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January 28, 2010

Mr. Martin Zeleznik (SFD-8-1)
Remedial Project Manager
U.S. Environmental Protection Agency
75 Hawthorne Street, Region IX
San Francisco, CA 94105

SENT VIA E-MAIL AND FEDERAL EXPRESS

Re: Annual Monitoring Report for 2009 Activity Hassayampa Landfill NPL Site

Dear Mr. Zeleznik:

We are providing three hard copies to EPA and hard copies to ADEQ (each containing a full copy of the report on CD in pdf format) of the Annual Monitoring Report presenting the results of soil vapor and groundwater monitoring activities conducted at the Hassayampa Landfill NPL Site for the 2009 calendar year. An abridged version of the report, as detailed in my e-mail of January 25, 2010, is attached to the e-mail transmitting this letter. The attached electronic version of the report is being submitted in accordance with Section XI of the Consent Decree. Hard copies of the report will follow under separate cover

This report presents data collected by both Hargis + Associates, Inc. (H+A) and Geosyntec Consultants (Geosyntec). Please advise me if you have any questions or require any additional information regarding the enclosed documents.

Sincerely,

Ben Costello
HSC Project Manager

Enclosure

Pc: Ms. Wendy Flood, Arizona Department of Environmental Quality (2) bound copies, (1) CD copy
Mr. Frank Corkhill, Arizona Department of Water Resources (1) bound copy, (1) CD copy
Mr. Frank Van Alstine, ITSI, e-mail only
Ms. Tin LaPage, ADEQ, e-mail only

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JANUARY 27, 2010

2009 ANNUAL MONITORING REPORT

HASSAYAMPA LANDFILL EPA SUPERFUND SITE

MARICOPA COUNTY

ARIZONA

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2009 ANNUAL MONITORING REPORT

HASSAYAMPA LANDFILL EPA SUPERFUND SITE

MARICOPA COUNTY

ARIZONA

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ACRONYMS AND ABBREVIATIONS

μg/l	micrograms per liter
amsl	above mean sea level
bls	below land surface
CAS	Columbia Analytical Services, Inc.
CGZ	coarse-grained zone
COPC	Contaminants of Potential Concern
CRA	Conestoga-Rovers & Associates
EPA	U.S. Environmental Protection Agency
FGZ	fine-grained zone
FML	flexible membrane liner
GEO	GEO, Inc.
Geosyntec	Geosyntec Consultants
gpm	gallons per minute
GRS	Groundwater Remediation System
H+A	Hargis + Associates, Inc.
HDPE	high density polyethylene
HSC	Hassayampa Steering Committee
lbs/day	pounds per day
M&A	Errol L. Montgomery & Associates, Inc.
NES	Nationwide Environmental Services
O&M	Operation and Maintenance
PCBs	polychlorinated biphenyls
PLC	programmable logic control
ppmv	Part per million by volume
SCFM	Standard Cubic Feet Per Minute
SVOCs	Semi-VOCs
SVE	Soil Vapor Extraction
the “Site”	Hassayampa Landfill EPA Superfund Site
Test America	Test America Analytical Phoenix
TVOCs	Total Volatile Organic Compounds
UAO	Unilateral Administrative Order
VOC	Volatile Organic Compound

2009 ANNUAL MONITORING REPORT
HASSAYAMPA LANDFILL EPA SUPERFUND SITE
MARICOPA COUNTY
ARIZONA

1.0 MONITORING PROGRAM

In accordance with Operation and Maintenance (O&M) Manuals (Errol L. Montgomery & Associates, Inc [M&A] 1994 and 2001; Conestoga-Rovers & Associates [CRA] and M&A, 1995, and 1998; and Nationwide Environmental Services [NES], 2010) for the remedial action, this annual monitoring report for calendar year 2009 was prepared for submittal to the U.S. Environmental Protection Agency (EPA) Region IX by Hargis + Associates, Inc. (H+A) and Geosyntec Consultants (Geosyntec) on behalf of the Hassayampa Steering Committee (HSC) for the Hassayampa Landfill EPA Superfund Site (the "Site"). Investigations at the Site have been conducted in accordance with the Consent Order (EPA, 1988), the Record of Decision (EPA, 1992), the Unilateral Administrative Order (UAO) (EPA, 1993), and the Consent Decree (EPA, 1994).

This report summarizes the O&M activities and the results of monitoring conducted at the Site during 2009 (the "reporting period") in accordance with Site documents (M&A, 2000a and 2000b; CRA and M&A, 1995, 1996a, 1996b, 1998, and 2001) and describes other pertinent events that affected the Site during the period. Recent previous data are summarized in the Annual Report for 2008 (Nationwide Environmental Services [NES], 2009a), the Quarterly Reports for the first, second and third quarters of 2009 (NES, 2009b, 2009c, and 2009d) and the Phase I Report (Geosyntec and H+A, 2007).

The Hassayampa Landfill is located in the southeast quarter of Section 3, Township 1 South, Range 5 West, Maricopa County, Arizona. Figure 1 is a location map for the Hassayampa Landfill area. Figure 2 is a location map for groundwater monitor wells, the Groundwater Remediation System (GRS), and the cap. Figure 3 is a location map for the Soil Vapor Extraction (SVE) and Treatment System and the cap. Both the GRS and the re-started SVE and Treatment System are currently in operation. Construction data for

groundwater and soil vapor monitor and extraction wells are included in Appendix A. Hydrogeologic conditions at the Site are described in several reports for previous investigations conducted by M&A and CRA (M&A, 1991 and 2001a; M&A and CRA, 1991, 1994, and 1995).

A detailed analysis of the effectiveness of the hydraulic containment (capture zone) of the GRS was provided in the Phase I Report (Geosyntec and H+A, 2007) dated October 31, 2007. Additional interpretations updating the original capture zone analyses with more refined data were also submitted in the December 2008 Groundwater Remediation System Optimization Report (H&A, 2008a). The aforementioned reports also included an overall evaluation of the system's efficiency. Additional review of the system efficiency is included in this report based on the data collected in 2009.

1.1 GROUNDWATER REMEDIATION SYSTEM AND MONITORING PROGRAM

The Groundwater Remediation System (GRS) consists of: four Unit A extraction wells EW-01UA through EW-04UA; an air stripper and associated piping, pumps, and controls; the Unit B injection well IW-01UB; 20 Unit A groundwater monitor wells, including wells MW-01UA through MW-14UA and MW-16UA through MW-21UA, and eight Unit B groundwater monitor wells, including wells MW-01UB through MW-04UB, MW-06UB, MW-09UB, MW-10UB, and MW-15UB (Figure 2; Appendix A, Table A-1). The groundwater monitoring program (Table 1) includes: measurement of groundwater levels at the Unit A extraction wells, Unit B injection well, Unit A and Unit B monitor wells, and private domestic well (C-1-5)10abd2, owned by nearby resident Ed Robinson (ADWR registration No. 55-518966); measurement of pumping rates for the extraction wells and the injection rate for the injection well (Appendix B); collection of water samples from the monitor wells, extraction wells, and air stripper influent and effluent (Appendix C), and automated remote monitoring of selected GRS operations.

Groundwater and treatment system water samples are analyzed for volatile organic compounds (VOCs) by EPA Method 8260B. The following additions/alterations to the monitoring program are noted for 2009:

- A GRS Optimization Pilot Test consisting of shut down of extraction wells EW-01UA and EW-02UA was initiated on June 23, 2009. This Pilot Test included monthly sampling of EW-01UA, EW-02UA and MW-13UA for the duration of the test. Results of this additional sampling are reported in Appendix E. A detailed description of the Pilot Test and results will be provided in a separate document in 1Q10.

During 2009, quarterly groundwater sample analyses were performed by Test America Analytical (Test America) (ADHS Certification No. AZ0728). The groundwater performance standards for Contaminants of Potential Concern (COPC) are listed in Table 2. Water quality data are tabulated in Appendix E and laboratory data verification/validation results are listed in Appendix F. Laboratory reports for all groundwater samples collected by H+A in 2009 are in Appendix G.

1.2 SOIL VAPOR EXTRACTION AND TREATMENT SYSTEM AND MONITORING PROGRAM

Extraction and treatment of soil vapor was resumed at the Site during the end of the first calendar quarter 2006 after a lapse of approximately 8 years following shut-down of the original SVE system in 1998. Since the 2006 re-start of the SVE system, vapor has been treated using a proprietary pressure-condensation (cryogenic) system supplied by GEO Inc. (GEO) of Corona, California. The GEO treatment unit consists of two skid mounted blowers and compressors, a treatment trailer where the condensation process occurs and two 400-lb vapor phase carbon canisters for final polishing of the vapor prior to discharge. The GEO vapor compression/condensation unit produces two primary recovered liquid streams: an aqueous-based condensate waste (condensate waste) and an organic-based liquid solvent waste (solvent waste). The solvent waste is stored in a 2,400-gallon pressure vessel, and the condensate waste is stored in two polyethylene tanks (one 1,500 gallon and one 500 gallon) located on the containment pad. During 2009, recovered solvent waste and condensate waste were taken off-site for disposal under hazardous waste manifest by Clean Harbors and Veolia Environmental Services.

Eleven (11) fine-grained zone (FGZ) vadose probes were operated as soil vapor extraction wells when the SVE system was re-started on March 28, 2006. These FGZ probes include NW-02, N-01, NE-01, V-09, V-10, V-11, V-12, P-1, W-01, V-08, and VB-02f. Three groundwater monitor wells, MW-06UA, MW-18UA, and MW-19UA, screened in the FGZ beneath the basalt, were connected to the SVE system on August 2 and 3, 2007. Additional soil vapor probes were connected to the SVE system on October 28, 2008, specifically FGZ probes SP-01 and SP-02 and coarse-grained zone (CGZ) probe P-01.

Soil vapor monitoring is currently conducted per the approved Updated Soil Vapor Monitoring Program (Figure 3 and Table 3) (NES, 2008b). Soil vapor monitoring performed during 2009 included:

- Sampling of select coarse-grained, fine-grained, and sub-basalt vapor monitor wells for fixed laboratory analysis of VOCs as part of the Annual Sampling Event in January; and
- Sampling of select coarse-grained, fine-grained, and sub-basalt vapor monitor wells for fixed laboratory analysis of VOCs as part of the Semi-Annual Sampling Event in July.

2.0 WATER LEVEL MEASUREMENTS

During 2009, water level measurements were collected monthly at the monitor wells. Water level measurements are summarized on Table E-1. Hydrographs of water level elevation trends are presented in Appendix H. Quarterly water level elevation contours for Unit A and Unit B are illustrated in Figures 4 through 11 (January, April, July, and December).

2.1 UNIT A

Depths to groundwater measured in monitor wells screened only in Unit A ranged from approximately 78 to 96 feet below land surface (bls) during 2009. Water level elevations in the monitor wells completed in Unit A ranged from approximately 828 to 838 feet above mean sea level (amsl). Depths to groundwater measured during pumping in the Unit A extraction wells ranged from 86 to 102 feet bls and water level elevations in the extraction wells ranged from approximately 827 to 835 feet amsl. The hydraulic gradient of Unit A at the Site generally decreases with increasing distance from the extraction wells. Immediately upgradient of the extraction wells the hydraulic gradient is approximately 0.03, approximately ten times the gradient prior to installation of the GRS (M&A, 1995). The direction of groundwater movement in Unit A beneath the Site is towards the operating extraction wells (Figures 4 through 7). Review of water level elevation hydrographs indicates that water level elevations measured in Unit A monitor wells did not change significantly during 2009 (Appendix H).

Under the GRS Optimization Pilot Test, shut down of extraction wells EW-01UA and EW-02UA was initiated on June 23, 2009. As part of this Pilot Test, water levels were measured at frequent intervals for the first two weeks and monthly thereafter to document the change in groundwater elevations. This data indicated that water levels stabilized by July 2009 with an approximately six-foot increase in water levels in EW-01UA and an approximate four-foot increase in EW-02UA. Contouring of the water level data during the Pilot Test indicates a resultant change in local groundwater flow from the area of EW-01UA and EW-02UA toward the cone of depression formed by EW-03UA and EW-04UA and continued capture of affected Site groundwater (Figure 6, Table E-1).

2.2 UNIT B

In 2009 depths to groundwater measured in monitor wells screened only in Unit B ranged from 91 to 105 feet bls. Water level elevations in Unit B monitor wells ranged from approximately 818 to 825 feet amsl. The hydraulic gradient of Unit B directly beneath the Site was approximately 0.006. The hydraulic gradient of Unit B downgradient of the Site was approximately 0.002 during the same period. The direction of groundwater movement in Unit B remained to the south-southwest in 2009 (Figures 8 through 11), consistent with historical flow direction in this unit.

As observed in previous years, in 2009 Unit B water level elevations measured in monitor wells generally declined in the spring and summer and rose during the fall and winter (Appendix H). The pattern of the decline and rise of water levels is related to seasonal pumping of groundwater from irrigation and water supply wells in the lower Hassayampa Basin.

Comparison of water level elevations from paired wells completed in Units A and B indicated that water level elevations in Unit A monitor wells are on average about 11 feet higher than water level elevations in monitor wells completed in Unit B. These data indicate that a downward vertical gradient exists between these two units. However, based on data collected to date, VOC contamination is confined to a very small area within Unit A, and there is no evidence that downward migration of VOCs from Unit A to Unit B has occurred. This observation is also supported by the capture zone analysis conducted as part of the Phase I activities and documented in the Phase I Report (Geosyntec and H+A, 2007) and in the Groundwater Treatment System Optimization Report (H&A, 2008a).

3.0 GROUNDWATER QUALITY

Groundwater quality monitoring at the Site includes the collection of groundwater and QA/QC samples from extraction wells and monitor wells for analysis of selected field parameters and VOCs by a fixed laboratory, data verification and data validation. Groundwater samples for laboratory chemical analyses were collected from four Unit A extraction wells, 20 Unit A monitor wells and 8 Unit B monitor wells during 2009. All wells were sampled in April 2009 and selected wells were sampled quarterly according to Table 1. All groundwater samples were analyzed for VOCs by EPA Method 8260B. Analytical and field data are presented on Figures 4 through 11 and included in tables in Appendix E. Results of data verification and validation activities performed during 2009 have been summarized in Appendix F. Graphs of groundwater quality trends for the extraction and monitor wells are presented in Appendix H.

3.1 UNIT A

In 2009 VOCs were consistently detected at concentrations greater than the groundwater performance standards (Table 2) in groundwater samples collected from nine monitor wells and two of the four extraction wells (EW-03UA and EW-04UA). VOCs were detected in EW-01UA while that extraction well was shut down in July and August as part of the Pilot Test. EW-01UA was restarted in August and VOCs have not been detected in this well since. During the Pilot Test in September, VOCs were also detected in groundwater samples from EW-02UA. EW-02UA has not been restarted and no VOCs have been detected in this well again. The following table provides a summary of the chemical quality data collected from Unit A in 2009.

YEAR 2009: GROUNDWATER SAMPLE CONCENTRATIONS GREATER THAN GROUNDWATER PERFORMANCE STANDARDS			
CONTAMINANTS OF POTENTIAL CONCERN	**STANDARD (μg/l)**	**WELLS WHERE GROUNDWATER EXCEEDS STANDARD**	**CONCENTRATION RANGE of COPC (μg/l)**
1,1-Dichloroethene	7	EW-03UA	26 to 52
		EW-04UA	1,100 to 2,100
		MW-01UA	13 to 25
		MW-04UA	130 to 340
		MW-06UA	400 to 1,800
		MW-07UA	78 to 170
		MW-12UA	5,000 to 11,000
		MW-14UA	38 to 41
		MW-18UA	11,000 to 29,000
		MW-19UA	5,000 to 22,000
		MW-20UA	700 to 4,000
1,2-Dichloroethane	5	MW-18UA	8.1 to 66
		MW-19UA	7.5 to 130
1,2-Dichloropropane	5	EW-04UA	44 to 59
		MW-06UA	14 to 71
		MW-12UA	130
		MW-18UA	300 to 1,700
		MW-19UA	920 to 5,400
		MW-20UA	6.6 to 12
Benzene	5	MW-18UA	14 to 29
		MW-19UA	9 to 36

CONTAMINANTS OF POTENTIAL CONCERN	STANDARD (μg/l)	WELLS WHERE GROUNDWATER EXCEEDS STANDARD	CONCENTRATION RANGE of COPC (μg/l)
Methylene Chloride	5	EW-01UA	7 to 10
		EW-04UA	17
		MW-06UA	66
		MW-18UA	10 to 8,800
		MW-19UA	100 to 18,000
Tetrachloroethene	5	EW-04UA	32 to 37
		MW-06UA	37 to 42
		MW-07UA	7.1 to 8.7
		MW-12UA	110 to 120
		MW-18UA	680 to 820
		MW-19UA	620 to 1,300
		MW-20UA	18 to 72
Toluene	1,000	MW-19UA	1,100
1,1,1-Trichloroethane	200	MW-06UA	270 to 980
		MW-18UA	7,400 to 13,000
		MW-19UA	3,800 to 17,000
Trichloroethene	5	EW-03UA	14 to 22
		EW-04UA	81 to 110
		MW-01UA	7.1
		MW-04UA	13 to 26
		MW-06UA	60 to 120
		MW-07UA	86 to 120
		MW-12UA	240 to 360
		MW-18UA	1,400 to 2,500
		MW-19UA	1,100 to 3,300
		MW-20UA	54 to 160

The data indicate that total VOC concentrations greater than 100 micrograms per liter (μg/l) were observed in samples from seven monitor wells: MW-04UA, MW-06UA, MW-07UA, MW-12UA, MW-18UA, MW-19UA, and MW-20UA in 2009 (Appendix E, Table E-2). Total VOC

concentrations (TVOCs) in monitor wells MW-06UA, MW-18UA, and MW-19UA are subject to wide variations in chemical concentrations because soil vapor is actively withdrawn from these wells. The withdrawal of soil vapors causes minor water level fluctuations within the wells which in turn can create differences in the TVOC data. Compared to 2008 values, TVOC concentrations in most Unit A monitor wells appear to be generally steady or declining in 2009, with increases apparent only in wells MW-12UA, MW-19UA, and MW-20UA.

