c/] (ppm)	Odor Threshold [d/] (ppm)	Ionization Potential [e/] (eV)	Physical Description/Health Effects/Symptoms

a/ PEL = Permissible Exposure Limit. OSHA-enforced average air concentration to which a worker may be exposed for an 8-hour workday without harm. Expressed as parts per million (ppm) unless noted otherwise. PELs are published in the *NIOSH Pocket Guide to Chemical Hazards* , 1997. Some states (such as California) may have more restrictive PELs. Check state regulations.

b/ TLV = Threshold Limit Value - Time-Weighted Average. Average air concentration (same definition as PEL, above) recommended by the American Conference of Governmental Industrial Hygienists (ACGIH), 2001 *TVLs® and BEIs®.*

c/ IDLH = Immediately Dangerous to Life or Health. Air concentration at which an unprotected worker can escape without debilitating injury or health effects. Expressed as ppm unless noted otherwise. IDLH values are published in the *NIOSH Pocket Guide to Chemical Hazards* , 1997.

d/ When a range is given, use the highest concentration.

e/ Ionization Potential, measured in electron volts (eV), used to determine if field air monitoring equipment can detect substance. Values are published in the *NIOSH Pocket Guide to Chemical Hazards* , June 1997.

f/ mg/m^3 = milligrams per cubic meter.

g/ Refer to expanded rules for this compound.

h/ NA = Not available.

j/ Indicates that the IDLH value was based on 10% of the lower explosive limit for safety considerations, even though relevant toxicological data indicated that irreversible health effects or impairment of escape existed only at higher concentrations *(NIOSH Pocket Guide to Chemical Hazards, 1997).*

k/ Strabismus is a visual disorder due to the turning of one or both eyes from the normal position.

APPENDIX B

HISTORIC GROUNDWATER QUALITY DATA

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B407-MW1												B407-MW1											
Site:			Building 407 (AOC 4)												Building 407 (AOC 4)											
Date Collected:			12/03/01												06/11/02											
Turbidity (NTU):			0.51												0.68											
Type of Sample:			Normal												Normal											
			Dissolved							Total						Dissolved							Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	100	31	100	U				**36**	31	100	F	F	23	<	200	24	200	U			<	200	24	200	U		
Antimony	6.0	µg/L	<	2.9	2.9	2.9	U			<	2.9	2.9	2.9	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U		
Arsenic	50	µg/L	<	5.0	1.6	5.0	U			<	5.0	1.6	5.0	U			<	10	5.2	10	U			<	10	5.2	10	U		
Barium	2,000	µg/L		**33.9**	0.46	5.0					**33.8**	0.46	5.0					**32**	1.5	10					**38**	1.5	10			
Beryllium	4.0	µg/L	<	2.0	0.068	2.0	U			<	2.0	0.068	2.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.29	2.0	U			<	2.0	0.29	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L		**0.88**	0.26	5.0	F	B,F	7,23		**0.66**	0.26	5.0	F	B,F	7,23	<	10	1.5	10	U			<	10	1.5	10	U		
Cobalt	NE	µg/L	<	5.0	0.35	5.0	U			<	5.0	0.35	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U		
Copper	1,300	µg/L		**4.3**	3.0	10	F	B,F	7,23		**3.6**	3.0	10	F	B,F	7,23	<	10	1.6	10	U			<	10	1.6	10	U		
Iron	NE	µg/L	<	50	6.5	50	U				**126**	6.5	50				<	50	40	50	U			<	50	40	50	U		
Lead	15	µg/L	<	5.0	0.73	5.0	U			<	5.0	0.73	5.0	U			<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U		
Magnesium	NE	µg/L		**20,100**	8.7	100					**19,800**	8.7	100					**21,000**	12	100		M	8		**22,000**	12	100			
Manganese	NE	µg/L	<	3.0	0.57	3.0	U				**1.6**	0.57	3.0	F	F	23	<	10	0.71	10	U	M	8	<	10	0.71	10	U		
Mercury	2.0	µg/L		**0.23**	0.058	0.5	F	F	23		**0.21**	0.058	0.5	F	F	23	<	0.2	0.07	0.2	U			<	0.2	0.07	0.2	U		
Nickel	NE	µg/L	<	5.0	0.67	5.0	U				**2.6**	0.67	5.0	F	B,F	7,23	<	10	1.9	10	U			<	10	1.9	10	U		
Potassium	NE	µg/L		**884**	40	400					**815**	40	400					**930**	110	500					**950**	110	500			
Selenium	50	µg/L	<	10	2.3	10	U			<	10	2.3	10	U			<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	10	0.11	10	U			<	10	0.11	10	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**10,100**	390	1,000					**9,540**	390	1,000					**9,900**	500	1000					**11,000**	500	1000			
Thallium	2.0	µg/L	<	1.6	1.6	1.6	U			<	1.6	1.6	1.6	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	10	0.35	10	U				**0.69**	0.35	10	F	B,F	7,23	<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U		
Zinc	NE	µg/L		**6.5**	4.0	10	F	F	23		**11**	4.0	10				<	20	10	20	U			<	20	10	20	U		

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B407-MW2												B407-MW2											
Site:			Building 407 (AOC 4)												Building 407 (AOC 4)											
Date Collected:			12/03/01												12/03/01											
Turbidity (NTU):			1.22												1.22											
Type of Sample:			Normal												Duplicate											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	< 100	31	100	U			< 100	31	100	U			< 100	31	100	U			**63.8**	31	100	F	F	23
Antimony	6.0	µg/L	< 2.9	2.9	2.9	U			< 2.9	2.9	2.9	U			< 2.9	2.9	2.9	U			< 2.9	2.9	2.9	U		
Arsenic	50	µg/L	**14.2**	1.6	5.0				**15.3**	1.6	5.0				**13.8**	1.6	5.0				**15.5**	1.6	5.0			
Barium	2,000	µg/L	**88.7**	0.46	5.0				**92.4**	0.46	5.0				**87.2**	0.46	5.0				**88.7**	0.46	5.0			
Beryllium	4.0	µg/L	< 2.0	0.068	2.0	U			< 2.0	0.068	2.0	U			< 2.0	0.068	2.0	U			< 2.0	0.068	2.0	U		
Cadmium	5.0	µg/L	< 2.0	0.29	2.0	U			< 2.0	0.29	2.0	U			< 2.0	0.29	2.0	U			< 2.0	0.29	2.0	U		
Chromium	100	µg/L	**0.64**	0.26	5.0	F	B,F	7,23	< 5.0	0.26	5.0	U			**1.5**	0.26	5.0	F	B,F	7,23	< 5.0	0.26	5.0	U		
Cobalt	NE	µg/L	**0.8**	0.35	5.0	F	F	23	**1.8**	0.35	5.0	F	F	23	**0.8**	0.35	5.0	F	F	23	**0.92**	0.35	5.0	F	F	23
Copper	1,300	µg/L	< 10	3.0	10	U			< 10	3.0	10	U			< 10	3.0	10	U			< 10	3.0	10	U		
Iron	NE	µg/L	**9,430**	6.5	50				**9,740**	6.5	50				**9,160**	6.5	50				**9,550**	6.5	50			
Lead	15	µg/L	< 5.0	0.73	5.0	U			< 5.0	0.73	5.0	U			**1.3**	0.73	5.0	F	B,F	7,23	< 5.0	0.73	5.0	U		
Magnesium	NE	µg/L	**27,100**	8.7	100				**27,800**	8.7	100				**26,800**	8.7	100				**27,200**	8.7	100			
Manganese	NE	µg/L	**87.2**	0.57	3.0				**93.4**	0.57	3.0				**87**	0.57	3.0				**87.8**	0.57	3.0			
Mercury	2.0	µg/L	**0.23**	0.058	0.5	F	F	23	**0.25**	0.058	0.5	F	F	23	**0.24**	0.058	0.5	F	F	23	**0.26**	0.058	0.5	F	F	23
Nickel	NE	µg/L	**2.2**	0.67	5.0	F	B,F	7,23	**1.3**	0.67	5.0	F	B,F	7,23	**4.0**	0.67	5.0	F	F	23	< 5.0	0.67	5.0	U		
Potassium	NE	µg/L	**1,440**	40	400				**1,490**	40	400				**1,450**	40	400				**1,460**	40	400			
Selenium	50	µg/L	< 10	2.3	10	U			< 10	2.3	10	U			< 10	2.3	10	U			< 10	2.3	10	U		
Silver	NE	µg/L	< 10	0.11	10	U			< 10	0.11	10	U			< 10	0.11	10	U			< 10	0.11	10	U		
Sodium	NE	µg/L	**14,100**	390	1,000				**14,600**	390	1,000				**14,000**	390	1,000				**14,200**	390	1,000			
Thallium	2.0	µg/L	< 1.6	1.6	1.6	U			< 1.6	1.6	1.6	U			< 1.6	1.6	1.6	U			< 1.6	1.6	1.6	U		
Vanadium	NE	µg/L	< 10	0.35	10	U			< 10	0.35	10	U			< 10	0.35	10	U			< 10	0.35	10	U		
Zinc	NE	µg/L	**22.8**	4.0	10				**16.7**	4.0	10				**16.6**	4.0	10				**16.9**	4.0	10			

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B407-MW2												B407-MW2											
Site:			Building 407 (AOC 4)												Building 407 (AOC 4)											
Date Collected:			06/12/02												06/12/02											
Turbidity (NTU):			2.80												2.80											
Type of Sample:			Normal												Duplicate											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	200	24	200	U				**34**	24	200	F	F	23		**62**	24	200	F	F	23		**64**	24	200	F	F	23
Antimony	6.0	µg/L	<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U		
Arsenic	50	µg/L		**13**	5.2	10					**19**	5.2	10					**11**	5.2	10					**15**	5.2	10			
Barium	2,000	µg/L		**80**	1.5	10					**95**	1.5	10					**81**	1.5	10					**95**	1.5	10			
Beryllium	4.0	µg/L	<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L	<	10	1.5	10	U			<	10	1.5	10	U			<	10	1.5	10	U			<	10	1.5	10	U		
Cobalt	NE	µg/L	<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U		
Copper	1,300	µg/L	<	10	1.6	10	U			<	10	1.6	10	U			<	10	1.6	10	U				**3.0**	1.6	10	F	F	23
Iron	NE	µg/L		**8,900**	40	50					**9,300**	40	50					**9,000**	40	50					**9,400**	40	50			
Lead	15	µg/L	<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U		
Magnesium	NE	µg/L		**26,000**	12	100					**29,000**	12	100					**26,000**	12	100					**29,000**	12	100			
Manganese	NE	µg/L		**380**	0.71	10					**490**	0.71	10					**380**	0.71	10					**480**	0.71	10			
Mercury	2.0	µg/L	<	0.2	0.07	0.2	U			<	0.2	0.07	0.2	U			<	0.2	0.07	0.2	U			<	0.2	0.07	0.2	U		
Nickel	NE	µg/L	<	10	1.9	10	U			<	10	1.9	10	U			<	10	1.9	10	U			<	10	1.9	10	U		
Potassium	NE	µg/L		**1,500**	110	500					**1,500**	110	500					**1,700**	110	500					**1,600**	110	500			
Selenium	50	µg/L	<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**15,000**	500	1000					**16,000**	500	1000					**15,000**	500	1000					**16,000**	500	1000			
Thallium	2.0	µg/L	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U		
Zinc	NE	µg/L	<	20	10	20	U				**14**	10	20	F	F	23	<	20	10	20	U				**49**	10	20			

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B407-MW3												B407-MW5											
Site:			Building 407 (AOC 4)												Building 407 (AOC 4)											
Date Collected:			06/12/02												12/03/01											
Turbidity (NTU):			6.83												0.00											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	200	24	200	U				**350**	24	200				<	100	31	100	U			<	100	31	100	U		
Antimony	6.0	µg/L	<	3.0	2.5	3	U			<	3.0	2.5	3.0	U			<	2.9	2.9	2.9	U			<	2.9	2.9	2.9	U		
Arsenic	50	µg/L	<	10	5.2	10	U			<	10	5.2	10	U				**45.8**	1.6	5.0					**48.3**	1.6	5.0			
Barium	2,000	µg/L		**30**	1.5	10					**36**	1.5	10					**101**	0.46	5.0					**107**	0.46	5.0			
Beryllium	4.0	µg/L	<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	2.0	0.068	2.0	U			<	2.0	0.068	2.0	U		
Cadmium	5.0	µg/L	<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.29	2.0	U			<	2.0	0.29	2.0	U		
Chromium	100	µg/L	<	10	1.5	10	U			<	10	1.5	10	U				**38.1**	0.26	5.0					**41.9**	0.26	5.0			
Cobalt	NE	µg/L	<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U			<	5.0	0.35	5.0	U			<	5.0	0.35	5.0	U		
Copper	1,300	µg/L	<	10	1.6	10	U				**2.8**	1.6	10	F	F	23	<	10	3.0	10	U			<	10	3.0	10	U		
Iron	NE	µg/L	<	50	40	50	U				**420**	40	50					**15,000**	6.5	50					**15,900**	6.5	50			
Lead	15	µg/L	<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U				**1.6**	0.73	5.0	F	B,F	7,23	<	5.0	0.73	5.0	U		
Magnesium	NE	µg/L		**21,000**	12	100					**22,000**	12	100					**25,100**	8.7	100					**26,600**	8.7	100			
Manganese	NE	µg/L	<	10	0.71	10	U				**6.4**	0.71	10	F	F	23		**5,240**	0.57	3.0					**5,700**	0.57	3.0			
Mercury	2.0	µg/L	<	0.2	0.07	0.2	U			<	0.2	0.07	0.2	U				**0.2**	0.058	0.5	F	F	23		**0.2**	0.058	0.5	F	F	23
Nickel	NE	µg/L	<	10	1.9	10	U			<	10	1.9	10	U			<	5.0	0.67	5.0	U			<	5.0	0.67	5.0	U		
Potassium	NE	µg/L		**530**	110	500					**650**	110	500					**878**	40	400					**942**	40	400			
Selenium	50	µg/L	<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U			<	10	2.3	10	U				**2.5**	2.3	10	F	B,F	7,23
Silver	NE	µg/L	<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	10	0.11	10	U				**0.28**	0.11	10	F	B,F	7,23
Sodium	NE	µg/L		**9,700**	500	1000					**11,000**	500	1000					**22,400**	390	1,000					**23,700**	390	1,000			
Thallium	2.0	µg/L	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U			<	1.6	1.6	1.6	U			<	1.6	1.6	1.6	U		
Vanadium	NE	µg/L	<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U			<	10	0.35	10	U			<	10	0.35	10	U		
Zinc	NE	µg/L	<	20	10	20	U				**22**	10	20					**8.7**	4.0	10	F	F	23		**8.4**	4.0	10	F	F	23

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B407-MW5												B407-MW8											
Site:			Building 407 (AOC 4)												Building 407 (AOC 4)											
Date Collected:			06/12/02												12/03/01											
Turbidity (NTU):			1.41												0.00											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	200	24	200	U			<	200	24	200	U			<	100	31	100	U			<	100	31	100	U		
Antimony	6.0	µg/L	<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U			<	2.9	2.9	2.9	U			<	2.9	2.9	2.9	U		
Arsenic	50	µg/L		**51**	5.2	10					**57**	5.2	10				<	5.0	1.6	5.0	U			<	5.0	1.6	5.0	U		
Barium	2,000	µg/L		**90**	1.5	10					**97**	1.5	10					**65.2**	0.46	5.0					**73.9**	0.46	5.0			
Beryllium	4.0	µg/L	<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	2.0	0.068	2.0	U			<	2.0	0.068	2.0	U		
Cadmium	5.0	µg/L	<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.29	2.0	U			<	2.0	0.29	2.0	U		
Chromium	100	µg/L	<	10	1.5	10	U				**1.8**	1.5	10	F	F	23		**0.75**	0.26	5.0	F	B,F	7,23		**0.98**	0.26	5.0	F	B,F	7,23
Cobalt	NE	µg/L	<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U			<	5.0	0.35	5.0	U			<	5.0	0.35	5.0	U		
Copper	1,300	µg/L	<	10	1.6	10	U				**2.4**	1.6	10	F	F	23	<	10	3.0	10	U			<	10	3.0	10	U		
Iron	NE	µg/L		**13,000**	40	50					**13,000**	40	50					**640**	6.5	50					**729**	6.5	50			
Lead	15	µg/L	<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U				**1.3**	0.73	5.0	F	B,F	7,23	<	5.0	0.73	5.0	U		
Magnesium	NE	µg/L		**24,000**	12	100					**24,000**	12	100					**23,500**	8.7	100					**26,900**	8.7	100			
Manganese	NE	µg/L		**6,000**	0.71	10					**6,000**	0.71	10					**45.4**	0.57	3.0					**50.5**	0.57	3.0			
Mercury	2.0	µg/L	<	0.2	0.07	0.2	U			<	0.2	0.07	0.2	U				**0.29**	0.058	0.5	F	F	23		**0.18**	0.058	0.5	F	F	23
Nickel	NE	µg/L	<	10	1.9	10	U			<	10	1.9	10	U			<	5.0	0.67	5.0	U				**1.2**	0.67	5.0	F	B,F	7,23
Potassium	NE	µg/L		**860**	110	500					**890**	110	500					**724**	40	400					**815**	40	400			
Selenium	50	µg/L		**5.5**	5.0	6.0	F	F	23	<	6.0	5.0	6.0	U			<	10	2.3	10	U			<	10	2.3	10	U		
Silver	NE	µg/L	<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	10	0.11	10	U			<	10	0.11	10	U		
Sodium	NE	µg/L		**19,000**	500	1000					**20,000**	500	1000					**11,600**	390	1,000					**13,100**	390	1,000			
Thallium	2.0	µg/L	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U			<	1.6	1.6	1.6	U			<	1.6	1.6	1.6	U		
Vanadium	NE	µg/L	<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U			<	10	0.35	10	U			<	10	0.35	10	U		
Zinc	NE	µg/L	<	20	10	20	U				**43**	10	20					**12.5**	4.0	10					**15.4**	4.0	10			

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B407-MW8												B407-MW10											
Site:			Building 407 (AOC 4)												Building 407 (AOC 4)											
Date Collected:			06/12/02												12/04/01											
Turbidity (NTU):			1.17												4.35											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	< 200	24	200	U			< 200	24	200	U			**67.5**	33	100	F	B,F	7,23	< 100	33	100	U		
Antimony	6.0	µg/L	< 3.0	2.5	3.0	U			< 3.0	2.5	3.0	U			< 3.3	3.3	10	U			< 3.3	3.3	10	U		
Arsenic	50	µg/L	< 10	5.2	10	U			< 10	5.2	10	U			**22.4**	3.8	5.0				**23.5**	3.8	5.0			
Barium	2,000	µg/L	**65**	1.5	10				**74**	1.5	10				**283**	1.1	10				**287**	1.1	10			
Beryllium	4.0	µg/L	< 4.0	0.17	4.0	U			< 4.0	0.17	4.0	U			< 2.0	0.075	2.0	U			< 2.0	0.075	2.0	U		
Cadmium	5.0	µg/L	< 2.0	0.44	2.0	U			< 2.0	0.44	2.0	U			**0.49**	0.38	2.0	F	B,F	7,23	**0.44**	0.38	2.0	F	B,F	7,23
Chromium	100	µg/L	< 10	1.5	10	U			< 10	1.5	10	U			**2.9**	0.58	5.0	F	F	23	**0.76**	0.58	5.0	F	B,F	7,23
Cobalt	NE	µg/L	< 5.0	1.0	5.0	U			< 5.0	1.0	5.0	U			**0.98**	0.6	5.0	F	B,F	7,23	**1.1**	0.6	5.0	F	B,F	7,23
Copper	1,300	µg/L	< 10	1.6	10	U			**9.4**	1.6	10	F	F	23	**6.3**	1.8	10	F	B,F	7,23	**18.3**	1.8	10			
Iron	NE	µg/L	**900**	40	50				**1,100**	40	50				**7,780**	9.2	50				**8,090**	9.2	50			
Lead	15	µg/L	< 5.0	2.9	5.0	U			< 5.0	2.9	5.0	U			**2.0**	0.87	5.0	F	B,F	7,23	**2.3**	0.87	5.0	F	B,F	7,23
Magnesium	NE	µg/L	**28,000**	12	100				**30,000**	12	100				**26,300**	21	100				**26,500**	21	100			
Manganese	NE	µg/L	**82**	0.71	10				**91**	0.71	10				**626**	0.74	5.0				**630**	0.74	5.0			
Mercury	2.0	µg/L	< 0.2	0.07	0.2	U			< 0.2	0.07	0.2	U			**0.16**	0.058	0.5	F	F	23	**0.14**	0.058	0.5	F	F	23
Nickel	NE	µg/L	< 10	1.9	10	U			< 10	1.9	10	U			**4.5**	0.71	5.0	F	B,F	7,23	**4.0**	0.71	5.0	F	B,F	7,23
Potassium	NE	µg/L	**760**	110	500				**810**	110	500				**831**	18	400		B	7	**752**	18	400		B	7
Selenium	50	µg/L	< 6.0	5.0	6.0	U			< 6.0	5.0	6.0	U			**3.3**	1.4	10	F	B,F	7,23	**2.4**	1.4	10	F	B,F	7,23
Silver	NE	µg/L	< 5.0	3.1	5.0	U			< 5.0	3.1	5.0	U			< 10	0.64	10	U			< 10	0.64	10	U		
Sodium	NE	µg/L	**11,000**	500	1000				**12,000**	500	1000				**19,100**	450	2,000				**18,700**	450	2,000			
Thallium	2.0	µg/L	< 2.0	2.0	2.0	U			< 2.0	2.0	2.0	U			< 0.45	0.45	10	U			**3.6**	0.45	10	F	B,F	7,23
Vanadium	NE	µg/L	< 5.0	2.1	5.0	U			< 5.0	2.1	5.0	U			< 10	0.55	10	U			< 10	0.55	10	U		
Zinc	NE	µg/L	< 20	10	20	U			**20**	10	20				**34.5**	2.6	10				**106**	2.6	10			

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B407-MW10												B407-MW11											
Site:			Building 407 (AOC 4)												Building 407 (AOC 4)											
Date Collected:			06/12/02												12/03/01											
Turbidity (NTU):			3.51												8.00											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	200	24	200	U				**55**	24	200	F	F	23	<	100	31	100	U				**72.4**	31	100	F	F	23
Antimony	6.0	µg/L	<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U			<	2.9	2.9	2.9	U			<	2.9	2.9	2.9	U		
Arsenic	50	µg/L		**27**	5.2	10					**40**	5.2	10				<	5.0	1.6	5.0	U			<	5.0	1.6	5.0	U		
Barium	2,000	µg/L		**170**	1.5	10					**200**	1.5	10					**38.2**	0.46	5.0					**37.6**	0.46	5.0			
Beryllium	4.0	µg/L	<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	2.0	0.068	2.0	U			<	2.0	0.068	2.0	U		
Cadmium	5.0	µg/L	<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.29	2.0	U			<	2.0	0.29	2.0	U		
Chromium	100	µg/L	<	10	1.5	10	U			<	10	1.5	10	U			<	5.0	0.26	5.0	U				**2.9**	0.26	5.0	F	B,F	7,23
Cobalt	NE	µg/L	<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U			<	5.0	0.35	5.0	U			<	5.0	0.35	5.0	U		
Copper	1,300	µg/L	<	10	1.6	10	U				**7.6**	1.6	10	F	F	23	<	10	3.0	10	U			<	10	3.0	10	U		
Iron	NE	µg/L		**7,500**	40	50					**8,600**	40	50					**17.3**	6.5	50	F	F	23		**235**	6.5	50			
Lead	15	µg/L	<	5.0	2.9	5.0	U				**3.3**	2.9	5.0	F	F	23	<	5.0	0.73	5.0	U			<	5.0	0.73	5.0	U		
Magnesium	NE	µg/L		**24,000**	12	100					**27,000**	12	100					**20,500**	8.7	100					**19,800**	8.7	100			
Manganese	NE	µg/L		**1,500**	0.71	10					**1,800**	0.71	10					**5.6**	0.57	3.0					**9.5**	0.57	3.0			
Mercury	2.0	µg/L	<	0.2	0.07	0.2	U			<	0.2	0.07	0.2	U				**0.17**	0.058	0.5	F	F	23		**0.19**	0.058	0.5	F	F	23
Nickel	NE	µg/L	<	10	1.9	10	U				**3.3**	1.9	10	F	F	23	<	5.0	0.67	5.0	U				**1.1**	0.67	5.0	F	B,F	7,23
Potassium	NE	µg/L		**640**	110	500					**750**	110	500					**874**	40	400					**868**	40	400			
Selenium	50	µg/L	<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U			<	10	2.3	10	U			<	10	2.3	10	U		
Silver	NE	µg/L	<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	10	0.11	10	U			<	10	0.11	10	U		
Sodium	NE	µg/L		**13,000**	500	1000					**15,000**	500	1000					**9,850**	390	1,000					**9,420**	390	1,000			
Thallium	2.0	µg/L	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U			<	1.6	1.6	1.6	U			<	1.6	1.6	1.6	U		
Vanadium	NE	µg/L	<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U				**0.37**	0.35	10	F	B,F	7,23	<	10	0.35	10	U		
Zinc	NE	µg/L	<	20	10	20	U				**99**	10	20					**20.7**	4	10					**9.4**	4.0	10	F	F	23

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B407-MW11												B407-MW12											
Site:			Building 407 (AOC 4)												Building 407 (AOC 4)											
Date Collected:			06/12/02												06/12/02											
Turbidity (NTU):			0.50												4.73											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	200	24	200	U			<	200	24	200	U			<	200	24	200	U				**57**	24	200	F	F	23
Antimony	6.0	µg/L	<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U				**3.2**	2.5	3.0				<	3.0	2.5	3.0	U		
Arsenic	50	µg/L	<	10	5.2	10	U			<	10	5.2	10	U			<	10	5.2	10	U				**7.8**	5.2	10	F	F	23
Barium	2,000	µg/L		**38**	1.5	10					**44**	1.5	10					**40**	1.5	10					**47**	1.5	10			
Beryllium	4.0	µg/L	<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L	<	10	1.5	10	U			<	10	1.5	10	U			<	10	1.5	10	U			<	10	1.5	10	U		
Cobalt	NE	µg/L	<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U		
Copper	1,300	µg/L	<	10	1.6	10	U				**3.4**	1.6	10	F	F	23	<	10	1.6	10	U				**2.9**	1.6	10	F	F	23
Iron	NE	µg/L	<	50	40	50	U			<	50	40	50	U				**1,900**	40	50					**2,200**	40	50			
Lead	15	µg/L	<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U		
Magnesium	NE	µg/L		**23,000**	12	100					**25,000**	12	100					**23,000**	12	100					**24,000**	12	100			
Manganese	NE	µg/L		**20**	0.71	10					**23**	0.71	10					**86**	0.71	10					**92**	0.71	10			
Mercury	2.0	µg/L	<	0.2	0.07	0.2	U			<	0.2	0.07	0.2	U			<	0.2	0.07	0.2	U			<	0.2	0.07	0.2	U		
Nickel	NE	µg/L	<	10	1.9	10	U			<	10	1.9	10	U			<	10	1.9	10	U			<	10	1.9	10	U		
Potassium	NE	µg/L		**1,100**	110	500					**990**	110	500					**810**	110	500					**850**	110	500			
Selenium	50	µg/L	<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**10,000**	500	1000					**11,000**	500	1000					**17,000**	500	1000					**18,000**	500	1000			
Thallium	2.0	µg/L	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U		
Zinc	NE	µg/L	<	20	10	20	U				**27**	10	20				<	20	10	20	U			<	20	10	20	U		