TVOCs in MW-12UA increased from an average of approximately 4,700 μg/l in 2008 to an average of approximately 11,400 μg/l in 2009 (Appendix E), continuing the trend seen over the last several years (Appendix H) in COPC concentrations for this well. Between 2008 and 2009 maximum reported concentrations of 1,1-DCE increased from 5,100 μg/l to 11,000 μg/l, maximum reported concentrations of 1,2-DCP increased from 45 to 130 μg/l, maximum reported concentrations of PCE increased from 50 to 120 μg/l, and maximum reported concentrations of TCE increased from 130 to 360 μg/l.

Average TVOC concentrations in MW-19UA increased from approximately 20,200 μg/l in 2008 to 39,800 μg/l in 2009. Concentrations of 1,1-DCE, 1,2-DCA, TCE, and 1,2-DCP remained approximately equal to those reported in 2008. Maximum concentrations of methylene chloride in MW-19UA increased from 11,000 to 18,000 over the last year. Maximum PCE concentrations increased from 910 to 1,300 and maximum concentrations of 1,1,1-TCA increased from 12,000 to 17,000 μg/l from those reported in 2008.

TVOCs in MW-20UA increased from an average of approximately 2,300 μg/l in 2008 to an average of approximately 3,000 μg/l in 2009, matching recent trends for this well. Between 2008 and 2009 maximum reported concentrations of PCE increased from 43 to 72 μg/l and maximum TCE concentrations increased from 110 to 160 μg/l. Results and trends of groundwater monitoring are reported in Appendices E and H.

During the Pilot Test, two compounds were detected in July groundwater samples collected from EW-01UA. Methylene chloride was detected at 7.0 μg/l and 1,1-dichloroethane (1,1-DCA) was detected at 2.4 μg/l. These detections were verified in groundwater samples collected in August from this well with methylene chloride reported at 10 μg/l and 1,1-DCA reported at 2.8 μg/l. One compound was detected in the September sample from EW-02UA.

Trichlorofluoromethane was detected in this groundwater sample at a concentration of 5.2 μg/l. EW-01UA was restarted in August and no VOC detections have been reported since. EW-02UA was left off but VOCs have not been detected in samples from that well since September. Based on the low concentrations and short duration of the VOC detections, as well as the fact that these compounds have not been detected recently in nearby monitor wells, and groundwater level data indicate that capture of affected groundwater was maintained with EW-01UA and EW-02UA shut down, these detections are not considered to be indicative of potential southward migration of affected groundwater. These detections will be further evaluated in a document detailing the Pilot Test and its results that will be provided in 1Q10.

As in previous years, acetone was reported several times in groundwater samples from various wells at concentrations slightly above the reporting limit. Acetone is a common laboratory contaminant and has been intermittently detected previously in samples from different areas of the Site and in trip blank samples. Due to the random occurrence of these detections and the trip blank detections, the detection of acetone in Site groundwater samples is considered evidence of laboratory contamination rather than actual groundwater impact.

3.2 UNIT B

COPC VOCs were not detected above the performance standards in any groundwater samples obtained from Unit B groundwater monitor wells during the 2009 reporting period (Appendix E).

4.0 GROUNDWATER REMEDIATION SYSTEM

4.1 GROUNDWATER REMEDIATION SYSTEM OPERATIONS

The GRS operated approximately 97 percent of the time during 2009. Down time is primarily attributed to: area-wide power outages, equipment damage from lightning, minor equipment failures or alarms throughout the year, and installation of new equipment.

Equipment changes in 2009 included replacement of a manual-read pressure gauge on the air stripper to a gauge with output to the datalogger device and programmable logic control (PLC). This alteration provides the capability to download pressure readings from the system and a mechanism to automatically shut down the system if air flow drops below the amount necessary for adequate water treatment.

Two break-ins to the Site were reported in July 2009. The break-ins resulted in minor damage to the SVE system and the Site security fence but did not result in significant downtime of either the soil vapor or groundwater treatment systems.

During the reporting period, the GRS datalogger was set to record groundwater level and flow measurements at 30-minute intervals. The total volume of groundwater pumped and treated by the GRS during the reporting period was approximately 1,795,000 gallons (Appendix B, Table B-2). The average combined pumping rate from groundwater extraction wells EW-01UA through EW-04UA during the 2009 reporting period was approximately 5.6 gallons per minute (gpm) when operating. Monthly average pumping/injection rates and the total volume of groundwater pumped and injected by the GRS extraction and injection wells are summarized in Appendix B, Table B-2.

Review of water level hydrographs indicates that the depth to groundwater and injection rate at injection well IW-1UB varied substantially during the reporting period (Appendices H and I). These variations result from a combination of fluctuations in the following parameters: 1) instantaneous injection rate at the time of monitoring; 2) duration of injection for each injection cycle, which is dependent on the balance between the influent transfer pump and the

effluent pump; and 3) monitoring frequency programmed into the datalogger for recording flow rate and groundwater level.

The total mass of VOCs removed from groundwater and the rate of VOC removal for the GRS have been calculated and are shown on Figure 12. The mass of VOCs removed from groundwater by the GRS is calculated as the product of influent volume and average total concentration of VOCs. Rate of VOC removal is calculated as the product of average total pumping rate and weighted average VOC concentration for the four extraction wells.

Based on these calculations, a total of approximately 290 pounds of VOCs have been removed from Unit A by the GRS from 1994 through 2009, and approximately 20 pounds of VOCs were removed from Unit A by the GRS during 2009 (Appendix B, Table B-3; Figure 12). The VOC removal rate ranged from approximately 0.080 to 0.085 pounds per day (lbs/day) during the reporting period.

4.2 QUALITY OF INFLUENT/EFFLUENT

Water samples for laboratory chemical analyses were obtained from the influent on a quarterly basis and from the treated effluent on a monthly basis. Influent samples were collected between the treatment system equalization tank and the air stripper. Effluent samples from the GRS consist of influent that has been treated in the air stripper and were obtained inside the GRS building from the discharge pipeline downstream from the effluent flow meter. The influent and effluent samples were analyzed for VOCs by EPA Method 8260B. Influent and effluent samples collected in October 2009 were analyzed for the COPCs including VOCs, Semi-VOCs (SVOCs), pesticides, polychlorinated biphenyls (PCBs), selected trace metals and common ions. Tabularized analytical and field data are provided in Appendix E. Results of data verification and validation activities performed during 2009 are summarized in Appendix F.

During the reporting period, the concentration of total VOCs detected in the influent ranged from 1,087 μg/l to 2,038 μg/l. Concentrations of individual VOCs detected in samples of the influent are listed in Appendix E and selected VOCs are briefly summarized below.

CALENDAR YEAR 2009 INFLUENT SAMPLE CONCENTRATIONS			
CONTAMINANTS OF POTENTIAL CONCERN	**STANDARD (μg/l)**	**MINIMUM (μg/l)**	**MAXIMUM (μg/l)**
1,1-Dichloroethene	7	690	1,400
1,2-Dichloropropane	5	17	35
Tetrachloroethene	5	12	24
Trichloroethene	5	32	69

During the reporting period, SVOCs, pesticides and PCBs were not detected in influent or effluent water samples. Only one of the inorganic constituents analyzed, chromium, has a groundwater performance standard. Chromium was not detected above the performance standard in effluent or influent during the reporting period (Appendix E).

5.0 SOIL VAPOR

5.1 SVE TREATMENT SYSTEM

SVE activities were resumed at the Site during the end of the first calendar quarter 2006. SVE construction and startup testing activities were conducted over an approximate 3-week period from March 8 through 28, 2006. Activities included the construction of a high density polyethylene (HDPE) lined equipment containment pad, installation of a proprietary vapor compression/condensation treatment unit provided by GEO Inc., and piping of 11 FGZ vapor wells to the treatment unit through a central manifold and a 4-inch diameter PVC header pipe. In the 3rd Quarter 2007, three sub-basalt groundwater wells, MW-06UA, MW-18UA, and MW-19UA, were connected to the SVE system. In the 3rd Quarter 2008, two additional FGZ wells (SP-01 and SP-02) and one CGZ well (P-01 coarse), were also connected to the SVE system. No additional wells have been connected to the SVE system since the 3rd Quarter 2008. The current quarter (4th Quarter 2009). SVE well field layout is shown on Figure 3.

5.1.1 Treatment System

The GEO treatment unit consists of two skid-mounted blowers and compressors, a treatment trailer where the condensation process occurs and two 400-lb vapor phase carbon canisters for final polishing of the vapor prior to discharge (Figure 13). The GEO vapor compressor/condensation unit produces two primary recovered liquid streams: an aqueous based condensate waste (condensate waste), and an organic-based solvent waste liquid (solvent waste). The solvent waste is stored in a 2,400-gallon pressure vessel and the condensate waste is stored in two polyethylene tanks (one 1,500 gallon and one 500 gallon) located on the containment pad. Additional, smaller quantities of condensate are periodically removed from low points in the SVE piping and stored and managed with condensate waste produced from the GEO treatment unit. The SVE system is being operated in accordance with a permit obtained from the Maricopa County Air Quality Department. Additional details regarding the construction and startup testing of the re-started SVE system are contained in the Phase I report (Geosyntec and H+A, 2007).

From October 1, 2009 through December 31, 2009 (4th Quarter 2009) the GEO system was operational for 2,125 hours, representing an approximate 96 percent system up time. During

the 4th Quarter 2009, the average combined soil vapor flow rate to the GEO system was approximately 193 standard cubic feet per minute (SCFM). During the 4th Quarter 2009, the SVE system influent was sampled on October 6, October 27, and December 4, 2009. Samples were collected in six-liter SUMMA canisters and were analyzed for VOCs (EPA Method TO-15) by Columbia Analytical Services, Inc. (CAS), of Simi Valley, California. Laboratory analytical reports for influent vapor samples collected in 2009 are provided in Appendix J. The average flow-weighted 4th Quarter 2009 influent TVOC concentration to the SVE system was 3,766 µg/L. The mass of VOCs removed from the vadose zone during the 4th Quarter 2009 was 5,777 pounds. The total mass of VOCs removed from the vadose zone during 2009 was 19,023 pounds. Since SVE activities were resumed in March 2006, a total of approximately 96,900 pounds (just over 48-tons) of VOCs have been recovered. Figure 14 plots the cumulative and quarterly VOC mass totals removed by the re-started SVE system since March 2006.

During 2009, combined soil vapor flow rates to the GEO treatment system averaged 174 SCFM. From January 1, 2009 through December 31, 2009, the GEO system was operational for approximately 7,230 hours, representing an approximate 83 percent up time. System downtime in 2009 was attributed to: (i) the planned 1-week shut downs of the SVE system prior to the annual and semi-annual soil vapor sampling events conducted in January and July 2009, respectively, (ii) short-term area-wide power outages due to seasonal electrical storms during the 3rd Quarter 2009, (iii) SVE system damage due to a break-in at the Site during the 3rd Quarter 2009, and (iv) routine O&M activities including time related to carbon change outs, periodic system maintenance and pickup of the recovered solvent and condensate wastes for off-site disposal. Summaries of SVE system operational data are included in Appendix J.

5.1.2 Coarse- and Fine-Grained Zone Extraction Above the Basalt

In December 2007, vapor extraction in the fine-grained vadose zone was revised to improve the rate of mass removal of the SVE system (NES, 2008a). The intent of the effort was to allocate a majority of the SVE system vacuum to the FGZ soil vapor wells that exhibited the highest VOC concentrations. During 2009, this effort was continued with focused extraction primarily conducted at ten (10) FGZ wells and one CGZ well. In an effort to increase overall mass removal, these wells were adjusted over the course of 2009 as summarized below:

- NW-02 fine
    - open to extraction until closed on February 20;

    - operated as a vent well from November 5 until December 22 when closed,
- P-01 fine - open to extraction throughout 2009,
- P-01 coarse - open to extraction throughout 2009,
- SP-01 fine - open to extraction throughout 2009,
- SP-02 fine - open to extraction throughout 2009,
- V-08 fine – operated as a vent well throughout 2009,
- V-09 fine
    - Closed to extraction until November 5 when used as a vent well
    - Operated as a vent well from November 5th until December 22 when closed,
- V-10 fine – operated as a vent well until November 5 when closed,
- V-11 fine -open to extraction throughout 2009,
- V-12 fine - open to extraction throughout 2009, and
- W-01 fine - open to extraction throughout 2009.

Individual average vapor flow rates achieved from these wells during 2009 ranged from 6 SCFM (V-11) to 36 SCFM (P-01 coarse). During this same period, average well specific VOC concentrations (as measured with a PID) of extracted vapors ranged from 125 ppmv (W-01) to 3,400 ppmv (SP-01). Figure 3 shows the current SVE well and soil vapor monitoring probe layout. Summaries of fine-grained and coarse-grained zone extraction well operational data including applied well head vacuums, individual well flow rates and VOC concentrations (as measured with a PID) are included in Appendix J.

5.1.3 Fine-Grained Zone Extraction Below the Basalt

In August 2007, three sub-basalt groundwater wells, MW-06UA, MW-18UA, and MW-19UA, were connected to the SVE system as part of an extended SVE pilot test (NES, 2008a). With the exception of one modification, soil vapor extraction was performed in the fine-grained sub-basalt vadose zone during 2009 using these same wells. In an effort to increase mass removal rates from the sub-basalt zone, MW-19UA was closed to extraction and was opened as a vent well on November 5th. Individual average vapor flow rates achieved from these sub-basalt wells during 2009 generally ranged from 1.5 SCFM (MW-19UA) to 8 SCFM (MW-06UA). During this same period, individual average VOC concentrations (as measured with a PID) of the extracted vapors generally ranged from 300 ppmv (MW-06UA) to 2,200 ppmv (MW-19UA). Summaries of sub-basalt extraction well operational data are included in Appendix J.

5.1.4 Waste Management

Solvent waste and condensate waste were transported and disposed offsite in 2009 by Clean Harbors (1st, 2nd, and 3rd Quarters 2009) and Veolia Environmental Services (4th Quarter 2009). Both the solvent waste and the condensate waste were shipped during the same events using a double-hull tanker provided by Clean Harbors or Veolia Environmental Services. Notification of the HSC's intent to ship liquids was provided to EPA in December 2009 (NES, 2009e). Waste solvent and condensate waste were transported offsite under waste manifest for disposal on:

- January 26, 2009 (Clean Harbors);
- May 12, 2009 (Clean Harbors);
- September 2, 2009 (Clean Harbors), and
- November 19, 2009 (Veolia Environmental Services).

During the 4th Quarter 2009, a total of approximately 835 gallons of waste solvent and 1,450 gallons of condensate were recovered from the SVE system. During 2009, a total of approximately 2,620 gallons of waste solvent and 3,455 gallons of condensate were recovered.

The granular activated carbon in both 400-lb vapor phase vessels was removed and replaced by Siemens Water Technologies (Siemens) four times in 2009. Siemens removed the carbon under manifest and replaced it on:

- February 24, 2009;
- June 6, 2009;
- September 11, 2009, and
- December 10, 2009.

5.2 SOIL VAPOR MONITORING

Soil vapor monitoring activities conducted during 2009 that are associated with the re-started SVE included:

- An annual sampling event conducted January 13 through January 15, 2009, and

- A semi-annual sampling event conducted on July 10, 2009.

The specific soil vapor wells that are sampled as part of each sampling event are summarized in Table 3.

In addition to the soil vapor sampling conducted on behalf of the HSC, Maricopa County obtained periodic field measurements for methane from 18 shallow vapor wells that were constructed by the County for monitoring the sanitary landfill.

For the annual and semi-annual sampling events, soil vapor samples were collected in SUMMA canisters for fixed laboratory VOC analysis by EPA Method TO-15. For the annual and semi-annual events, soil vapor samples were collected following an approximate one-week shut down of the SVE system. TO-15 analyses were performed by CAS. Appendix E includes a summary of the soil vapor laboratory results. Laboratory data reports are included as Appendix G. Graphs of soil vapor trends for the wells are presented in Appendix K.

Results of the Maricopa County methane monitoring are included in Appendix L.

5.2.1 Soil Vapor Conditions – Coarse- and Fine-Grained Zones Above the Basalt

Soil vapor data collected as part of the annual sampling event (January 2009) were used to create total VOC iso-concentration contours for the coarse and fine-grained vadose zones above the basalt (Figures 15 and 16, respectively). Total VOC data from the semi-annual (July 2009) event for the coarse- and fine-grained zones are plotted, rather than contoured, on Figures 17 and 18, respectively. The concentrations for the semi-annual sampling event have been plotted rather than contoured because only two soil vapor wells were sampled, V-12 and V-14.

Due to the larger number of sampling locations, data from annual sampling events provide a more detailed depiction of soil vapor VOC conditions in the coarse and fine-grained vadose zones than do the semi-annual data. For comparison to January 2009 data, Figures 15 and 16 include the estimated extent of the vapor plume in January 2006 prior to SVE re-start. As shown on Figures 15 and 16, the magnitude and extent of the soil vapor plume in the coarse- and fine-grained zones have been significantly reduced as a result of operating the SVE system

for over 2-3/4 years from March 2006 to January 2009. The 2009 annual sampling data presented in Figures 15 and 16 also show that the magnitude and extent of an isolated area of VOC vapor in the southwest portion of the Site near wells SP-01 and SP-02, that first became apparent during the 2008 annual sampling event, ,has also been significantly reduced over a few month period; since wells SP-01 and SP-02 were connected to the SVE system in October 2008. As shown on Figure 16, the primary area of residual VOCs in the vadose zone above the basalt is located in the fine-grained zone in the immediate vicinity of Pit 1.

5.2.2 Soil Vapor Conditions –Fine-Grained Zone Below the Basalt

Sub-basalt vapor conditions in the fine-grained zone from the annual (January 2009) and semi-annual (July 2009) sampling events are shown with total VOC iso-concentration contours in Figures 19 and 20, respectively. Also shown on these figures is the estimated 5,000 μg/l total VOC soil vapor contour in January 2006 prior to SVE re-start. As shown on Figure 20, by July 2009 the magnitude and extent of the sub-basalt VOC vapor plume had been significantly reduced through operation of the SVE system in the sub-basalt vadose zone. Figure 20 also illustrates that similar to the fine grained zone, the area of residual soil vapor VOCs in the sub-basalt vadose zone is localized to an area in the immediate vicinity of Pit 1.

6.0 SOIL CAP AND SITE SECURITY

The cap for the former hazardous waste disposal areas consists of the following major components, in descending order:

- vegetated cover layer;
- filter fabric;
- drainage layer;
- flexible membrane liner (FML), and
- soil bedding layer.

Procedures for O&M of the cap are provided in the O&M Manual for the Soil Cap (CRA and M&A, 1995). The monitoring program for the cap includes inspection of the cap annually and following severe rainstorm events, and repair as needed based on the inspections.

On October 15, 2009, H+A conducted the annual inspection of the cap and no problems were noted (Appendix B). In addition, during routine visits, R&R Pest Control conducted semi-monthly inspections of the cap for potential damage by rodents and erosion from stormwater runoff. R&R Pest Control also conducted maintenance of the cap by spreading fill dirt over areas affected by erosion as directed by Hargis (Appendix D).

The Site has been subject to repeated break-ins and theft due in part to its remote location. Two break-ins occurred in 2009. Neither break-in resulted in significant damage to the SVE or GRS systems. No damage was reported to the cap from these incidents. Dusk to dawn security patrols were added to the Site security measures in 2008 to reduce the potential for future break-ins. Some modifications to the patrol schedule were made in 2009 after the break-ins.

7.0 SIGNIFICANT EVENTS

7.1 CHRONOLOGY OF EVENTS FOR REPORTING PERIOD

Numerous events occurred during the reporting period pertinent to Site administration, operation, and maintenance of the Site. A comprehensive summary and chronology of the events for the reporting period is provided in Appendix D.

7.2 ANNUAL MAINTENANCE OF GRS

The annual cleaning of the GRS was performed on October 14, and 15, 2009. Cleaning consisted of dismantling the air stripper, manual scraping and cleaning during disassembly, an acid bath, rinsing, and reassembly. No significant issues were noted during the maintenance. The dismantling and cleaning of the GRS was photo-documented during the event however some photos were lost due to a disc failure. Replacement photos were taken as soon as possible and photos of the disassembly and cleaning process are provided in Appendix M along with a report showing the results of attempts to recover the original photos from the faulty disc.

7.3 ADDITIONAL WORK

During 2009, additional work beyond the routine O&M and monitoring was conducted at the Site. This work comprised the following:

- New equipment was installed for the GRS in July 2009 including a new air flow gauge allowing data output to the datalogger and the PLC. This equipment allows remote monitoring of GRS airflow and automatic system shutdown if airflow falls below volumes necessary for adequate treatment.

8.0 DATA ANALYSIS AND CONCLUSIONS

The quarterly and semi-annual sampling of the GRS for COPCs was completed in 2009 in accordance with the Consent Order (EPA, 1988), the Record of Decision (EPA, 1992), the Unilateral Administrative Order (UAO) (EPA, 1993), and the Consent Decree (EPA, 1994). Water levels and hydraulic gradients in Unit A and B have not changed considerably throughout 2009 and remain within historical trends. There were no detected VOCs in Unit B in 2009.

Review of the 2009 groundwater data collected in Unit A indicates that the VOC removal rate of the GRS in pounds per day remained relatively steady throughout 2009 (Appendix B).

With the exceptions of the increasing trends identified in MW-12UA, MW-19UA, and MW-20UA, the total VOC concentrations in groundwater samples collected from Site monitor wells have declined or have remained within historical trends. The 2009 trends for wells MW-12UA, MW-19UA are similar to those identified in recent years (Appendix E).

The Pilot Test initiated in June 2009 which included shutdown of EW-01UA and EW-02UA resulted in establishment of groundwater elevations approximately six and four feet higher, respectively, in those wells than pumping water levels. This localized increase in water levels resulted in groundwater flow from that area toward the cone of depression created by the remaining two operating extraction wells (EW-03UA and EW-04UA) and indicated that capture of affected Site groundwater is maintained with only EW-03UA and EW-04UA operating (Figure 6). One other effect of the altered extraction system was low level detections of VOCs in both EW-01UA and EW-02UA. VOC concentrations in EW-01UA were non-detect after restart of the well while VOCs were not detected in EW-02UA again even though that well was left off. Additional analysis and recommendations will be provided in a Pilot Test Summary Report in early 2010.

The restart of the SVE has acted to capture and draw back the expanded soil vapor plume and remove over 48-tons of VOC mass beneath the Pit 1 area. The resumed extraction of soil vapor containing VOCs in the fine-grained zone both above and below the basalt in the vicinity of Pit 1 has acted to significantly reduce the size and the magnitude of the soil vapor plume that has been identified as a primary source contributing VOCs to Unit A groundwater (Geosyntec and H+A, 2007).

During 2009 the SVE system was operated to focus vapor extraction primarily in the fine-grained zone in the Pit 1 area, both above and below the basalt. Vapor extraction was also conducted in the fine-grained zone above the basalt in the Special Pits area through operation of wells SP-01 and SP-02. The need for continued extraction in the Special Pits area will be further evaluated based on the results of the 2010 annual soil vapor sampling event. In 2009 extraction well configurations remained relatively consistent with the operational regime used in 2008. Minor exceptions included adjustments of individual well applied vacuum settings and use of select wells (NW-02 fine, V-08, V-09, V-10, and MW-19UA) as vent wells in an effort to change subsurface vapor flow paths and improve mass removal rates.

Data collected during 2009 demonstrate the progress the SVE system has made in removing mass and indicate a depleting vadose zone VOC source. These data also support continued focused mass removal efforts in the immediate Pit 1 area both above and below the basalt. Focused mass removal efforts should be continued until concentrations of VOCs in soil vapor are equal to or less than the updated soil vapor performance standards which are expected to be formally established by EPA in early 2010.

9.0 SITE CONCEPTUAL MODEL

No significant new data were collected during 2009 to warrant updating the Site Conceptual Model .

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TABLE 1
2009 GROUNDWATER SAMPLING SCHEDULE

Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TCL / TAL (excluding VOCs)												
Effluent										A		
Influent										A		
VOCs												
GRS Effluent	M	M	M	M	M	M	M	M	M	M	M	M
GRS Influent	Q			Q			Q			Q		
EW-01UA				S						S		
EW-02UA	Q			Q			Q			Q		
EW-03UA	Q			Q			Q			Q		
EW-04UA	Q			Q			Q			Q		
MW-01UA	Q			Q			Q			Q		
MW-02UA				S						S		
MW-03UA	Q			Q			Q			Q		
MW-04UA	Q			Q			Q			Q		
MW-05UA				A								
MW-06UA	Q			Q			Q			Q		
MW-07UA	Q			Q			Q			Q		
MW-08UA				S						S		
MW-09UA				S						S		
MW-10UA				S						S		
MW-11UA	Q			Q			Q			Q		
MW-12UA	Q			Q			Q			Q		
MW-13UA				S						S		
MW-14UA				S						S		
MW-16UA	Q			Q			Q			Q		
MW-17UA	Q			Q			Q			Q		
MW-18UA	Q			Q			Q			Q		
MW-19UA	Q			Q			Q			Q		
MW-20UA	Q			Q			Q			Q		
MW-21UA	Q			Q			Q			Q		
MW-01UB	Q			Q			Q			Q		
MW-02UB				S						S		
MW-03UB				S						S		
MW-04UB	Q			Q			Q			Q		
MW-06UB	Q			Q			Q			Q		
MW-09UB				S						S		
MW-10UB				A								
MW-15UB				A								
INORGANICS and Ac+Ac+2CEVE (for Maricopa County compliance monitoring)												
MW-08UA				S						S		
MW-09UA				S						S		
MW-10UA				S						S		
MW-11UA				S						S		
INORGANICS (selected constituents for HSC)												
MW-15UB				A								

TCL / TAL = Target compound list / target analyte list, which the following analyses: VOCs, semi-VOCs, pesticides, polychlorinated biphenyls, and inorganics
HSC = Hassayampa Steering Committee
GRS = Groundwater Remediation System
Ac+Ac+2-CEVE = Acrolein, acrylonitrile, and 2-chloroethyl vinyl ether
A = Annual Sampling Event
S = Semiannual Sampling Event
Q = Quarterly Sampling Event
M = Monthly Sampling Event

TABLE 2
GROUNDWATER PERFORMANCE STANDARDS

Compound	***Performance Standard (µg/L)***
acetone	700
benzene	5
methylethyl ketone	170
chlorobenzene	100
dichlorofluoromethane	1,400
1,2-dichloroethane	5
1,1-dichloroethene	7
1,2-dichloroethene (cis)	70
1,2-dichloroethene (trans)	100
dichloromethane	5
1,2-dichloropropane	5
tetrachloroethene	5
toluene	1,000
1,1,1-trichloroethane	200
trichloroethylene	5
trichlorofluoromethane (Freon 11)	2,100
trichlorotrifluoroethane (Freon 113)	210,000
vinyl chloride	2
xylenes	10,000
chromium	50

Note:

µg/L - micrograms per liter.

HARGIS + ASSOCIATES, INC.

Table 3
2009 Soil Vapor Sampling Schedule
Hassayampa Landfill Superfund Site

Location	Annual[1] 1st Quarter	3rd Quarter[1]
SP-01	X	
SP-02	X	
SP-03	X	
SP-04	X	
SP-05	X	
SP-06	X	
SP-07	X	
SP-08	X	
N-01		
N-02	X	
N-03	X	
NW-01	X	
NW-02	X	
NE-01		
NE-03	X	
P-01	X	
P-03	X	
SE-01	X	
VB-02		
W-01	X	
V-02	X	
V-08	X	
V-09		
V-10		
V-11	X	
V-12	X	X
V-13	X	
V-14	X	X
V-15	X	
V-16	X	
MW-18UA/VP-18UA	X	X
MW-19UA/VP-19UA	X	X
MW-01UA	X	
MW-04UA	X	X
MW-06UA	X	X
MW-07UA	X	X
MW-11UA	X	
MW-12UA	X	

Notes:

Vapor probes/wells highlighted in bold are piped to SVE system.

(1) All sampling events conducted following an approximate one-week shutdown of the SVE system.

TABLE 4
Hassayampa Landfill
2010 O&M Schedule

Week of January 4: - tentative date January 5

- Collect water levels
- Collect GW and SV samples
- Collect effluent sample
- Perform monthly inspection
- Collect SVE system readings

Week of January 18: – tentative date January 20

- Collect SVE readings

Week of February 1: - tentative date February 3

- Collect water levels
- Collect effluent sample
- Perform monthly inspection
- Collect SVE system readings

Week of February 15: – tentative date February 17

- Collect SVE readings

Week of March 1: - tentative date March 3

- Collect water levels
- Collect effluent sample
- Perform monthly inspection
- Set PDBs for 2Q10 GW sampling
- Collect SVE system readings

Week of March 15: – tentative date March 17

- Collect SVE readings

Week of April 5: – tentative start date April 7

- Collect water levels
- Collect effluent sample
- Perform monthly inspection
- Collect GW samples
- Collect SVE system readings

Week of April 19: – tentative date April 21

- Collect SVE readings

Week of May 3: - tentative date May 5

- Collect water levels
- Collect effluent sample
- Perform monthly inspection

TABLE 4
Hassayampa Landfill
2010 O&M Schedule

- Collect SVE system readings

Week of May 17: – tentative date May 20

- Collect SVE readings

Week of June 7: - tentative date June 10

- Collect water levels
- Collect effluent sample
- Perform monthly inspection
- Set PDBs for 3Q10 GW sampling
- Collect SVE system readings

Week of June 21: – tentative date June 24

- Collect SVE readings

Week of July 5: – tentative start date July 6

- Collect water levels
- Collect effluent sample
- Perform monthly inspection
- Collect GW and SV samples
- Collect SVE system readings

Week of July 19: – tentative date July 22

- Collect SVE readings

Week of August 2: - tentative date August 5

- Collect water levels
- Collect effluent sample
- Perform monthly inspection
- Collect SVE system readings

Week of August 16 – tentative date August 19

- Collect SVE readings

Week of September 6: - tentative date September 9

- Collect water levels
- Collect effluent sample
- Perform monthly inspection
- Set PDBs for 4Q09 GW sampling
- Collect SVE system readings

Week of September 20: - tentative date September 23

- Collect SVE readings

Week of October 4: – Start date October 5

TABLE 4
Hassayampa Landfill
2010 O&M Schedule

- Collect water levels
- Collect effluent sample
- Perform annual inspection and cleaning
- Collect GW samples
- Collect SVE system readings

Week of October 18: - tentative date October 21

- Collect SVE readings

Week of November 1: - tentative date November 4

- Collect water levels
- Collect effluent sample
- Perform monthly inspection
- Collect SVE system readings

Week of November 15: - tentative date November 18

- Collect SVE readings

Week of December 6: - tentative date December 9

- Collect water levels
- Collect effluent sample
- Perform monthly inspection
- Set PDBs for 1Q11 GW sampling
- Collect SVE system readings

Week of December 20: - tentative date Dec 21

- Collect SVE readings

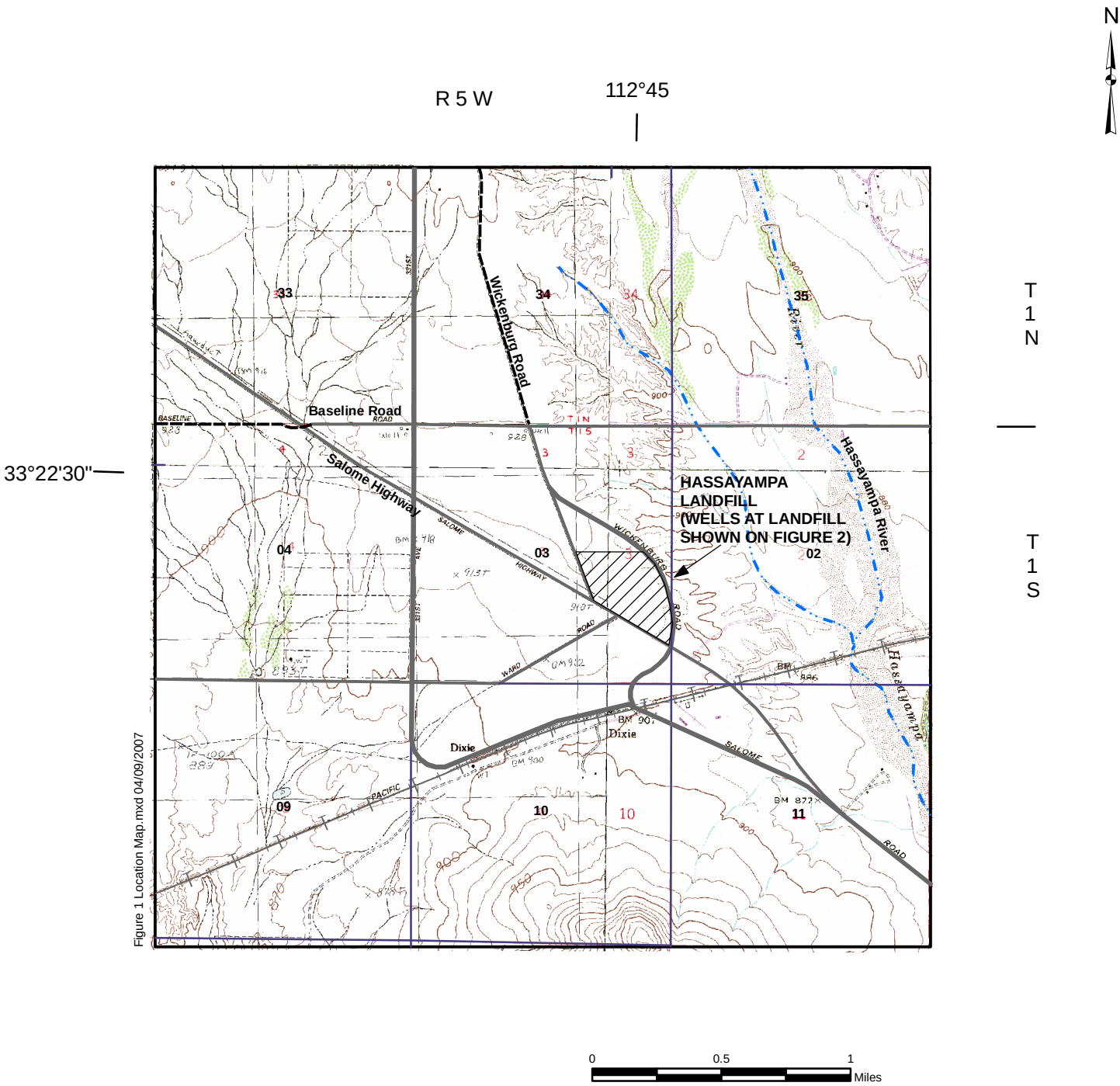

Figure 1 Location Map.mxd 04/09/2007

FIGURE 1. LOCATION MAP FOR HASSAYAMPA LANDFILL EPA SUPERFUND SITE

HARGIS + ASSOCIATES, INC.
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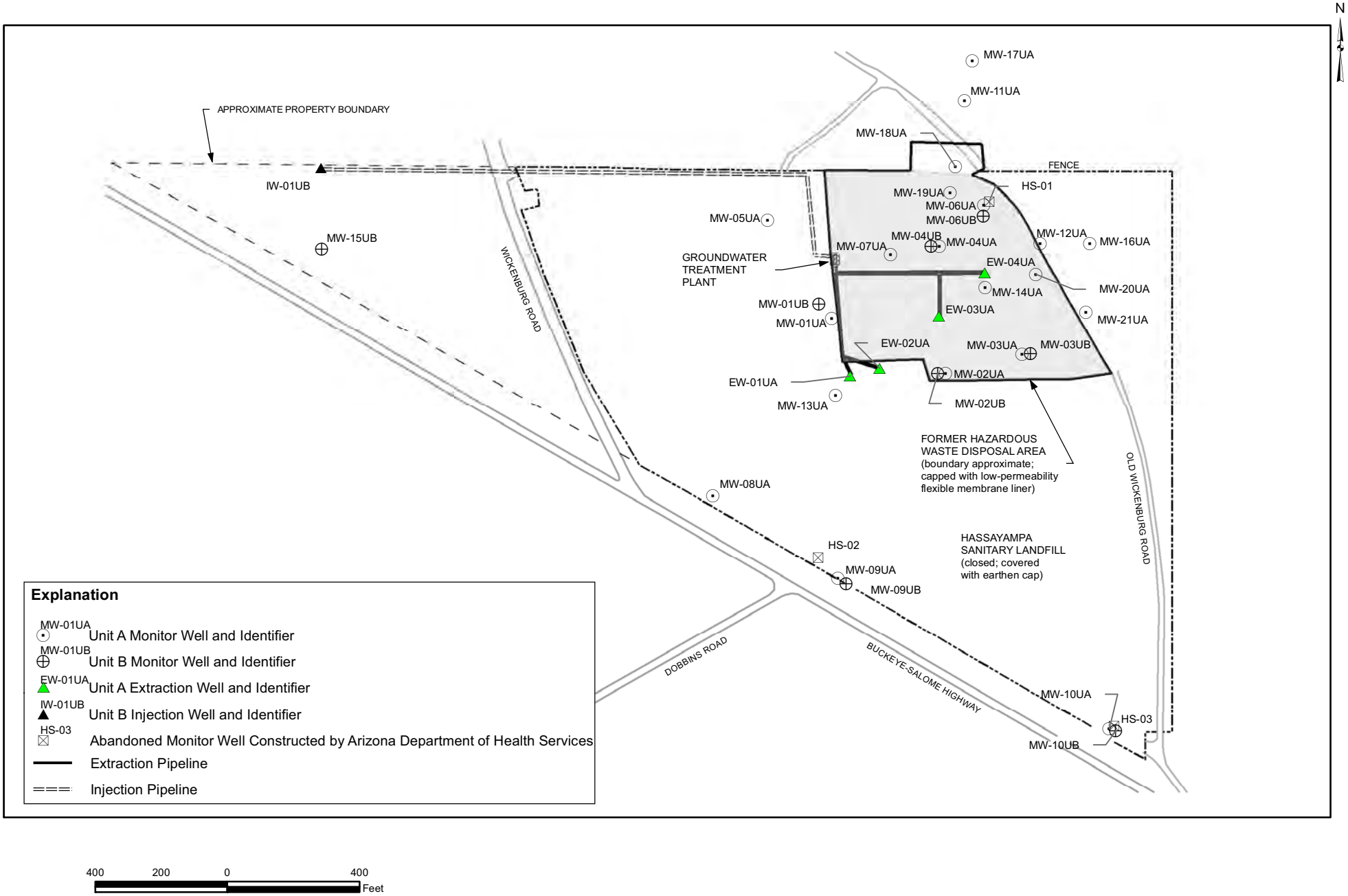