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B424-MW1												B424-MW1											
Site:			Building 424 (AOC 48)												Building 424 (AOC 48)											
Date Collected:			12/04/01												06/11/02											
Turbidity (NTU):			5.36												0.43											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	100	33	100	U			<	100	33	100	U			<	200	24	200	U				**82**	24	200	F	F	23
Antimony	6.0	µg/L	<	3.3	3.3	10	U			<	3.3	3.3	10	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U		
Arsenic	50	µg/L	<	5.0	3.8	5.0	U			<	5.0	3.8	5.0	U			<	10	5.2	10	U			<	10	5.2	10	U		
Barium	2,000	µg/L		**92.5**	1.1	10					**92.9**	1.1	10					**89**	1.5	10					**110**	1.5	10			
Beryllium	4.0	µg/L	<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L	<	5.0	0.58	5.0	U			<	5.0	0.58	5.0	U			<	10	1.5	10	U			<	10	1.5	10	U		
Cobalt	NE	µg/L	<	5.0	0.6	5.0	U			<	5.0	0.6	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U		
Copper	1,300	µg/L	<	10	1.8	10	U				**3.4**	1.8	10	F	B,F	7,23	<	10	1.6	10	U				**4.2**	1.6	10	F	F	23
Iron	NE	µg/L		**9.22**	9.2	50	F	B,F	7,23		**50**	9.2	50	F	B,F	7,23	<	50	40	50	U			<	250	200	250	U		
Lead	15	µg/L	<	5.0	0.87	5.0	U			<	5.0	0.87	5.0	U			<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U		
Magnesium	NE	µg/L		**49,500**	21	100					**49,200**	21	100					**53,000**	12	100					**60,000**	12	100			
Manganese	NE	µg/L		**474**	0.74	5.0					**456**	0.74	5.0					**440**	0.71	10					**530**	0.71	10			
Mercury	2.0	µg/L		**0.22**	0.058	0.5	F	F	23		**0.22**	0.058	0.5	F	F	23	<	0.2	0.07	0.2	U			<	0.2	0.07	0.2	U		
Nickel	NE	µg/L		**7.7**	0.71	5.0					**7.6**	0.71	5.0					**2.8**	1.9	10	F	F	23		**2.4**	1.9	10	F	F	23
Potassium	NE	µg/L		**440**	18	400		B	7		**443**	18	400		B	7		**420**	110	500	F	F	23		**500**	110	500			
Selenium	50	µg/L	<	10	1.4	10	U				**4.5**	1.4	10	F	B,F	7,23		**9.8**	5.0	6.0				<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	10	0.64	10	U			<	10	0.64	10	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**12,000**	450	2,000					**12,300**	450	2,000					**7,800**	500	1000					**9,200**	500	1000			
Thallium	2.0	µg/L		**1.9**	0.45	10	F	B,F	7,23		**1.7**	0.45	10	F	B,F	7,23	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	10	0.55	10	U			<	10	0.55	10	U			<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U		
Zinc	NE	µg/L		**14.3**	2.6	10					**23.1**	2.6	10				<	20	10	20	U				**34**	10	20			

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B424-MW3												B424-MW3											
Site:			Building 424 (AOC 48)												Building 424 (AOC 48)											
Date Collected:			12/04/01												06/10/02											
Turbidity (NTU):			3.60												1.30											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	100	33	100	U			<	100	33	100	U			<	200	24	200	U				**110**	24	200	F	F	23
Antimony	6.0	µg/L	<	3.3	3.3	10	U			<	3.3	3.3	10	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U		
Arsenic	50	µg/L	<	5.0	3.8	5.0	U			<	5.0	3.8	5.0	U			<	10	5.2	10	U			<	10	5.2	10	U		
Barium	2,000	µg/L		**56.6**	1.1	10					**57.5**	1.1	10					**39**	1.5	10					**48**	1.5	10			
Beryllium	4.0	µg/L	<	2.0	0.075	2.0	U				**0.14**	0.075	2.0	F	B,F	7,23	<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L		**0.65**	0.58	5.0	F	B,F	7,23		**1.6**	0.58	5.0	F	F	23	<	10	1.5	10	U			<	10	1.5	10	U		
Cobalt	NE	µg/L	<	5.0	0.6	5.0	U			<	5.0	0.6	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U		
Copper	1,300	µg/L		**3.0**	1.8	10	F	B,F	7,23		**7.3**	1.8	10	F	B,F	7,23	<	10	1.6	10	U				**3.2**	1.6	10	F	F	23
Iron	NE	µg/L		**15**	9.2	50	F	B,F	7,23		**83.6**	9.2	50				<	50	40	50	U			<	50	40	50	U		
Lead	15	µg/L	<	5.0	0.87	5.0	U				**1.4**	0.87	5.0	F	B,F	7,23	<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U		
Magnesium	NE	µg/L		**27,700**	21	100					**27,500**	21	100					**24,000**	12	100					**26,000**	12	100			
Manganese	NE	µg/L		**2.2**	0.74	5.0	F	F	23		**10.2**	0.74	5.0				<	10	0.71	10	U				**3.8**	0.71	10	F	F	23
Mercury	2.0	µg/L		**0.17**	0.058	0.5	F	F	23		**0.21**	0.058	0.5	F	F	23	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U		
Nickel	NE	µg/L		**1.2**	0.71	5.0	F	B,F	7,23		**2.0**	0.71	5.0	F	B,F	7,23	<	10	1.9	10	U			<	10	1.9	10	U		
Potassium	NE	µg/L		**302**	18	400	F	B,F	7,23		**323**	18	400	F	B,F	7,23		**310**	110	500	F	F	23		**390**	110	500	F	F	23
Selenium	50	µg/L		**5.8**	1.4	10	F	B,F	7,23		**4.3**	1.4	10	F	B,F	7,23		**6.9**	5.0	6.0				<	6.0	5.0	6.0	U		
Silver	NE	µg/L		**158**	0.64	10		M	9	<	10	0.64	10	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**3,770**	450	2,000					**3,910**	450	2,000					**3,300**	500	1000					**4,600**	500	1000			
Thallium	2.0	µg/L		**0.81**	0.45	10	F	B,F	7,23		**1.7**	0.45	10	F	B,F	7,23	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	10	0.55	10	U			<	10	0.55	10	U			<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U		
Zinc	NE	µg/L		**18.4**	2.6	10					**33.8**	2.6	10				<	20	10	20	U				**11**	10	20	F	F	23

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B424-MW4												B424-MW4											
Site:			Building 424 (AOC 48)												Building 424 (AOC 48)											
Date Collected:			12/05/01												12/05/01											
Turbidity (NTU):			3.17												3.17											
Type of Sample:			Normal												Duplicate											
			Dissolved							Total						Dissolved							Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	100	33	100	U			<	100	33	100	U			<	100	33	100	U			<	100	33	100	U		
Antimony	6.0	µg/L	<	3.3	3.3	10	U			<	3.3	3.3	10	U			<	3.3	3.3	10	U			<	3.3	3.3	10	U		
Arsenic	50	µg/L		**18.3**	3.8	5.0					**18.4**	3.8	5.0					**17.7**	3.8	5.0					**17.3**	3.8	5.0			
Barium	2,000	µg/L		**108**	1.1	10					**105**	1.1	10					**107**	1.1	10					**106**	1.1	10			
Beryllium	4.0	µg/L	<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U		
Cadmium	5.0	µg/L	<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U		
Chromium	100	µg/L	<	5.0	0.58	5.0	U				**0.65**	0.58	5.0	F	B,F	7,23	<	5.0	0.58	5.0	U				**0.84**	0.58	5.0	F	B,F	7,23
Cobalt	NE	µg/L	<	5.0	0.6	5.0	U			<	5.0	0.6	5.0	U			<	5.0	0.6	5.0	U			<	5.0	0.6	5.0	U		
Copper	1,300	µg/L	<	10	1.8	10	U				**4.0**	1.8	10	F	B,F	7,23	<	10	1.8	10	U				**1.9**	1.8	10	F	B,F	7,23
Iron	NE	µg/L		**17,000**	9.2	50					**16,400**	9.2	50					**16,500**	9.2	50					**16,300**	9.2	50			
Lead	15	µg/L		**5.4**	0.87	5.0					**6.1**	0.87	5.0					**5.9**	0.87	5.0					**6.2**	0.87	5.0			
Magnesium	NE	µg/L		**26,800**	21	100					**25,900**	21	100					**26,100**	21	100					**25,700**	21	100			
Manganese	NE	µg/L		**1,040**	0.74	5.0					**1,010**	0.74	5.0					**1,020**	0.74	5.0					**1,000**	0.74	5.0			
Mercury	2.0	µg/L		**0.21**	0.058	0.5	F	F	23		**0.2**	0.058	0.5	F	F	23		**0.21**	0.058	0.5	F	F	23		**0.18**	0.058	0.5	F	F	23
Nickel	NE	µg/L		**1.0**	0.71	5.0	F	B,F	7,23		**3.8**	0.71	5.0	F	F	23		**0.94**	0.71	5.0	F	B,F	7,23		**1.2**	0.71	5.0	F	B,F	7,23
Potassium	NE	µg/L		**335**	18	400	F	B,F	7,23		**356**	18	400	F	B,F	7,23		**301**	18	400	F	B,F	7,23		**306**	18	400	F	B,F	7,23
Selenium	50	µg/L		**3.3**	1.4	10	F	F	23		**1.6**	1.4	10	F	F	23		**4.1**	1.4	10	F	F	23		**3.3**	1.4	10	F	F	23
Silver	NE	µg/L	<	10	0.64	10	U			<	10	0.64	10	U			<	10	0.64	10	U			<	10	0.64	10	U		
Sodium	NE	µg/L		**6,540**	450	2,000					**6,110**	450	2,000					**6,800**	450	2,000					**6,750**	450	2,000			
Thallium	2.0	µg/L	<	0.45	0.45	10	U				**3.3**	0.45	10	F	B,F	7,23	<	0.45	0.45	10	U				**0.92**	0.45	10	F	B,F	7,23
Vanadium	NE	µg/L	<	10	0.55	10	U			<	10	0.55	10	U			<	10	0.55	10	U			<	10	0.55	10	U		
Zinc	NE	µg/L		**8.2**	2.6	10	F	F	23		**26.3**	2.6	10					**13.1**	2.6	10					**13**	2.6	10			

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B424-MW4												B424-MW4											
Site:			Building 424 (AOC 48)												Building 424 (AOC 48)											
Date Collected:			06/11/02												06/11/02											
Turbidity (NTU):			2.10												2.10											
Type of Sample:			Normal												Duplicate											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	200	24	200	U				**75**	24	200	F	F	23	<	200	24	200	U				**73**	24	200	F	F	23
Antimony	6.0	µg/L	<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U		
Arsenic	50	µg/L		**13**	5.2	10					**20**	5.2	10					**14**	5.2	10					**20**	5.2	10			
Barium	2,000	µg/L		**76**	1.5	10					**88**	1.5	10					**78**	1.5	10					**88**	1.5	10			
Beryllium	4.0	µg/L	<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L	<	10	1.5	10	U			<	10	1.5	10	U			<	10	1.5	10	U			<	10	1.5	10	U		
Cobalt	NE	µg/L	<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U		
Copper	1,300	µg/L	<	10	1.6	10	U				**2.9**	1.6	10	F	F	23	<	10	1.6	10	U				**3.5**	1.6	10	F	F	23
Iron	NE	µg/L		**12,000**	40	50					**13,000**	40	50					**13,000**	40	50					**13,000**	40	50			
Lead	15	µg/L	<	5.0	2.9	5.0	U				**6.1**	2.9	5.0					**2.9**	2.9	5.0	F	F	23		**5.5**	2.9	5.0			
Magnesium	NE	µg/L		**24,000**	12	100					**25,000**	12	100					**24,000**	12	100					**24,000**	12	100			
Manganese	NE	µg/L		**980**	0.71	10					**1,100**	0.71	10					**1,000**	0.71	10					**1,000**	0.71	10			
Mercury	2.0	µg/L	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U		
Nickel	NE	µg/L	<	10	1.9	10	U			<	10	1.9	10	U			<	10	1.9	10	U			<	10	1.9	10	U		
Potassium	NE	µg/L		**350**	110	500	F	F	23		**380**	110	500	F	F	23		**350**	110	500	F	F	23		**400**	110	500	F	F	23
Selenium	50	µg/L		**9.2**	5.0	6.0				<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**4,900**	500	1000					**6,100**	500	1000					**4,900**	500	1000					**6,100**	500	1000			
Thallium	2.0	µg/L	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	5.0	2.1	5.0	U				**2.2**	2.1	5.0	F	F	23	<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U		
Zinc	NE	µg/L	<	20	10	20	U				**14**	10	20	F	F	23	<	20	10	20	U				**18**	10	20	F	F	23

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B424-MW5													B424-MW5											
Site:			Building 424 (AOC 48)													Building 424 (AOC 48)											
Date Collected:			12/04/01													06/11/02											
Turbidity (NTU):			4.28													1.45											
Type of Sample:			Normal													Normal											
			Dissolved							Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L		**34.8**	33	100	F	B,F	7,23		**57.4**	33	100	F	B,F	7,23	<	200	24	200	U				**71**	24	200	F	F	23
Antimony	6.0	µg/L	<	3.3	3.3	10	U			<	3.3	3.3	10	U			<	3.0	2.5	3.0	U				**2.7**	2.5	3.0	F	F,J	15,23
Arsenic	50	µg/L		**15.3**	3.8	5.0					**15.9**	3.8	5.0					**11**	5.2	10					**15**	5.2	10			
Barium	2,000	µg/L		**102**	1.1	10					**105**	1.1	10					**75**	1.5	10					**86**	1.5	10			
Beryllium	4.0	µg/L	<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L	<	5.0	0.58	5.0	U				**0.65**	0.58	5.0	F	B,F	7,23	<	10	1.5	10	U			<	10	1.5	10	U		
Cobalt	NE	µg/L		**0.77**	0.6	5.0	F	B,F	7,23	<	5.0	0.6	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U		
Copper	1,300	µg/L	<	10	1.8	10	U			<	10	1.8	10	U			<	10	1.6	10	U				**3.1**	1.6	10	F	F	23
Iron	NE	µg/L		**9,930**	9.2	50					**10,200**	9.2	50					**7,500**	40	50					**7,800**	40	50			
Lead	15	µg/L		**5.9**	0.87	5.0					**6.0**	0.87	5.0				<	5.0	2.9	5.0	U				**6.0**	2.9	5.0			
Magnesium	NE	µg/L		**43,300**	21	100					**44,000**	21	100					**36,000**	12	100					**38,000**	12	100			
Manganese	NE	µg/L		**1,700**	0.74	5.0					**1,740**	0.74	5.0					**1,500**	0.71	10					**1,600**	0.71	10			
Mercury	2.0	µg/L		**0.17**	0.058	0.5	F	F	23		**0.13**	0.058	0.5	F	F	23	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U		
Nickel	NE	µg/L		**6.9**	0.71	5.0					**6.6**	0.71	5.0					**3.5**	1.9	10	F	F	23		**4.3**	1.9	10	F	F	23
Potassium	NE	µg/L		**327**	18	400	F	B,F	7,23		**321**	18	400	F	B,F	7,23		**260**	110	500	F	F	23		**260**	110	500	F	F	23
Selenium	50	µg/L		**3.5**	1.4	10	F	B,F	7,23		**2.4**	1.4	10	F	B,F	7,23		**7.1**	5.0	6.0				<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	10	0.64	10	U			<	10	0.64	10	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**9,850**	450	2,000					**9,700**	450	2,000					**8,000**	500	1,000					**9,000**	500	1,000			
Thallium	2.0	µg/L		**2.8**	0.45	10	F	B,F	7,23		**2.6**	0.45	10	F	B,F	7,23	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	10	0.55	10	U			<	10	0.55	10	U			<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U		
Zinc	NE	µg/L		**16.1**	2.6	10					**25.5**	2.6	10				<	20	10	20	U				**11**	10	20	F	F	23

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			B424-MW6													B424-MW7											
Site:			Building 424 (AOC 48)													Building 424 (AOC 48)											
Date Collected:			06/11/02													06/11/02											
Turbidity (NTU):			6.62													43.8											
Type of Sample:			Normal													Normal											
			Dissolved							Total						Dissolved							Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	200	24	200	U				**130**	24	200	F	F	23	<	200	24	200	U				**2,000**	24	200			
Antimony	6.0	µg/L	<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U		
Arsenic	50	µg/L	<	10	5.2	10	U			<	10	5.2	10	U			<	10	5.2	10	U			<	10	5.2	10	U		
Barium	2,000	µg/L		**78**	1.5	10					**92**	1.5	10					**61**	1.5	10					**81**	1.5	10			
Beryllium	4.0	µg/L	<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L	<	10	1.5	10	U			<	10	1.5	10	U			<	10	1.5	10	U				**4.3**	1.5	10	F	F	23
Cobalt	NE	µg/L	<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U		
Copper	1,300	µg/L	<	10	1.6	10	U				**3.4**	1.6	10	F	F	23	<	10	1.6	10	U				**5.7**	1.6	10	F	F	23
Iron	NE	µg/L		**460**	40	50					**520**	40	50				<	50	40	50	U				**2,800**	40	50			
Lead	15	µg/L	<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U				**3.0**	2.9	5.0	F	F	23
Magnesium	NE	µg/L		**25,000**	12	100					**28,000**	12	100					**37,000**	12	100					**40,000**	12	100			
Manganese	NE	µg/L		**250**	0.71	10					**270**	0.71	10					**65**	0.71	10					**120**	0.71	10			
Mercury	2.0	µg/L	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U		
Nickel	NE	µg/L	<	10	1.9	10	U				**2.8**	1.9	10	F	F	23	<	10	1.9	10	U				**5.2**	1.9	10	F	F	23
Potassium	NE	µg/L		**400**	110	500	F	F	23		**480**	110	500	F	F	23		**850**	110	500					**1,600**	110	500			
Selenium	50	µg/L	<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U				**5.4**	5.0	6.0	F	F	23	<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**3,400**	500	1,000					**4,800**	500	1,000					**3,700**	500	1,000					**5,000**	500	1,000			
Thallium	2.0	µg/L	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U				**6.1**	2.1	5.0			
Zinc	NE	µg/L	<	20	10	20	U				**22**	10	20				<	20	10	20	U				**38**	10	20			

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF03-MW01												LF03-MW01											
Site:			Landfill 1 (IRP LR-03)												Landfill 1 (IRP LR-03)											
Date Collected:			12/05/01												06/14/02											
Turbidity (NTU):			17.30												21.2											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	100	33	100	U			<	100	33	100	U			<	200	24	200	U				**400**	24	200		B	7
Antimony	6.0	µg/L	<	3.3	3.3	10	U			<	3.3	3.3	10	U				**2.8**	2.5	3.0	F	F	23		**3.7**	2.5	3.0			
Arsenic	50	µg/L	<	5.0	3.8	5.0	U			<	5.0	3.8	5.0	U			<	10	5.2	10	U				**18**	5.2	10			
Barium	2,000	µg/L		**239**	1.1	10					**244**	1.1	10					**290**	1.5	10					**780**	1.5	10			
Beryllium	4.0	µg/L	<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L		**0.8**	0.58	5.0	F	B,F	7,23		**7.6**	0.58	5.0					**1.7**	1.5	10	F	F	23		**3.6**	1.5	10	F	F	23
Cobalt	NE	µg/L	<	5.0	0.6	5.0	U			<	5.0	0.6	5.0	U			<	5.0	1.0	5.0	U				**2.3**	1.0	5.0	F	F	23
Copper	1,300	µg/L		**3.6**	1.8	10	F	B,F	7,23		**8.3**	1.8	10	F	B,F	7,23	<	10	1.6	10	U				**17**	1.6	10			
Iron	NE	µg/L		**17.3**	9.2	50	F	B,F	7,23		**257**	9.2	50					**62**	40	50					**3,600**	40	50			
Lead	15	µg/L	<	5.0	0.87	5.0	U				**1.3**	0.87	5.0	F	B,F	7,23	<	5.0	2.9	5.0	U				**3.1**	2.9	5.0	F	F	23
Magnesium	NE	µg/L		**379**	21	100					**5,580**	21	100					**240**	12	100		B	7		**120,000**	12	100			
Manganese	NE	µg/L		**1.3**	0.74	5.0	F	F	23		**10**	0.74	5.0				<	10	0.71	10	U				**72**	0.71	10			
Mercury	2.0	µg/L		**0.17**	0.058	0.5	F	F	23		**0.11**	0.058	0.5	F	F	23	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U		
Nickel	NE	µg/L		**1.7**	0.71	5.0	F	B,F	7,23		**3.3**	0.71	5.0	F	F	23	<	10	1.9	10	U				**12**	1.9	10			
Potassium	NE	µg/L		**6,680**	18	400					**6,680**	18	400					**8,000**	110	500					**13,000**	110	500			
Selenium	50	µg/L		**2.9**	1.4	10	F	F	23		**2.7**	1.4	10	F	F	23	<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	10	0.64	10	U			<	10	0.64	10	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**17,100**	450	2,000					**16,800**	450	2,000					**17,000**	500	1000					**16,000**	500	1000			
Thallium	2.0	µg/L	<	0.45	0.45	10	U			<	0.45	0.45	10	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	10	0.55	10	U			<	10	0.55	10	U			<	5.0	2.1	5.0	U				**5.3**	2.1	5.0			
Zinc	NE	µg/L		**5.9**	2.6	10	F	F	23		**33.2**	2.6	10				<	20	10	20	U			<	20	10	20	U		

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF03-MW02												LF03-MW02											
Site:			Landfill 1 (IRP LR-03)												Landfill 1 (IRP LR-03)											
Date Collected:			12/04/01												06/13/02											
Turbidity (NTU):			1.00												27.0											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	100	33	100	U				**437**	33	100				<	200	24	200	U				**130**	24	200	F	B,F	7,23
Antimony	6.0	µg/L	<	3.3	3.3	10	U			<	3.3	3.3	10	U			<	3.0	2.5	3.0	U				**3.6**	2.5	3.0			
Arsenic	50	µg/L	<	5.0	3.8	5.0	U			<	5.0	3.8	5.0	U			<	10	5.2	10	U			<	10	5.2	10	U		
Barium	2,000	µg/L		**37.6**	1.1	10					**44.1**	1.1	10					**29**	1.5	10					**30**	1.5	10			
Beryllium	4.0	µg/L	<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L		**1.1**	0.58	5.0	F	B,F	7,23		**14.6**	0.58	5.0				<	10	1.5	10	U			<	10	1.5	10	U		
Cobalt	NE	µg/L	<	5.0	0.6	5.0	U				**1.0**	0.6	5.0	F	B,F	7,23	<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U		
Copper	1,300	µg/L	<	10	1.8	10	U			<	10	1.8	10	U				**3.8**	1.6	10	F	F	23		**3.8**	1.6	10	F	F	23
Iron	NE	µg/L		**273**	9.2	50					**586**	9.2	50				<	50	40	50	U			<	50	40	50	U		
Lead	15	µg/L	<	5.0	0.87	5.0	U				**0.98**	0.87	5.0	F	B,F	7,23	<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U		
Magnesium	NE	µg/L		**37,700**	21	100					**36,700**	21	100					**34,000**	12	100					**36,000**	12	100			
Manganese	NE	µg/L		**2.1**	0.74	5.0	F	F	23		**6.3**	0.74	5.0				<	10	0.71	10	U			<	10	0.71	10	U		
Mercury	2.0	µg/L		**0.17**	0.058	0.5	F	F	23		**0.15**	0.058	0.5	F	F	23	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U		
Nickel	NE	µg/L	<	5.0	0.71	5.0	U				**7.9**	0.71	5.0				<	10	1.9	10	U			<	10	1.9	10	U		
Potassium	NE	µg/L		**414**	18	400		B	7		**754**	18	400		B	7		**410**	110	500	F	F	23		**440**	110	500	F	F	23
Selenium	50	µg/L		**2.1**	1.4	10	F	B,F	7,23	<	10	1.4	10	U			<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	10	0.64	10	U			<	10	0.64	10	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**5,070**	450	2,000					**4,840**	450	2,000					**3,800**	500	1,000					**4,300**	500	1,000			
Thallium	2.0	µg/L	<	0.45	0.45	10	U			<	0.45	0.45	10	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	10	0.55	10	U			<	10	0.55	10	U			<	5.0	2.1	5.0	U				**2.5**	2.1	5.0	F	F	23
Zinc	NE	µg/L		**20.2**	2.6	10					**17.2**	2.6	10				<	20	10	20	U			<	20	10	20	U		

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF03-MW03												LF03-MW03											
Site:			Landfill 1 (IRP LR-03)												Landfill 1 (IRP LR-03)											
Date Collected:			12/04/01												06/13/02											
Turbidity (NTU):			2.49												10.7											
Type of Sample:			Normal												Normal											
			Dissolved							Total						Dissolved							Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L		**86.8**	33	100	F	B,F	7,23	<	100	33	100	U			<	200	24	200	U				**140**	24	200	F	B,F	7,23
Antimony	6.0	µg/L	<	3.3	3.3	10	U			<	3.3	3.3	10	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U		
Arsenic	50	µg/L	<	5.0	3.8	5.0	U			<	5.0	3.8	5.0	U				**14**	5.2	10					**9.0**	5.2	10	F	F	23
Barium	2,000	µg/L		**196**	1.1	10					**199**	1.1	10					**160**	1.5	10					**170**	1.5	10			
Beryllium	4.0	µg/L	<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L		**1.2**	0.58	5.0	F	B,F	7,23		**0.74**	0.58	5.0	F	B,F	7,23	<	10	1.5	10	U			<	10	1.5	10	U		
Cobalt	NE	µg/L		**9.4**	0.6	5.0					**9.3**	0.6	5.0					**7.6**	1.0	5.0					**7.1**	1.0	5.0			
Copper	1,300	µg/L	<	10	1.8	10	U			<	10	1.8	10	U				**2.8**	1.6	10	F	F	23		**4.5**	1.6	10	F	F	23
Iron	NE	µg/L		**20,500**	9.2	50					**21,600**	9.2	50					**22,000**	40	50					**23,000**	40	50			
Lead	15	µg/L	<	5.0	0.87	5.0	U				**4.6**	0.87	5.0	F	F	23	<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U		
Magnesium	NE	µg/L		**39,900**	21	100					**40,100**	21	100					**37,000**	12	100					**39,000**	12	100			
Manganese	NE	µg/L		**1,360**	0.74	5.0					**1,370**	0.74	5.0					**1,300**	0.71	10					**1,400**	0.71	10			
Mercury	2.0	µg/L		**0.19**	0.058	0.5	F	F	23		**0.2**	0.058	0.5	F	F	23	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U		
Nickel	NE	µg/L		**14.1**	0.71	5.0					**14.2**	0.71	5.0					**6.6**	1.9	10	F	F	23		**6.0**	1.9	10	F	F	23
Potassium	NE	µg/L		**8,020**	18	400					**8,230**	18	400					**8,800**	110	500					**8,900**	110	500			
Selenium	50	µg/L		**4.2**	1.4	10	F	B,F	7,23		**2.8**	1.4	10	F	B,F	7,23		**12**	5.0	6.0				<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	10	0.64	10	U			<	10	0.64	10	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**11,400**	450	2,000					**11,300**	450	2,000					**9,600**	500	1,000					**9,700**	500	1,000			
Thallium	2.0	µg/L	<	0.45	0.45	10	U				**0.86**	0.45	10	F	B,F	7,23	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	10	0.55	10	U			<	10	0.55	10	U			<	5.0	2.1	5.0	U				**2.9**	2.1	5.0	F	F	23
Zinc	NE	µg/L		**24**	2.6	10					**25.8**	2.6	10				<	20	10	20	U				**15**	10	20	F	F	23

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF03-MW04												LF03-MW04											
Site:			Landfill 1 (IRP LR-03)												Landfill 1 (IRP LR-03)											
Date Collected:			12/04/01												06/13/02											
Turbidity (NTU):			0.16												5.90											
Type of Sample:			Normal												Normal											
			Dissolved							Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	100	33	100	U			<	100	33	100	U			<	200	24	200	U				**150**	24	200	F	B,F	7,23
Antimony	6.0	µg/L		**3.4**	3.3	10	F	F	23	<	3.3	3.3	10	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U		
Arsenic	50	µg/L	<	5.0	3.8	5.0	U			<	5.0	3.8	5.0	U			<	10	5.2	10	U			<	10	5.2	10	U		
Barium	2,000	µg/L		**142**	1.1	10					**133**	1.1	10					**100**	1.5	10					**110**	1.5	10			
Beryllium	4.0	µg/L	<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L	<	5.0	0.58	5.0	U			<	5.0	0.58	5.0	U			<	10	1.5	10	U			<	10	1.5	10	U		
Cobalt	NE	µg/L		**0.71**	0.6	5.0	F	B,F	7,23		**0.76**	0.6	5.0	F	B,F	7,23		**1.3**	1.0	5.0	F	F	23	<	5.0	1.0	5.0	U		
Copper	1,300	µg/L	<	10	1.8	10	U			<	10	1.8	10	U				**3.7**	1.6	10	F	F	23		**4.6**	1.6	10	F	F	23
Iron	NE	µg/L		**20.8**	9.2	50	F	B,F	7,23		**51.7**	9.2	50		B	7		**96**	40	50		B	7	<	250	200	250	U		
Lead	15	µg/L	<	5.0	0.87	5.0	U			<	5.0	0.87	5.0	U			<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U		
Magnesium	NE	µg/L		**61,600**	21	100					**59,100**	21	100					**66,000**	12	100					**69,000**	12	100			
Manganese	NE	µg/L		**795**	0.74	5.0					**725**	0.74	5.0					**680**	0.71	10					**710**	0.71	10			
Mercury	2.0	µg/L		**0.19**	0.058	0.5	F	F	23		**0.15**	0.058	0.5	F	F	23	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U		
Nickel	NE	µg/L		**2.8**	0.71	5.0	F	B,F	7,23		**2.9**	0.71	5.0	F	B,F	7,23	<	10	1.9	10	U			<	10	1.9	10	U		
Potassium	NE	µg/L		**4,040**	18	400					**3,730**	18	400					**4,200**	110	500					**4,200**	110	500			
Selenium	50	µg/L		**4.8**	1.4	10	F	BF	7,23		**1.9**	1.4	10	F	B,F	7,23		**6.4**	5.0	6.0				<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	10	0.64	10	U			<	10	0.64	10	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**39,400**	450	2,000					**36,500**	450	2,000					**50,000**	500	1,000					**47,000**	500	1,000			
Thallium	2.0	µg/L		**2.6**	0.45	10	F	B,F	7,23		**1.3**	0.45	10	F	B,F	7,23	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	10	0.55	10	U			<	10	0.55	10	U				**3.2**	2.1	5.0	F	F	23		**3.8**	2.1	5.0	F	F	23
Zinc	NE	µg/L		**17.3**	2.6	10					**24.9**	2.6	10				<	20	10	20	U			<	20	10	20	U		