Fig 2 Location of Wells.mxd 06/13/2006

FIGURE 2. LOCATION MAP FOR GROUNDWATER WELLS AND CAP, HASSAYAMPA LANDFILL EPA SUPERFUND SITE

HARGIS + ASSOCIATES, INC
HYDROGEOLOGY • ENGINEERING

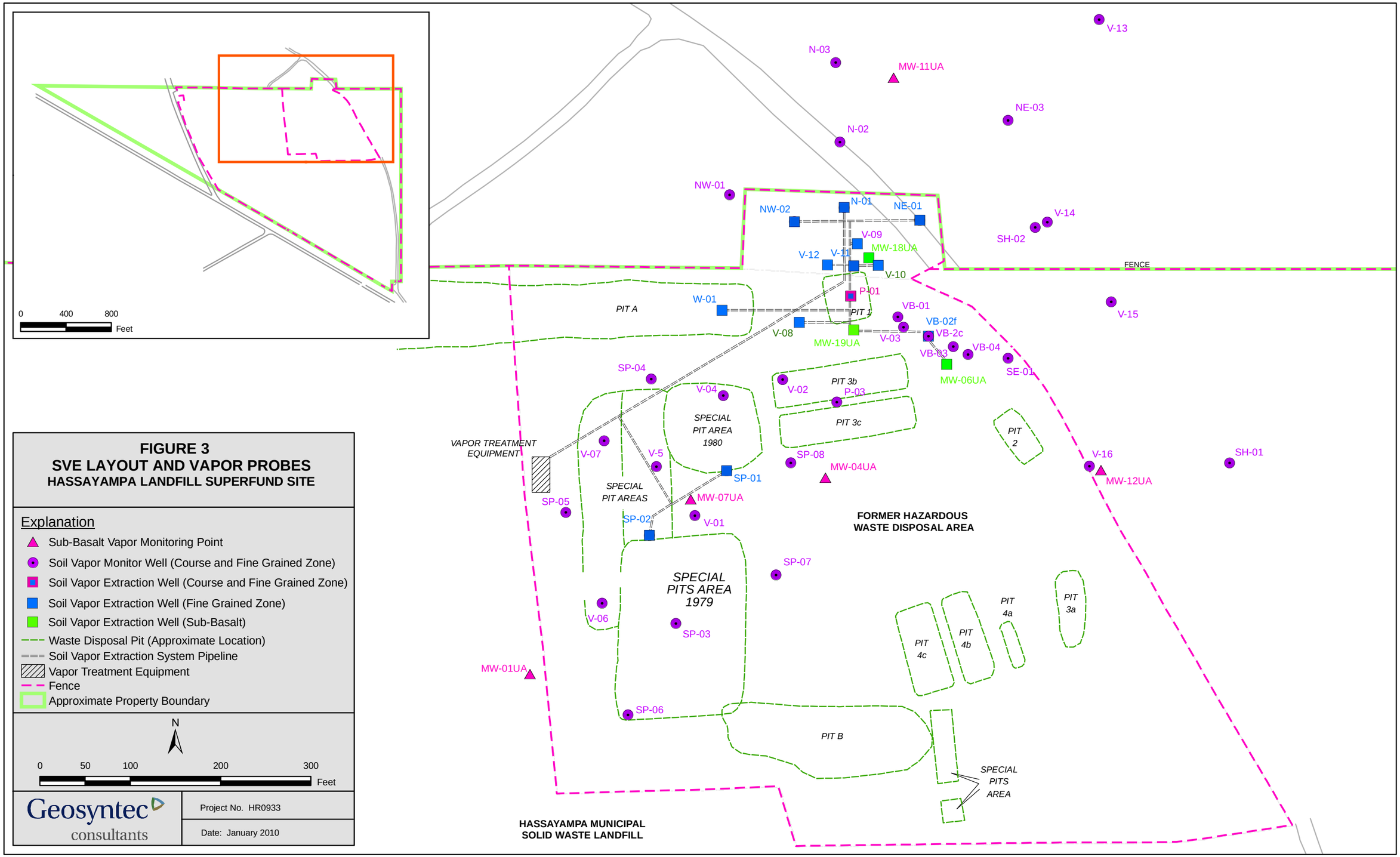

FIGURE 3
SVE LAYOUT AND VAPOR PROBES
HASSAYAMPA LANDFILL SUPERFUND SITE

Explanation

- Sub-Basalt Vapor Monitoring Point
- Soil Vapor Monitor Well (Course and Fine Grained Zone)
- Soil Vapor Extraction Well (Course and Fine Grained Zone)
- Soil Vapor Extraction Well (Fine Grained Zone)
- Soil Vapor Extraction Well (Sub-Basalt)
- Waste Disposal Pit (Approximate Location)
- Soil Vapor Extraction System Pipeline
- Vapor Treatment Equipment
- Fence
- Approximate Property Boundary

Geosyntec consultants

Project No. HR0933

Date: January 2010

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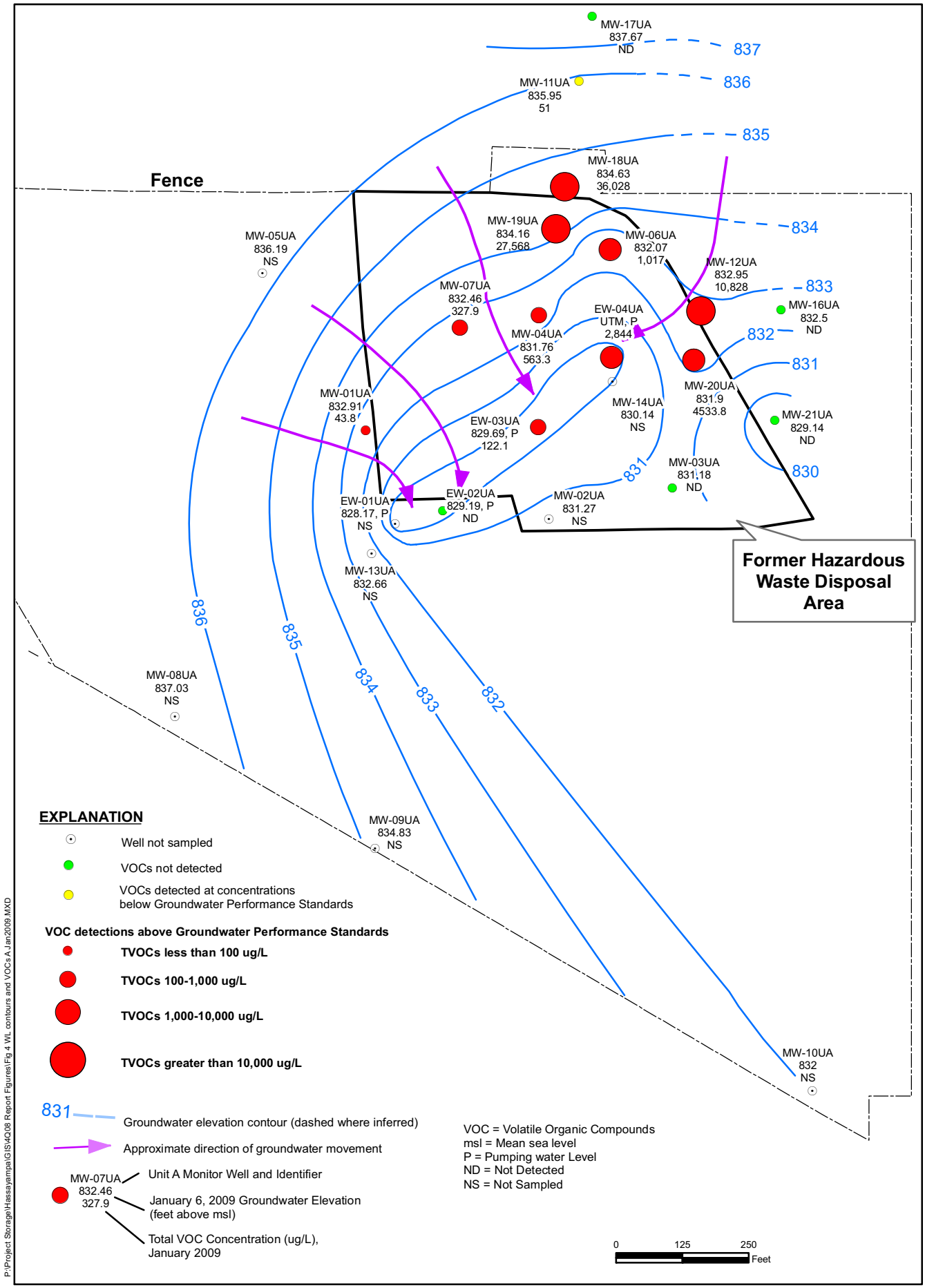

FIGURE 4. GROUNDWATER LEVEL CONTOURS AND VOLATILE ORGANIC COMPOUNDS UNIT A, JANUARY 2009 HASSAYAMPA LANDFILL EPA SUPERFUND SITE

HARGIS + ASSOCIATES, INC.
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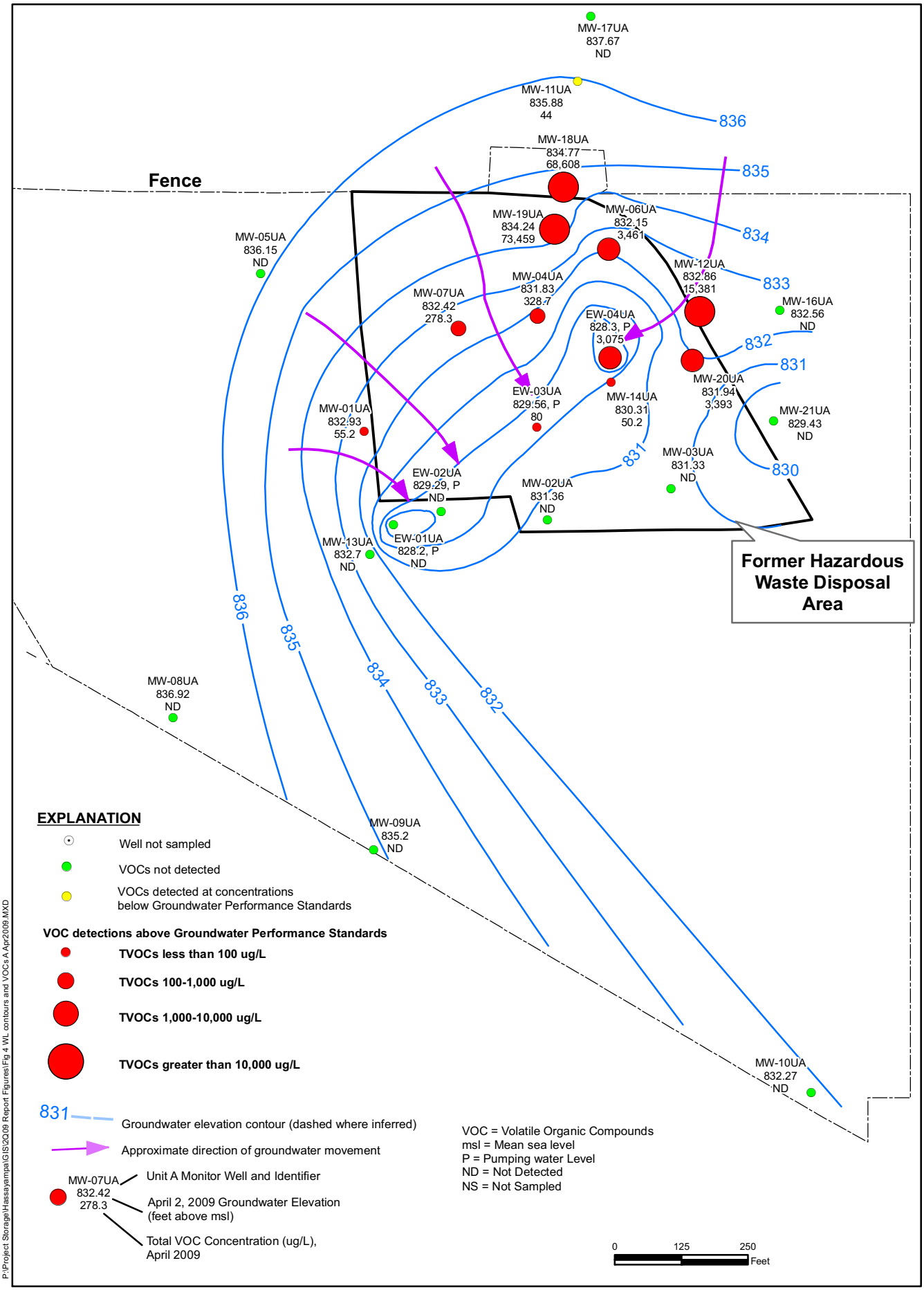


FIGURE 5. GROUNDWATER LEVEL CONTOURS
AND VOLATILE ORGANIC COMPOUNDS
UNIT A, APRIL 2009
HASSAYAMPA LANDFILL EPA SUPERFUND SITE

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY · ENGINEERING

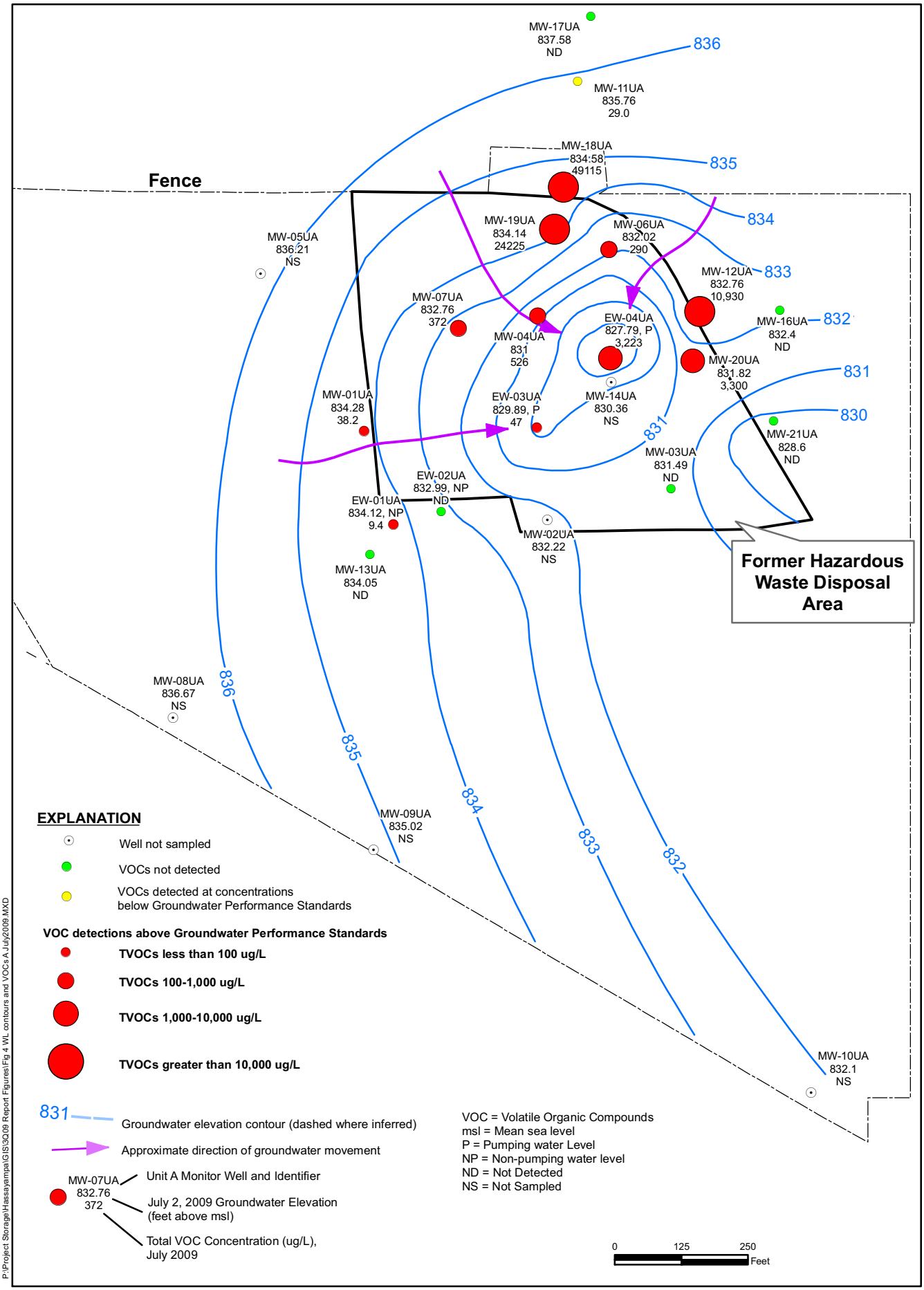


FIGURE 6. GROUNDWATER LEVEL CONTOURS AND VOLATILE ORGANIC COMPOUNDS UNIT A, JULY 2009 HASSAYAMPA LANDFILL EPA SUPERFUND SITE

HARGIS + ASSOCIATES, INC. HYDROGEOLOGY · ENGINEERING

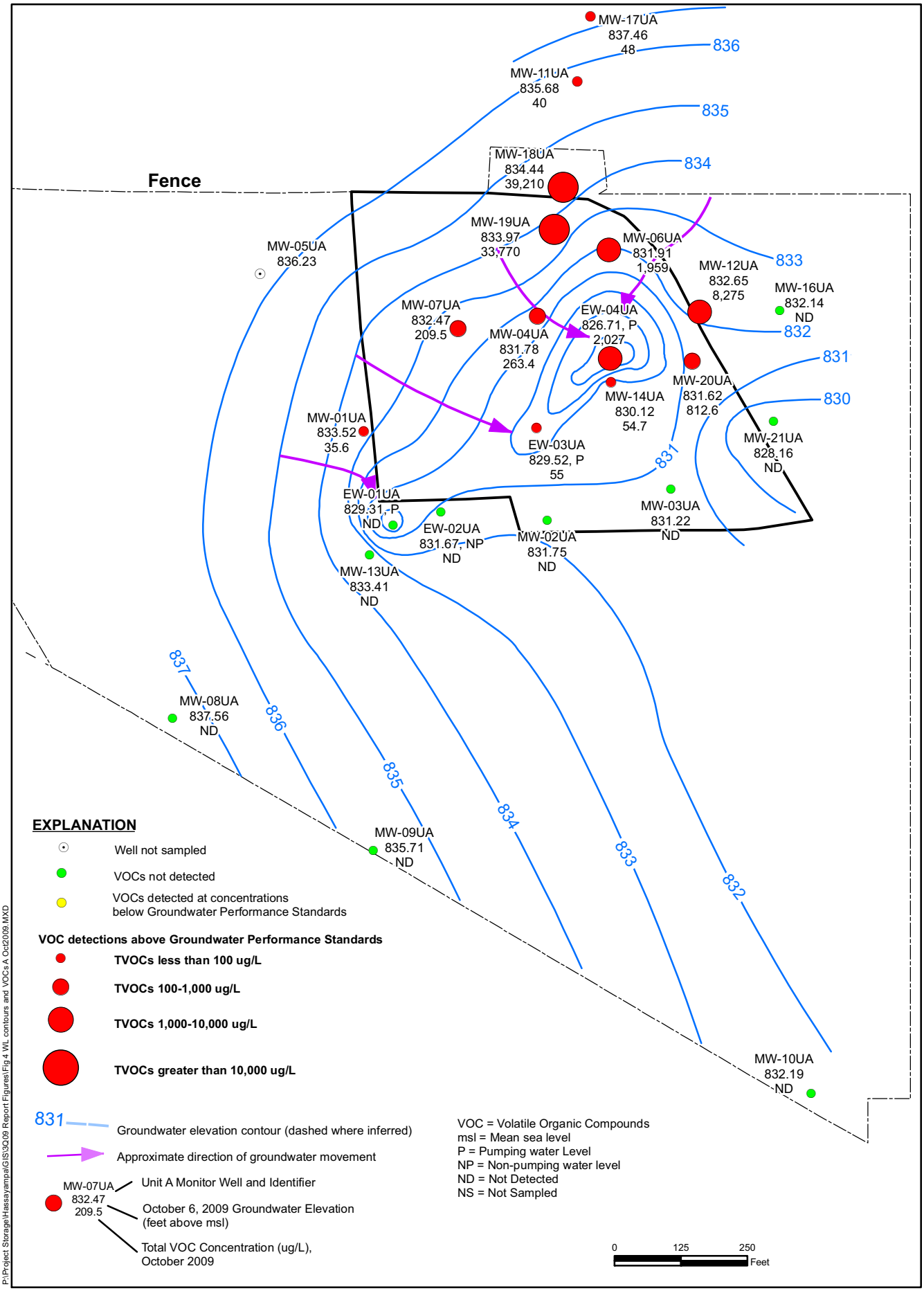


FIGURE 7. GROUNDWATER LEVEL CONTOURS AND VOLATILE ORGANIC COMPOUNDS UNIT A, OCTOBER 2009 HASSAYAMPA LANDFILL EPA SUPERFUND SITE

HARGIS + ASSOCIATES, INC. HYDROGEOLOGY · ENGINEERING

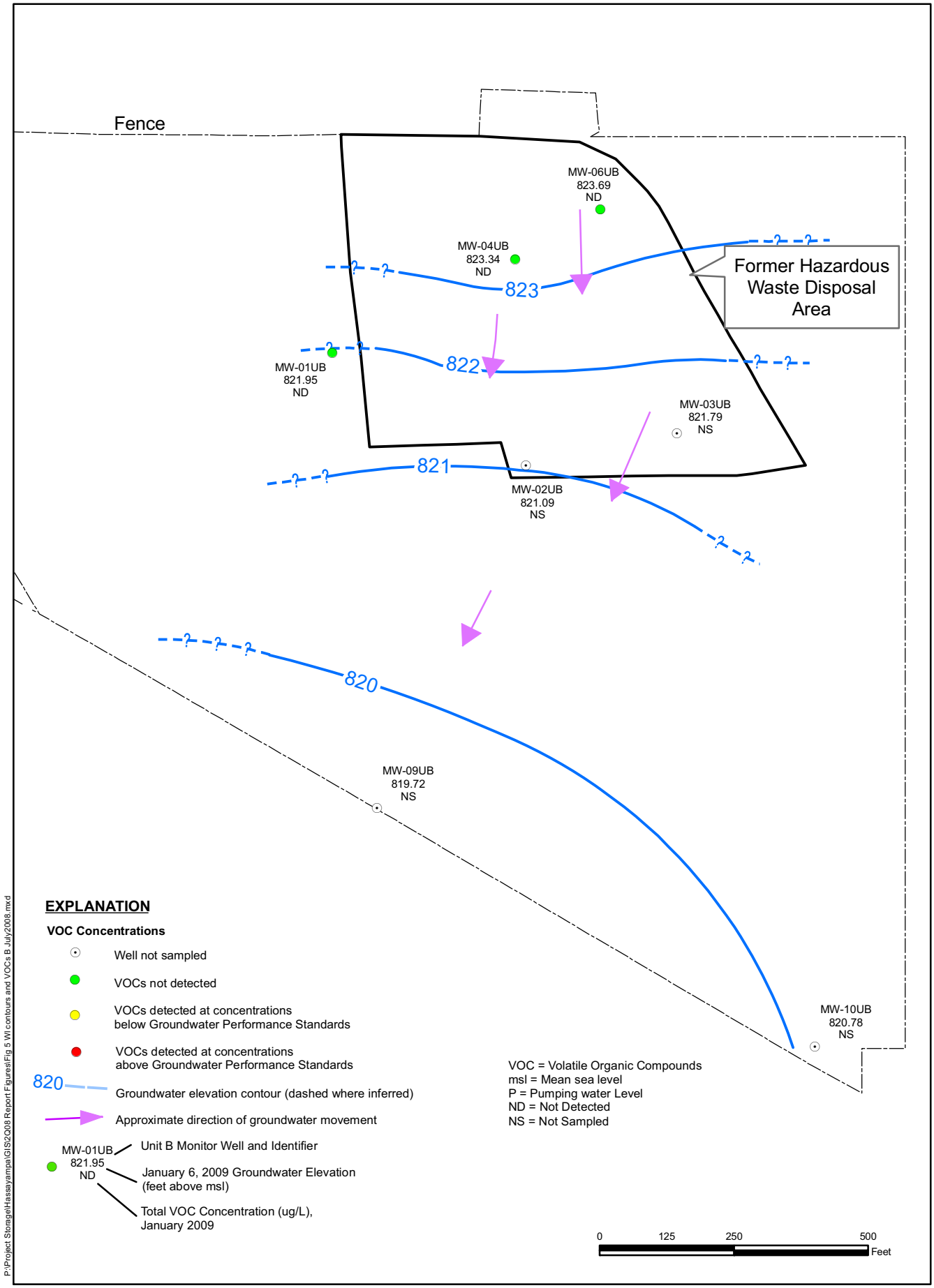


FIGURE 8. GROUNDWATER LEVEL CONTOURS
AND VOLATILE ORGANIC COMPOUNDS
UNIT B, JANUARY 2009,
HASSAYAMPA LANDFILL EPA SUPERFUND SITE

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

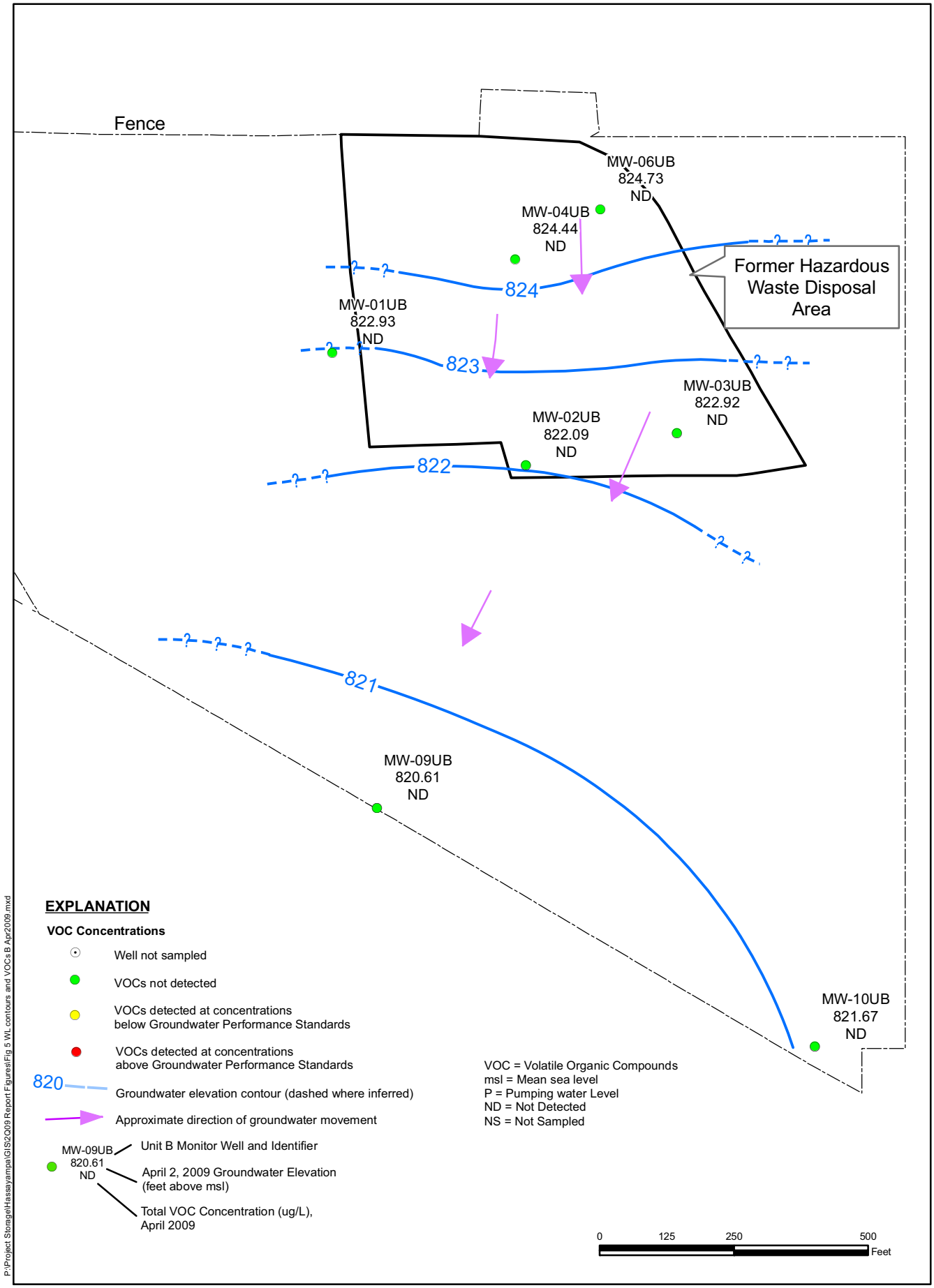


FIGURE 9. GROUNDWATER LEVEL CONTOURS AND VOLATILE ORGANIC COMPOUNDS UNIT B, APRIL 2009, HASSAYAMPA LANDFILL EPA SUPERFUND SITE

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

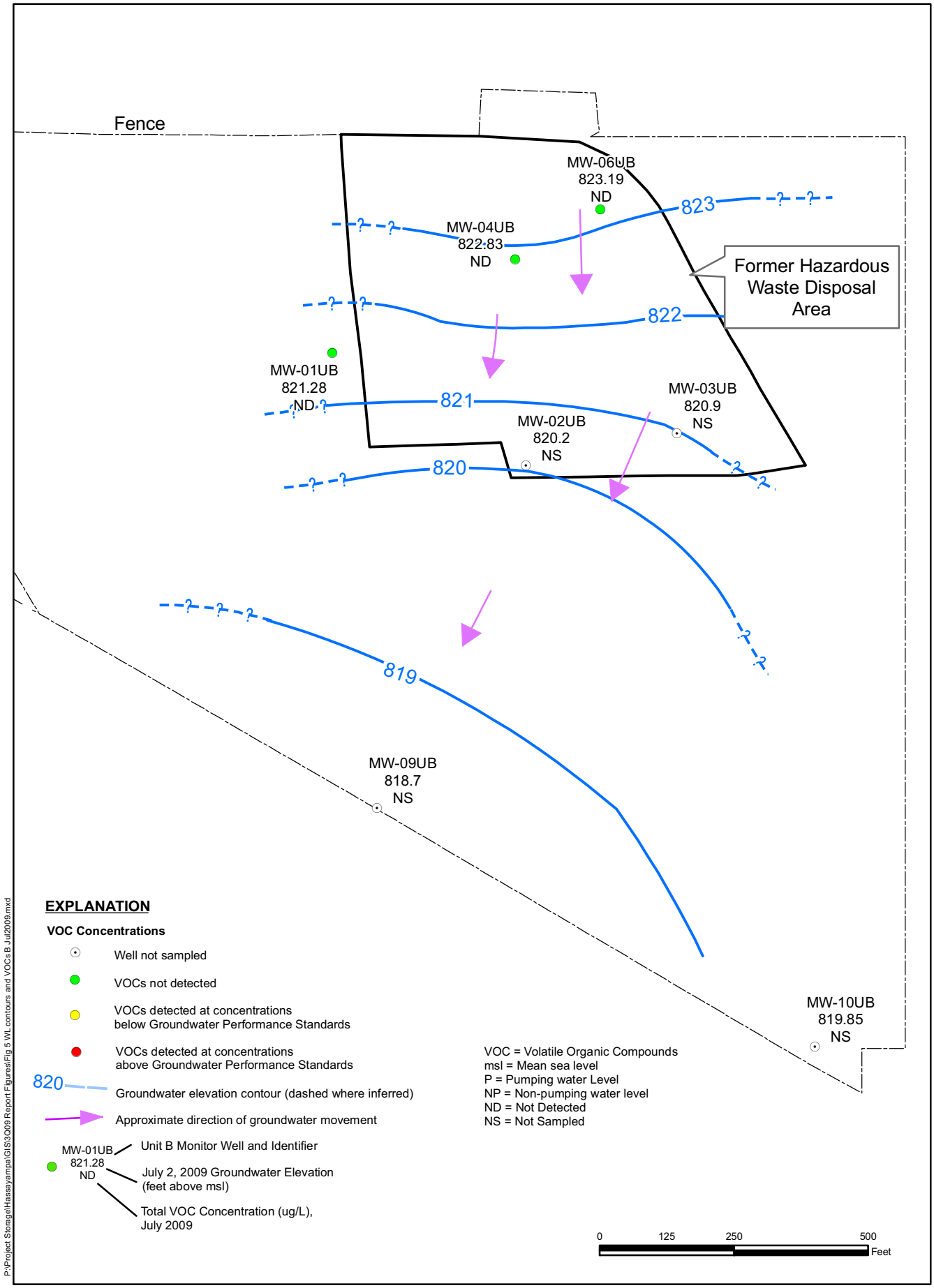


FIGURE 10. GROUNDWATER LEVEL CONTOURS AND VOLATILE ORGANIC COMPOUNDS UNIT B, JULY 2009, HASSAYAMPA LANDFILL EPA SUPERFUND SITE