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF03-MW05												LF03-MW05											
Site:			Landfill 1 (IRP LR-03)												Landfill 1 (IRP LR-03)											
Date Collected:			12/04/01												06/13/02											
Turbidity (NTU):			10.20												2.82											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	100	33	100	U				**109**	33	100		B	7	<	200	24	200	U				**130**	24	200	F	B,F	7,23
Antimony	6.0	µg/L	<	3.3	3.3	10	U			<	3.3	3.3	10	U				**4.1**	2.5	3.0				<	3.0	2.5	3.0	U		
Arsenic	50	µg/L	<	5.0	3.8	5.0	U			<	5.0	3.8	5.0	U				**7.0**	5.2	10	F	F	23	<	10	5.2	10	U		
Barium	2,000	µg/L		**116**	1.1	10					**118**	1.1	10					**110**	1.5	10					**110**	1.5	10			
Beryllium	4.0	µg/L	<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L	<	5.0	0.58	5.0	U				**5.0**	0.58	5.0	F	F	23	<	10	1.5	10	U			<	10	1.5	10	U		
Cobalt	NE	µg/L	<	5.0	0.6	5.0	U			<	5.0	0.6	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U		
Copper	1,300	µg/L	<	10	1.8	10	U			<	10	1.8	10	U				**2.9**	1.6	10	F	F	23		**6.9**	1.6	10	F	F	23
Iron	NE	µg/L		**695**	9.2	50					**1,760**	9.2	50					**1,600**	40	50		R	5		**1,700**	40	50			
Lead	15	µg/L	<	5.0	0.87	5.0	U				**0.873**	0.87	5.0	F	B,F	7,23	<	5.0	2.9	5.0	U				**2.9**	2.9	5.0	F	F	23
Magnesium	NE	µg/L		**41,900**	21	100					**41,600**	21	100					**42,000**	12	100					**44,000**	12	100			
Manganese	NE	µg/L		**128**	0.74	5.0					**128**	0.74	5.0					**130**	0.71	10					**150**	0.71	10			
Mercury	2.0	µg/L		**0.23**	0.058	0.5	F	F	23		**0.24**	0.058	0.5	F	F	23	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U		
Nickel	NE	µg/L	<	5.0	0.71	5.0	U				**0.91**	0.71	5.0	F	B,F	7,23	<	10	1.9	10	U			<	10	1.9	10	U		
Potassium	NE	µg/L		**1,180**	18	400					**1,160**	18	400					**1,200**	110	500					**1,200**	110	500			
Selenium	50	µg/L	<	10	1.4	10	U				**1.9**	1.4	10	F	B,F	7,23		**5.2**	5.0	6.0	F	F	23	<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	10	0.64	10	U			<	10	0.64	10	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**8,950**	450	2,000					**8,820**	450	2,000					**7,600**	500	1,000					**7,800**	500	1,000			
Thallium	2.0	µg/L		**0.77**	0.45	10	F	B,F	7,23		**1.7**	0.45	10	F	B,F	7,23	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	10	0.55	10	U			<	10	0.55	10	U			<	5.0	2.1	5.0	U				**2.9**	2.1	5.0	F	F	23
Zinc	NE	µg/L		**13**	2.6	10					**10.8**	2.6	10		B	7	<	20	10	20	U				**24**	10	20			

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF03-MW06												LF03-MW06											
Site:			Landfill 1 (IRP LR-03)												Landfill 1 (IRP LR-03)											
Date Collected:			12/05/01												06/13/02											
Turbidity (NTU):			5.86												0.58											
Type of Sample:			Normal												Normal											
			Dissolved							Total						Dissolved							Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L		**708**	33	100				<	100	33	100	U			<	200	24	200	U				**140**	24	200	F	B,F	7,23
Antimony	6.0	µg/L	<	3.3	3.3	10	U				**4.1**	3.3	10	F	B,F	7,23	<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U		
Arsenic	50	µg/L	<	5.0	3.8	5.0	U			<	5.0	3.8	5.0	U			<	10	5.2	10	U			<	10	5.2	10	U		
Barium	2,000	µg/L		**88.7**	1.1	10					**88.9**	1.1	10					**56**	1.5	10					**57**	1.5	10			
Beryllium	4.0	µg/L	<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L		**3.9**	0.58	5.0	F	F	23		**20.5**	0.58	5.0					**4.2**	1.5	10	F	F	23		**6.9**	1.5	10	F	F	23
Cobalt	NE	µg/L		**1.4**	0.6	5.0	F	B,F	7,23	<	5.0	0.6	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U		
Copper	1,300	µg/L	<	10	1.8	10	U				**6.2**	1.8	10	F	B,F	7,23	<	10	1.6	10	U				**3.3**	1.6	10	F	F	23
Iron	NE	µg/L		**5,520**	9.2	50					**4,710**	9.2	50					**4,300**	40	50		R	5		**4,100**	40	50			
Lead	15	µg/L	<	5.0	0.87	5.0	U			<	5.0	0.87	5.0	U			<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U		
Magnesium	NE	µg/L		**94,200**	21	100					**92,400**	21	100					**81,000**	12	100					**82,000**	12	100			
Manganese	NE	µg/L		**273**	0.74	5.0					**281**	0.74	5.0					**230**	0.71	10					**230**	0.71	10			
Mercury	2.0	µg/L		**0.31**	0.058	0.5	F	F	23		**0.23**	0.058	0.5	F	F	23	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U		
Nickel	NE	µg/L		**18.7**	0.71	5.0					**18.4**	0.71	5.0					**38**	1.9	10					**41**	1.9	10			
Potassium	NE	µg/L		**5,780**	18	400					**4,370**	18	400		J,M	8,16		**3,200**	110	500		M	8		**3,100**	110	500		M	8
Selenium	50	µg/L		**1.7**	1.4	10	F	F	23		**3.4**	1.4	10	F	F	23	<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	10	0.64	10	U			<	10	0.64	10	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**241,000**	450	2,000					**237,000**	450	2,000					**230,000**	500	1,000		J	16		**210,000**	500	1,000		J	16
Thallium	2.0	µg/L		**3.8**	0.45	10	F	B,F	7,23		**2.6**	0.45	10	F	B,F	7,23	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	10	0.55	10	U			<	10	0.55	10	U				**3.4**	2.1	5.0	F	F	23		**3.7**	2.1	5.0	F	F	23
Zinc	NE	µg/L		**9.0**	2.6	10	F	F	23		**19.5**	2.6	10				<	20	10	20	U			<	20	10	20	U		

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF04-BH1R												LF04-BH1R											
Site:			Landfill 2 (IRP LF-04)												Landfill 2 (IRP LF-04)											
Date Collected:			12/06/01												06/17/02											
Turbidity (NTU):			5.32												1.81											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	100	33	100	U				**125**	33	100				<	200	24	200	U				**26**	24	200	F	F	23
Antimony	6.0	µg/L	<	3.3	3.3	10	U			<	3.3	3.3	10	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U		
Arsenic	50	µg/L	<	5.0	3.8	5.0	U			<	5.0	3.8	5.0	U			<	10	5.2	10	U			<	10	5.2	10	U		
Barium	2,000	µg/L		**92.4**	1.1	10					**98.4**	1.1	10					**81**	1.5	10					**92**	1.5	10			
Beryllium	4.0	µg/L	<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.38	2.0	U				**0.4**	0.38	2.0	F	F	23	<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L		**0.73**	0.58	5.0	F	B,F	7,23		**1.3**	0.58	5.0	F	F	23	<	10	1.5	10	U				**1.8**	1.5	10	F	F	23
Cobalt	NE	µg/L		**1.7**	0.6	5.0	F	B,F	7,23		**2.1**	0.6	5.0	F	B,F	7,23		**4.3**	1.0	5.0	F	F	23		**4.8**	1.0	5.0	F	F	23
Copper	1,300	µg/L		**3.5**	1.8	10	F	B,F	7,23		**4.5**	1.8	10	F	B,F	7,23	<	10	1.6	10	U			<	10	1.6	10	U		
Iron	NE	µg/L		**955**	9.2	50					**1,140**	9.2	50					**990**	40	50					**980**	40	50			
Lead	15	µg/L	<	5.0	0.87	5.0	U				**1.8**	0.87	5.0	F	B,F	7,23	<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U		
Magnesium	NE	µg/L		**30,300**	21	100					**32,400**	21	100					**33,000**	12	100					**34,000**	12	100			
Manganese	NE	µg/L		**481**	0.74	5.0					**519**	0.74	5.0					**510**	0.71	10					**560**	0.71	10			
Mercury	2.0	µg/L		**0.12**	0.058	0.5	F	F	23		**0.19**	0.058	0.5	F	F	23	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U		
Nickel	NE	µg/L		**2.4**	0.71	5.0	F	B,F	7,23		**2.8**	0.71	5.0	F	F	23	<	10	1.9	10	U			<	10	1.9	10	U		
Potassium	NE	µg/L		**1,280**	18	400					**1,490**	18	400					**1,400**	110	500					**1,300**	110	500			
Selenium	50	µg/L		**2.8**	1.4	10	F	F	23		**4.6**	1.4	10	F	F	23	<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U		
Silver	NE	µg/L	<	10	0.64	10	U			<	10	0.64	10	U			<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**14,000**	450	2,000					**15,100**	450	2,000					**8,400**	500	1,000					**9,600**	500	1,000			
Thallium	2.0	µg/L	<	0.45	0.45	10	U			<	0.45	0.45	10	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	10	0.55	10	U			<	10	0.55	10	U			<	5.0	2.1	5.0	U			<	5.0	2.1	5.0	U		
Zinc	NE	µg/L		**22.4**	2.6	10					**23.3**	2.6	10				<	20	10	20	U			<	20	10	20	U		

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF04-BH3R												LF04-BH3R											
Site:			Landfill 2 (IRP LF-04)												Landfill 2 (IRP LF-04)											
Date Collected:			12/06/01												06/17/02											
Turbidity (NTU):			8.91												1.43											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	< 100	33	100	U			**121**	33	100				**55**	24	200	F	F	23	**39**	24	200	F	F	23
Antimony	6.0	µg/L	< 3.3	3.3	10	U			< 3.3	3.3	10	U			< 3.0	2.5	3.0	U			< 3.0	2.5	3.0	U		
Arsenic	50	µg/L	< 5.0	3.8	5.0	U			< 5.0	3.8	5.0	U			< 10	5.2	10	U			< 10	5.2	10	U		
Barium	2,000	µg/L	**72.1**	1.1	10				**83**	1.1	10				**72**	1.5	10				**81**	1.5	10			
Beryllium	4.0	µg/L	< 2.0	0.075	2.0	U			< 2.0	0.075	2.0	U			< 4.0	0.17	4.0	U			< 4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	< 2.0	0.38	2.0	U			< 2.0	0.38	2.0	U			< 2.0	0.44	2.0	U			< 2.0	0.44	2.0	U		
Chromium	100	µg/L	**4.9**	0.58	5.0	F	F	23	**1.3**	0.58	5.0	F	F	23	< 10	1.5	10	U			< 10	1.5	10	U		
Cobalt	NE	µg/L	**1.8**	0.6	5.0	F	B,F	7,23	**1.9**	0.6	5.0	F	B,F	7,23	**1.2**	1.0	5.0	F	F	23	**1.7**	1.0	5.0	F	F	23
Copper	1,300	µg/L	**2.4**	1.8	10	F	B,F	7,23	**2.8**	1.8	10	F	B,F	7,23	< 10	1.6	10	U			**3.5**	1.6	10	F	F	23
Iron	NE	µg/L	**507**	9.2	50				**718**	9.2	50				**730**	40	50				**740**	40	50			
Lead	15	µg/L	< 5.0	0.87	5.0	U			< 5.0	0.87	5.0	U			< 5.0	2.9	5.0	U			< 5.0	2.9	5.0	U		
Magnesium	NE	µg/L	**38,000**	21	100				**44,200**	21	100				**48,000**	12	100				**51,000**	12	100			
Manganese	NE	µg/L	**212**	0.74	5.0				**245**	0.74	5.0				**220**	0.71	10				**250**	0.71	10			
Mercury	2.0	µg/L	**0.23**	0.058	0.5	F	F	23	**0.25**	0.058	0.5	F	F	23	< 0.2	0.065	0.2	U			< 0.2	0.065	0.2	U		
Nickel	NE	µg/L	**7.3**	0.71	5.0				**5.7**	0.71	5.0				**1.9**	1.9	10	F	F	23	< 10	1.9	10	U		
Potassium	NE	µg/L	**1,100**	18	400				**1,340**	18	400				**1,400**	110	500				**1,300**	110	500			
Selenium	50	µg/L	**2.6**	1.4	10	F	F	23	< 10	1.4	10	U			< 6.0	5.0	6.0	U			< 6.0	5.0	6.0	U		
Silver	NE	µg/L	< 10	0.64	10	U			< 10	0.64	10	U			< 5.0	3.1	5.0	U			< 5.0	3.1	5.0	U		
Sodium	NE	µg/L	**7,170**	450	2,000				**8,020**	450	2,000				**8,000**	500	1,000				**9,100**	500	1,000			
Thallium	2.0	µg/L	**2.1**	0.45	10	F	B,F	7,23	**3.1**	0.45	10	F	B,F	7,23	< 2.0	2.0	2.0	U			< 2.0	2.0	2.0	U		
Vanadium	NE	µg/L	< 10	0.55	10	U			< 10	0.55	10	U			< 5.0	2.1	5.0	U			< 5.0	2.1	5.0	U		
Zinc	NE	µg/L	**18.5**	2.6	10				**33.4**	2.6	10				< 20	10	20	U			< 20	10	20	U		

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF04-BH3R												LF04-MW1R											
Site:			Landfill 2 (IRP LF-04)												Landfill 2 (IRP LF-04)											
Date Collected:			06/17/02												12/06/01											
Turbidity (NTU):			1.43												8.07											
Type of Sample:			Duplicate												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L		**36**	24	200	F	F	23		**41**	24	200	F	F	23	<	100	33	100	U				**210**	33	100			
Antimony	6.0	µg/L	<	3.0	2.5	3.0	U				**2.6**	2.5	3.0	F	F	23	<	3.3	3.3	10	U			<	3.3	3.3	10	U		
Arsenic	50	µg/L	<	10	5.2	10	U			<	10	5.2	10	U			<	5.0	3.8	5.0	U				**7.2**	3.8	5.0			
Barium	2,000	µg/L		**72**	1.5	10					**81**	1.5	10					**67.2**	1.1	10					**75.8**	1.1	10			
Beryllium	4.0	µg/L	<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U		
Cadmium	5.0	µg/L	<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U		
Chromium	100	µg/L	<	10	1.5	10	U			<	10	1.5	10	U				**0.8**	0.58	5.0	F	B,F	7,23		**1.0**	0.58	5.0	F	F	23
Cobalt	NE	µg/L		**1.7**	1.0	5.0	F	F	23		**1.8**	1.0	5.0	F	F	23	<	5.0	0.6	5.0	U			<	5.0	0.6	5.0	U		
Copper	1,300	µg/L	<	10	1.6	10	U			<	10	1.6	10	U			<	10	1.8	10	U				**2.0**	1.8	10	F	B,F	7,23
Iron	NE	µg/L		**750**	40	50					**760**	40	50					**2,120**	9.2	50					**2,590**	9.2	50			
Lead	15	µg/L	<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U			<	5.0	0.87	5.0	U			<	5.0	0.87	5.0	U		
Magnesium	NE	µg/L		**48,000**	12	100					**51,000**	12	100					**22,800**	21	100					**25,100**	21	100			
Manganese	NE	µg/L		**230**	0.71	10					**260**	0.71	10					**258**	0.74	5.0					**285**	0.74	5.0			
Mercury	2.0	µg/L	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U				**0.58**	0.058	0.5					**0.23**	0.058	0.5	F	F	23
Nickel	NE	µg/L		**2.3**	1.9	10	F	F	23	<	10	1.9	10	U				**1.7**	0.71	5.0	F	B,F	7,23		**3.7**	0.71	5.0	F	F	23
Potassium	NE	µg/L		**1,400**	110	500					**1,300**	110	500					**776**	18	400					**900**	18	400			
Selenium	50	µg/L	<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U				**2.6**	1.4	10	F	F	23		**1.7**	1.4	10	F	F	23
Silver	NE	µg/L	<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	10	0.64	10	U			<	10	0.64	10	U		
Sodium	NE	µg/L		**7,900**	500	1,000					**9,100**	500	1,000					**6,020**	450	2,000					**6,560**	450	2,000			
Thallium	2.0	µg/L	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U			<	0.45	0.45	10	U			<	0.45	0.45	10	U		
Vanadium	NE	µg/L	<	5.0	2.1	5.0	U				**3.0**	2.1	5.0	F	F	23	<	10	0.55	10	U			<	10	0.55	10	U		
Zinc	NE	µg/L	<	20	10	20	U			<	20	10	20	U				**61**	2.6	10					**27**	2.6	10			

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF04-MW1R												LF04-MW2R											
Site:			Landfill 2 (IRP LF-04)												Landfill 2 (IRP LF-04)											
Date Collected:			06/17/02												12/06/01											
Turbidity (NTU):			9.46												1.92											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	**27**	24	200	F	F	23	< 200	24	200	U			< 100	33	100	U			< 100	33	100	U		
Antimony	6.0	µg/L	< 3.0	2.5	3.0	U			< 3.0	2.5	3.0	U			< 3.3	3.3	10	U			< 3.3	3.3	10	U		
Arsenic	50	µg/L	< 10	5.2	10	U			**10**	5.2	10				< 5.0	3.8	5.0	U			< 5.0	3.8	5.0	U		
Barium	2,000	µg/L	**66**	1.5	10				**75**	1.5	10				**105**	1.1	10				**109**	1.1	10			
Beryllium	4.0	µg/L	< 4.0	0.17	4.0	U			< 4.0	0.17	4.0	U			< 2.0	0.075	2.0	U			< 2.0	0.075	2.0	U		
Cadmium	5.0	µg/L	< 2.0	0.44	2.0	U			< 2.0	0.44	2.0	U			**0.41**	0.38	2.0	F	F	23	< 2.0	0.38	2.0	U		
Chromium	100	µg/L	< 10	1.5	10	U			< 10	1.5	10	U			**2.6**	0.58	5.0	F	F	23	< 5.0	0.58	5.0	U		
Cobalt	NE	µg/L	< 5.0	1.0	5.0	U			< 5.0	1.0	5.0	U			< 5.0	0.6	5.0	U			< 5.0	0.6	5.0	U		
Copper	1,300	µg/L	< 10	1.6	10	U			< 10	1.6	10	U			< 10	1.8	10	U			< 10	1.8	10	U		
Iron	NE	µg/L	**2,000**	40	50				**2,800**	40	50				**37.6**	9.2	50	F	F	23	**52.1**	9.2	50			
Lead	15	µg/L	< 5.0	2.9	5.0	U			< 5.0	2.9	5.0	U			< 5.0	0.87	5.0	U			< 5.0	0.87	5.0	U		
Magnesium	NE	µg/L	**24,000**	12	100				**25,000**	12	100				**52,200**	21	100				**54,200**	21	100			
Manganese	NE	µg/L	**280**	0.71	10				**300**	0.71	10				**498**	0.74	5.0				**484**	0.74	5.0			
Mercury	2.0	µg/L	< 0.2	0.065	0.2	U			< 0.2	0.065	0.2	U			**0.1**	0.058	0.5	F	F	23	**0.2**	0.058	0.5	F	F	23
Nickel	NE	µg/L	< 10	1.9	10	U			< 10	1.9	10	U			**5.3**	0.71	5.0				**3.1**	0.71	5.0	F	F	23
Potassium	NE	µg/L	**1,000**	110	500				**860**	110	500				**2,580**	18	400				**2,760**	18	400			
Selenium	50	µg/L	< 6.0	5.0	6.0	U			< 6.0	5.0	6.0	U			**1.9**	1.4	10	F	F	23	**2.9**	1.4	10	F	F	23
Silver	NE	µg/L	< 5.0	3.1	5.0	U			< 5.0	3.1	5.0	U			< 10	0.64	10	U			< 10	0.64	10	U		
Sodium	NE	µg/L	**5,300**	500	1,000				**6,000**	500	1,000				**5,750**	450	2,000				**6,060**	450	2,000			
Thallium	2.0	µg/L	< 2.0	2.0	2.0	U			< 2.0	2.0	2.0	U			**2.6**	0.45	10	F	B,F	7,23	**2.2**	0.45	10	F	B,F	7,23
Vanadium	NE	µg/L	< 5.0	2.1	5.0	U			**2.5**	2.1	5.0	F	F	23	< 10	0.55	10	U			< 10	0.55	10	U		
Zinc	NE	µg/L	< 20	10	20	U			< 20	10	20	U			**87.5**	2.6	10				**80.5**	2.6	10			

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF04-MW2R												LF04-MW3R											
Site:			Landfill 2 (IRP LF-04)												Landfill 2 (IRP LF-04)											
Date Collected:			06/17/02												12/06/01											
Turbidity (NTU):			1.39												6.47											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	<	200	24	200	U				**42**	24	200	F	F	23	<	100	33	100	U				**46**	33	100	F	B,F	7,23
Antimony	6.0	µg/L		**2.5**	2.5	3.0	F	F	23	<	3	2.5	3.0	U			<	3.3	3.3	10	U				**4.6**	3.3	10	F	B,F	7,23
Arsenic	50	µg/L	<	10	5.2	10	U			<	10	5.2	10	U			<	5.0	3.8	5.0	U			<	5.0	3.8	5.0	U		
Barium	2,000	µg/L		**60**	1.5	10					**68**	1.5	10					**86.1**	1.1	10					**87.5**	1.1	10			
Beryllium	4.0	µg/L	<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U			<	2.0	0.075	2.0	U			<	2.0	0.075	2.0	U		
Cadmium	5.0	µg/L	<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.38	2.0	U			<	2.0	0.38	2.0	U		
Chromium	100	µg/L	<	10	1.5	10	U			<	10	1.5	10	U			<	5.0	0.58	5.0	U				**1.4**	0.58	5.0	F	F	23
Cobalt	NE	µg/L	<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U				**1.4**	0.6	5.0	F	B,F	7,23		**2.0**	0.6	5.0	F	B,F	7,23
Copper	1,300	µg/L	<	10	1.6	10	U			<	10	1.6	10	U			<	10	1.8	10	U				**1.9**	1.8	10	F	B,F	7,23
Iron	NE	µg/L	<	250	200	250	U			<	250	200	250	U				**146**	9.2	50					**302**	9.2	50			
Lead	15	µg/L	<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U			<	5.0	0.87	5.0	U			<	5.0	0.87	5.0	U		
Magnesium	NE	µg/L		**39,000**	12	100					**42,000**	12	100					**63,900**	21	100					**64,500**	21	100			
Manganese	NE	µg/L		**1,100**	0.71	10					**1,200**	0.71	10					**244**	0.74	5.0					**256**	0.74	5.0			
Mercury	2.0	µg/L	<	0.2	0.065	0.2	U				**0.33**	0.065	0.2					**0.15**	0.058	0.5	F	F	23		**0.12**	0.058	0.5	F	F	23
Nickel	NE	µg/L		**3.0**	1.9	10	F	F	23	<	10	1.9	10	U				**3.5**	0.71	5.0	F	F	23		**5.4**	0.71	5.0			
Potassium	NE	µg/L		**840**	110	500					**700**	110	500					**983**	18	400					**1,010**	18	400			
Selenium	50	µg/L	<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U				**1.42**	1.4	10	F	F	23		**1.7**	1.4	10	F	F	23
Silver	NE	µg/L	<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U			<	10	0.64	10	U			<	10	0.64	10	U		
Sodium	NE	µg/L		**3,200**	500	1,000					**4,200**	500	1,000					**8,510**	450	2,000					**8,210**	450	2,000			
Thallium	2.0	µg/L	<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U				**1.7**	0.45	10	F	B,F	7,23		**3.8**	0.45	10	F	B,F	7,23
Vanadium	NE	µg/L	<	5.0	2.1	5.0	U				**2.7**	2.1	5.0	F	F	23	<	10	0.55	10	U			<	10	0.55	10	U		
Zinc	NE	µg/L	<	20	10	20	U			<	20	10	20	U				**19.5**	2.6	10					**42.3**	2.6	10			

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF04-MW3R												LF04-MW4R											
Site:			Landfill 2 (IRP LF-04)												Landfill 2 (IRP LF-04)											
Date Collected:			06/17/02												12/06/01											
Turbidity (NTU):			2.58												3.90											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	< 200	24	200	U			**63**	24	200	F	F	23	< 100	33	100	U			< 100	33	100	U		
Antimony	6.0	µg/L	< 3.0	2.5	3.0	U			< 3.0	2.5	3.0	U			< 3.3	3.3	10	U			< 3.3	3.3	10	U		
Arsenic	50	µg/L	< 10	5.2	10	U			< 10	5.2	10	U			< 5.0	3.8	5.0	U			< 5.0	3.8	5.0	U		
Barium	2,000	µg/L	**68**	1.5	10				**78**	1.5	10				**64.4**	1.1	10				**73.6**	1.1	10			
Beryllium	4.0	µg/L	< 4.0	0.17	4.0	U			< 4.0	0.17	4.0	U			< 2.0	0.075	2.0	U			< 2.0	0.075	2.0	U		
Cadmium	5.0	µg/L	< 2.0	0.44	2.0	U			< 2.0	0.44	2.0	U			< 2.0	0.38	2.0	U			< 2.0	0.38	2.0	U		
Chromium	100	µg/L	< 10	1.5	10	U			< 10	1.5	10	U			< 5.0	0.58	5.0	U			**0.69**	0.58	5.0	F	B,F	7,23
Cobalt	NE	µg/L	< 5.0	1.0	5.0	U			< 5.0	1.0	5.0	U			< 5.0	0.6	5.0	U			< 5.0	0.6	5.0	U		
Copper	1,300	µg/L	< 10	1.6	10	U			< 10	1.6	10	U			< 10	1.8	10	U			< 10	1.8	10	U		
Iron	NE	µg/L	< 250	200	250	U			**99**	40	50				**14.9**	9.2	50	F	B,F	7,23	**57**	9.2	50			
Lead	15	µg/L	< 5.0	2.9	5.0	U			< 5.0	2.9	5.0	U			< 5.0	0.87	5.0	U			< 5.0	0.87	5.0	U		
Magnesium	NE	µg/L	**74,000**	12	100				**80,000**	12	100				**30,600**	21	100				**35,000**	21	100			
Manganese	NE	µg/L	**54**	0.71	10				**60**	0.71	10				**0.97**	0.74	5.0	F	F	23	**6.0**	0.74	5.0			
Mercury	2.0	µg/L	< 0.2	0.065	0.2	U			< 0.2	0.065	0.2	U			**0.2**	0.058	0.5	F	F	23	**0.22**	0.058	0.5	F	F	23
Nickel	NE	µg/L	< 10	1.9	10	U			< 10	1.9	10	U			< 5.0	0.71	5.0	U			< 5.0	0.71	5.0	U		
Potassium	NE	µg/L	**760**	110	500				**640**	110	500				**1,020**	18	400				**1,180**	18	400			
Selenium	50	µg/L	< 6.0	5.0	6.0	U			< 6.0	5.0	6.0	U			**2.9**	1.4	10	F	F	23	**5.1**	1.4	10	F	F	23
Silver	NE	µg/L	< 5.0	3.1	5.0	U			< 5.0	3.1	5.0	U			< 10	0.64	10	U			< 10	0.64	10	U		
Sodium	NE	µg/L	**9,300**	500	1,000				**10,000**	500	1,000				**3,840**	450	2,000				**4,360**	450	2,000			
Thallium	2.0	µg/L	< 2.0	2.0	2.0	U			< 2.0	2.0	2.0	U			**1.7**	0.45	10	F	B,F	7,23	**0.79**	0.45	10	F	B,F	7,23
Vanadium	NE	µg/L	< 5.0	2.1	5.0	U			**2.9**	2.1	5.0	F	F	23	**0.78**	0.55	10	F	F	23	**1.1**	0.55	10	F	F	23
Zinc	NE	µg/L	< 20	10	20	U			< 20	10	20	U			**5.1**	2.6	10	F	F	23	**11.3**	2.6	10			