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

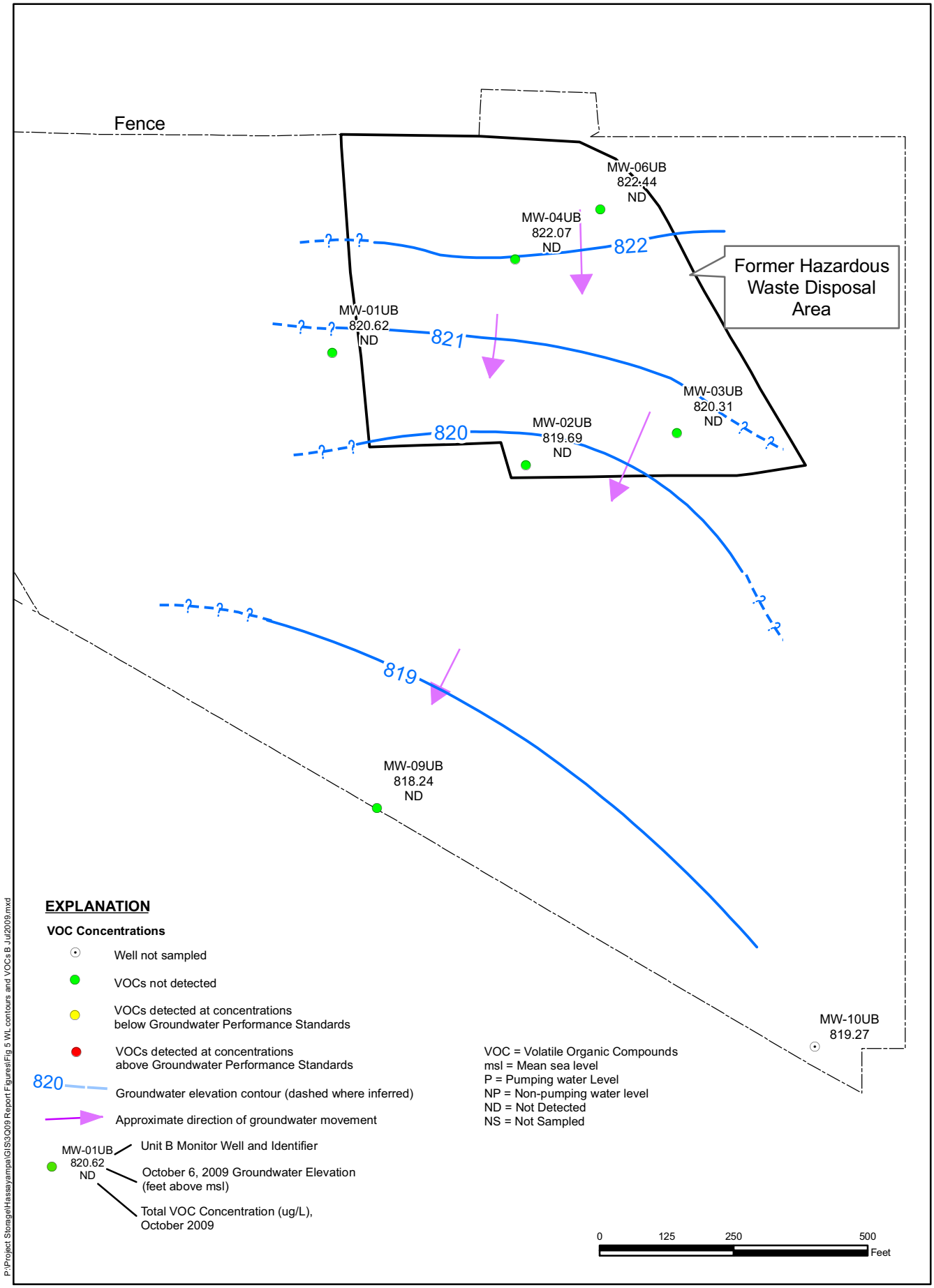


FIGURE 11. GROUNDWATER LEVEL CONTOURS AND VOLATILE ORGANIC COMPOUNDS UNIT B, OCTOBER 2009, HASSAYAMPA LANDFILL EPA SUPERFUND SITE

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

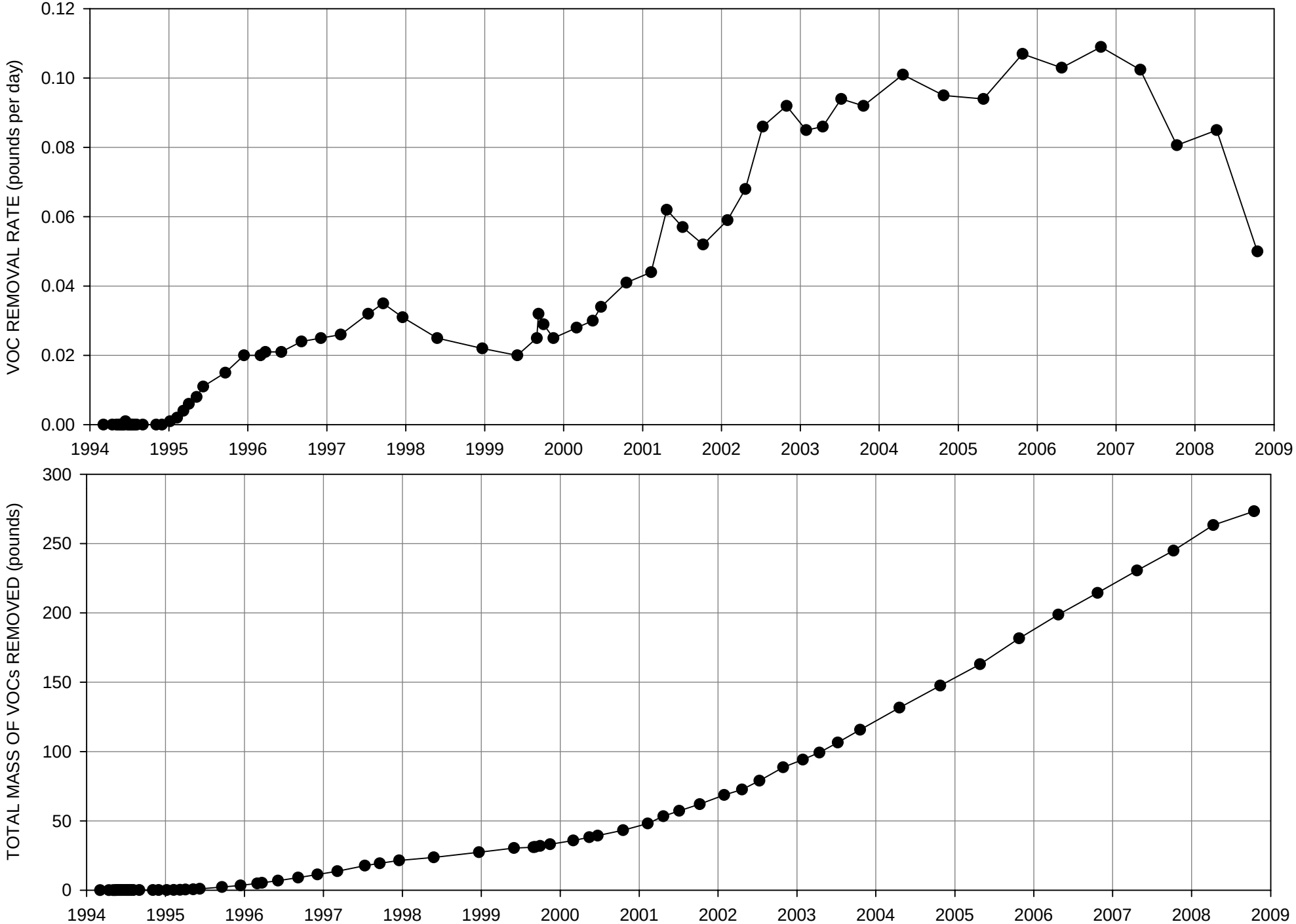
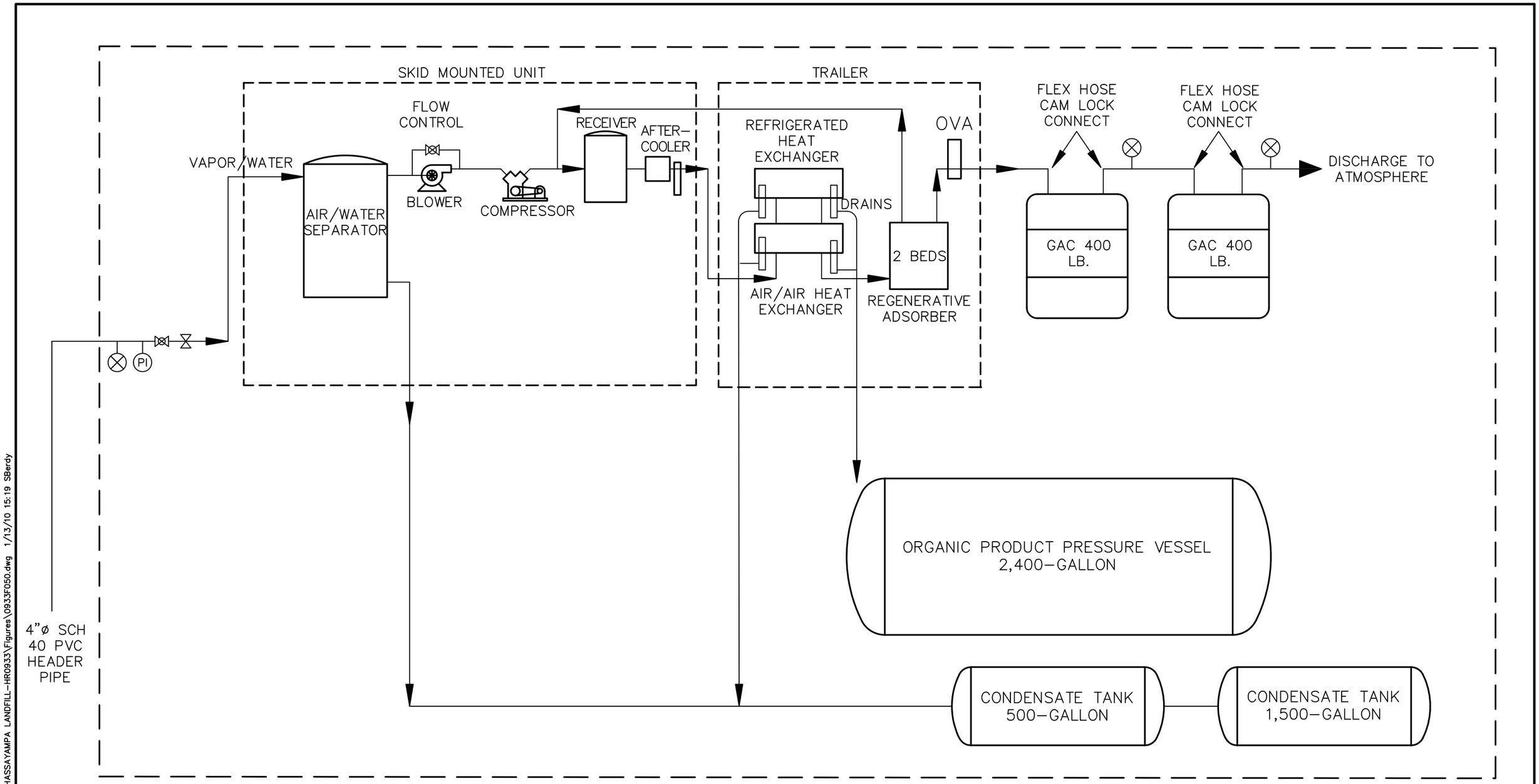


FIGURE 12. ESTIMATED MASS OF VOLATILE ORGANIC COMPOUNDS (VOCs) REMOVED AND VOC MASS REMOVAL RATE GROUNDWATER REMEDIATION SYSTEM

HARGIS + ASSOCIATES, INC.



LEGEND

⋈	BALL VALVE	————	SYSTEM PIPING
⧖	CONTROL VALVE	– – – – –	PACKAGED SKID OUTLINE
⊗	SAMPLE PORT	— — —	ENCLOSURE PAD OUTLINE
(PI)	PRESSURE INDICATOR		

Geosyntec consultants

GEO SYSTEM PROCESS FLOW DIAGRAM
HASSAYAMPA LANDFILL
MARICOPA COUNTY, ARIZONA

DATE:	JANUARY 2010	FILE NO.	0933F050
PROJECT NO.	HR0933	FIGURE NO.	13

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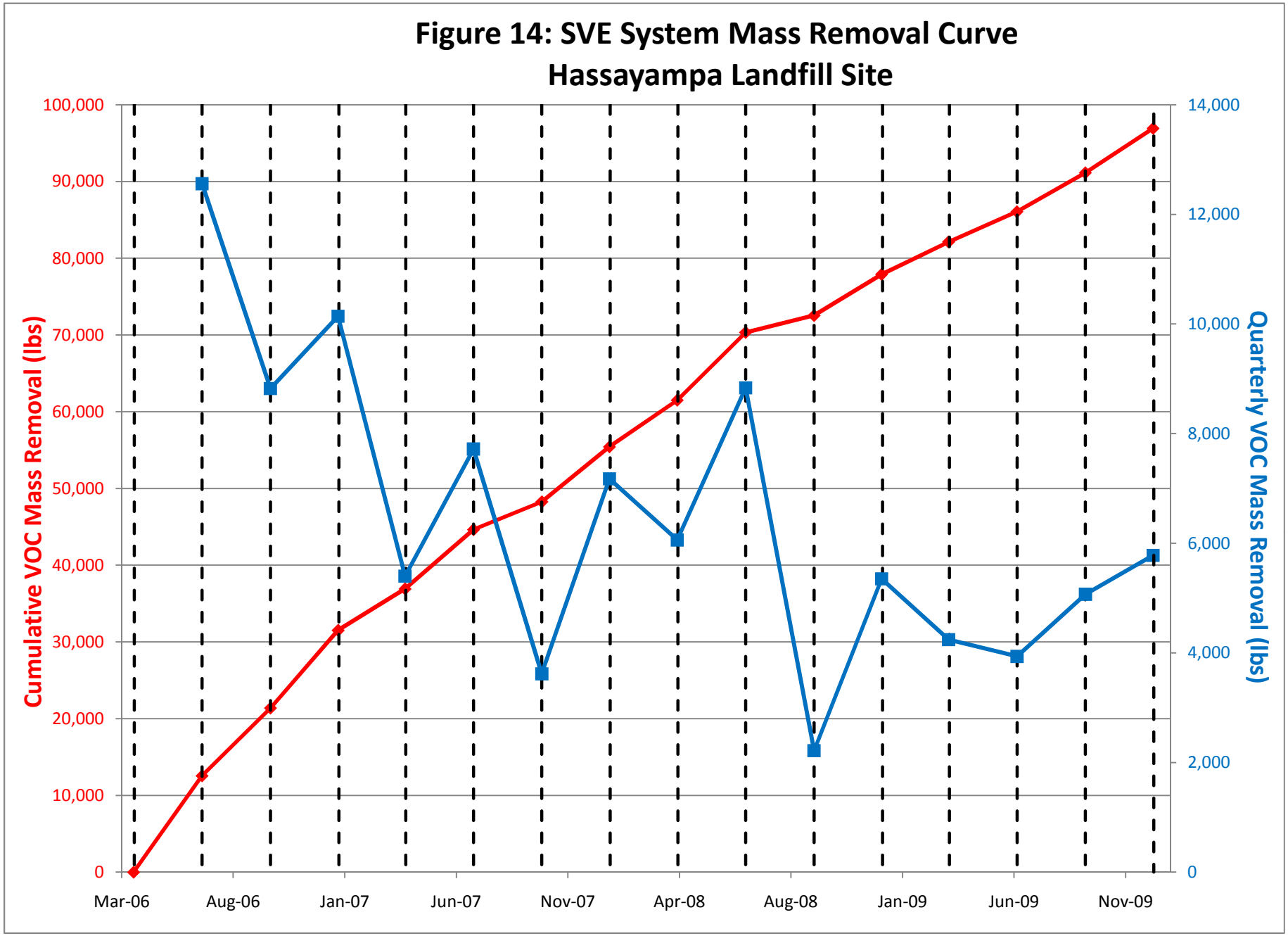
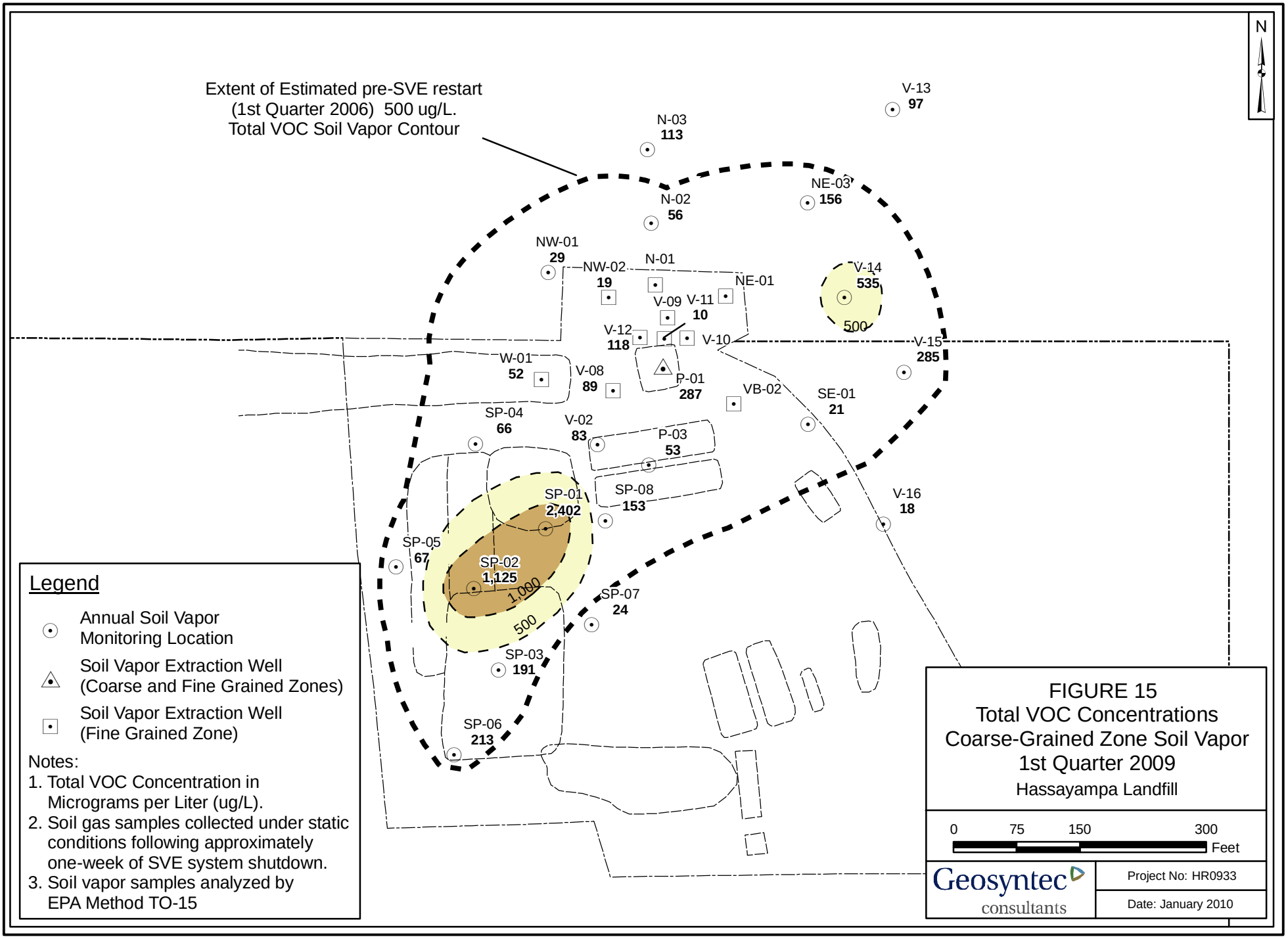


Figure 14: SVE System Mass Removal Curve
Hassayampa Landfill Site
Cumulative VOC Mass Removal (lbs)
Quarterly VOC Mass Removal (lbs)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Mar-06
Aug-06
Jan-07
Jun-07
Nov-07
Apr-08
Aug-08
Jan-09
Jun-09
Nov-09



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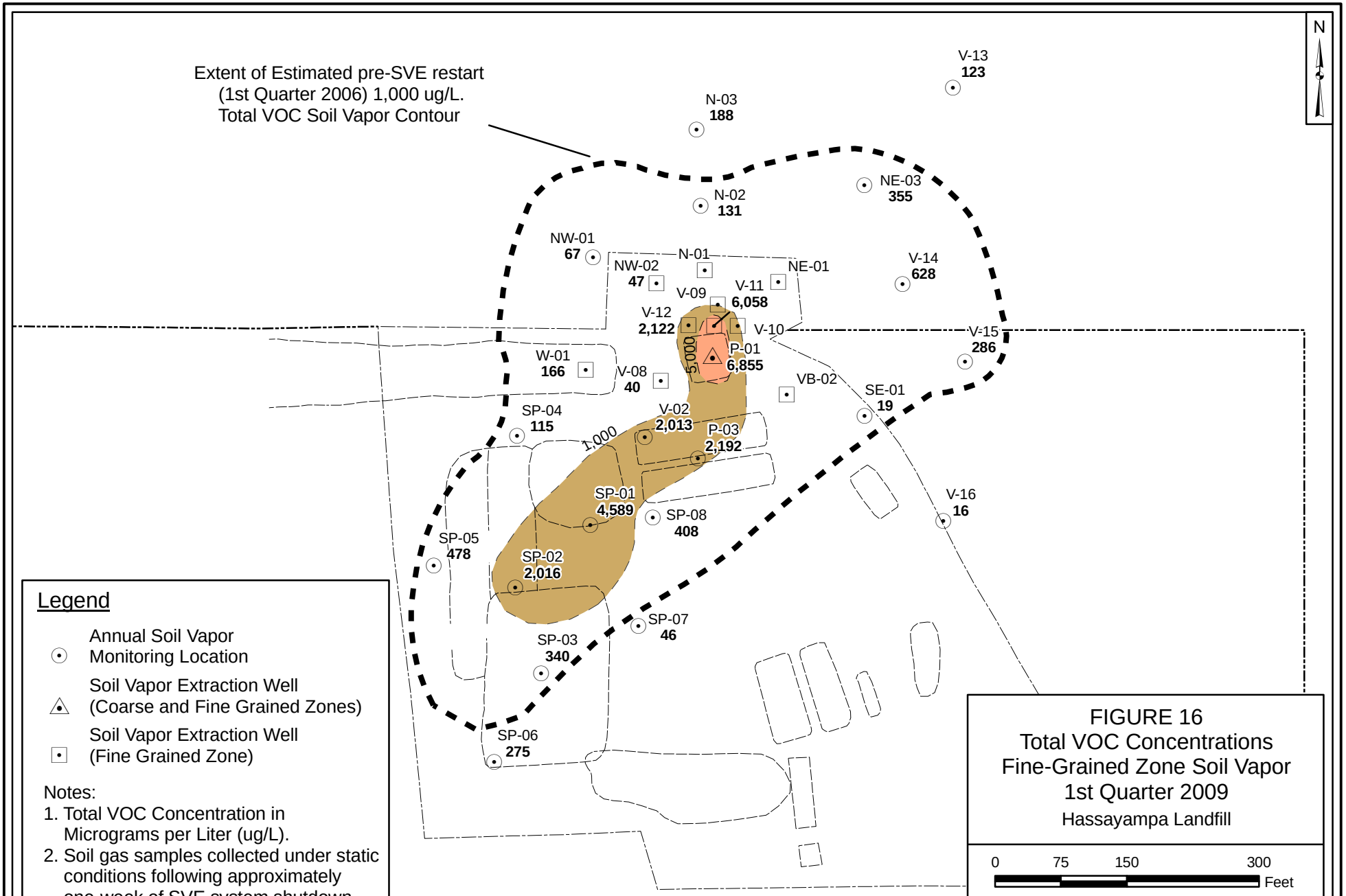

S:\GIS\HR0933\GIS\GIS files\Projects\1stQtr2009_FGZ.mxd sn 20090325

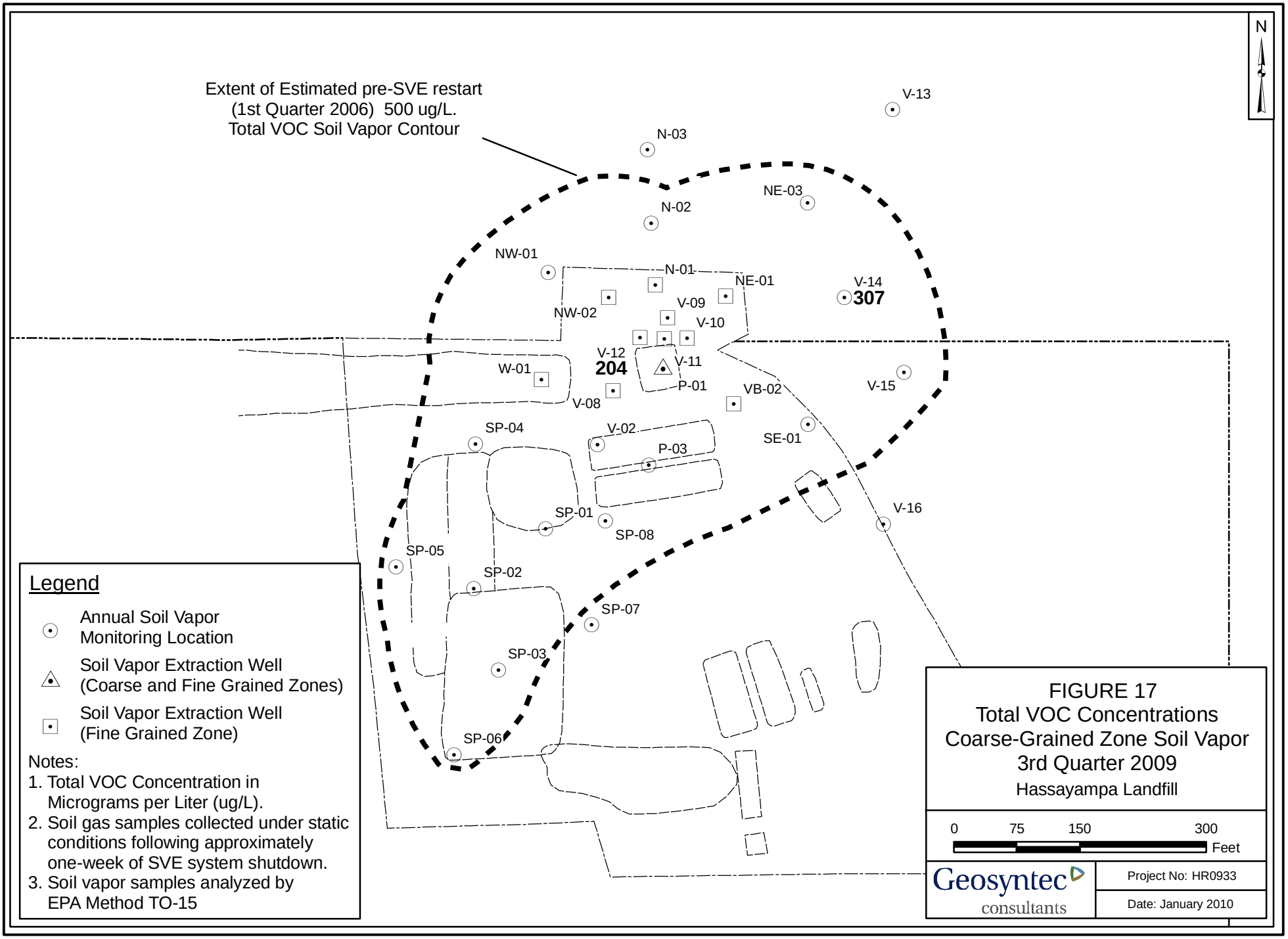

FIGURE 17
Total VOC Concentrations
Coarse-Grained Zone Soil Vapor
3rd Quarter 2009
Hassayampa Landfill

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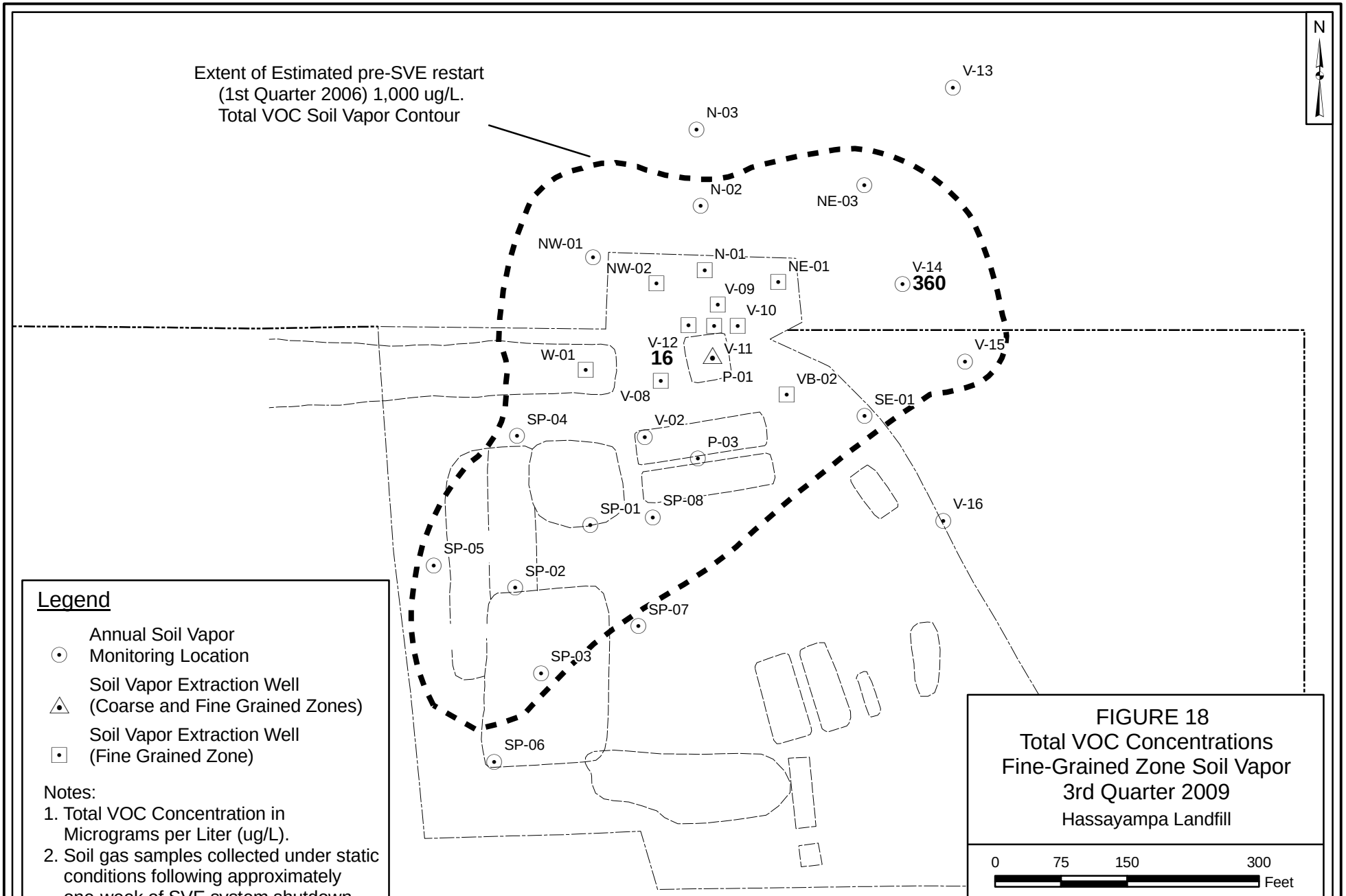

FIGURE 18
Total VOC Concentrations
Fine-Grained Zone Soil Vapor
3rd Quarter 2009
Hassayampa Landfill

S:\GIS\HR0933\GIS\GIS files\Projects\3rdQtr2009_FGZ.mxd ttt 20091001

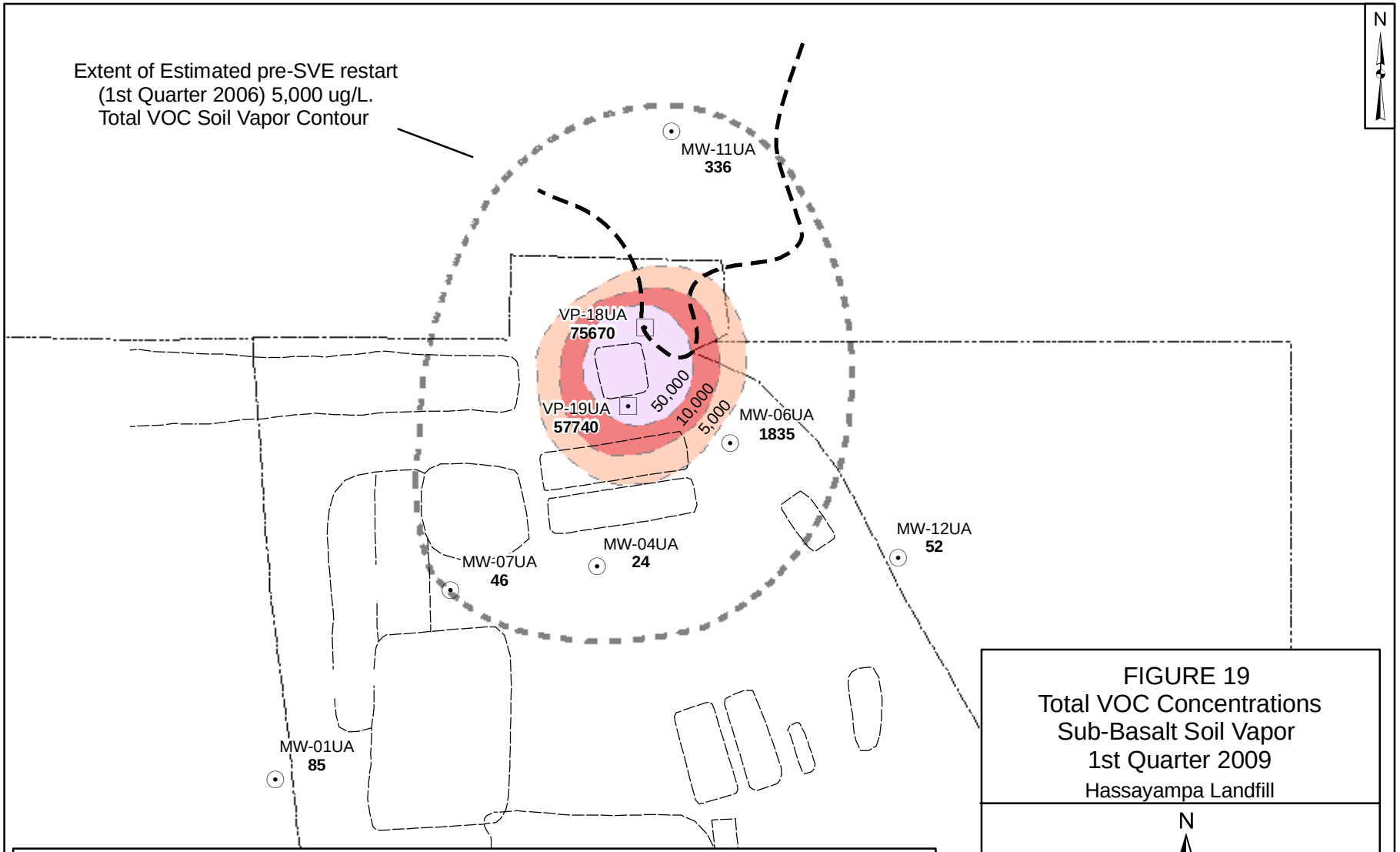

FIGURE 19
Total VOC Concentrations
Sub-Basalt Soil Vapor
1st Quarter 2009
Hassayampa Landfill

N

0 75 150 300 Feet

Geosyntec consultants

Project No: HR0933

Date: January 2010

Legend

Annual Soil Vapor Sampling Location

Soil Vapor Extraction Well (Sub-Basalt)

Notes:
1. Total VOC Concentration in Micrograms per Liter (ug/L).
2. Soil gas samples collected under static conditions following approximately one-week of SVE system shutdown.
3. Soil vapor samples analyzed by EPA Method TO-15