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			LF04-MW4R												LF04-MW4R											
Site:			Landfill 2 (IRP LF-04)												Landfill 2 (IRP LF-04)											
Date Collected:			12/06/01												06/17/02											
Turbidity (NTU):			3.90												0.00											
Type of Sample:			Duplicate												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	< 100	33	100	U			< 100	33	100	U			**33**	24	200	F	F	23	**29**	24	200	F	F	23
Antimony	6.0	µg/L	< 3.3	3.3	10	U			< 3.3	3.3	10	U			< 3.0	2.5	3.0	U			< 3.0	2.5	3.0	U		
Arsenic	50	µg/L	< 5.0	3.8	5.0	U			< 5.0	3.8	5.0	U			< 10	5.2	10	U			< 10	5.2	10	U		
Barium	2,000	µg/L	**73.6**	1.1	10				**75.6**	1.1	10				**64**	1.5	10				**72**	1.5	10			
Beryllium	4.0	µg/L	< 2.0	0.075	2.0	U			< 2.0	0.075	2.0	U			< 4.0	0.17	4.0	U			< 4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	< 2.0	0.38	2.0	U			< 2.0	0.38	2.0	U			< 2.0	0.44	2.0	U			< 2.0	0.44	2.0	U		
Chromium	100	µg/L	**0.87**	0.58	5.0	F	B,F	7,23	< 5.0	0.58	5.0	U			< 10	1.5	10	U			**1.5**	1.5	10	F	F	23
Cobalt	NE	µg/L	< 5.0	0.6	5.0	U			< 5.0	0.6	5.0	U			< 5.0	1.0	5.0	U			< 5.0	1.0	5.0	U		
Copper	1,300	µg/L	**2.2**	1.8	10	F	B,F	7,23	< 10	1.8	10	U			< 10	1.6	10	U			< 10	1.6	10	U		
Iron	NE	µg/L	**32.1**	9.2	50	F	F	23	**58.6**	9.2	50				< 50	40	50	U			< 50	40	50	U		
Lead	15	µg/L	< 5.0	0.87	5.0	U			< 5.0	0.87	5.0	U			< 5.0	2.9	5.0	U			< 5.0	2.9	5.0	U		
Magnesium	NE	µg/L	**34,600**	21	100				**35,600**	21	100				**32,000**	12	100				**34,000**	12	100			
Manganese	NE	µg/L	**4.1**	0.74	5.0	F	F	23	**4.9**	0.74	5.0	F	F	23	**13**	0.71	10				**13**	0.71	10			
Mercury	2.0	µg/L	**0.085**	0.058	0.5	F	F	23	**0.23**	0.058	0.5	F	F	23	< 0.2	0.07	0.2	U			< 0.2	0.07	0.2	U		
Nickel	NE	µg/L	**2.8**	0.71	5.0	F	F	23	< 5.0	0.71	5.0	U			< 10	1.9	10	U			< 10	1.9	10	U		
Potassium	NE	µg/L	**1,190**	18	400				**1,210**	18	400				**1,500**	110	500				**1,300**	110	500			
Selenium	50	µg/L	**4.4**	1.4	10	F	F	23	**6.3**	1.4	10	F	F	23	< 6.0	5.0	6.0	U			< 6.0	5.0	6.0	U		
Silver	NE	µg/L	< 10	0.64	10	U			< 10	0.64	10	U			< 5.0	3.1	5.0	U			< 5.0	3.1	5.0	U		
Sodium	NE	µg/L	**4,650**	450	2,000				**4,650**	450	2,000				**3,900**	500	1,000				**4,600**	500	1,000			
Thallium	2.0	µg/L	**2.0**	0.45	10	F	B,F	7,23	**0.52**	0.45	10	F	B,F	7,23	< 2.0	2.0	2.0	U			< 2.0	2.0	2.0	U		
Vanadium	NE	µg/L	**0.9**	0.55	10	F	F	23	**0.84**	0.55	10	F	F	23	< 5.0	2.1	5.0	U			**2.4**	2.1	5.0	F	F	23
Zinc	NE	µg/L	**16.5**	2.6	10				**9.6**	2.6	10	F	F	23	< 20	10	20	U			< 20	10	20	U		

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			ST09-MW01												ST09-MW01											
Site:			Abandoned UST Site (ST09)												Abandoned UST Site (ST09)											
Date Collected:			12/11/01												06/18/02											
Turbidity (NTU):			5.23												7.40											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	< 100	31	100	U			**128**	31	100				< 200	24	200	U			**180**	24	200	F	F	23
Antimony	6.0	µg/L	< 2.9	2.9	2.9	U			**4.8**	2.9	2.9				< 3.0	2.5	3.0	U			**2.6**	2.5	3.0	F	F	23
Arsenic	50	µg/L	< 5.0	1.6	5.0	U			< 5.0	1.6	5.0	U			< 10	5.2	10	U			< 10	5.2	10	U		
Barium	2,000	µg/L	**74.4**	0.46	5.0				**75.5**	0.46	5.0				**76**	1.5	10				**87**	1.5	10			
Beryllium	4.0	µg/L	< 2.0	0.068	2.0	U			< 2.0	0.068	2.0	U			< 4.0	0.17	4.0	U			< 4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	< 2.0	0.29	2.0	U			< 2.0	0.29	2.0	U			< 2.0	0.44	2.0	U			< 2.0	0.44	2.0	U		
Chromium	100	µg/L	**0.54**	0.26	5.0	F	F	23	**6.6**	0.26	5.0				< 10	1.5	10	U			**23**	1.5	10			
Cobalt	NE	µg/L	**0.79**	0.35	5.0	F	B,F	7,23	**0.88**	0.35	5.0	F	B,F	7,23	**2.0**	1.0	5.0	F	F	23	**1.9**	1.0	5.0	F	F	23
Copper	1,300	µg/L	< 10	3.0	10	U			**5.4**	3.0	10	F	F	23	< 10	1.6	10	U			**2.3**	1.6	10	F	F	23
Iron	NE	µg/L	**46.1**	6.5	50	F	F	23	**405**	6.5	50				**110**	40	50				**770**	40	50			
Lead	15	µg/L	< 5.0	0.73	5.0	U			< 5.0	0.73	5.0	U			< 5.0	2.9	5.0	U			< 5.0	2.9	5.0	U		
Magnesium	NE	µg/L	**35,700**	8.7	100				**34,800**	8.7	100				**43,000**	12	100				**43,000**	12	100			
Manganese	NE	µg/L	**27.5**	0.57	3.0				**42.7**	0.57	3.0				**100**	0.71	10				**130**	0.71	10			
Mercury	2.0	µg/L	**0.2**	0.058	0.5	F	F	23	**0.21**	0.058	0.5	F	F	23	< 0.2	0.065	0.2	U			< 0.2	0.065	0.2	U		
Nickel	NE	µg/L	**60.9**	0.67	5.0				**80.6**	0.67	5.0				**120**	1.9	10				**150**	1.9	10		J	16
Potassium	NE	µg/L	**1,900**	40	400				**1,880**	40	400				**1,500**	110	500				**1,400**	110	500			
Selenium	50	µg/L	**4.6**	2.3	10	F	B,F	7,23	**3.7**	2.3	10	F	B,F	7,23	< 6.0	5.0	6.0	U			< 6.0	5.0	6.0	U		
Silver	NE	µg/L	< 10	0.11	10	U			< 10	0.11	10	U			< 5.0	3.1	5.0	U			< 5.0	3.1	5.0	U		
Sodium	NE	µg/L	**21,800**	390	1,000				**20,900**	390	1,000				**17,000**	500	1,000				**19,000**	500	1,000			
Thallium	2.0	µg/L	< 1.6	1.6	1.6	U			< 1.6	1.6	1.6	U			< 2.0	2.0	2.0	U			< 2.0	2.0	2.0	U		
Vanadium	NE	µg/L	< 10	0.35	10	U			< 10	0.35	10	U			< 5.0	2.1	5.0	U			**3.5**	2.1	5.0	F	F	23
Zinc	NE	µg/L	**7.4**	4.0	10	F	F	23	**12.9**	4.0	10				< 20	10	20	U			< 20	10	20	U		

Notes:

NE	Not Established
Bold	Detection
Bold	Exceeds Maximum Contaminant Level
MCL	Maximum Contaminant Level
µg/L	Micrograms per liter
MDL	Method Detection Limit
RL	Reporting Limit
Q	Laboratory Data Qualifier
DQ	Data Verification Qualifier
RC	Reason Code
NTU	Nephelometric Turbidity Units

Data Validation Data Qualifiers

B	The analyte was found in an assoicated blank, as well as in the sample.
F	The analyte was positively identified but the associated numerical value is below the reporting limit.
J	The analyte was positively identified, the quanititation is an estimation.
M	A matrix effect was present.
R	The data was unusable due to deficiencies in the ability to analyze the sample and meet quality control Criteria.

Reason Codes:

7	Laboratory Blanks
8	Matrix Spike
9	Matrix Spike Duplicate
16	ICP Serial Dilution
23	Compound Quantitation and Contract Required Quanititation Limits (CRQLs)

Laboratory Data Qualifiers:

F	The analyte was positively identified, but the associated numerical value is below the practical quanititation limit and above the method detection limit; represents an estimated value.
U	Analyte is not detected.

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			ST09-MW02												ST09-MW02											
Site:			Abandoned UST Site (ST09)												Abandoned UST Site (ST09)											
Date Collected:			12/11/01												06/18/02											
Turbidity (NTU):			1.66												8.98											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L	< 100	31	100	U			< 100	31	100	U			< 200	24	200	U			**42**	24	200	F	F	23
Antimony	6.0	µg/L	< 2.9	2.9	2.9	U			**3.8**	2.9	2.9				< 3.0	2.5	3.0	U			**3.2**	2.5	3.0			
Arsenic	50	µg/L	< 5.0	1.6	5.0	U			< 5.0	1.6	5.0	U			< 10	5.2	10	U			< 10	5.2	10	U		
Barium	2,000	µg/L	**75.7**	0.46	5.0				**75.7**	0.46	5.0				**62**	1.5	10				**66**	1.5	10			
Beryllium	4.0	µg/L	< 2.0	0.068	2.0	U			< 2.0	0.068	2.0	U			< 4.0	0.17	4.0	U			< 4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	< 2.0	0.29	2.0	U			< 2.0	0.29	2.0	U			< 2.0	0.44	2.0	U			< 2.0	0.44	2.0	U		
Chromium	100	µg/L	**12.7**	0.26	5.0				**145**	0.26	5.0				**6.9**	1.5	10	F	F	23	**210**	1.5	10			
Cobalt	NE	µg/L	**2.4**	0.35	5.0	F	B,F	7,23	**2.7**	0.35	5.0	F	F	23	**5.9**	1.0	5.0				**6.4**	1.0	5.0			
Copper	1,300	µg/L	< 10	3.0	10	U			**4.2**	3.0	10	F	F	23	< 10	1.6	10	U			**1.9**	1.6	10	F	F	23
Iron	NE	µg/L	**1,090**	6.5	50				**1,540**	6.5	50				**3,000**	40	50				**3,600**	40	50			
Lead	15	µg/L	< 5.0	0.73	5.0	U			< 5.0	0.73	5.0	U			< 5.0	2.9	5.0	U			< 5.0	2.9	5.0	U		
Magnesium	NE	µg/L	**42,900**	8.7	100				**41,100**	8.7	100				**37,000**	12	100				**36,000**	12	100			
Manganese	NE	µg/L	**69**	0.57	3.0				**69.5**	0.57	3.0				**140**	0.71	10				**150**	0.71	10			
Mercury	2.0	µg/L	**0.18**	0.058	0.5	F	F	23	**0.23**	0.058	0.5	F	F	23	< 0.2	0.065	0.2	U			< 0.2	0.065	0.2	U		
Nickel	NE	µg/L	**225**	0.67	5.0				**239**	0.67	5.0				**710**	1.9	10				**760**	1.9	10			
Potassium	NE	µg/L	**1,090**	40	400				**1,010**	40	400				**1,100**	110	500				**970**	110	500			
Selenium	50	µg/L	**3.4**	2.3	10	F	B,F	7,23	< 10	2.3	10	U			< 6.0	5.0	6.0	U			< 6.0	5.0	6.0	U		
Silver	NE	µg/L	< 10	0.11	10	U			< 10	0.11	10	U			< 5.0	3.1	5.0	U			< 5.0	3.1	5.0	U		
Sodium	NE	µg/L	**97,900**	390	1,000				**93,300**	390	1,000				**75,000**	500	1,000				**74,000**	500	1,000			
Thallium	2.0	µg/L	< 1.6	1.6	1.6	U			< 1.6	1.6	1.6	U			< 2.0	2.0	2.0	U			< 2.0	2.0	2.0	U		
Vanadium	NE	µg/L	< 10	0.35	10	U			< 10	0.35	10	U			< 5.0	2.1	5.0	U			< 5.0	2.1	5.0	U		
Zinc	NE	µg/L	**21.3**	4.0	10				8.1	4.0	10	F	F	23	< 20	10	20	U			< 20	10	20	U		

Appendix B
Metals Analytical Results
Rounds 1 and 2
Grissom AFB, Indiana

Sample ID:			ST09-MW03												ST09-MW03											
Site:			Abandoned UST Site (ST09)												Abandoned UST Site (ST09)											
Date Collected:			12/11/01												06/18/02											
Turbidity (NTU):			4.51												2.70											
Type of Sample:			Normal												Normal											
			Dissolved						Total						Dissolved						Total					
Parameter	**MCL**	**Units**		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC		Result	MDL	RL	Q	DQ	RC
Aluminum	NE	µg/L		**82.5**	31	100	F	F	23		**123**	31	100				<	200	24	200	U				**24**	24	200	F	F	23
Antimony	6.0	µg/L	<	2.9	2.9	2.9	U			<	2.9	2.9	2.9	U			<	3.0	2.5	3.0	U			<	3.0	2.5	3.0	U		
Arsenic	50	µg/L	<	5.0	1.6	5.0	U			<	5.0	1.6	5.0	U			<	10	5.2	10	U			<	10	5.2	10	U		
Barium	2,000	µg/L		**172**	0.46	5.0					**161**	0.46	5.0					**140**	1.5	10					**160**	1.5	10			
Beryllium	4.0	µg/L	<	2.0	0.068	2.0	U			<	2.0	0.068	2.0	U			<	4.0	0.17	4.0	U			<	4.0	0.17	4.0	U		
Cadmium	5.0	µg/L	<	2.0	0.29	2.0	U			<	2.0	0.29	2.0	U			<	2.0	0.44	2.0	U			<	2.0	0.44	2.0	U		
Chromium	100	µg/L		**2.4**	0.26	5.0	F	F	23		**192**	0.26	5.0				<	10	1.5	10	U				**110**	1.5	10			
Cobalt	NE	µg/L		**0.46**	0.35	5.0	F	B,F	7,23	<	5.0	0.35	5.0	U			<	5.0	1.0	5.0	U			<	5.0	1.0	5.0	U		
Copper	1,300	µg/L	<	10	3.0	10	U			<	10	3.0	10	U			<	10	1.6	10	U			<	10	1.6	10	U		
Iron	NE	µg/L		**130**	6.5	50					**572**	6.5	50				<	250	40	50	U				**130**	40	50			
Lead	15	µg/L		**2.5**	0.73	5.0	F	F	23	<	5.0	0.73	5.0	U			<	5.0	2.9	5.0	U			<	5.0	2.9	5.0	U		
Magnesium	NE	µg/L		**37,600**	8.7	100					**34,500**	8.7	100					**45,000**	12	100					**46,000**	12	100			
Manganese	NE	µg/L		**310**	0.57	3.0					**314**	0.57	3.0					**750**	0.71	10					**810**	0.71	10			
Mercury	2.0	µg/L		**0.23**	0.058	0.5	F	F	23		**0.2**	0.058	0.5	F	F	23	<	0.2	0.065	0.2	U			<	0.2	0.065	0.2	U		
Nickel	NE	µg/L		**21.5**	0.67	5.0					**28.6**	0.67	5.0					**3.2**	1.9	10	F	F	23	<	10	1.9	10	U		
Potassium	NE	µg/L		**1,190**	40	400		J	16		**1,120**	40	400					**1,300**	110	500					**1,200**	110	500			
Selenium	50	µg/L	<	10	2.3	10	U			<	10	2.3	10	U			<	6.0	5.0	6.0	U			<	6.0	5.0	6.0	U		
Silver	NE	µg/L		**0.65**	0.11	10	F	F	23		**0.36**	0.11	10	F	F	23	<	5.0	3.1	5.0	U			<	5.0	3.1	5.0	U		
Sodium	NE	µg/L		**119,000**	390	1,000					**110,000**	390	1,000					**99,000**	500	1,000					**110,000**	500	1,000			
Thallium	2.0	µg/L	<	1.6	1.6	1.6	U			<	1.6	1.6	1.6	U			<	2.0	2.0	2.0	U			<	2.0	2.0	2.0	U		
Vanadium	NE	µg/L	<	10	0.35	10	U			<	10	0.35	10	U			<	5.0	2.1	5.0	U				**2.7**	2.1	5.0	F	F	23
Zinc	NE	µg/L		**10**	4.0	10					**27.3**	4.0	10				<	20	10	20	U			<	20	10	20	U		

	Location:		FT01-MW1				FT01-MW1				FT01-MW1				FT01-MW1				FT01-MW1				FT01-MW1			
	Date:		08/23/00				11/14/00				02/28/01				02/28/01				05/08/01				05/08/01			
	Sampling Round:		Round 1				Round 2				Round 3				Round 3				Round 4				Round 4			
	Type of Sample:		Normal				Normal				Normal				Duplicate				Normal				Duplicate			
Parameter	MCL	Units	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1,1-Trichloroethane	200	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1-Dichloroethane	NE	µg/L	< 1.0	U			**1.2**				< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1-Dichloroethene	7.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,2-Dichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,2-Dichloropropane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	U	R	5	< 100	U	R	5	< 100	U	R	5	< 100	U	R	5	< 100	U	UJ	5	< 100	U	UJ	5
2-Chloroethylvinyl ether	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U		
2-Hexanone	NE	µg/L	< 50	U	UJ	5	< 50	U			< 50	U			< 50	U			< 50	U	UJ	5	< 50	U	UJ	5
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U		
Acetone	NE	µg/L	< 50	U	UJ	5	< 50	U			< 50	U			< 50	U			< 50	U	UJ	5	< 50	U	UJ	5
Benzene	5.0	µg/L	**16**				**19**				**9.1**				**8.3**				**15**		J	14	**15**		J	14
Bromodichloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Bromoform**	NE	µg/L	< 1.0	U	UJ	5	< 1.0	U	UJ	5	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Bromomethane	NE	µg/L	< 2.0	U	UJ	5	< 2.0	U			< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 2.0	U	UJ	5
Carbon Disulfide	NE	µg/L	< 20	U			< 20	U			< 20	U			< 20	U			< 20	U			< 20	U		
Carbon Tetrachloride	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Chlorobenzene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Chloroethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
Chloroform**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Chloromethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
cis-1,2-Dichloroethene	70	µg/L	**530**	D			**950**	D			**460**				**530**				**590**		J	14	**630**		J	14
cis-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Dibromochloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Ethyl Benzene	700	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Methylene chloride	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U		
Styrene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Tetrachloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Toluene	1,000	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
trans-1,2-Dichloroethene	100	µg/L	**6.9**				**5.2**				**2.4**				**2.1**				**2.5**		J	14	**3.4**		J	14
trans-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Trichloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Vinyl Acetate	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
Vinyl Chloride	2.0	µg/L	**750**	D			**1,300**	D			**460**		J	14	**580**		J	14	**730**		J	14	**750**		J	14
Xylenes, total	10,000	µg/L	< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U		

Location:			FT01-MW1				FT01-MW1						FT01-MW1						FT01-MW1						FT01-MW1					
Date:			08/14/01				11/15/01						11/15/01						06/04/02						06/04/02					
Sampling Round:			Round 5				Round 6						Round 6						Round 7						Round 7					
Type of Sample:			Normal				Normal						Duplicate						Normal						Duplicate					
Parameter	MCL	Units	Result	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 5.0	U			< 5.0	0.041	5.0	U			< 5.0	0.041	5.0	U			< 1.0	0.21	1.0	U			< 1.0	0.21	1.0	U		
1,1,1-Trichloroethane	200	µg/L	< 5.0	U			< 5.0	0.09	5.0	U			< 5.0	0.09	5.0	U			< 1.0	0.22	1.0	U			< 1.0	0.22	1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 5.0	U			< 5.0	0.12	5.0	U			< 5.0	0.12	5.0	U			< 1.0	0.25	1.0	U			< 1.0	0.25	1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 5.0	U			< 5.0	0.082	5.0	U	UJ	5	< 5.0	0.082	5.0	U	UJ	5	< 1.0	0.33	1.0	U			< 1.0	0.33	1.0	U		
1,1-Dichloroethane	NE	µg/L	**0.3**	J	J	13	**0.8**	0.067	5.0	F	F	23	**0.8**	0.067	5.0	F	F	23	**0.38**	0.2	1.0	F	F	23	0.37	0.2	1.0	F	F	23
1,1-Dichloroethene	7.0	µg/L	< 5.0	U			< 5.0	0.074	5.0	U			< 5.0	0.074	5.0	U			< 1.0	0.19	1.0	U			< 1.0	0.19	1.0	U		
1,2-Dichloroethane	5.0	µg/L	**0.7**	J	J	13	< 5.0	0.07	5.0	U			< 5.0	0.07	5.0	U			< 1.0	0.25	1.0	U			< 1.0	0.25	1.0	U		
1,2-Dichloropropane	5.0	µg/L	< 5.0	U			< 5.0	0.047	5.0	U			< 5.0	0.047	5.0	U			< 1.0	0.22	1.0	U			< 1.0	0.22	1.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	U	R	5	< 100	1.1	100	U	UJ	5	< 100	1.1	100	U	UJ	5	< 5.0	1.7	5.0	U	UJ	5	< 5.0	1.7	5.0	U	UJ	5
2-Chloroethylvinyl ether	NE	µg/L	< 10	U			< 5.0	0.59	5.0	U			< 5.0	0.59	5.0	U			< 2.0	1.4	2.0	U	R	5	< 2.0	1.4	2.0	U	R	5
2-Hexanone	NE	µg/L	< 50	U			< 50	1.6	50	U	UJ	5	< 50	1.6	50	U	UJ	5	< 5.0	1.2	5.0	U	R	5	< 5.0	1.2	5.0	U	R	5
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	U			< 50	0.36	50	U			< 50	0.36	50	U			< 5.0	0.92	5.0	U	R	5	< 5.0	0.92	5.0	U	R	5
Acetone	NE	µg/L	< 100	U			< 100	1.6	100	U	UJ	5,10	< 100	1.6	100	U	UJ	5,10	< 5.0	1.5	5.0	U			< 5.0	1.5	5.0	U		
Benzene	5.0	µg/L	**15**		J	13	**14**	0.043	5.0				**15**	0.043	5.0				**7.2**	0.2	1.0				**9.4**	0.2	1.0			
Bromodichloromethane**	NE	µg/L	< 5.0	U			< 5.0	0.035	5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.23	1.0	U			< 1.0	0.23	1.0	U		
Bromoform**	NE	µg/L	< 5.0	U			< 5.0	0.053	5.0	U	UJ	5	< 5.0	0.053	5.0	U	UJ	5	< 1.0	0.22	1.0	U			< 1.0	0.22	1.0	U		
Bromomethane	NE	µg/L	< 10	U			< 10	0.25	10	U	UJ	5	< 10	0.25	10	U	UJ	5	< 1.0	0.18	1.0	U			< 1.0	0.18	1.0	U		
Carbon Disulfide	NE	µg/L	< 5.0	U			< 5.0	0.07	5.0	U			< 5.0	0.07	5.0	U			< 5.0	0.4	5.0	U			< 5.0	0.4	5.0	U		
Carbon Tetrachloride	5.0	µg/L	< 5.0	U			< 5.0	0.053	5.0	U	UJ	5	< 5.0	0.053	5.0	U	UJ	5	< 1.0	0.24	1.0	U			< 1.0	0.24	1.0	U		
Chlorobenzene	NE	µg/L	< 5.0	U			< 5.0	0.044	5.0	U			< 5.0	0.044	5.0	U			< 1.0	0.22	1.0	U			< 1.0	0.22	1.0	U		
Chloroethane	NE	µg/L	< 10	U			< 10	0.094	10	U			< 10	0.094	10	U			< 1.0	0.21	1.0	U			< 1.0	0.21	1.0	U		
Chloroform**	NE	µg/L	< 5.0	U			< 5.0	0.057	5.0	U			< 5.0	0.057	5.0	U			< 1.0	0.23	1.0	U			< 1.0	0.23	1.0	U		
Chloromethane	NE	µg/L	< 10	U			< 10	0.18	10	U			< 10	0.18	10	U			< 1.0	0.16	1.0	U			< 1.0	0.16	1.0	U		
cis-1,2-Dichloroethene	70	µg/L	**670**	D	J	13	**321**	0.073	5.0				**328**	0.073	5.0				**240**	2.1	10				**220**	2.1	10			
cis-1,3-Dichloropropene	NE	µg/L	< 5.0	U			< 5.0	0.026	5.0	U			< 5.0	0.026	5.0	U			< 1.0	0.22	1.0	U			< 1.0	0.22	1.0	U		
Dibromochloromethane**	NE	µg/L	< 5.0	U			< 5.0	0.054	5.0	U	UJ	5	< 5.0	0.054	5.0	U	UJ	5	< 1.0	0.23	1.0	U			< 1.0	0.23	1.0	U		
Ethyl Benzene	700	µg/L	< 5.0	U			< 5.0	0.036	5.0	U			< 5.0	0.036	5.0	U			< 1.0	0.2	1.0	U			**4.5**	0.2	1.0			
Methylene chloride	NE	µg/L	**0.9**	J	J	13	< 5.0	0.21	5.0	U			< 5.0	0.21	5.0	U			< 1.0	0.19	1.0	U			< 1.0	0.19	1.0	U		
Styrene	100	µg/L	< 5.0	U			< 5.0	0.051	5.0	U			< 5.0	0.051	5.0	U			< 1.0	0.23	1.0	U			< 1.0	0.23	1.0	U		
Tetrachloroethene	5.0	µg/L	< 5.0	U			< 5.0	0.086	5.0	U			< 5.0	0.086	5.0	U			< 1.0	0.2	1.0	U			< 1.0	0.2	1.0	U		
Toluene	1,000	µg/L	**0.3**	J	J	13	< 5.0	0.035	5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.21	1.0	U			**3.1**	0.21	1.0			
trans-1,2-Dichloroethene	100	µg/L	**2.0**	J	J	13	**3.0**	0.096	5.0	F	F	23	**4.0**	0.096	5.0	F	F	23	**1.2**	0.21	1.0				**1.3**	0.21	1.0			
trans-1,3-Dichloropropene	NE	µg/L	< 5.0	U			< 5.0	0.06	5.0	U			< 5.0	0.06	5.0	U			< 1.0	0.24	1.0	U			< 1.0	0.24	1.0	U		
Trichloroethene	5.0	µg/L	< 5.0	U			< 5.0	0.067	5.0	U			< 5.0	0.067	5.0	U			< 1.0	0.21	1.0	U			< 1.0	0.21	1.0	U		
Vinyl Acetate	NE	µg/L	< 50	U			< 50	0.22	50	U			< 50	0.22	50	U			< 5.0	0.47	5.0	U			< 5.0	0.47	5.0	U		
Vinyl Chloride	2.0	µg/L	**691**	D	J	13	**452**	0.1	2.0				**471**	0.1	2.0				**220**	1.8	10				**210**	1.8	10			
Xylenes, total	10,000	µg/L	**0.7**	J	J	13	**0.4**	0.098	5.0	F	F	23	**0.4**	0.098	5.0	F	F	23	< 1.0	0.28	1.0	U			**3.9**	0.28	1.0			

Location:			FT01-MW2				FT01-MW2				FT01-MW2				FT01-MW3				FT01-MW3				FT01-MW3				FT01-MW3			
Date:			08/18/00				11/14/00				11/14/00				08/17/00				11/15/00				02/27/01				05/09/01			
Sampling Round:			Round 1				Round 2				Round 2				Round 1				Round 2				Round 3				Round 4			
Type of Sample:			Normal				Normal				Duplicate				Normal				Normal				Normal				Normal			
Parameter	MCL	Units	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1,1-Trichloroethane	200	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1-Dichloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1-Dichloroethene	7.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,2-Dichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,2-Dichloropropane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	U	R	5	< 100	U	R	5	< 100	U	R	5	< 100	U	R	5	< 100	U	R	5	< 100	U			< 100	U	UJ	5
2-Chloroethylvinyl ether	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U		
2-Hexanone	NE	µg/L	< 50	U	UJ	5	< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U		
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U		
Acetone	NE	µg/L	< 50	U	UJ	5	< 50	U			< 50	U			< 50	U	UJ	5	< 50	U			< 50	U			< 50	U	UJ	5
Benzene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Bromodichloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Bromoform**	NE	µg/L	< 1.0	U	UJ	5	< 1.0	U	UJ	5	< 1.0	U	UJ	5	< 1.0	U	UJ	5	< 1.0	U	UJ	5	< 1.0	U	UJ	5	< 1.0	U		
Bromomethane	NE	µg/L	< 2.0	U	UJ	5	< 2.0	U			< 2.0	U			< 2.0	U	UJ	5	< 2.0	U			< 2.0	U			< 2.0	U	UJ	5
Carbon Disulfide	NE	µg/L	< 20	U			< 20	U			< 20	U			< 20	U			< 20	U			< 20	U			< 20	U		
Carbon Tetrachloride	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Chlorobenzene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Chloroethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
Chloroform**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Chloromethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
cis-1,2-Dichloroethene	70	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			**3.0**				**5.3**				**1.9**				**1.7**			
cis-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Dibromochloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Ethyl Benzene	700	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			**1.6**				< 1.0	U		
Methylene chloride	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U		
Styrene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Tetrachloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Toluene	1,000	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
trans-1,2-Dichloroethene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Trichloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Vinyl Acetate	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
Vinyl Chloride	2.0	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			**6.0**				**6.1**				< 2.0	U			< 2.0	U		
Xylenes, total	10,000	µg/L	< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U		

Location:			FT01-MW3				FT01-MW3						FT01-MW3						FT01-MW4				FT01-MW4			
Date:			08/15/01				11/16/01						06/06/02						08/17/00				11/15/00			
Sampling Round:			Round 5				Round 6						Round 7						Round 1				Round 2			
Type of Sample:			Normal				Normal						Normal						Normal				Normal			
Parameter	MCL	Units	Result	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 5.0	U	UJ	13	< 5.0	0.048	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U		
1,1,1-Trichloroethane	200	µg/L	< 5.0	U	UJ	13	< 5.0	0.07	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 5.0	U	UJ	13	< 5.0	0.17	5.0	U			< 1.0	0.25	1.0	U			< 1.0	U			< 1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 5.0	U	UJ,M	13,8,9	< 5.0	0.054	5.0	U			< 1.0	0.33	1.0	U			< 1.0	U			< 1.0	U		
1,1-Dichloroethane	NE	µg/L	< 5.0	U	UJ	13	< 5.0	0.035	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U		
1,1-Dichloroethene	7.0	µg/L	< 5.0	U	UJ	13	< 5.0	0.047	5.0	U			< 1.0	0.19	1.0	U			< 1.0	U			< 1.0	U		
1,2-Dichloroethane	5.0	µg/L	< 5.0	U	UJ	13	< 5.0	0.03	5.0	U			< 1.0	0.25	1.0	U			< 1.0	U			< 1.0	U		
1,2-Dichloropropane	5.0	µg/L	< 5.0	U	UJ	13	< 5.0	0.039	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	U	R	5	< 100	0.67	100	U			< 2.0	1.7	2.0	U			< 100	U	R	5	< 100	U	R	5
2-Chloroethylvinyl ether	NE	µg/L	< 10	U	UJ,M	13,8,9	< 5.0	0.58	5.0	U			< 2.0	1.4	2.0	U	R	5	< 5.0	U			< 5.0	U	UJ	5
2-Hexanone	NE	µg/L	< 50	U	UJ,M	13,8,9	< 50	0.45	50	U			< 2.0	1.2	2.0	U	R	5	< 50	U			< 50	U		
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	U	UJ,M	13,8,9	< 50	0.043	50	U			< 2.0	0.92	2.0	U	R	5	< 50	U			< 50	U		
Acetone	NE	µg/L	< 100	U	UJ	5,13	< 100	1.1	100	U	UJ	5	< 2.0	1.5	2.0	U			< 50	U	UJ	5	< 50	U		
Benzene	5.0	µg/L	< 5.0	U	UJ	13	< 5.0	0.024	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U		
Bromodichloromethane**	NE	µg/L	< 5.0	U	UJ	13	< 5.0	0.031	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U		
Bromoform**	NE	µg/L	< 5.0	U	UJ	13	< 5.0	0.076	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U	UJ	5	< 1.0	U		
Bromomethane	NE	µg/L	< 10	U	UJ	13	< 10	0.11	10	U			< 1.0	0.18	1.0	U			< 2.0	U	UJ	5	< 2.0	U		
Carbon Disulfide	NE	µg/L	< 5.0	U	UJ	13	< 5.0	0.099	5.0	U			< 2.0	0.4	2.0	U			< 20	U			< 20	U		
Carbon Tetrachloride	5.0	µg/L	< 5.0	U	UJ	13	< 5.0	0.039	5.0	U			< 1.0	0.24	1.0	U			< 1.0	U			< 1.0	U		
Chlorobenzene	NE	µg/L	< 5.0	U	UJ	13	< 5.0	0.038	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U		
Chloroethane	NE	µg/L	< 10	U	UJ	13	< 10	0.066	10	U			< 1.0	0.21	1.0	U			< 2.0	U			< 2.0	U		
Chloroform**	NE	µg/L	< 5.0	U	UJ	13	< 5.0	0.026	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U		
Chloromethane	NE	µg/L	**0.9**[a]	J	J	13,10	**0.4**	0.047	10	F	F	23	< 1.0	0.16	1.0	U			< 2.0	U			< 2.0	U		
cis-1,2-Dichloroethene	70	µg/L	**8.0**		J	13	**8.0**	0.024	5.0				**2.6**	0.21	1.0				< 1.0	U			< 1.0	U		
cis-1,3-Dichloropropene	NE	µg/L	< 5.0	U	UJ	13	< 5.0	0.028	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U		
Dibromochloromethane**	NE	µg/L	< 5.0	U	UJ	13	< 5.0	0.034	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U		
Ethyl Benzene	700	µg/L	< 5.0	U	UJ	13	< 5.0	0.044	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U		
Methylene chloride	NE	µg/L	**2.0**	J	J,M	13,8,9	**1.0**	0.78	5.0	F	F,B	7,18	< 1.0	0.19	1.0	U			< 5.0	U			< 5.0	U		
Styrene	100	µg/L	< 5.0	U	UJ	13	< 5.0	0.036	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U		
Tetrachloroethene	5.0	µg/L	< 5.0	U	UJ	13	< 5.0	0.034	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U		
Toluene	1,000	µg/L	< 5.0	U	UJ	13	< 5.0	0.031	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U		
trans-1,2-Dichloroethene	100	µg/L	< 5.0	U	UJ	13	< 5.0	0.038	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 5.0	U	UJ	13	< 5.0	0.035	5.0	U			< 1.0	0.24	1.0	U			< 1.0	U			< 1.0	U		
Trichloroethene	5.0	µg/L	**0.8**	J	J	13	< 5.0	0.017	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U		
Vinyl Acetate	NE	µg/L	< 50	U	UJ	13	< 50	0.54	50	U			< 2.0	0.47	2.0	U			< 2.0	U			< 2.0	U		
Vinyl Chloride	2.0	µg/L	**2.0**	J	J	13	**0.5**	0.067	2.0	F	F	23	< 1.0	0.18	1.0	U			< 2.0	U			< 2.0	U		
Xylenes, total	10,000	µg/L	< 5.0	U	UJ	13	< 5.0	0.12	5.0	U			< 0.5	0.28	0.5	U			< 3.0	U			< 3.0	U		

Location:			FT01-MW4				FT01-MW4				FT01-MW4				FT01-MW4						FT01-MW4						FT01-MW5			
Date:			02/27/01				05/08/01				08/15/01				11/16/01						06/06/02						08/17/00			
Sampling Round:			Round 3				Round 4				Round 5				Round 6						Round 7						Round 1			
Type of Sample:			Normal				Normal				Normal				Normal						Normal						Normal			
Parameter	MCL	Units	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.048	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
1,1,1-Trichloroethane	200	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.07	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.17	5.0	U			< 1.0	0.25	1.0	U			< 1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.054	5.0	U			< 1.0	0.33	1.0	U			< 1.0	U		
1,1-Dichloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U		
1,1-Dichloroethene	7.0	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.047	5.0	U			< 1.0	0.19	1.0	U			< 1.0	U		
1,2-Dichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.03	5.0	U			< 1.0	0.25	1.0	U			< 1.0	U		
1,2-Dichloropropane	5.0	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.039	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	U	R	5	< 100	U	UJ	5	< 100	U	R	5	< 100	0.67	100	U	M	9	< 2.0	1.7	2.0	U			< 100	U	R	5
2-Chloroethylvinyl ether	NE	µg/L	< 5.0	U			< 5.0	U			< 10	U			< 5.0	0.58	5.0	U	M	8,9	< 2.0	1.4	2.0	U	R	5	< 5.0	U		
2-Hexanone	NE	µg/L	< 50	U			< 50	U	UJ	5	< 50	U			< 50	0.45	50	U	M	9	< 2.0	1.2	2.0	U	R	5	< 50	U		
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	U			< 50	U			< 50	U			< 50	0.043	50	U	M	9	< 2.0	0.92	2.0	U	R	5	< 50	U		
Acetone	NE	µg/L	< 50	U			< 50	U	UJ	5	< 100	U	UJ	5	< 100	1.1	100	U	UJ	5,8,9	< 2.0	1.5	2.0	U			< 50	U	UJ	5
Benzene	5.0	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.024	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U		
Bromodichloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.031	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U		
Bromoform**	NE	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.076	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U	UJ	5
Bromomethane	NE	µg/L	< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 10	U			< 10	0.11	10	U			< 1.0	0.18	1.0	U	M	8,9	< 2.0	U	UJ	5
Carbon Disulfide	NE	µg/L	< 20	U			< 20	U			< 5.0	U			< 5.0	0.099	5.0	U			< 2.0	0.4	2.0	U			< 20	U		
Carbon Tetrachloride	5.0	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.039	5.0	U			< 1.0	0.24	1.0	U			< 1.0	U		
Chlorobenzene	NE	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.038	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U		
Chloroethane	NE	µg/L	< 2.0	U			< 2.0	U			< 10	U			< 10	0.066	10	U			< 1.0	0.21	1.0	U			< 2.0	U		
Chloroform**	NE	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.026	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U		
Chloromethane	NE	µg/L	< 2.0	U			< 2.0	U			**0.7**[a]	J	J	10	< 10	0.047	10	U			< 1.0	0.16	1.0	U			< 2.0	U		
cis-1,2-Dichloroethene	70	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.024	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
cis-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.028	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U		
Dibromochloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.034	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U		
Ethyl Benzene	700	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.044	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U		
Methylene chloride	NE	µg/L	< 5.0	U			< 5.0	U			**1.0**	J			< 5.0	0.78	5.0	U			< 1.0	0.19	1.0	U			< 5.0	U		
Styrene	100	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.036	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U		
Tetrachloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.034	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U		
Toluene	1,000	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.031	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
trans-1,2-Dichloroethene	100	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.038	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.24	1.0	U			< 1.0	U		
Trichloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.017	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
Vinyl Acetate	NE	µg/L	< 2.0	U			< 2.0	U			< 50	U			< 50	0.54	50	U	M	9	< 2.0	0.47	2.0	U			< 2.0	U		
Vinyl Chloride	2.0	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	0.067	2.0	U			< 1.0	0.18	1.0	U			**340**	D	J	14
Xylenes, total	10,000	µg/L	< 3.0	U			< 3.0	U			< 5.0	U			< 5.0	0.12	5.0	U			< 0.5	0.28	0.5	U			< 3.0	U		

	Location:	FT01-MW5	FT01-MW5	FT01-MW5	FT01-MW5	FT01-MW5	FT01-MW5	FT01-MW5
	Date:	08/17/00	11/17/00	02/27/01	05/09/01	08/15/01	08/15/01	11/15/01
	Sampling Round:	Round 1	Round 2	Round 3	Round 4	Round 5	Round 5	Round 6
	Type of Sample:	Duplicate	Normal	Normal	Normal	Normal	Duplicate	Normal

Parameter	MCL	Units	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.041	5.0	U		
1,1,1-Trichloroethane	200	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.09	5.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.12	5.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.082	5.0	U	UJ	5
1,1-Dichloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.067	5.0	U		
1,1-Dichloroethene	7.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.074	5.0	U		
1,2-Dichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.07	5.0	U		
1,2-Dichloropropane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.047	5.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	U	R	5	< 100	U	R	5	< 100	U	UJ	5	< 100	U	UJ	5	< 100	U	R	5	< 100	U	R	5	< 100	1.1	100	U	UJ	5
2-Chloroethylvinyl ether	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 10	U			< 10	U			< 5.0	0.59	5.0	U		
2-Hexanone	NE	µg/L	< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	1.6	50	U	UJ	5
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	0.36	50	U		
Acetone	NE	µg/L	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 100	U	UJ	5	< 100	U	UJ	5	< 100	1.6	100	U	UJ	5
Benzene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.043	5.0	U		
Bromodichloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.035	5.0	U		
Bromoform**	NE	µg/L	< 1.0	U	UJ	5	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.053	5.0	U	UJ	5
Bromomethane	NE	µg/L	< 2.0	U	UJ	5	< 2.0	U			< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 10	U			< 10	U			< 10	0.25	10	U	UJ	5
Carbon Disulfide	NE	µg/L	< 20	U			< 20	U			< 20	U			< 20	U			< 5.0	U			< 5.0	U			< 5.0	0.07	5.0	U		
Carbon Tetrachloride	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.053	5.0	U		
Chlorobenzene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.044	5.0	U		
Chloroethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U			< 10	U			< 10	0.094	10	U		
Chloroform**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.057	5.0	U		
Chloromethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			**1.0**[a]	J	J	10	**1.0**[a]	J	J	10,13	< 10	0.18	10	U		
cis-1,2-Dichloroethene	70	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.073	5.0	U		
cis-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.026	5.0	U		
Dibromochloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.054	5.0	U	UJ	5
Ethyl Benzene	700	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.036	5.0	U		
Methylene chloride	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			**3.0**	J			**3.0**	J	J	13	**0.7**	0.21	5.0	F	F,B	7,18
Styrene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.051	5.0	U		
Tetrachloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.086	5.0	U		
Toluene	1,000	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.035	5.0	U		
trans-1,2-Dichloroethene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.096	5.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.06	5.0	U		
Trichloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	U			< 5.0	0.067	5.0	U		
Vinyl Acetate	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 50	U			< 50	U			< 50	0.22	50	U		
Vinyl Chloride	2.0	µg/L	**190**		J	14	**190**				**3.3**				**310**	E	J	23	**77**	D	J	14	**110**	D	J	13,14	**29**	0.1	2.0			
Xylenes, total	10,000	µg/L	< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 5.0	U			< 5.0	U			< 5.0	0.098	5.0	U		

		Location:	**FT01-MW5**						
		Date:	**06/07/02**						
		Sampling Round:	**Round 7**						
		Type of Sample:	**Normal**						
Parameter	MCL	Units		Result	MDL	RL	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	<	1.0	0.21	1.0	U		
1,1,1-Trichloroethane	200	µg/L	<	1.0	0.22	1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	<	1.0	0.25	1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	<	1.0	0.33	1.0	U		
1,1-Dichloroethane	NE	µg/L	<	1.0	0.2	1.0	U		
1,1-Dichloroethene	7.0	µg/L	<	1.0	0.19	1.0	U		
1,2-Dichloroethane	5.0	µg/L	<	1.0	0.25	1.0	U		
1,2-Dichloropropane	5.0	µg/L	<	1.0	0.22	1.0	U		
2-Butanone (MEK)	NE	µg/L	<	2.0	1.7	2.0	U		
2-Chloroethylvinyl ether	NE	µg/L	<	2.0	1.4	2.0	U	R	5
2-Hexanone	NE	µg/L	<	2.0	1.2	2.0	U	R	5
4-Methyl-2-pentanone (MIBK)	NE	µg/L	<	2.0	0.92	2.0	U	R	5
Acetone	NE	µg/L	<	2.0	1.5	2.0	U		
Benzene	5.0	µg/L	<	1.0	0.2	1.0	U		
Bromodichloromethane**	NE	µg/L	<	1.0	0.23	1.0	U		
Bromoform**	NE	µg/L	<	1.0	0.22	1.0	U		
Bromomethane	NE	µg/L	<	1.0	0.18	1.0	U	UJ	5
Carbon Disulfide	NE	µg/L	<	2.0	0.4	2.0	U		
Carbon Tetrachloride	5.0	µg/L	<	1.0	0.24	1.0	U		
Chlorobenzene	NE	µg/L	<	1.0	0.22	1.0	U		
Chloroethane	NE	µg/L	<	1.0	0.21	1.0	U		
Chloroform**	NE	µg/L	<	1.0	0.23	1.0	U		
Chloromethane	NE	µg/L	<	1.0	0.16	1.0	U		
cis-1,2-Dichloroethene	70	µg/L	<	1.0	0.21	1.0	U		
cis-1,3-Dichloropropene	NE	µg/L	<	1.0	0.22	1.0	U		
Dibromochloromethane**	NE	µg/L	<	1.0	0.23	1.0	U		
Ethyl Benzene	700	µg/L	<	1.0	0.2	1.0	U		
Methylene chloride	NE	µg/L	<	1.0	0.19	1.0	U		
Styrene	100	µg/L	<	1.0	0.23	1.0	U		
Tetrachloroethene	5.0	µg/L	<	1.0	0.2	1.0	U		
Toluene	1,000	µg/L	<	1.0	0.21	1.0	U		
trans-1,2-Dichloroethene	100	µg/L	<	1.0	0.21	1.0	U		
trans-1,3-Dichloropropene	NE	µg/L	<	1.0	0.24	1.0	U		
Trichloroethene	5.0	µg/L	<	1.0	0.21	1.0	U		
Vinyl Acetate	NE	µg/L	<	2.0	0.47	2.0	U		
Vinyl Chloride	2.0	µg/L		**450**	18	100			
Xylenes, total	10,000	µg/L	<	0.5	0.28	0.5	U		

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

	Location:		FT01-MW6				FT01-MW16				FT01-MW16				FT01-MW16				FT01-MW16				FT01-MW16			
	Date:		08/18/00				08/18/00				11/14/00				02/28/01				05/07/01				08/14/01			
	Sampling Round:		Round 1				Round 1				Round 2				Round 3				Round 4				Round 5			
	Type of Sample:		Normal				Normal				Normal				Normal				Normal				Normal			
Parameter	MCL	Units	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
1,1,1-Trichloroethane	200	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
1,1-Dichloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
1,1-Dichloroethene	7.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
1,2-Dichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
1,2-Dichloropropane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	U	R	5	< 100	U	R	5	< 100	U	R	5	< 100	U	R	5	< 100	U	UJ	5	< 100	U	R	5
2-Chloroethylvinyl ether	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 10	U		
2-Hexanone	NE	µg/L	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U			< 50	U			< 50	U	UJ	5	< 50	U		
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U		
Acetone	NE	µg/L	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U			< 50	U			< 50	U	UJ	5	< 100	U		
Benzene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Bromodichloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Bromoform**	NE	µg/L	< 1.0	U	UJ	5	< 1.0	U	UJ	5	< 1.0	U	UJ	5	< 1.0	U			< 1.0	U			< 5.0	U		
Bromomethane	NE	µg/L	< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 2.0	U			< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 10	U		
Carbon Disulfide	NE	µg/L	< 20	U			< 20	U			< 20	U			< 20	U			< 20	U			< 5.0	U		
Carbon Tetrachloride	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Chlorobenzene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Chloroethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U		
Chloroform**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Chloromethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U		
cis-1,2-Dichloroethene	70	µg/L	**4.2**				< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
cis-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Dibromochloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Ethyl Benzene	700	µg/L	**2.2**				< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Methylene chloride	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			**0.8**	J		
Styrene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Tetrachloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Toluene	1,000	µg/L	**24**				< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
trans-1,2-Dichloroethene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Trichloroethene	5.0	µg/L	**1.3**				< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Vinyl Acetate	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 50	U	UJ	5
Vinyl Chloride	2.0	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
Xylenes, total	10,000	µg/L	< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 5.0	U		

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

	Location:		FT01-MW16						FT01-MW16						FT01-MW17				FT01-MW17				FT01-MW17			
	Date:		11/15/01						06/04/02						08/18/00				11/14/00				02/28/01			
	Sampling Round:		Round 6						Round 7						Round 1				Round 2				Round 3			
	Type of Sample:		Normal						Normal						Normal				Normal				Normal			
Parameter	MCL	Units	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 5.0	0.041	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1,1-Trichloroethane	200	µg/L	< 5.0	0.09	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 5.0	0.12	5.0	U			< 1.0	0.25	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 5.0	0.082	5.0	U	UJ	5	< 1.0	0.33	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1-Dichloroethane	NE	µg/L	< 5.0	0.067	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1-Dichloroethene	7.0	µg/L	< 5.0	0.074	5.0	U			< 1.0	0.19	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,2-Dichloroethane	5.0	µg/L	< 5.0	0.07	5.0	U			< 1.0	0.25	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,2-Dichloropropane	5.0	µg/L	< 5.0	0.047	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	1.1	100	U	UJ	5	< 5.0	1.7	5.0	U	UJ	5	< 100	U	R	5	< 100	U	R	5	< 100	U	R	5
2-Chloroethylvinyl ether	NE	µg/L	< 5.0	0.59	5.0	U			< 2.0	1.4	2.0	U	R	5	< 5.0	U			< 5.0	U			< 5.0	U	M	8,9
2-Hexanone	NE	µg/L	< 50	1.6	50	U	UJ	5	< 5.0	1.2	5.0	U	R	5	< 50	U	UJ	5	< 50	U			< 50	U		
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	0.36	50	U			< 5.0	0.92	5.0	U	R	5	< 50	U			< 50	U			< 50	U		
Acetone	NE	µg/L	< 100	1.6	100	U	UJ	5	< 5.0	1.5	5.0	U			< 50	U	UJ	5	< 50	U			< 50	U		
Benzene	5.0	µg/L	< 5.0	0.043	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Bromodichloromethane**	NE	µg/L	< 5.0	0.035	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Bromoform**	NE	µg/L	< 5.0	0.053	5.0	U	UJ	5	< 1.0	0.22	1.0	U			< 1.0	U	UJ	5	< 1.0	U	UJ	5	< 1.0	U		
Bromomethane	NE	µg/L	< 10	0.25	10	U	UJ	5	< 1.0	0.18	1.0	U			< 2.0	U	UJ	5	< 2.0	U			< 2.0	P	UJ,M	5,8,9
Carbon Disulfide	NE	µg/L	< 5.0	0.07	5.0	U			< 5.0	0.4	5.0	U			< 20	U			< 20	U			< 20	U		
Carbon Tetrachloride	5.0	µg/L	< 5.0	0.053	5.0	U			< 1.0	0.24	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Chlorobenzene	NE	µg/L	< 5.0	0.044	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Chloroethane	NE	µg/L	< 10	0.094	10	U			< 1.0	0.21	1.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
Chloroform**	NE	µg/L	< 5.0	0.057	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Chloromethane	NE	µg/L	< 10	0.18	10	U			< 1.0	0.16	1.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
cis-1,2-Dichloroethene	70	µg/L	< 5.0	0.073	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
cis-1,3-Dichloropropene	NE	µg/L	< 5.0	0.026	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Dibromochloromethane**	NE	µg/L	< 5.0	0.054	5.0	U	UJ	5	< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Ethyl Benzene	700	µg/L	< 5.0	0.036	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Methylene chloride	NE	µg/L	**0.6**	0.21	5.0	F	F,B	7,18	< 1.0	0.19	1.0	U			< 5.0	U			< 5.0	U			< 5.0	U		
Styrene	100	µg/L	< 5.0	0.051	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Tetrachloroethene	5.0	µg/L	< 5.0	0.086	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Toluene	1,000	µg/L	< 5.0	0.035	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
trans-1,2-Dichloroethene	100	µg/L	< 5.0	0.096	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 5.0	0.06	5.0	U			< 1.0	0.24	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Trichloroethene	5.0	µg/L	< 5.0	0.067	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Vinyl Acetate	NE	µg/L	< 50	0.22	50	U			< 5.0	0.47	5.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
Vinyl Chloride	2.0	µg/L	< 2.0	0.1	2.0	U			< 1.0	0.18	1.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
Xylenes, total	10,000	µg/L	< 5.0	0.098	5.0	U			< 1.0	0.28	1.0	U			< 3.0	U			< 3.0	U			< 3.0	U		

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

	Location:	FT01-MW17						FT01-MW17				FT01-MW17						FT01-MW17						FT02-MW1			
	Date:	05/08/01						08/14/01				11/14/01						06/04/02						08/18/00			
	Sampling Round:	Round 4						Round 5				Round 6						Round 7						Round 1			
	Type of Sample:	Normal						Normal				Normal						Normal						Normal			
Parameter	MCL	Units		Result	Q	DQ	RC	Result	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.041	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
1,1,1-Trichloroethane	200	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.09	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.12	5.0	U			< 1.0	0.25	1.0	U			< 1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.082	5.0	U	UJ	5	< 1.0	0.33	1.0	U			< 1.0	U		
1,1-Dichloroethane	NE	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.067	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U		
1,1-Dichloroethene	7.0	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.074	5.0	U			< 1.0	0.19	1.0	U			< 1.0	U		
1,2-Dichloroethane	5.0	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.07	5.0	U			< 1.0	0.25	1.0	U			< 1.0	U		
1,2-Dichloropropane	5.0	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.047	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U		
2-Butanone (MEK)	NE	µg/L	<	100	U	UJ	5	< 100	U	R	5	< 100	1.1	100	U	UJ	5	< 5.0	1.7	5.0	U	UJ	5	< 100	U	R	5
2-Chloroethylvinyl ether	NE	µg/L	<	5.0	U			< 10	U			< 5.0	0.59	5.0	U			< 2.0	1.4	2.0	U	R	5	< 5.0	U		
2-Hexanone	NE	µg/L	<	50	U	UJ	5	< 50	U			< 50	1.6	50	U	UJ	5	< 5.0	1.2	5.0	U	R	5	< 50	U	UJ	5
4-Methyl-2-pentanone (MIBK)	NE	µg/L	<	50	U			< 50	U			< 50	0.36	50	U			< 5.0	0.92	5.0	U	R	5	< 50	U		
Acetone	NE	µg/L	<	50	U	UJ	5	< 100	U			< 100	1.6	100	U	UJ,M	5,8,10	< 5.0	1.5	5.0	U			< 50	U	UJ	5
Benzene	5.0	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.043	5.0	U			< 1.0	0.2	1.0	U			**3.5**			
Bromodichloromethane**	NE	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U		
Bromoform**	NE	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.053	5.0	U	UJ,M	5,8	< 1.0	0.22	1.0	U			< 1.0	U	UJ	5
Bromomethane	NE	µg/L	<	2.0	U	UJ	5	< 10	U			< 10	0.25	10	U	UJ	5	< 1.0	0.18	1.0	U			< 2.0	U	UJ	5
Carbon Disulfide	NE	µg/L	<	20	U			< 5.0	U			< 5.0	0.07	5.0	U			< 5.0	0.4	5.0	U			< 20	U		
Carbon Tetrachloride	5.0	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.053	5.0	U	UJ	5	< 1.0	0.24	1.0	U			< 1.0	U		
Chlorobenzene	NE	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.044	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U		
Chloroethane	NE	µg/L	<	2.0	U			< 10	U			< 10	0.094	10	U			< 1.0	0.21	1.0	U			< 2.0	U		
Chloroform**	NE	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.057	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U		
Chloromethane	NE	µg/L	<	2.0	U			< 10	U			< 10	0.18	10	U			< 1.0	0.16	1.0	U			< 2.0	U		
cis-1,2-Dichloroethene	70	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.073	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
cis-1,3-Dichloropropene	NE	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.026	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U		
Dibromochloromethane**	NE	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.054	5.0	U	UJ,M	5,8	< 1.0	0.23	1.0	U			< 1.0	U		
Ethyl Benzene	700	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.036	5.0	U			< 1.0	0.2	1.0	U			**160**			
Methylene chloride	NE	µg/L	<	5.0	U			**1.0**	J			< 5.0	0.21	5.0	U			< 1.0	0.19	1.0	U			< 5.0	U		
Styrene	100	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.051	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U		
Tetrachloroethene	5.0	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.086	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U		
Toluene	1,000	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.21	1.0	U			**1.1**			
trans-1,2-Dichloroethene	100	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.096	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
trans-1,3-Dichloropropene	NE	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.06	5.0	U			< 1.0	0.24	1.0	U			< 1.0	U		
Trichloroethene	5.0	µg/L	<	1.0	U			< 5.0	U			< 5.0	0.067	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
Vinyl Acetate	NE	µg/L	<	2.0	U			< 50	U			< 50	0.22	50	U			< 5.0	0.47	5.0	U			< 2.0	U		
Vinyl Chloride	2.0	µg/L	<	2.0	U			< 2.0	U			< 2.0	0.1	2.0	U			< 1.0	0.18	1.0	U			< 2.0	U		
Xylenes, total	10,000	µg/L	<	3.0	U			< 5.0	U			< 5.0	0.098	5.0	U			< 1.0	0.28	1.0	U			**220**			

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

	Location:	FT02-MW1	FT02-MW1	FT02-MW1	FT02-MW1	FT02-MW1	FT02-MW1	FT02-MW1
	Date:	08/18/00	11/17/00	02/27/01	05/09/01	08/16/01	11/15/01	
	Sampling Round:	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	
	Type of Sample:	Duplicate	Normal	Normal	Normal	Normal	Normal	

Parameter	MCL	Units	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.041	5.0	U		
1,1,1-Trichloroethane	200	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.09	5.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.12	5.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5	< 5.0	0.082	5.0	U	UJ	5
1,1-Dichloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.067	5.0	U		
1,1-Dichloroethene	7.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.074	5.0	U		
1,2-Dichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.07	5.0	U		
1,2-Dichloropropane	5.0	µg/L	< 1.0	U			**1.3**				< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.047	5.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	U	R	5	< 100	U	R	5	< 100	U	UJ	5	< 100	U	UJ	5	< 100	U	R	5	< 100	1.1	100	U	UJ	5
2-Chloroethylvinyl ether	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 10	U			< 5.0	0.59	5.0	U		
2-Hexanone	NE	µg/L	< 50	U	UJ	5	< 50	U			< 50	U			< 50	U			< 50	U	UJ	5	< 50	1.6	50	U	UJ	5
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	0.36	50	U		
Acetone	NE	µg/L	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 100	U			< 100	1.6	100	U	UJ	5
Benzene	5.0	µg/L	**3.6**				**3.3**				**1.3**				**1.1**				**2.0**	J			**0.5**	0.043	5.0	F	F	23
Bromodichloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.035	5.0	U		
Bromoform**	NE	µg/L	< 1.0	U	UJ	5	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.053	5.0	U	UJ	5
Bromomethane	NE	µg/L	< 2.0	U	UJ	5	< 2.0	U			< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 10	U			< 10	0.25	10	U	UJ	5
Carbon Disulfide	NE	µg/L	< 20	U			< 20	U			< 20	U			< 20	U			< 5.0	U	UJ	10	< 5.0	0.07	5.0	U		
Carbon Tetrachloride	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.053	5.0	U		
Chlorobenzene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.044	5.0	U		
Chloroethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U			< 10	0.094	10	U		
Chloroform**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.057	5.0	U		
Chloromethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U			< 10	0.18	10	U		
cis-1,2-Dichloroethene	70	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.073	5.0	U		
cis-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.026	5.0	U		
Dibromochloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.054	5.0	U	UJ	5
Ethyl Benzene	700	µg/L	**170**				**190**				**89**				**61**				**95**[a]				**33**	0.036	5.0			
Methylene chloride	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			**1.0**	0.21	5.0	F	F,B	7,18
Styrene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.051	5.0	U		
Tetrachloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.086	5.0	U		
Toluene	1,000	µg/L	**1.5**				**1.4**				< 1.0	U			< 1.0	U			**0.9**	J			< 5.0	0.035	5.0	U		
trans-1,2-Dichloroethene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.096	5.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.06	5.0	U		
Trichloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.067	5.0	U		
Vinyl Acetate	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 50	U	UJ	5	< 50	0.22	50	U		
Vinyl Chloride	2.0	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	0.1	2.0	U		
Xylenes, total	10,000	µg/L	**230**				**330**				**150**				**100**				**205**[a]				**78**	0.098	5.0			

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

	Location:	FT02-MW1							FT02-MW2				FT02-MW2				FT02-MW2				FT02-MW2				FT02-MW2			
	Date:	06/07/02							08/16/00				11/16/00				02/26/01				05/08/01				08/15/01			
	Sampling Round:	Round 7							Round 1				Round 2				Round 3				Round 4				Round 5			
	Type of Sample:	Normal							Normal				Normal				Normal				Normal				Normal			
Parameter	MCL	Units		Result	MDL	RL	Q	DQ	RC		Result	Q	DQ	RC		Result	Q	DQ	RC		Result	Q	DQ	RC		Result	Q	DQ	RC		Result	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	<	1.0	0.21	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U		
1,1,1-Trichloroethane	200	µg/L	<	1.0	0.22	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	<	1.0	0.25	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	<	1.0	0.33	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U		
1,1-Dichloroethane	NE	µg/L	<	1.0	0.2	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U		
1,1-Dichloroethene	7.0	µg/L	<	1.0	0.19	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U		
1,2-Dichloroethane	5.0	µg/L	<	1.0	0.25	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U		
1,2-Dichloropropane	5.0	µg/L	<	1.0	0.22	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U		
2-Butanone (MEK)	NE	µg/L	<	2.0	1.7	2.0	U			<	100	U	R	5	<	100	U	R	5	<	100	U	UJ	5	<	100	U	UJ	5	<	100	U	R	5
2-Chloroethylvinyl ether	NE	µg/L	<	2.0	1.4	2.0	U	R	5	<	5.0	U			<	5.0	U			<	5.0	U			<	5.0	U			<	10	U		
2-Hexanone	NE	µg/L	<	2.0	1.2	2.0	U	R	5	<	50	U			<	50	U			<	50	U			<	50	U	UJ	5	<	50	U		
4-Methyl-2-pentanone (MIBK)	NE	µg/L	<	2.0	0.92	2.0	U	R	5	<	50	U			<	50	U			<	50	U			<	50	U			<	50	U		
Acetone	NE	µg/L	<	2.0	1.5	2.0	U			<	50	U	UJ	5	<	50	U	UJ	5	<	50	U	UJ	5	<	50	U	UJ	5		**4.0**	J	J	5
Benzene	5.0	µg/L		**1.7**	0.2	1.0				<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Bromodichloromethane**	NE	µg/L	<	1.0	0.23	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Bromoform**	NE	µg/L	<	1.0	0.22	1.0	U			<	1.0	U	UJ	5	<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Bromomethane	NE	µg/L	<	1.0	0.18	1.0	U			<	2.0	U	UJ	5	<	2.0	U			<	2.0	U	UJ	5	<	2.0	U	UJ	5	<	10	U		
Carbon Disulfide	NE	µg/L	<	2.0	0.4	2.0	U			<	20	U			<	20	U			<	20	U			<	20	U			<	5.0	U		
Carbon Tetrachloride	5.0	µg/L	<	1.0	0.24	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Chlorobenzene	NE	µg/L	<	1.0	0.22	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Chloroethane	NE	µg/L	<	1.0	0.21	1.0	U			<	2.0	U			<	2.0	U			<	2.0	U			<	2.0	U			<	10	U		
Chloroform**	NE	µg/L	<	1.0	0.23	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Chloromethane	NE	µg/L	<	1.0	0.16	1.0	U			<	2.0	U			<	2.0	U			<	2.0	U			<	2.0	U				**1.0**[a]	J	UJ	10
cis-1,2-Dichloroethene	70	µg/L	<	1.0	0.21	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
cis-1,3-Dichloropropene	NE	µg/L	<	1.0	0.22	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Dibromochloromethane**	NE	µg/L	<	1.0	0.23	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Ethyl Benzene	700	µg/L		**90**	2.0	10				<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Methylene chloride	NE	µg/L	<	1.0	0.19	1.0	U			<	5.0	U			<	5.0	U			<	5.0	U			<	5.0	U				**3.0**	J		
Styrene	100	µg/L	<	1.0	0.23	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Tetrachloroethene	5.0	µg/L	<	1.0	0.2	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Toluene	1,000	µg/L	<	1.0	0.21	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
trans-1,2-Dichloroethene	100	µg/L	<	1.0	0.21	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
trans-1,3-Dichloropropene	NE	µg/L	<	1.0	0.24	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Trichloroethene	5.0	µg/L	<	1.0	0.21	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	1.0	U			<	5.0	U		
Vinyl Acetate	NE	µg/L	<	2.0	0.47	2.0	U			<	2.0	U			<	2.0	U			<	2.0	U			<	2.0	U			<	50	U		
Vinyl Chloride	2.0	µg/L	<	1.0	0.18	1.0	U			<	2.0	U			<	2.0	U			<	2.0	U			<	2.0	U			<	2.0	U		
Xylenes, total	10,000	µg/L		**240**	2.8	5.0				<	3.0	U			<	3.0	U			<	3.0	U			<	3.0	U			<	5.0	U		

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

	Location:	FT02-MW2							FT02-MW2						FT02-MW3				FT02-MW3				FT02-MW3			
	Date:	11/15/01							06/06/02						08/16/00				11/16/00				02/26/01			
	Sampling Round:	Round 6							Round 7						Round 1				Round 2				Round 3			
	Type of Sample:	Normal							Normal						Normal				Normal				Normal			
Parameter	MCL	Units	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 5.0	0.04	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1,1-Trichloroethane	200	µg/L	< 5.0	0.09	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 5.0	0.12	5.0	U			< 1.0	0.25	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 5.0	0.08	5.0	U	UJ	5	< 1.0	0.33	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1-Dichloroethane	NE	µg/L	< 5.0	0.07	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,1-Dichloroethene	7.0	µg/L	< 5.0	0.07	5.0	U			< 1.0	0.19	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,2-Dichloroethane	5.0	µg/L	< 5.0	0.07	5.0	U			< 1.0	0.25	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
1,2-Dichloropropane	5.0	µg/L	< 5.0	0.05	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	1.1	100	U	UJ	5	< 2.0	1.7	2.0	U			< 100	U	R	5	< 100	U	R	5	< 100	U	R	5
2-Chloroethylvinyl ether	NE	µg/L	< 5.0	0.59	5.0	U			< 2.0	1.4	2.0	U	R	5	< 5.0	U			< 5.0	U			< 5.0	U	M	8
2-Hexanone	NE	µg/L	< 50	1.6	50	U	UJ	5	< 2.0	1.2	2.0	U	R	5	< 50	U			< 50	U			< 50	U		
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	0.36	50	U			< 2.0	0.92	2.0	U	R	5	< 50	U			< 50	U			< 50	U		
Acetone	NE	µg/L	< 100	1.6	100	U	UJ	5	< 2.0	1.5	2.0	U			< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5
Benzene	5.0	µg/L	< 5.0	0.04	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Bromodichloromethane**	NE	µg/L	< 5.0	0.04	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Bromoform**	NE	µg/L	< 5.0	0.05	5.0	U	UJ	5	< 1.0	0.22	1.0	U			< 1.0	U	UJ	5	< 1.0	U			< 1.0	U		
Bromomethane	NE	µg/L	< 10	0.25	10	U	UJ	5	< 1.0	0.18	1.0	U			< 2.0	U	UJ	5	< 2.0	U			< 2.0	U	UJ	5
Carbon Disulfide	NE	µg/L	< 5.0	0.07	5.0	U			< 2.0	0.4	2.0	U			< 20	U			< 20	U			< 20	U		
Carbon Tetrachloride	5.0	µg/L	< 5.0	0.05	5.0	U			< 1.0	0.24	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Chlorobenzene	NE	µg/L	< 5.0	0.04	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Chloroethane	NE	µg/L	< 10	0.09	10	U			< 1.0	0.21	1.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
Chloroform**	NE	µg/L	< 5.0	0.06	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Chloromethane	NE	µg/L	< 10	0.18	10	U			< 1.0	0.16	1.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
cis-1,2-Dichloroethene	70	µg/L	< 5.0	0.07	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			**1.9**			
cis-1,3-Dichloropropene	NE	µg/L	< 5.0	0.03	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Dibromochloromethane**	NE	µg/L	< 5.0	0.05	5.0	U	UJ	5	< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Ethyl Benzene	700	µg/L	< 5.0	0.04	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U			**1.6**			
Methylene chloride	NE	µg/L	**0.8**	0.21	5.0	F	F,B	7,18	< 1.0	0.19	1.0	U			< 5.0	U			< 5.0	U			< 5.0	U		
Styrene	100	µg/L	< 5.0	0.05	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Tetrachloroethene	5.0	µg/L	< 5.0	0.09	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Toluene	1,000	µg/L	< 5.0	0.04	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
trans-1,2-Dichloroethene	100	µg/L	< 5.0	0.1	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 5.0	0.06	5.0	U			< 1.0	0.24	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Trichloroethene	5.0	µg/L	< 5.0	0.07	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U		
Vinyl Acetate	NE	µg/L	< 50	0.22	50	U			< 2.0	0.47	2.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
Vinyl Chloride	2.0	µg/L	< 2.0	0.1	2.0	U			< 1.0	0.18	1.0	U			< 2.0	U			< 2.0	U			< 2.0	U		
Xylenes, total	10,000	µg/L	< 5.0	0.1	5.0	U			< 0.5	0.28	0.5	U			< 3.0	U			< 3.0	U			< 3.0	U		

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

	Location:		FT02-MW3				FT02-MW3				FT02-MW3						FT02-MW3						FT02-MW4			
	Date:		05/08/01				08/15/01				11/15/01						06/06/02						08/16/00			
	Sampling Round:		Round 4				Round 5				Round 6						Round 7						Round 1			
	Type of Sample:		Normal				Normal				Normal						Normal						Normal			
Parameter	MCL	Units	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.041	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
1,1,1-Trichloroethane	200	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.09	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.12	5.0	U			< 1.0	0.25	1.0	U			< 1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.082	5.0	U	UJ	5	< 1.0	0.33	1.0	U			< 1.0	U		
1,1-Dichloroethane	NE	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.067	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U		
1,1-Dichloroethene	7.0	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.074	5.0	U			< 1.0	0.19	1.0	U			< 1.0	U		
1,2-Dichloroethane	5.0	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.07	5.0	U			< 1.0	0.25	1.0	U			< 1.0	U		
1,2-Dichloropropane	5.0	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.047	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	U	UJ	5	< 100	U	R	5	< 100	1.1	100	U	UJ	5	< 2.0	1.7	2.0	U			< 100	U	R	5
2-Chloroethylvinyl ether	NE	µg/L	< 5.0	U			< 10	U			< 5.0	0.59	5.0	U			< 2.0	1.4	2.0	U	R	5	< 5.0	U		
2-Hexanone	NE	µg/L	< 50	U	UJ	5	< 50	U			< 50	1.6	50	U	UJ	5	< 2.0	1.2	2.0	U	R	5	< 50	U		
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	U			< 50	U			< 50	0.36	50	U			< 2.0	0.92	2.0	U	R	5	< 50	U		
Acetone	NE	µg/L	< 50	U	UJ	5	< 100	U	UJ	5	< 100	1.6	100	U	UJ	5	< 2.0	1.5	2.0	U			< 50	U	UJ	5
Benzene	5.0	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.043	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U		
Bromodichloromethane**	NE	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U		
Bromoform**	NE	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.053	5.0	U	UJ	5	< 1.0	0.22	1.0	U			< 1.0	U	UJ	5
Bromomethane	NE	µg/L	< 2.0	U	UJ	5	< 10	U			< 10	0.25	10	U	UJ	5	< 1.0	0.18	1.0	U			< 2.0	U	UJ	5
Carbon Disulfide	NE	µg/L	< 20	U			< 5.0	U			< 5.0	0.07	5.0	U			< 2.0	0.4	2.0	U			< 20	U		
Carbon Tetrachloride	5.0	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.053	5.0	U			< 1.0	0.24	1.0	U			< 1.0	U		
Chlorobenzene	NE	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.044	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U		
Chloroethane	NE	µg/L	< 2.0	U			< 10	U			< 10	0.094	10	U			< 1.0	0.21	1.0	U			< 2.0	U		
Chloroform**	NE	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.057	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U		
Chloromethane	NE	µg/L	< 2.0	U			**0.9**[a]	J	J	10	< 10	0.18	10	U			< 1.0	0.16	1.0	U			< 2.0	U		
cis-1,2-Dichloroethene	70	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.073	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
cis-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.026	5.0	U			< 1.0	0.22	1.0	U			< 1.0	U		
Dibromochloromethane**	NE	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.054	5.0	U	UJ	5	< 1.0	0.23	1.0	U			< 1.0	U		
Ethyl Benzene	700	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.036	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U		
Methylene chloride	NE	µg/L	< 5.0	U			**3.0**	J			**1.0**	0.21	5.0	F	F,B	7,18	< 1.0	0.19	1.0	U			< 5.0	U		
Styrene	100	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.051	5.0	U			< 1.0	0.23	1.0	U			< 1.0	U		
Tetrachloroethene	5.0	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.086	5.0	U			< 1.0	0.2	1.0	U			< 1.0	U		
Toluene	1,000	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
trans-1,2-Dichloroethene	100	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.096	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.06	5.0	U			< 1.0	0.24	1.0	U			< 1.0	U		
Trichloroethene	5.0	µg/L	< 1.0	U			< 5.0	U			< 5.0	0.067	5.0	U			< 1.0	0.21	1.0	U			< 1.0	U		
Vinyl Acetate	NE	µg/L	< 2.0	U			< 50	U			< 50	0.22	50	U			< 2.0	0.47	2.0	U			< 2.0	U		
Vinyl Chloride	2.0	µg/L	< 2.0	U			< 2.0	U			< 2.0	0.1	2.0	U			< 1.0	0.18	1.0	U			< 2.0	U		
Xylenes, total	10,000	µg/L	< 3.0	U			< 5.0	U			< 5.0	0.098	5.0	U			< 0.5	0.28	0.5	U			< 3.0	U		

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

			Location:	FT02-MW4				FT02-MW4				FT02-MW4				FT02-MW4				FT02-MW4					FT02-MW4				
			Date:	11/16/00				02/26/01				05/08/01				08/16/01				11/14/01					06/06/02				
			Sampling Round:	Round 2				Round 3				Round 4				Round 5				Round 6					Round 7				
			Type of Sample:	Normal				Normal				Normal				Normal				Normal					Normal				
Parameter	MCL	Units		Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5	< 5.0	0.041	5.0	U			< 1.0	0.21	1.0	U		
1,1,1-Trichloroethane	200	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.09	5.0	U			< 1.0	0.22	1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5	< 5.0	0.12	5.0	U			< 1.0	0.25	1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5,10	< 5.0	0.082	5.0	U	UJ	5	< 1.0	0.33	1.0	U		
1,1-Dichloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.067	5.0	U			< 1.0	0.2	1.0	U		
1,1-Dichloroethene	7.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.074	5.0	U			< 1.0	0.19	1.0	U		
1,2-Dichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.07	5.0	U			< 1.0	0.25	1.0	U		
1,2-Dichloropropane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.047	5.0	U			< 1.0	0.22	1.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	U	R	5	< 100	U	UJ	5	< 100	U	UJ	5	< 100	U	R	5	< 100	1.1	100	U	UJ	5	< 2.0	1.7	2.0	U		
2-Chloroethylvinyl ether	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 10	U			< 5.0	0.59	5.0	U			< 2.0	1.4	2.0	U	R	5
2-Hexanone	NE	µg/L	< 50	U			< 50	U			< 50	U	UJ	5	< 50	U			< 50	1.6	50	U	UJ	5	< 2.0	1.2	2.0	U	R	5
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	U			< 50	U			< 50	U			< 50	U			< 50	0.36	50	U			< 2.0	0.92	2.0	U	R	5
Acetone	NE	µg/L	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 100	U			< 100	1.6	100	U	UJ	5,10	< 2.0	1.5	2.0	U		
Benzene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.043	5.0	U			< 1.0	0.2	1.0	U		
Bromodichloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.23	1.0	U		
Bromoform**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.053	5.0	U	UJ	5	< 1.0	0.22	1.0	U		
Bromomethane	NE	µg/L	< 2.0	U			< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 10	U			< 10	0.25	10	U	UJ	5	< 1.0	0.18	1.0	U		
Carbon Disulfide	NE	µg/L	< 20	U			< 20	U			< 20	U			< 5.0	U			< 5.0	0.07	5.0	U			< 2.0	0.4	2.0	U		
Carbon Tetrachloride	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.053	5.0	U	UJ	5	< 1.0	0.24	1.0	U		
Chlorobenzene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.044	5.0	U			< 1.0	0.22	1.0	U		
Chloroethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 10	U			< 10	0.094	10	U			< 1.0	0.21	1.0	U		
Chloroform**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.057	5.0	U			< 1.0	0.23	1.0	U		
Chloromethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 10	U			< 10	0.18	10	U			< 1.0	0.16	1.0	U		
cis-1,2-Dichloroethene	70	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.073	5.0	U			< 1.0	0.21	1.0	U		
cis-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.026	5.0	U			< 1.0	0.22	1.0	U		
Dibromochloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5,10	< 5.0	0.054	5.0	U	UJ	5	< 1.0	0.23	1.0	U		
Ethyl Benzene	700	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.036	5.0	U			< 1.0	0.2	1.0	U		
Methylene chloride	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	0.21	5.0	U			< 1.0	0.19	1.0	U		
Styrene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.051	5.0	U			< 1.0	0.23	1.0	U		
Tetrachloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.086	5.0	U			< 1.0	0.2	1.0	U		
Toluene	1,000	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.21	1.0	U		
trans-1,2-Dichloroethene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.096	5.0	U			< 1.0	0.21	1.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.06	5.0	U			< 1.0	0.24	1.0	U		
Trichloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.067	5.0	U			< 1.0	0.21	1.0	U		
Vinyl Acetate	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 50	U	UJ	5	< 50	0.22	50	U			< 2.0	0.47	2.0	U		
Vinyl Chloride	2.0	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	0.1	2.0	U			< 1.0	0.18	1.0	U		
Xylenes, total	10,000	µg/L	< 3.0	U			< 3.0	U			< 3.0	U			< 5.0	U	UJ	5	< 5.0	0.098	5.0	U			< 0.5	0.28	0.5	U		

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

			Location:	FT02-MW5				FT02-MW5				FT02-MW5				FT02-MW5				FT02-MW5				FT02-MW5				FT02-MW5				FT02-MW5			
			Date:	08/16/00				11/16/00				11/16/00				02/27/01				02/27/01				05/09/01				05/09/01				08/16/01			
			Sampling Round:	Round 1				Round 2				Round 2				Round 3				Round 3				Round 4				Round 4				Round 5			
			Type of Sample:	Normal				Normal				Duplicate				Normal				Duplicate				Normal				Duplicate				Normal			
Parameter	MCL	Units		Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5
1,1,1-Trichloroethane	200	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5
1,1,2-Trichloroethane	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5,10
1,1-Dichloroethane	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
1,1-Dichloroethene	7.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			**0.8**	J		
1,2-Dichloroethane	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
1,2-Dichloropropane	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
2-Butanone (MEK)	NE	µg/L		< 100	U	R	5	< 100	U	R	5	< 100	U	R	5	< 100	U	UJ	5	< 100	U	UJ	5	< 100	U	UJ	5	< 100	U	UJ	5	< 100	U	R	5
2-Chloroethylvinyl ether	NE	µg/L		< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 10	U		
2-Hexanone	NE	µg/L		< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U		
4-Methyl-2-pentanone (MIBK)	NE	µg/L		< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	U		
Acetone	NE	µg/L		< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 100	U		
Benzene	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			**0.4**	J		
Bromodichloromethane**	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Bromoform**	NE	µg/L		< 1.0	U	UJ	5	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Bromomethane	NE	µg/L		< 2.0	U	UJ	5	< 2.0	U			< 2.0	U			< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 10	U		
Carbon Disulfide	NE	µg/L		< 20	U			< 20	U			< 20	U			< 20	U			< 20	U			< 20	U			< 20	U			< 5.0	U		
Carbon Tetrachloride	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Chlorobenzene	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Chloroethane	NE	µg/L		< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U		
Chloroform**	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Chloromethane	NE	µg/L		< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U		
cis-1,2-Dichloroethene	70	µg/L		**320**	D			**14**				**16**				**9.8**				**11**				**180**				**170**				**365**	D		
cis-1,3-Dichloropropene	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Dibromochloromethane**	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5,10
Ethyl Benzene	700	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Methylene chloride	NE	µg/L		< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			**1.0**	J		
Styrene	100	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Tetrachloroethene	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Toluene	1,000	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
trans-1,2-Dichloroethene	100	µg/L		**3.5**				< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			**0.9**	J		
trans-1,3-Dichloropropene	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Trichloroethene	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U		
Vinyl Acetate	NE	µg/L		< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 50	U	UJ	5
Vinyl Chloride	2.0	µg/L		**230**	D			**4.5**				**4.9**				**3.5**				**4.9**				**130**		J	23	**130**		J	23	**190**	D		
Xylenes, total	10,000	µg/L		< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 5.0	U	UJ	5

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

	Location:		FT02-MW5				FT02-MW5						FT02-MW5						FT02-MW5						FT02-MW5					
	Date:		08/16/01				11/15/01						11/15/01						06/10/02						06/10/02					
	Sampling Round:		Round 5				Round 6						Round 6						Round 7						Round 7					
	Type of Sample:		Duplicate				Normal						Duplicate						Normal						Duplicate					
Parameter	MCL	Units	Result	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 5.0	U	UJ	5	< 5.0	0.041	5.0	U			< 5.0	0.041	5.0	U			< 1.0	0.21	1.0	U			< 1.0	0.21	1.0	U		
1,1,1-Trichloroethane	200	µg/L	< 5.0	U			< 5.0	0.09	5.0	U			< 5.0	0.09	5.0	U			< 1.0	0.22	1.0	U			< 1.0	0.22	1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 5.0	U	UJ	5	< 5.0	0.12	5.0	U			< 5.0	0.12	5.0	U			< 1.0	0.25	1.0	U			< 1.0	0.25	1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 5.0	U	UJ	5,10	< 5.0	0.082	5.0	U	UJ	5	< 5.0	0.082	5.0	U	UJ	5	< 1.0	0.33	1.0	U			< 1.0	0.33	1.0	U		
1,1-Dichloroethane	NE	µg/L	< 5.0	U			< 5.0	0.067	5.0	U			< 5.0	0.067	5.0	U			< 1.0	0.2	1.0	U			< 1.0	0.2	1.0	U		
1,1-Dichloroethene	7.0	µg/L	**0.5**	J			< 5.0	0.074	5.0	U			< 5.0	0.074	5.0	U			< 1.0	0.19	1.0	U			< 1.0	0.19	1.0	U		
1,2-Dichloroethane	5.0	µg/L	< 5.0	U			< 5.0	0.07	5.0	U			< 5.0	0.07	5.0	U			< 1.0	0.25	1.0	U			< 1.0	0.25	1.0	U		
1,2-Dichloropropane	5.0	µg/L	< 5.0	U			< 5.0	0.047	5.0	U			< 5.0	0.047	5.0	U			< 1.0	0.22	1.0	U			< 1.0	0.22	1.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	U	R	5	< 100	1.1	100	U	UJ	5	< 100	1.1	100	U	UJ	5	< 5.0	1.7	5.0	U			< 5.0	1.7	5.0	U		
2-Chloroethylvinyl ether	NE	µg/L	< 10	U			< 5.0	0.59	5.0	U			< 5.0	0.59	5.0	U			< 5.0	1.4	5.0	U	R	5	< 5.0	1.4	5.0	U	R	5
2-Hexanone	NE	µg/L	< 50	U			< 50	1.6	50	U	UJ	5	< 50	1.6	50	U	UJ	5	< 5.0	1.2	5.0	U	R	5	< 5.0	1.2	5.0	U	R	5
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	U			< 50	0.36	50	U			< 50	0.36	50	U			< 5.0	0.92	5.0	U	R	5	< 5.0	0.92	5.0	U	R	5
Acetone	NE	µg/L	< 100	U			< 100	1.6	100	U	UJ	5	< 100	1.6	100	U	UJ	5	< 5.0	1.5	5.0	U			< 5.0	1.5	5.0	U		
Benzene	5.0	µg/L	**0.4**	J			< 5.0	0.043	5.0	U			< 5.0	0.043	5.0	U			< 1.0	0.2	1.0	U			< 1.0	0.2	1.0	U		
Bromodichloromethane**	NE	µg/L	< 5.0	U			< 5.0	0.035	5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.23	1.0	U			< 1.0	0.23	1.0	U		
Bromoform**	NE	µg/L	< 5.0	U			< 5.0	0.053	5.0	U	UJ	5	< 5.0	0.053	5.0	U	UJ	5	< 1.0	0.22	1.0	U			< 1.0	0.22	1.0	U		
Bromomethane	NE	µg/L	< 10	U			< 10	0.25	10	U	UJ	5	< 10	0.25	10	U	UJ	5	< 1.0	0.18	1.0	U	UJ	5	< 1.0	0.18	1.0	U	UJ	5
Carbon Disulfide	NE	µg/L	< 5.0	U			< 5.0	0.07	5.0	U			< 5.0	0.07	5.0	U			< 5.0	0.4	5.0	U			< 5.0	0.4	5.0	U		
Carbon Tetrachloride	5.0	µg/L	< 5.0	U			< 5.0	0.053	5.0	U			< 5.0	0.053	5.0	U			< 1.0	0.24	1.0	U			< 1.0	0.24	1.0	U		
Chlorobenzene	NE	µg/L	< 5.0	U			< 5.0	0.044	5.0	U			< 5.0	0.044	5.0	U			< 1.0	0.22	1.0	U			< 1.0	0.22	1.0	U		
Chloroethane	NE	µg/L	< 10	U			< 10	0.094	10	U			< 10	0.094	10	U			< 1.0	0.21	1.0	U			< 1.0	0.21	1.0	U		
Chloroform**	NE	µg/L	< 5.0	U			< 5.0	0.057	5.0	U			< 5.0	0.057	5.0	U			< 1.0	0.23	1.0	U			< 1.0	0.23	1.0	U		
Chloromethane	NE	µg/L	< 10	U			< 10	0.18	10	U			**0.8**	0.18	10	F	F	23	< 1.0	0.16	1.0	U			< 1.0	0.16	1.0	U		
cis-1,2-Dichloroethene	70	µg/L	**347**	D			**85**	0.073	5.0				**84**	0.073	5.0				**27**	0.21	1.0				**23**	0.21	1.0			
cis-1,3-Dichloropropene	NE	µg/L	< 5.0	U			< 5.0	0.026	5.0	U			< 5.0	0.026	5.0	U			< 1.0	0.22	1.0	U			< 1.0	0.22	1.0	U		
Dibromochloromethane**	NE	µg/L	< 5.0	U	UJ	5,10	< 5.0	0.054	5.0	U	UJ	5	< 5.0	0.054	5.0	U	UJ	5	< 1.0	0.23	1.0	U			< 1.0	0.23	1.0	U		
Ethyl Benzene	700	µg/L	< 5.0	U			< 5.0	0.036	5.0	U			< 5.0	0.036	5.0	U			< 1.0	0.2	1.0	U			< 1.0	0.2	1.0	U		
Methylene chloride	NE	µg/L	< 5.0	U			**0.9**	0.21	5.0	F	F,B	7,18	**0.9**	0.21	5.0	F	F,B	7,18	< 1.0	0.19	1.0	U			< 1.0	0.19	1.0	U		
Styrene	100	µg/L	< 5.0	U			< 5.0	0.051	5.0	U			< 5.0	0.051	5.0	U			< 1.0	0.23	1.0	U			< 1.0	0.23	1.0	U		
Tetrachloroethene	5.0	µg/L	< 5.0	U			< 5.0	0.086	5.0	U			< 5.0	0.086	5.0	U			< 1.0	0.2	1.0	U			< 1.0	0.2	1.0	U		
Toluene	1,000	µg/L	< 5.0	U			< 5.0	0.035	5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.21	1.0	U			< 1.0	0.21	1.0	U		
trans-1,2-Dichloroethene	100	µg/L	**0.8**	J			**0.3**	0.096	5.0	F	F	23	**0.3**	0.096	5.0	F	F	23	< 1.0	0.21	1.0	U			< 1.0	0.21	1.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 5.0	U			< 5.0	0.06	5.0	U			< 5.0	0.06	5.0	U			< 1.0	0.24	1.0	U			< 1.0	0.24	1.0	U		
Trichloroethene	5.0	µg/L	< 5.0	U			< 5.0	0.067	5.0	U			< 5.0	0.067	5.0	U			< 1.0	0.21	1.0	U			< 1.0	0.21	1.0	U		
Vinyl Acetate	NE	µg/L	< 50	U	UJ	5	< 50	0.22	50	U			< 50	0.22	50	U			< 5.0	0.47	5.0	U			< 5.0	0.47	5.0	U		
Vinyl Chloride	2.0	µg/L	**180**	D			**84**	0.1	2.0				**81**	0.1	2.0				**27**	0.18	1.0				**23**	0.18	1.0			
Xylenes, total	10,000	µg/L	< 5.0	U	UJ	5	< 5.0	0.098	5.0	U			< 5.0	0.098	5.0	U			< 1.0	0.28	1.0	U			< 1.0	0.28	1.0	U		

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

	Location:		FT02-MW6				FT02-MW6				FT02-MW6				FT02-MW6				FT02-MW6				FT02-MW6						FT02-MW6					
	Date:		08/16/00				11/16/01				02/27/01				05/09/01				08/16/01				11/16/01						06/07/02					
	Sampling Round:		Round 1				Round 2				Round 3				Round 4				Round 5				Round 6						Round 7					
	Type of Sample:		Normal				Normal				Normal				Normal				Normal				Normal						Normal					
Parameter	MCL	Units	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5	< 5.0	0.048	5.0	U			< 1.0	0.21	1.0	U		
1,1,1-Trichloroethane	200	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.07	5.0	U			< 1.0	0.22	1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5	< 5.0	0.17	5.0	U			< 1.0	0.25	1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5,10	< 5.0	0.054	5.0	U			< 1.0	0.33	1.0	U		
1,1-Dichloroethane	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.2	1.0	U		
1,1-Dichloroethene	7.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.047	5.0	U			< 1.0	0.19	1.0	U		
1,2-Dichloroethane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.03	5.0	U			< 1.0	0.25	1.0	U		
1,2-Dichloropropane	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.039	5.0	U			< 1.0	0.22	1.0	U		
2-Butanone (MEK)	NE	µg/L	< 100	U	R	5	< 100	U	R	5	< 100	U	UJ	5	< 100	U	UJ	5	< 100	U	R	5	< 100	0.67	100	U			< 2.0	1.7	2.0	U		
2-Chloroethylvinyl ether	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 10	U			< 5.0	0.58	5.0	U			< 2.0	1.4	2.0	U	R	5
2-Hexanone	NE	µg/L	< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	0.45	50	U			< 2.0	1.2	2.0	U	R	5
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	0.043	50	U			< 2.0	0.92	2.0	U	R	5
Acetone	NE	µg/L	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 100	U			< 100	1.1	100	U	UJ	5	< 2.0	1.5	2.0	U		
Benzene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.024	5.0	U			< 1.0	0.2	1.0	U		
Bromodichloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.031	5.0	U			< 1.0	0.23	1.0	U		
Bromoform**	NE	µg/L	< 1.0	U	UJ	5	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.076	5.0	U			< 1.0	0.22	1.0	U		
Bromomethane	NE	µg/L	< 2.0	U	UJ	5	< 2.0	U			< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 10	U			< 10	0.11	10	U			< 1.0	0.18	1.0	U		
Carbon Disulfide	NE	µg/L	< 20	U			< 20	U			< 20	U			< 20	U			< 5.0	U			< 5.0	0.099	5.0	U			< 2.0	0.4	2.0	U		
Carbon Tetrachloride	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.039	5.0	U			< 1.0	0.24	1.0	U		
Chlorobenzene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.038	5.0	U			< 1.0	0.22	1.0	U		
Chloroethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U			< 10	0.066	10	U			< 1.0	0.21	1.0	U		
Chloroform**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.026	5.0	U			< 1.0	0.23	1.0	U		
Chloromethane	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U			< 10	0.047	10	U			< 1.0	0.16	1.0	U		
cis-1,2-Dichloroethene	70	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 10	U			< 5.0	0.024	5.0	U			< 1.0	0.21	1.0	U		
cis-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.028	5.0	U			< 1.0	0.22	1.0	U		
Dibromochloromethane**	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5,10	< 5.0	0.034	5.0	U			< 1.0	0.23	1.0	U		
Ethyl Benzene	700	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.044	5.0	U			< 1.0	0.2	1.0	U		
Methylene chloride	NE	µg/L	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			**2.0**	0.78	5.0	F	F,B,J	7,13,18	< 1.0	0.19	1.0	U		
Styrene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.036	5.0	U			< 1.0	0.23	1.0	U		
Tetrachloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.034	5.0	U			< 1.0	0.2	1.0	U		
Toluene	1,000	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.031	5.0	U			< 1.0	0.21	1.0	U		
trans-1,2-Dichloroethene	100	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.038	5.0	U			< 1.0	0.21	1.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.035	5.0	U			< 1.0	0.24	1.0	U		
Trichloroethene	5.0	µg/L	< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.017	5.0	U			< 1.0	0.21	1.0	U		
Vinyl Acetate	NE	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 50	U	UJ	5	< 50	0.54	50	U			< 2.0	0.47	2.0	U		
Vinyl Chloride	2.0	µg/L	< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	0.067	2.0	U			< 1.0	0.18	1.0	U		
Xylenes, total	10,000	µg/L	< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 5.0	U	UJ	5	< 5.0	0.12	5.0	U			< 0.5	0.28	0.5	U		

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

			Location:	FT02-MW14				FT02-MW14				FT02-MW14				FT02-MW14				FT02-MW14				FT02-MW14					
			Date:	08/18/00				11/16/00				02/27/01				05/09/01				08/16/01				11/16/01					
			Sampling Round:	Round 1				Round 2				Round 3				Round 4				Round 5				Round 6					
			Type of Sample:	Normal				Normal				Normal				Normal				Normal				Normal					
Parameter	MCL	Units		Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5	< 5.0	0.048	5.0	U		
1,1,1-Trichloroethane	200	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.07	5.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5	< 5.0	0.17	5.0	U		
1,1,2-Trichloroethane	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5,10	< 5.0	0.054	5.0	U		
1,1-Dichloroethane	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.035	5.0	U		
1,1-Dichloroethene	7.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.047	5.0	U		
1,2-Dichloroethane	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.03	5.0	U		
1,2-Dichloropropane	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.039	5.0	U		
2-Butanone (MEK)	NE	µg/L		< 100	U	R	5	< 100	U	R	5	< 100	U	UJ	5	< 100	U	UJ	5	< 100	U	R	5	< 100	0.67	100	U		
2-Chloroethylvinyl ether	NE	µg/L		< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 10	U			< 5.0	0.58	5.0	U		
2-Hexanone	NE	µg/L		< 50	U	UJ	5	< 50	U			< 50	U			< 50	U			< 50	U			< 50	0.45	50	U		
4-Methyl-2-pentanone (MIBK)	NE	µg/L		< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			< 50	0.043	50	U		
Acetone	NE	µg/L		< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 100	U			< 100	1.1	100	U	UJ	5
Benzene	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.024	5.0	U		
Bromodichloromethane**	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.031	5.0	U		
Bromoform**	NE	µg/L		< 1.0	U	UJ	5	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.076	5.0	U		
Bromomethane	NE	µg/L		< 2.0	U	UJ	5	< 2.0	U			< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 10	U			< 10	0.11	10	U		
Carbon Disulfide	NE	µg/L		< 20	U			< 20	U			< 20	U			< 20	U			< 5.0	U			< 5.0	0.099	5.0	U		
Carbon Tetrachloride	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.039	5.0	U		
Chlorobenzene	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.038	5.0	U		
Chloroethane	NE	µg/L		< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U			< 10	0.066	10	U		
Chloroform**	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.026	5.0	U		
Chloromethane	NE	µg/L		< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U			**0.4**	0.047	10	F	F,J	13,23
cis-1,2-Dichloroethene	70	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 10	U			< 5.0	0.024	5.0	U		
cis-1,3-Dichloropropene	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.028	5.0	U		
Dibromochloromethane**	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5,10	< 5.0	0.034	5.0	U		
Ethyl Benzene	700	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.044	5.0	U		
Methylene chloride	NE	µg/L		< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			**1.0**	0.78	5.0	F	F,B,J	7,13,18
Styrene	100	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.036	5.0	U		
Tetrachloroethene	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.034	5.0	U		
Toluene	1,000	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.031	5.0	U		
trans-1,2-Dichloroethene	100	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.038	5.0	U		
trans-1,3-Dichloropropene	NE	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.035	5.0	U		
Trichloroethene	5.0	µg/L		< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			< 5.0	0.017	5.0	U		
Vinyl Acetate	NE	µg/L		< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 50	U	UJ	5	< 50	0.54	50	U		
Vinyl Chloride	2.0	µg/L		< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	0.067	2.0	U		
Xylenes, total	10,000	µg/L		< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 5.0	U	UJ	5	< 5.0	0.12	5.0	U		

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

			FT02-MW14						FT02-MW15				FT02-MW15				FT02-MW15				FT02-MW15				FT02-MW15				FT02-MW15					
Location:																																		
Date:			06/07/02						08/18/00				11/17/00				02/27/01				05/09/01				08/16/01				12/07/01					
Sampling Round:			Round 7						Round 1				Round 2				Round 3				Round 4				Round 5				Round 6					
Type of Sample:			Normal						Normal				Normal				Normal				Normal				Normal				Normal					
Parameter	MCL	Units	Result	MDL	RL	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	Q	DQ	RC	Result	MDL	RL	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5	NA					
1,1,1-Trichloroethane	200	µg/L	< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
1,1,2,2-Tetrachloroethane	NE	µg/L	< 1.0	0.25	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5	NA					
1,1,2-Trichloroethane	5.0	µg/L	< 1.0	0.33	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5,10	NA					
1,1-Dichloroethane	NE	µg/L	< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
1,1-Dichloroethene	7.0	µg/L	< 1.0	0.19	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
1,2-Dichloroethane	5.0	µg/L	< 1.0	0.25	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
1,2-Dichloropropane	5.0	µg/L	< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
2-Butanone (MEK)	NE	µg/L	< 2.0	1.7	2.0	U			< 100	U	R	5	< 100	U	R	5	< 100	U	UJ	5	< 100	U	UJ	5	< 100	U	R	5	NA					
2-Chloroethylvinyl ether	NE	µg/L	< 2.0	1.4	2.0	U	R	5	< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 10	U			NA					
2-Hexanone	NE	µg/L	< 2.0	1.2	2.0	U	R	5	< 50	U	UJ	5	< 50	U			< 50	U			< 50	U			< 50	U			NA					
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 2.0	0.92	2.0	U	R	5	< 50	U			< 50	U			< 50	U			< 50	U			< 50	U			NA					
Acetone	NE	µg/L	< 2.0	1.5	2.0	U			< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 50	U	UJ	5	< 100	U			NA					
Benzene	5.0	µg/L	< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
Bromodichloromethane**	NE	µg/L	< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
Bromoform**	NE	µg/L	< 1.0	0.22	1.0	U			< 1.0	U	UJ	5	< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
Bromomethane	NE	µg/L	< 1.0	0.18	1.0	U			< 2.0	U	UJ	5	< 2.0	U			< 2.0	U	UJ	5	< 2.0	U	UJ	5	< 10	U			NA					
Carbon Disulfide	NE	µg/L	< 2.0	0.4	2.0	U			< 20	U			< 20	U			< 20	U			< 20	U			< 5.0	U			NA					
Carbon Tetrachloride	5.0	µg/L	< 1.0	0.24	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
Chlorobenzene	NE	µg/L	< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
Chloroethane	NE	µg/L	< 1.0	0.21	1.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U			NA					
Chloroform**	NE	µg/L	< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
Chloromethane	NE	µg/L	< 1.0	0.16	1.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 10	U			NA					
cis-1,2-Dichloroethene	70	µg/L	< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 10	U			NA					
cis-1,3-Dichloropropene	NE	µg/L	< 1.0	0.22	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
Dibromochloromethane**	NE	µg/L	< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U	UJ	5,10	NA					
Ethyl Benzene	700	µg/L	< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
Methylene chloride	NE	µg/L	< 1.0	0.19	1.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			< 5.0	U			NA					
Styrene	100	µg/L	< 1.0	0.23	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
Tetrachloroethene	5.0	µg/L	< 1.0	0.2	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
Toluene	1,000	µg/L	< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
trans-1,2-Dichloroethene	100	µg/L	< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
trans-1,3-Dichloropropene	NE	µg/L	< 1.0	0.24	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
Trichloroethene	5.0	µg/L	< 1.0	0.21	1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 1.0	U			< 5.0	U			NA					
Vinyl Acetate	NE	µg/L	< 2.0	0.47	2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 50	U	UJ	5	NA					
Vinyl Chloride	2.0	µg/L	< 1.0	0.18	1.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			< 2.0	U			NA					
Xylenes, total	10,000	µg/L	< 0.5	0.28	0.5	U			< 3.0	U			< 3.0	U			< 3.0	U			< 3.0	U			< 5.0	U	UJ	5	NA					

Appendix B
Concentrations of VOCs in Groundwater
FT01 and FT02
Grissom AFB, Indiana

	Location:		FT02-MW15					
	Date:		06/07/02					
	Sampling Round:		Round 7					
	Type of Sample:		Normal					
Parameter	MCL	Units	Result	MDL	RL	Q	DQ	RC
1,1,1,2-Tetrachloroethane	NE	µg/L	< 1.0	0.21	1.0	U		
1,1,1-Trichloroethane	200	µg/L	< 1.0	0.22	1.0	U		
1,1,2,2-Tetrachloroethane	NE	µg/L	< 1.0	0.25	1.0	U		
1,1,2-Trichloroethane	5.0	µg/L	< 1.0	0.33	1.0	U		
1,1-Dichloroethane	NE	µg/L	< 1.0	0.2	1.0	U		
1,1-Dichloroethene	7.0	µg/L	< 1.0	0.19	1.0	U		
1,2-Dichloroethane	5.0	µg/L	< 1.0	0.25	1.0	U		
1,2-Dichloropropane	5.0	µg/L	< 1.0	0.22	1.0	U		
2-Butanone (MEK)	NE	µg/L	< 2.0	1.7	2.0	U		
2-Chloroethylvinyl ether	NE	µg/L	< 2.0	1.4	2.0	U	R	5
2-Hexanone	NE	µg/L	< 2.0	1.2	2.0	U	R	5
4-Methyl-2-pentanone (MIBK)	NE	µg/L	< 2.0	0.92	2.0	U	R	5
Acetone	NE	µg/L	< 2.0	1.5	2.0	U		
Benzene	5.0	µg/L	< 1.0	0.2	1.0	U		
Bromodichloromethane**	NE	µg/L	< 1.0	0.23	1.0	U		
Bromoform**	NE	µg/L	< 1.0	0.22	1.0	U		
Bromomethane	NE	µg/L	< 1.0	0.18	1.0	U	UJ	5
Carbon Disulfide	NE	µg/L	< 2.0	0.4	2.0	U		
Carbon Tetrachloride	5.0	µg/L	< 1.0	0.24	1.0	U		
Chlorobenzene	NE	µg/L	< 1.0	0.22	1.0	U		
Chloroethane	NE	µg/L	< 1.0	0.21	1.0	U		
Chloroform**	NE	µg/L	< 1.0	0.23	1.0	U		
Chloromethane	NE	µg/L	< 1.0	0.16	1.0	U		
cis-1,2-Dichloroethene	70	µg/L	< 1.0	0.21	1.0	U		
cis-1,3-Dichloropropene	NE	µg/L	< 1.0	0.22	1.0	U		
Dibromochloromethane**	NE	µg/L	< 1.0	0.23	1.0	U		
Ethyl Benzene	700	µg/L	< 1.0	0.2	1.0	U		
Methylene chloride	NE	µg/L	< 1.0	0.19	1.0	U		
Styrene	100	µg/L	< 1.0	0.23	1.0	U		
Tetrachloroethene	5.0	µg/L	< 1.0	0.2	1.0	U		
Toluene	1,000	µg/L	< 1.0	0.21	1.0	U		
trans-1,2-Dichloroethene	100	µg/L	< 1.0	0.21	1.0	U		
trans-1,3-Dichloropropene	NE	µg/L	< 1.0	0.24	1.0	U		
Trichloroethene	5.0	µg/L	< 1.0	0.21	1.0	U		
Vinyl Acetate	NE	µg/L	< 2.0	0.47	2.0	U		
Vinyl Chloride	2.0	µg/L	< 1.0	0.18	1.0	U		
Xylenes, total	10,000	µg/L	< 0.5	0.28	0.5	U		

Notes:

Bold	Detection
Bold	Exceeds Cleanup Level
MCL	Maximum Contaminant Level
µg/L	Micrograms per liter
[a]	Might have originated from GC/MS system.
**	The total for trihalomethanes is 80 mg/L.
MDL	Method Detection Limit
RL	Reporting Limit
Q	Laboratory data qualifier
DQ	Data validation qualifier
RC	Reason code
NA	Not Analyzed
NE	Not Established

Flag:	**Explanation:**
B	The analyte was found in an associated blank, as well as in the sample.
D	The sample was diluted during analysis.
E	Estimated concentration , high concentrations.
F	The analyte was positively identified but the associated numerical value is below the reporting limit.
J	The associated numerical value is an estimated quantity.
M	A matrix effect was present.
R	The data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.
U	The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.
UJ	The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.

Reason Codes:

5	Calibration
7	Laboratory Blanks
8	Matrix Spike
9	Matrix Spike Duplicate
10	Laboratory Control Sample
13	Surrogates
14	Field Duplicates
18	Trip Blanks
23	Compound Quantitation and Contract Required Quantitation Limits (CRQLs)

APPENDIX C

SAMPLING AND ANALYSIS PLAN FIELD PROCEDURES

STANDARD OPERATING PROCEDURE
GRISSOM AIR FORCE BASE

Developed: July 2002 Approved By:

Scope: This procedure is applicable for groundwater sample collection from monitoring wells at Grissom Air Force Base. Groundwater sampling procedures will follow USEPA *Low-Flow Groundwater Sampling Procedures* (USEPA/540/S-95/504).

Method: Low-Flow Sampling using a peristaltic pump

I. FIELD CHECKLIST

A. Paperwork to take to the site

1. Field notebook
2. Field forms
3. Health and Safety Plan
4. Chain of custody forms
5. Completed monitoring well construction summary for the wells to be sampled
6. Previous analytical results
7. Fed Ex forms
8. Complete list of monitoring wells and the constituents to be analyzed for
9. Sampling schedule
10. List of contact numbers

B. Equipment to take to the site

1. Hand tools (socket set, hammer)
2. Well access (key)
3. Electronic water level indicator
4. 5-gallon buckets
5. Decontamination solutions, spray bottles, and paper towels
6. Pump and associated equipment
7. Flow-through cell
8. Watch, or timing device
9. Sample bottles
10. Sample labels
11. Cooler(s) with ice
12. Packing Material (vermiculite, tape)
13. Iron and alkalinity test kits

14. Graduated cylinder
15. First aid kit
16. Nitrile gloves

II. LOW FLOW SAMPLING AT MONITORING WELLS

Decontamination:

New disposable gloves will be used for each decontamination procedure to prevent exposure and cross-contamination of equipment.

Equipment, or portions of equipment, which are not water resistant will be wiped with a paper towel moistened with a solution of Alconox™ and distilled water until clean, followed by wiping with a paper towel moistened with distilled water.

The cable of the water level meter will be wiped with a paper towel moistened with a solution of Alconox™ and distilled water as it is raised from each well. The probe will be decontaminated by rinsing it with Alconox™ and then distilled water. Excess sediment that may accumulate on the probe will be removed with a moistened paper towel prior to the Alconox™ rinse.

All sampling equipment will be placed on a clean surface, such as a sheet of plastic, after decontamination and during use.

Discarded decontamination solutions will be accumulated and containerized in DOT approved steel 55-gallon drums.

Water Levels and Groundwater Sampling:

A. Water levels must be taken at all wells at the site before collecting groundwater samples.

B. Remove the locking and protective cap from the well. After the well is allowed to equilibrate with the atmospheric pressure, use an electronic water level indicator to measure and record both total depth and depth to water to the nearest 0.01 foot from top of the well casing. Water level equilibrium will be determined by collecting three consistent (± 0.01 foot) depth to water readings. Slowly lower an electronic water level into the well to measure the depth to the bottom of the well taking care not to agitate the water in the well and thus cause unnecessary agitation of silt on the bottom. After the well is allowed to equilibrate with the atmospheric pressure, measure and record depth to water from top of the well casing with the electronic water level indicator. Depth to water measurements are taken from the north side of the well casing, unless indicated otherwise on the well. Examine the water level indicator for evidence of sheen, oily substance, or other immiscible fluids and record this information in the field logbook or proper field forms. Note the

condition of the monitoring well and record this information in the field logbook or proper field forms.

C. Once water levels and total depth are taken, start groundwater sampling from clean to contaminated monitoring well. Place all sampling equipment on a clean surface (such as a sheet of plastic or a plastic bin) and put on clean nitrile gloves. Calculate three well/borehole volumes for the monitoring well to be sampled. The sample tubing is dedicated to the monitoring well and stored in the well casing between sampling events. If tubing is not present, insert new, clean, polyethylene tubing into the monitoring well. Set the intake point of the tubing approximately three feet from the bottom of the well to avoid disturbing any accumulated sediment in the monitoring well.

   Attach the upper end of the tubing to the portable peristaltic pump. Attach the pump controller and power source in accordance with manufacturer's instructions. Turn the pump on to begin purging the monitoring well at a rate of approximately 100 milliliters per minute (mL/min). Confirm the purging rate periodically by measuring the amount of water purged in one minute with a graduated cylinder. If using a measuring cup fill the cup to 100 ml and record time (one minute is equal to 100 mL/min). Observe the purge water for evidence of sheen, oily substance, or other fluids and record this information in the field logbook.

D. During purging, monitor the depth to groundwater, and thus, drawdown, using the electronic water level probe. The pump speed should be such that drawdown does not exceed 0.3 feet. When the flow-through cell fills with water (and thus discharges through the effluent tubing) monitoring of water quality parameters will begin.

E. If maximum drawdown of 0.3 feet cannot be maintained, it can be assumed that low-flow sampling methods will not be effective. Three borehole volumes will be purged from the well at a rate of no more than 500 ml/min. After the three borehole volumes have been removed, slow the pump speed and sample the monitoring well after the monitoring parameters stabilize (see below). Repeated recovery of the water column will be conducted to avoid dewatering of the screen interval. The drawdown will not be allowed to exceed three feet prior to recovery to ensure that the well will not be pumped dry.

F. While purging measure the following field parameters: pH, specific conductance, turbidity, dissolved oxygen, temperature, oxidation-reduction potential (ORP), water level, volume removed, and pumping rate. Record these measurements on field forms at an interval of 5 minutes. A Horiba U-22 series multiple parameter water quality system will be used to measure pH, specific conductivity, temperature, dissolved oxygen, and ORP. Turbidity will be measured by a LaMotte 2020 turbidimeter. Water from the effluent tubing is collected in a rinsed spectrograph tube that is then inserted into the LaMotte 2020 turbidimeter.

G. Continue purging until all field parameters have stabilized for three or more consecutive readings as identified below. The minimum subset of water quality parameters that will be monitored for stabilization include pH, conductivity, dissolved oxygen, and turbidity.

pH	± 0.1 units
Conductivity	± 3%
Turbidity	± 10 %
Dissolved Oxygen	± 10%
Temperature	± 1°C
ORP	± 15 millivolts

H. When the parameter readings have stabilized, the groundwater samples can be collected. To collect a sample, disconnect the tubing from the flow-through cell and collect the water from the tubing (rather than from the flow-through cell). Groundwater sample will be collected in the following order; VOCs, SVOCs, methane, anions, metals, and DOC.

I. Label and place samples in a cooler of ice immediately after collection to maintain a temperature of 4°C ± 2°C.

J. If the contaminants of concern for the previous sampling event are below applicable maximum contaminant levels (MCLs), the water will be discharged to the ground surface near the monitoring well of origin such that none of the purged water enter the monitoring well. If the previous sampling event indicated contaminates above the MCLs then the purge groundwater will be contained and stored in DOT approved 55 gallon drums at a central staging area.

K. If historic levels at the monitoring well are above MCLs or if there is no previous data, purge water will be stored in 55-gallon drums and properly labeled. At the end of the sampling event, a bailer will be used to collect a composite sample from each group of drums. A group of drums consists of four 55-gallon drums. The composite samples will be analyzed for Toxicity Characteristic Leaching Procedure for volatile organic compounds, semivolatile organic compounds, and metals. The composite sample will also be analyzed for polychlorinated biphenyls, total petroleum hydrocarbons, flash point, pH, reactive cyanide, reactive sulfide, and corrosivity. Disposal of the water will depend on the results of these tests. MWH will arrange for disposal offsite as Special Waste or Hazardous Waste in accordance with local, state, and federal environmental regulations.

III. SAMPLE LABELING

Sample labels are used in conjunction with chain-of-custody documents to ensure sample identification, preservation, and custody requirements are maintained. Identify each sample with the label identifier code as defined below.

Each groundwater sample is identified by a two-letter code, "GW" to identify the sample as a groundwater sample from a monitoring well.

The sample type code is followed by an alphanumeric designation identifying the sampling site. This consists of the building number preceded by the letter "B" or the abbreviation of the site name. For example, the Small Arms Firing Range is abbreviated as "SAFR" while OWS 896 is "B896."

Each monitoring well at the sampling site will then be identified by a 3-5 digit alphanumeric code to indicate monitoring well location. This code will correspond to the monitoring well number (e.g., MW04).

The final two digits of the identifier code will signify the sampling round number.

An example of a groundwater sample collected from monitoring well MW-05 at Building 407 during round 2 will have the following sample label: GW-B407-MW05-02.

Investigative derived waste (IDW) will be stored in DOT approved 55-gallon drums at a central staging area. Container labels will be placed on the side and top of each container and will contain the following information: container contents; estimated depth collected (if solid); date the container was started; estimated quantity in the container; and name, address, and phone number for additional information concerning the IDW container. Drums will be labeled on the top and sides of each IDW container.

IV. SAMPLE COLLECTION AND PREPARATION

A. All sample containers received from the laboratory will meet the specifications and protocols of USEPA guidance document EPA540/R-93/051/12-92. All containers will have the appropriate preservatives already added to the containers. Containers will be stored in clean areas to prevent exposure to fuels, solvents, and other contaminants.

B. Complete sampling while continuing to purge the monitoring well at low-flow rates. Volatile organic compounds, SVOCs, methane, anions, and total metals samples will be collected by filling pre-cleaned sample containers directly from the pump discharge. Groundwater sample will be collected in the following order; VOCs, SVOCs, methane, anions, metals, and DOC. Samples for dissolved metals and DOC analysis will be filtered through a disposable 0.45 μm filter prior to

collection. Place properly labeled sample containers into cooler with ice to maintain a temperature of 4°C ± 2°C.

C. Transport samples to the laboratory as expeditiously as possible. Pack samples in ice to keep them at the acceptable temperature of 4°C ± 2°C during transportation. Include bubble wrap and/or vermiculite to prevent sample container breakage during shipment. Include a temperature blank (sampling vial filled with water) in every cooler to determine the internal temperature of the cooler upon receipt at the laboratory. Coolers with VOCs samples will have a trip blank included.

D. A time of collection an additional 250 ml sampled bottle will be collected to conduct field tests of iron and alkalinity if needed. These tests will be done using HACH® field kits and completed at the end of the day. This extra bottle will be labeled and stored in an iced cooler until tested.

V. DOCUMENTATION

A. All sample collection activities will be documented on a combination of field forms and the field logbook. At a minimum field forms will contain the project name, date, location, and the appropriate field parameter measurements observed. The log book will contain the following information:

1. Sampling location;
2. Sample identification number;
3. Date and time of collection;
4. Depth to water;
5. Purging rate and approximate volume purged;
6. Final field parameter measurements;
7. Field observation (weather, odor, sheen, etc.);
8. Name of sampling personnel; and
9. Analyses requested.
10. Location, number, and contents of IDW drums;
11. Record of iron and alkalinity test results.

B. The Chain-of-Custody (COC) record will be used to document the samples taken and analyses requested. The COC record(s) initiated in the field will be signed, placed in a plastic "Zip-loc" bag, and secured inside of the shipping container used for sample transport. Signed air bills will serve as evidence of custody transport between the field sampler and courier as well as the courier and laboratory. Copies of the COC record and the air bills will be retained and filed by the field personnel

prior to shipment. Information that field personnel will record on the COC record includes the following:

1. Sample or station identification number;
2. Signature of collector, sampler, or recorder;
3. Date and time of collection;
4. Place of collection;
5. Sample matrix;
6. Type of preservative;
7. Number of containers making up the sample;
8. Analysis requested for sample;
9. Additional notes pertaining to suspected high contaminant concentrations;
10. Signatures of persons involved in the chain of custody; and
11. Inclusive dates of possession.

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APPENDIX D

STANDARD OPERATING PROCEDURES FOR PASSIVE DIFFUSION INORGANIC GROUNDWATER SAMPLING

Standard Operating Procedures for Passive Diffusion Sampling
For Inorganic Constituents in Groundwater

The Field Sampling Plan presented in the Work Plan for the Air Force Base Conversion Agency Passive Diffusion Bag Sampler Demonstration (AFBCA PDBS Project Work Plan -Parsons, 2002) includes four standard operating procedures (SOPs) to be used for field activities conducted as part of the volatile organic compound (VOC) PDBS program. These SOPs include:

SOP#1 - Diffusion Sampler Installation;
SOP#2 - Diffusion Sampler Recovery and Sample Collection;
SOP#3 – Equipment Decontamination; and
SOP#4 – Sample Handling and Documentation.

While largely similar to the SOPs developed for the VOC program, the SOPs provided below document specific procedures and field activities associated with the use of passive diffusion samplers (PDSs) for inorganic sampling.

Standard Operating Procedures

SOP # 1a – Diffusion Sampler Installation for Metals

This SOP describes the procedures for placing multiple PDSs for metals in a groundwater monitoring well for vertical profiling purposes. In order to assist the field sampling team, PDS Placement Forms (PPFs) (Figure 1.1) will be completed to the extent possible for each well included in the evaluation prior to initiation of fieldwork. Note that the PPF was developed for use when deploying PDBSs for collection of VOC samples. In contrast, the PPF cannot be used to determine sampler placement depths for metals samples. Metals sampler placement depths must be determined manually by the field team following measurement of the static water level and the total well depth.

New and clean nitrile gloves should be worn by any sampling personnel who will be in direct contact with any material that will, or that has the potential to, contact the groundwater.

1. Measure the water elevation in the monitoring well in accordance with applicable site-specific SOPs. This will be used to determine how much of the well screen is in the saturated zone (*i.e.*, saturated well-screen length). Note this depth on the PPF (Figure 1.1).
2. Measure the total well depth and compare the measured depth with the depth to the reported bottom of the well screen on the PPF. This will provide information on whether sediment has accumulated in the bottom of the well or whether there is a blank section of pipe (sump) below the well screen.

FIGURE 1.1
EXAMPLE PDS PLACEMENT FORM

PRE-MOBILIZATION DATA

Installation:	Carswell AFB
Installation abbreviation:	
Project Number:	741436
WBS:	16000
Well ID (exclude dashes and slashes):	B407MW05
Well diameter (in):	2
Well scheduled for QC sample collection (dup, MS, MSD)?	Yes
Elevation of TOC (ft amsl):	787.35
Elevation of ground surface (ft amsl):	785.6
Historical maximum groundwater depth (ft btoc):	
Historical minimum groundwater depth (ft btoc):	
Top of screen depth (ft btoc):	
Bottom of screen depth (ft btoc):	
Analytical method:	6010B

FIELD MEASUREMENTS/PDBS PLACEMENT DATA

Depth to water (ft btoc):	
Total well depth (ft btoc):	
Length of saturated screen (ft):	
Calculated saturated screened interval (ft btoc):	
Number of PDSs to deploy:	
Place bottom of sampler at the following depths (ft from bottom of weight)	
(deeper) Sampler #1	0.75
Sampler #2	3.75
Sampler #3	6.75
Sampler #4	9.75
Sampler #5	12.75
Sampler #6	15.75
Sampler #7	18.75
Sampler #8	21.75
Sampler #9	24.75
Sampler #10	27.75
Sampler #11	NA
Sampler #12	NA
Sampler #13	NA
Sampler #14	NA
Sampler #15	NA
PDS deployment date:	
PDBS deployment time:	
Anaerobic water used? (Y/N)	Y

PDS RETRIEVAL DATA

PDS retrieval date:	10/2/01
PDS retrieval time:	
Sampler(s) initials:	DMM

Sampler #1 ID	GRSM\B407MW5\34.5\01	Matrix Spike #1 ID	GRSM\B407MW5\34.5\MS
Sampler #2 ID	GRSM\B407MW5\31.5\01	Matrix Spike #2 ID	GRSM\B407MW5\31.5\MS
Sampler #3 ID	GRSM\B407MW5\28.5\01	Matrix Spike #3 ID	GRSM\B407MW5\28.5\MS
Sampler #4 ID	GRSM\B407MW5\25.5\01	Matrix Spike #4 ID	GRSM\B407MW5\25.5\MS
Sampler #5 ID	GRSM\B407MW5\22.5\01	Matrix Spike #5 ID	GRSM\B407MW5\22.5\MS
Sampler #6 ID	GRSM\B407MW5\19.5\01	Matrix Spike #6 ID	GRSM\B407MW5\19.5\MS
Sampler #7 ID	GRSM\B407MW5\16.5\01	Matrix Spike #7 ID	GRSM\B407MW5\16.5\MS
Sampler #8 ID	GRSM\B407MW5\13.5\01	Matrix Spike #8 ID	GRSM\B407MW5\13.5\MS
Sampler #9 ID	GRSM\B407MW5\10.5\01	Matrix Spike #9 ID	GRSM\B407MW5\10.5\MS
Sampler #10 ID	GRSM\B407MW5\7.5\01	Matrix Spike #10 ID	GRSM\B407MW5\7.5\MS
Sampler #11 ID	NA	Matrix Spike #11 ID	NA
Sampler #12 ID	NA	Matrix Spike #12 ID	NA
Sampler #13 ID	NA	Matrix Spike #13 ID	NA
Sampler #14 ID	NA	Matrix Spike #14 ID	NA
Sampler #15 ID	NA	Matrix Spike #15 ID	NA
Duplicate #1 ID	GRSM\B407MW5\34.5\10		
Duplicate #2 ID	GRSM\B407MW5\31.5\10		
Duplicate #3 ID	GRSM\B407MW5\28.5\10		
Duplicate #4 ID	GRSM\B407MW5\25.5\10		
Duplicate #5 ID	GRSM\B407MW5\22.5\10		
Duplicate #6 ID	GRSM\B407MW5\19.5\10		
Duplicate #7 ID	GRSM\B407MW5\16.5\10		
Duplicate #8 ID	GRSM\B407MW5\13.5\10		
Duplicate #9 ID	GRSM\B407MW5\10.5\10		
Duplicate #10 ID	GRSM\B407MW5\7.5\10		
Duplicate #11 ID	NA		
Duplicate #12 ID	NA		
Duplicate #13 ID	NA		
Duplicate #14 ID	NA		
Duplicate #15 ID	NA		

3. If using the PPF, the saturated well-screen length will be calculated automatically. If the PPF is not used, calculate the saturated well-screen length using the following equations:

   a. If the water level (Step #1) is above the top of the well screen, then the saturated well-screen length is calculated as follows:

$L_{sat} = D_{se} - D_{sb}$

where, L_{sat} = Saturated well-screen length (feet [ft])
D_{se} = Depth to bottom of well screen or top of sediment (ft below top of casing [btoc])
D_{sb} = Depth to top of well screen (ft btoc).

   b. If the water level (Step #1) is lower than the top of the well screen (i.e., the well screen extends above the water level), then the saturated well-screen length is calculated as follows:

$L_{sat} = D_{se} - WL$

where, L_{sat} = Saturated well-screen length (ft)
D_{se} = Depth to bottom of well screen or top of sediment (ft btoc)
WL = Water level in the well (ft btoc).

4. If using the PPF, the total number of samplers to be deployed in the well will be automatically calculated. If the PPF is not used, use the following logic and the length of saturated screen calculated in Step #3 to determine how many samplers to deploy in the well.

   - The length of a sample set used to collect groundwater for both total and dissolved metals analysis is approximately 3 feet, and consists of two 1.5-foot-long low-density polyethylene (LDPE) mesh sleeves, each containing multiple diffusion sample bottles. If the entire screen length is saturated, divide the screen length by 3. If the entire screen length is not fully saturated, subtract 1 foot from the saturated screen length and divide by 3 (subtracting 1 foot assures that the top sample set is at least 1 foot below the water table). If, after dividing by 3 the remaining fraction is 0.5 or greater, then one-half of a sample set may be added to the whole number and deployed, if desired. Otherwise, round down to the nearest whole number. The ½ sample set (1.5 feet in length) can be used if only one type of metals analysis is desired (i.e., either total or dissolved metals analysis). Eight and one-half feet of saturated thickness within a 10 foot well screen, for example, could result in 2 full length sample sets deployed for both total and dissolved metals and ½ of a sample set deployed for either dissolved or totals analysis.

- If there are less than 3 feet of saturated screen, install a half-length sample set if possible for analysis of total or dissolved metals, and contact the site manager for further direction on how to proceed.

5. The diffusion samplers should be placed entirely within the upper and lower limits of the well screen and should be completely submerged throughout the equilibration period. The top of the uppermost diffusion sampler should be placed 1 foot (minimum) below the measured water level to allow some water elevation fluctuations during the equilibration period without exposing the diffusion sampler. If water elevation changes in excess of 1 foot are anticipated (based on historical data), the top diffusion sampler should be placed deeper.
6. If using the PPF, the spacing of diffusion samplers along the length of the well screen will be automatically calculated. If the PPF is not used, calculate the distance from the bottom of the well, or top of the sediment in the well, up to the point where the lowest diffusion sampler is to be placed, keeping in mind that the top of the uppermost sampler should be no less than 1 foot below the water surface.
7. Prepare the ground surface near the well for assembly of the diffusion sampler string. To avoid contaminating the sampling assembly during construction, clean plastic sheeting will be placed near the well and sample string construction will be performed on the plastic sheeting.
8. Attach a stainless steel weight to the bottom of the rope. This weight should just rest on the bottom of the well or on the sediment in the well when installed.
9. Measure the distance from the bottom of the stainless steel weight up the rope to the point that corresponds to the calculated bottom of the lowermost PDS. Insert a zip-tie in the rope at this location.
10. Move up the rope placing zip-ties at intervals corresponding to the spacing calculated in step 6 above until the appropriate number of zip-ties have been inserted (two zip-ties per PDS). Finally, place a knot or a zip-tie at the location on the rope that corresponds to the top of the well casing.
11. Record in the field logbook and the PPF the depths at which each sampler is to be installed. Each laboratory sample will be assigned a unique sample identification number that describes where the sample was collected and provides decoding information to identify QA/QC samples. The sample numbering system that will be used is unique to the site and location sampled. Each number will consist of 5 identifying pieces of information separated by slashes.

    [Code for BASE]\[Code for LOCATION]\[Code for DEPTH]\[Code for TYPE]\[Code for FILTRATION]

    The codes to be used in all sample identification numbers are summarized in Table 1.2.

TABLE 1.2
SAMPLE IDENTIFICATION NUMBERING SYSTEM

BASE	LOCATION	DEPTH	TYPE	FILTRATION

See PDBS Umbrella Work Plan for BASE codes	Well identification number	Depth (ft) below top of well casing (TOC) of PDBS midpoint.	Primary = 01	Field Filtered (Dissolved) = D
			Duplicate = 10	Total Metals (No Filtration) = T
			Field Blank = 02	
			Trip Blank = 03	
			Matrix Spike = MS	

Example Sample Number:

GRSM\B407MW05\12\01\D = Field filtered (D), primary sample (01) from the PDS whose middle depth was 12 feet (12) below the top of well casing (TOC) at monitoring well B407MW-05 (B407MW05), Grissom ARB (GRSM).

12. Each inorganic sample set consists of ten 30-milliliter (ml) polyethylene wide-mouth bottles held in two 1.5-foot-long, 2-inch-diameter, LDPE mesh sleeves (5 bottles per sleeve), giving a total of approximately 300 ml of available sample volume. A 2-inch by 2-inch section of nylon screen (available from Small Parts Inc., Miami Lakes, Fla.), should be secured over the opening of each 30-ml bottle by holding it in place over the jar opening and screwing the open-top cap onto the jar and screen. The screen mesh size should be 125 microns (μ). The bottles should be separated in the LDPE mesh by a distance of approximately 0.5 to 1 inch. Each inorganic passive diffusion sampler set deployed for total metals and dissolved metals (e.g., ten 30-ml bottles spaced up to 1 inch apart inside two 1.5-foot-long mesh sleeves), will be approximately 3 feet in length.

13. Prior to deployment of the PD samplers for inorganic constituents, it should be determined if the sampler will be deployed using anaerobic or aerobic deionized water. The utilization of aerobic or anaerobic water in the PDS will be based upon dissolved oxygen (DO) concentrations recorded within each well to be sampled. DO readings will be obtained every two feet throughout the saturated well screen using an in-well probe by allowing the probe to sit motionless at 2-foot intervals for up to 5 minutes or until a stable reading (e.g., $\pm$ 10%) is obtained, whichever comes first. DO concentrations greater than 1 milligram per liter (mg/L) indicate aerobic conditions, whereas concentrations of 1.0 mg/L or less are consistent with active anaerobic biodegradation processes. The DO concentrations for each interval should be recorded in the field logbook.

14. For each well, record in the field logbook and the PPF the type of water (i.e., either aerobic or anaerobic) used to fill the samplers. The use of aerobic water simply involves the use of deionized water poured directly into the sampler(s) prior to nylon screen placement. If anaerobic aquifer conditions are indicated (i.e., DO concentrations of 1.0 mg/L or less) then it will be preferable to fill the samplers with anaerobic water. Anaerobic water will minimize oxidation of redox-sensitive solutes. Deionized water can be made anaerobic by bubbling an inert gas (e.g., helium, nitrogen, etc.) through it, while in a decontaminated bucket (refer to SOP#3a-Decontamination), until the DO concentration is reduced to less than 1 mg/L. Dispersion of the inert gas through a bubbler (such as air stones used in fish tanks) will reduce the time it takes to make the water anaerobic. Placing the bucket inside a plastic bag will assist in keeping the water anaerobic, although continued infusion of the inert gas at a low rate may be required to maintain a DO concentration of 1 mg/L or less. Once the desired DO concentration is obtained, the sample bottles should be submerged in the bucket and filled with the anaerobic, deionized water. The nylon screen and cap should be placed on the bottle while submerged in the bucket of anaerobic deionized water. The field sampler should wear a new pair of protective gloves (e.g., nitrile) during filling of the bottles.

15. The individual sample bottles that comprise the inorganic sampler will be deployed with the jar openings (i.e., screens) facing downward within the LDPE mesh. The screen will retain the water in the sampler by means of a vacuum. The downward orientation of the sample jars minimizes the mixing of water in the samplers with shallower well water during sample recovery. Care should be taken to minimize agitation of the bottles or the surface tension may be broken and result in loss of water within the sample bottle.

16. Attach the top and bottom of each LDPE mesh sleeve to the rope using the zip-ties that were inserted into the rope in Steps 9 and 10 above. Attach the sampler to the rope by weaving the zip-tie through the LDPE mesh tubing of the diffusion sampler set. The zip-ties should be threaded through the mesh tubing in a way that prevents the individual sample bottles from sliding out of the mesh and in a way that prevents slack from developing in the rope between the bottom and top of the sampler.

17. Using decontaminated scissors (see SOP #3a –Decontamination), trim the excess from the zip-ties before placing the sampling string down the well.

18. Gently lower the diffusion sampling string into the well (weight first and sample bottles facing downward) until the weight rests on the bottom and the upper knot or zip-tie (indicating the top of the well casing) is even with the top of the well casing. The diffusion samplers should now be positioned at the correct depths.

19. Secure the rope at the wellhead in this position. A suggested method is to attach the rope to a hook (if one exists) on the inside of the well cap. If after the initial site visit it is determined that no viable method for attaching the rope to the wellhead exists, Parsons will provide well caps fitted with hooks for temporary use.

20. Install a temporary cover over the well casing to prevent debris from entering the well. If the well is flush mounted, be sure to secure the well cap to prevent inflow of surface runoff.
21. Close and lock the well protective covering.
22. Leave the sampling string in place for at least 14 days.

SOP # 2a - Diffusion Sampler Recovery and Sample Collection for Inorganic Constituents

This SOP describes the procedures for retrieving PD inorganic samplers from a groundwater monitoring well. Following the equilibration period, the diffusion sampling string will be retrieved and samples will be collected for laboratory analysis using the following procedures.

1. Measure the water level in the monitoring well in accordance with applicable site-specific SOPs. Note this depth in the field notebook and/or on the sample collection form and verify that the uppermost PDS is completely submerged below the water level.
2. Gently pull to the surface the first sampler set on the string. Care should be taken to minimize agitation of the bottles or the surface tension may be broken and result in loss of sample volume.
3. To avoid possible cross-contamination at the surface, secure the sampler string at the wellhead to allow the deeper samplers to hang in the well during transfer of water from the first sampler to appropriate laboratory-supplied containers.
4. Cut the cable ties and remove the diffusion sampler set from the rope. Examine the surface of the diffusion samplers for evidence of algae or a film that could affect the performance of the nylon screen. Also inspect the sample bottles for the presence of precipitate. Note any observations in the sampling field book and/or on the Sample Collection Form.
5. Extract each of the ten individual sample bottles from the LDPE mesh sleeves and pour the water into one 350-mL (minimum) laboratory-supplied, unpreserved plastic collection bottle. The collection bottle should be labeled to reflect the sample identification. Tightly secure the cap to the bottle and gently invert once or gently stir with a clean stir rod to mix the contents. Excessive shaking or agitation of the sample collection bottle should be avoided.
6. Proceed with sample collection, down the string assembly, until the bottom sample is transferred to the appropriate collection bottle. Water from each sample set (i.e., each set of 10 sample bottles) will be composited in a single plastic collection bottle.
7. Samples for total metals analysis should be poured directly from the collection bottle into a laboratory-supplied pre-preserved bottle (nitric acid added). Samples for dissolved metals analysis should handled in accordance with SOP#5 – Field Filtration for Dissolved Metals Analysis. Sample bottle

preservation, labeling, and shipment will be performed according to the procedures detailed in SOP #4 – Sample Handling and Documentation. Due to limited available sample volume for each sample interval, submittal of quality control samples (e.g., matrix spike [MS]) will require either the totals or dissolved analysis not being run for the sample interval. A sample interval selected for collection of a MS for total metals, for example, will not be analyzed for dissolved metals (only total metals and an MS for total metals).

8. All investigation derived waste (IDW), including spent diffusion samplers, disposable sampling equipment, and personal protective equipment will be managed according to the criteria specified in Section 3.2.3.5 of the umbrella work plan (Parsons, 2002) and in the site-specific work plans.

SOP # 3a – Equipment Decontamination

This SOP describes the procedures to be used for equipment decontamination during the PDS evaluation for inorganics. Note that this procedure may be superseded by procedures specified by the incumbent conventional sampling contractor in their sampling guidance document. Although the PDS method requires minimal decontamination, all portions of sampling and test equipment that will contact the sample will be thoroughly cleaned before each use (except for the sample bottles, which will be received in a pre-cleaned state from the analytical laboratory). This equipment may include water-level probe and cable, scissors, test equipment for onsite use, and other equipment or portions thereof that will contact the samples. The following decontamination protocol will be used:

- New disposable gloves will be used for each decontamination procedure to prevent cross-contamination of equipment.
- Equipment, or portions of equipment, that are not water-resistant will be wiped with a paper towel moistened with a solution of Alconox™ and distilled water until clean, followed by wiping with a paper towel moistened with distilled water.
- The cable of the water level meter will be wiped with a paper towel moistened with a solution of Alconox™ and distilled water as it is raised from each well. Care should be taken to ensure that excess water or decontamination fluids do not re-enter the well casing during the process. The probe will then be decontaminated by rinsing with Alconox™ and then distilled water.
- All sampling equipment will be placed on a clean surface, such as a sheet of plastic, after decontamination and during use.

All decontamination fluids will be temporarily placed in suitable containers for proper disposal.

Any deviations from these procedures will be documented in the field scientist's field notebook and on the groundwater sampling form. If pre-cleaned, dedicated sampling equipment is used, the decontamination protocol specified above will not be required.

Laboratory-supplied sample containers will be cleaned and sealed by the laboratory and therefore will not need to be cleaned in the field. Field/trip blanks and equipment rinseate samples will be collected as described in project SAP to ensure that all containers and field equipment are free of contamination.

SOP # 4a – Sample Handling and Documentation

This SOP describes the handling of inorganic groundwater samples from the time of sampling until the samples arrive at the laboratory, as well as all documentation that is required.

Sample Containers and Labels

Sample containers and appropriate container lids will either be provided by the analytical laboratory or will be purchased from an independent supplier. The sample containers will be filled as described in SOP #2a – Diffusion Sampler Recovery and Sample Collection for Inorganic Constituents, and the container lids will be tightly closed. Container lids will not be removed at any time prior to sample collection. The sample identification will be indelibly written directly on the bottle for those samples collected for dissolved metals analysis. Samples collected for total metals will have a sample label firmly attached to the container side, and the following information will be legibly and indelibly written on the label:

- Facility name;
- Sample identification;
- Sampling date;
- Sampling time;
- Preservatives added; and
- Sample collector's initials.

Upon completion of field filtration, dissolved-metals samples will be labeled as identified above.

Sample Preservation

Samples collected for total metals analysis will be poured directly into bottles preserved with nitric acid. Samples collected for dissolved metals analysis will be poured into an unpreserved bottle. After field filtering of the sample volume collected for dissolved metals analysis (SOP #5), the sample will be placed into a bottle preserved with nitric acid. The pH of the total metals sample and the filtered dissolved metals sample should be less than 2. Acid will be added to these bottles prior to shipping the containers to the site (typically by the laboratory). Upon completion of labeling, the sample will be placed in a re-sealable plastic bag. Samples will be properly prepared for transportation to the laboratory by placing the samples in a cooler containing ice to maintain a shipping temperature of 4°C.

Sample Packaging and Shipment

After the samples are sealed and labeled, they will be packaged for transport to the analytical laboratory. Samples will be shipped priority overnight via Federal Express® using the Government Account # 167402461. The following packaging and labeling procedures will be implemented:

- Package sample bottles in cushioning material so that they will not break or move around in the cooler during transport;
- Place fresh ice in cooler (in plastic bag to prevent leakage);
- Label shipping cooler with:
  - Appropriate completed airbill,

    Laboratory's name, address, and telephone number, and

    Sample collector's name, address, and telephone number (e.g., a business card).

The packaged samples will be delivered to the laboratory as soon as possible after sample acquisition to allow analysis within method-specific holding times.

Chain-of-Custody Control

After the samples have been collected, chain-of-custody procedures will be followed to establish a written record of sample handling and movement between the sampling site and the laboratory. Each shipping container will have a chain-of-custody form completed in triplicate by the sampling personnel. One copy of this form will be kept by the sampling team and the original and remaining copy will be sent to the laboratory. One of the laboratory copies will become a part of the permanent record for the sample and will be returned with the sample analytical results. The chain-of-custody will contain the following information:

- Sample identification number;
- Sample collector's printed name and signature;
- Date and time of collection;
- Place and address of collection;
- Sample matrix;
- Analyses requested;
- Signatures of individuals involved in the chain of possession; and
- Inclusive dates of possession.

The chain-of-custody documentation will be placed inside a resealable plastic bag taped to the inside of the shipping container lid so that it will be immediately apparent to the laboratory personnel receiving the container, but will not be damaged or lost during transport. The shipping container will be custody-sealed so that it will be obvious if the seal has been tampered with or broken.

Sampling Records

In order to provide complete documentation of the sampling event, detailed records will be maintained by the Parsons field scientist. At a minimum, these records will include the following information:

- Sample location (facility name);
- Sample identification;
- Sample location map or detailed sketch;
- Date and time of sampling;
- Sampling method, including type of water used (aerobic or anaerobic and the method used to create anaerobic water);
- Field filtration details;
- Field observations of
  - Sample appearance,
  - Sample odor;
- Weather conditions;
- Water level prior to PDS deployment and recovery;
- Total well depth;
- Well condition;
- Sampler's identification; and
- Any other relevant information.

Groundwater sampling activities will be recorded on the PPF (Figure 1.1).

SOP#5 – Field Filtration for Dissolved Metals Analysis

Field filtration will be performed by pumping the sample directly from the sample collection bottle (unpreserved) through a new, clean, in-line 0.45-micron filter capsule to a second (unused) sample bottle containing nitric acid preservative using a peristaltic pump. A new length of tubing will be used for each filtration event.