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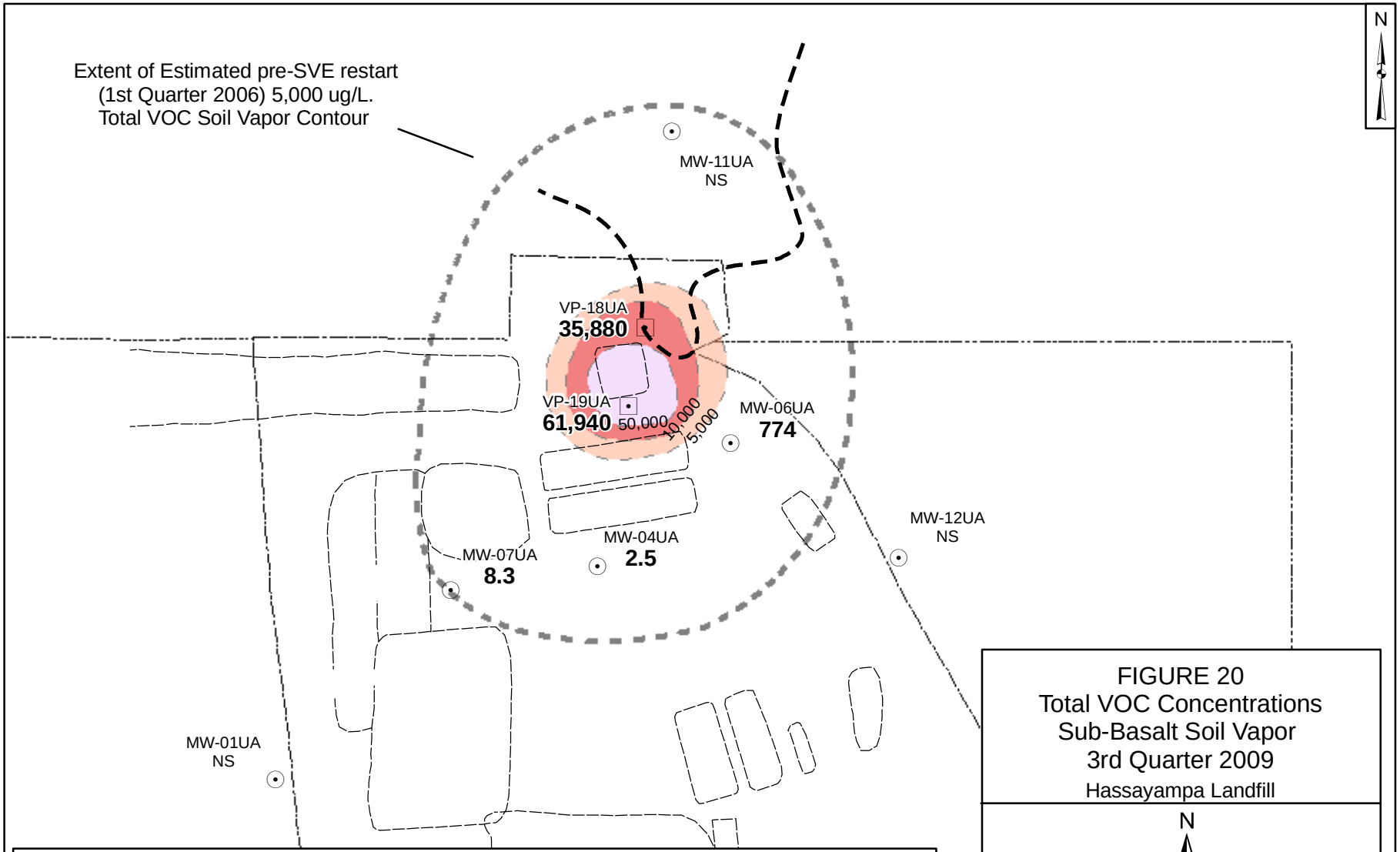

Legend

- Soil Vapor Sampling Location
- Soil Vapor Extraction Well (Sub-Basalt)

Notes:
1. Total VOC Concentration in Micrograms per Liter (ug/L).
2. Soil gas samples collected under static conditions following approximately one-week of SVE system shutdown.
3. Soil vapor samples analyzed by EPA Method TO-15
4. NS = Not Sampled

FIGURE 20
Total VOC Concentrations
Sub-Basalt Soil Vapor
3rd Quarter 2009
Hassayampa Landfill

N

0 75 150 300 Feet

Geosyntec consultants

Project No: HR0933

Date: January 2010

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APPENDIX A

RECORDS FOR WELLS

APPENDIX A

RECORDS FOR WELLS

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Table

A-1 SUMMARY OF CONSTRUCTION DETAILS FOR GROUNDWATER WELLS

A-2 SUMMARY OF CONSTRUCTION DETAILS FOR SOIL VAPOR WELLS

HARGIS + ASSOCIATES, INC.

TABLE A-1
SUMMARY OF CONSTRUCTION DETAILS FOR GROUNDWATER WELLS
HASSAYAMPA LANDFILL SUPERFUND SITE MARICOPA COUNTY ARIZONA

				.....BOREHOLE.....		.....CASING.....				
WELL IDENTIFIER[a]	STATE WELL NUMBER	ADWR REGISTRATION NUMBER	DATE COMPLETED	DIAMETER (inches)	DEPTH (feet)	INSIDE DIAMETER (inches)	OUTSIDE DIAMETER (inches)	DEPTH INTERVAL (feet)	PERFORATED INTERVAL (feet)	CEMENTED INTERVAL (feet)
MW-1UA	(C-1-5)3dab3	55-520211	4/8/1988	14-3/4	19	12-1/4	12-3/4	0-19[b]	---	0-19
				12-1/4	75	8-1/4	8-3/4	0-75[b]	---	0-75
				7-7/8	95	4-1/4	4-1/2	0-95[b]	75-95[c]	---
MW-1UB	(C-1-5)3dab1	55-520215	3/29/1988	14-3/4	50	12-1/4	12-3/4	0-44[b]	---	0-44
				12-1/4	112	8-1/4	8-3/4	0-112[b]	---	0-112
				7-7/8	153	4-1/4	4-1/2	0-153[b]	110-153[c]	---
MW-2UA	(C-1-5)3daa2	55-520210	4/22/1988	14-3/4	19	12-1/4	12-3/4	0-19[b]	---	0-19
				12-1/4	65	8-1/4	8-3/4	0-65[b]	---	0-65
				7-7/8	95	4-1/4	4-1/2	0-95[b]	65-95[c]	---
MW-2UB	(C-1-5)3dab4	55-520214	4/15/1988	14-3/4	19	12-1/4	12-3/4	0-19[b]	---	0-19
				12-1/4	103	8-1/4	8-3/4	0-103[b]	---	0-103
				7-7/8	130	4-1/4	4-1/2	0-130[b]	103-130[c]	---
MW-3UA	(C-1-5)3daa4	55-520209	5/5/1988	14-3/4	19	12-1/4	12-3/4	0-19[b]	---	0-19
				12-1/4	65	8-1/4	8-3/4	0-65[b]	---	0-65
				7-7/8	95	4-1/4	4-1/2	0-95[b]	65-95[c]	---
MW-3UB	(C-1-5)3daa3	55-520213	4/29/1988	14-3/4	20	12-1/4	12-3/4	0-20[b]	---	0-20
				12-1/4	105	8-1/4	8-3/4	0-105[b]	---	0-105
				7-7/8	135	4-1/4	4-1/2	0-135[b]	105-135[c]	---
MW-4UA	(C-1-5)3dab5	55-520208	5/13/1988	14-3/4	19	12-1/4	12-3/4	0-19[b]	---	0-19
				12-1/4	64	8-1/4	8-3/4	0-64[b]	---	0-64
				7-7/8	95	4-1/4	4-1/2	0-95[b]	63-95[c]	---
MW-4UB	(C-1-5)3dab6	55-520212	5/19/1988	14-3/4	19	12-1/4	12-3/4	0-19[b]	---	0-19
				12-1/4	103	8-1/4	8-3/4	0-103[b]	---	0-103
				7-7/8	133	4-1/4	4-1/2	0-133[b]	102-133[c]	---
MW-5UA	(C-1-5)3dab7	55-521058	5/25/1988	14-3/4	19	12-1/4	12-3/4	0-19[b]	---	0-19
				12-1/4	62	8-1/4	8-3/4	0-62[b]	---	0-62
				7-7/8	95	4-1/4	4-1/2	0-95[b]	65-95[c]	---
MW-6UA	(C-1-5)3daa5	55-526431	11/21/1989	18	22	12-1/4	12-1/2	0-21[b]	---	0-21
				11-3/4	65	8-1/4	8-5/8	0-65[b]	---	0-65
				7-7/8	98	4-3/16	4-1/2	0-96[b]	62-95[c]	---
MW-6UB	(C-1-5)3daa6	55-531438	4/13/1991	16	16	12-3/8	12-13/16	0-16[b]	---	0-16
				12-1/4	102	8-1/4	8-5/8	0-102[b]	---	0-102
				7-7/8	147	4-1/8	4-1/2	0-137[b]	102-132[d]	---
MW-7UA	(C-1-5)3dab8	55-526430	11/30/1989	18	22	12-1/4	12-1/2	0-19[b]	---	0-19
				11-3/4	72	8-1/4	8-5/8	0-71[b]	---	0-71
				7-7/8	101	4-3/16	4-1/2	0-101[b]	67-100[c]	---

HARGIS + ASSOCIATES, INC.

TABLE A-1
SUMMARY OF CONSTRUCTION DETAILS FOR GROUNDWATER WELLS
HASSAYAMPA LANDFILL SUPERFUND SITE MARICOPA COUNTY ARIZONA

				.....BOREHOLE.....		.....CASING.....				
WELL IDENTIFIER[a]	STATE WELL NUMBER	ADWR REGISTRATION NUMBER	DATE COMPLETED	DIAMETER (inches)	DEPTH (feet)	INSIDE DIAMETER (inches)	OUTSIDE DIAMETER (inches)	DEPTH INTERVAL (feet)	PERFORATED INTERVAL (feet)	CEMENTED INTERVAL (feet)
MW-8UA	(C-1-5)3dbd2	55-526429	12/5/1989	18	15	12-1/4	12-1/2	0-14[b]	---	0-10
				11-3/4	70	8-1/4	8-5/8	0-70[b]	---	0-70
				7-7/8	112	4-3/16	4-1/2	0-112[b]	78-111[c]	---
MW-9UA	(C-1-5)3dac3	55-531440	4/25/1991	17	21	12-3/8	12-13/16	0-21[b]	---	0-21
				12-1/4	60	8-1/4	8-5/8	0-60[b]	---	0-60
				7-7/8	95	4-1/8	4-1/2	0-94[b]	63-93[d]	---
MW-9UB	(C-1-5)3dac2	55-531436	4/17/1991	14-3/4	21	12-3/8	12-13/16	0-21[b]	---	0-21
				12-1/4	106	8-1/4	8-5/8	0-106[b]	---	0-106
				7-7/8	148	4-1/8	4-1/2	0-142[b]	105-137[d]	---
MW-10UA	(C-1-5)3dda3	55-531439	4/29/1991	17	21	12-3/8	12-13/16	0-21[b]	---	0-21
				12-1/4	55	8-1/4	8-5/8	0-55[b]	---	0-55
				7-7/8	95	4-1/8	4-1/2	0-95[b]	64-94[d]	---
MW-10UB	(C-1-5)3dda4	55-531437	5/2/1991	17	21	12-3/8	12-13/16	0-21[b]	---	0-21
				12-1/4	109	8-1/4	8-5/8	0-109[b]	---	0-109
				7-7/8	147	4-1/8	4-1/2	0-145[b]	106-140[d]	---
MW-11UA	(C-1-5)3add1	55-540140	9/1/1993	18	20	12-1/4	12-3/4	0-20	---	0-20
				12-1/4	70	8-1/4	8-5/8	0-70	---	0-70
				7-7/8	100	4-1/8	4-1/2	0-99	68-98[d]	---
MW-12UA	(C-1-5)3daa7	55-540179	9/10/1993	18	21	12-1/4	12-3/4	0-21	---	0-21
				12-1/4	60	8-1/4	8-5/8	0-60	---	0-60
				7-7/8	91	4-1/8	4-1/2	0-91	60-90[d]	---
MW-13UA	(C-1-5)3dac4	55-540183	8/26/1993	18	20	12-1/4	12-3/4	0-20	---	0-20
				12-1/4	86	8-1/4	8-5/8	0-86	---	0-86
				7-7/8	112	4-1/8	4-1/2	0-111	80-110[d]	---
MW-14UA	(C-1-5)3daa8	55-540186	8/30/1993	18	20	12-1/4	12-3/4	0-20	---	0-20
				12-1/4	70	8-1/4	8-5/8	0-70	---	0-70
				7-7/8	95	4-1/8	4-1/2	0-95	64-94[d]	---
MW-15UB	(C-1-5)3dbb1	55-540185	9/18/1993	18	20	12-1/4	12-3/4	0-20	---	0-20
				12-1/4	110	8-1/4	8-5/8	0-110	---	0-110
				7-7/8	275	4-1/8	4-1/2	0-274	93-274[d]	---
MW-16UA	(C-1-5)3daa13	55-203159	5/20/2004	8	110	4-1/4[b]	4-1/2	0-94	63-94	0-59
				---	---	---	---	---	---	95-110
MW-17UA	(C-1-5)3add4	55-203160	5/22/2004	8	110	4-1/4[b]	4-1/2	0-96	65-96	0-60
				---	---	---	---	---	---	97-110
MW-18UA	(C-1-5)03add5	55-210816	2/17/2006	9-1/2	65	2	2-1/2	0-78.5	78.5-93.5	0-62
				8	94					
MW-19UA	(C-1-5)03daa11	55-210815	2/15/2006	9-1/2	91	2	2-1/2	0-80	80-95	0-65
				8	95					
MW-20UA	(C-1-5)03daa12	55-210817	2/13/2006	8	55	2	2-1/2	0-71	71-96	0-63.5
				6-1/2	94					
				5-1/2	100					
MW-21UA	(C-1-5)03dac12	55-909443	7/19/2008	8	97	4-1/4[b]	4-1/2	0-97	66.2-96.2	0-62.2

TABLE A-1
SUMMARY OF CONSTRUCTION DETAILS FOR GROUNDWATER WELLS
HASSAYAMPA LANDFILL SUPERFUND SITE MARICOPA COUNTY ARIZONA

				.....BOREHOLE.....		.....CASING.....				
WELL IDENTIFIER[a]	STATE WELL NUMBER	ADWR REGISTRATION NUMBER	DATE COMPLETED	DIAMETER (inches)	DEPTH (feet)	INSIDE DIAMETER (inches)	OUTSIDE DIAMETER (inches)	DEPTH INTERVAL (feet)	PERFORATED INTERVAL (feet)	CEMENTED INTERVAL (feet)
HS-1[e]	(C-1-5)3daa1	55-501617	12- -1981	11-3/4	88	4	---	0-88[f]	83-88[g]	0-19,49-58
				8-3/4	120	---	---	---	---	---
HS-2[h]	(C-1-5)3dac1	55-501616	12- -1981	11-3/4	107	4	---	0-107[f]	77-107[g]	0-57
				8-3/4	120	---	---	---	---	---
HS-3[i]	(C-1-5)3dda1	55-501618	12- -1981	11-3/4	98	4	---	98[f]	61-98[g]	0-48
				8-3/4	120	---	---	---	---	---
EW-1UA	(C-1-5)3dab9	55-540184	11/12/1993	22	20	17-1/2	18	0-20	---	0-20
				16	85	12-3/8	12-3/4	0-78	---	0-78
				12-1/4	117	6-1/4	6-5/8	0-114	19-114[j]	---
EW-2UA	(C-1-5)3dab10	55-540180	11/16/1993	22	20	17-1/2	18	0-19	---	0-19
				16	85	12-3/8	12-3/4	0-83	---	0-83
				12-1/4	115	6-1/4	6-5/8	0-114	79-114[j]	---
EW-3UA	(C-1-5)3daa9	55-540181	11/19/1993	22	20	17-1/2	18	0-20	---	0-20
				16	70	12-3/8	12-3/4	0-68	---	0-68
				12-1/4	102	6-1/4	6-5/8	0-101	66-101[j]	---
EW-4UA	(C-1-5)3daa10	55-540182	11/20/1993	22	20	17-1/2	18	0-20	---	0-20
				16	71	12-3/8	12-3/4	0-71	---	0-71
				12-1/4	103	6-1/4	6-5/8	0-102	67-102[j]	---
IW-1UB	(C-1-5)3dbb2	55-540178	9/29/1993	27	20	23-1/4	24	0-20	---	0-20
				20	113	15-3/8	16	0-111	---	0-111
				14-3/4	275	8-1/4	8-5/8	0-274	113-274[j]	---

NOTE: All depths are in feet below land surface

a MW = Monitor well constructed by Errol L. Montgomery & Associates, Inc.
HS = Monitor well constructed by Arizona Department of Health Services
EW = Extraction well constructed by E.L. Montgomery & Associates, Inc.
IW = Injection well constructed by E.L. Montgomery & Associates, Inc.
ADWR = Arizona Department of Water Resources

b Steel casing

c Perforations are 3-inch by 1/8-inch vertical machine-cut slots; eight slots per round, two rounds per foot, total of 16 slots per foot.

d Perforations are 3-inch by 1/8-inch vertical machine-cut slots; three slots per round, four rounds per foot, total of 12 slots per foot.

e Monitor well (C-12-5)3daa1[HS-1] was abandoned by Errol L. Montgomery & Associates, Inc. on June 8, 1988.

f PVC casing

g PVC well screen is 0.01-inch horizontal machine-cut slots

h Monitor well (C-1-5)3dac[HS-2] was abandoned by Errol L. Montgomery & Associates on May 9, 1991.

i Monitor well (C-1-5)3dda1[HS-3] was abandoned by Errol L. Montgomery & Associates on May 11, 1991.

j Perforations are 2-inch by 1/8-inch horizontal louvered slots; six slots per round, six rounds per foot, total of 36 slots per foot.

HARGIS + ASSOCIATES, INC.

TABLE A-2
SUMMARY OF CONSTRUCTION DETAILS FOR SOIL VAPOR WELLS

WELL IDENTIFIER	DATE COMPLETED	BOREHOLE		CASING								CEMENTED INTERVAL (feet)	BENTONITE SEAL INTERVAL (feet)		SAND PACK INTERVAL (feet)		GRAVEL PACK INTERVAL (feet)	
				DIAMETER		FINE-GRAINED ZONE		COARSE-GRAINED ZONE		BELOW BASALT								
		DIAMETER (inches)	DEPTH (feet)	INSIDE (inches)	OUTSIDE (inches)	DEPTH INTERVAL (feet)	SCREENED INTERVAL (feet)	DEPTH INTERVAL (feet)	SCREENED INTERVAL (feet)	DEPTH INTERVAL (feet)	SCREENED INTERVAL (feet)							
HW-B-2	12/8/1981	7	20	?	?	- - -	- - -	0 - 20	14 - 20			0 - 3	? - ?	? - ?	? - ?	? - ?	? - ?	? - ?
HW-B-3	12/8/1981	7	23.7	?	?	- - -	- - -	0 - 23.7	18.5 - 23.7			0 - 3	? - ?	? - ?	? - ?	? - ?	? - ?	? - ?
N-1	4/14/1992	11	69	1.61	1.90	0 - 69	44 - 69	0 - 35	10 - 35			0 - 4.1	- - -	35.2 - 38.2	4.1 - 5.2	38.2 - 40	5.2 - 35.2	40 - 69
N-2	4/15/1992	11	65	1.61	1.90	0 - 65	50 - 65	0 - 40	10 - 40			0 - 3.4	- - -	40.3 - 45.5	3.4 - 4.9	45.5 - 47	4.9 - 40.3	47 - 65
N-3	4/16/1992	11	72.8	1.61	1.90	0 - 67.3	52.3 - 67.3	0 - 45	10 - 45			0 - 4	45.3 - 48.5	67.3 - 68.2	4 - 5	48.5 - 50	5 - 45.3	50 - 67.3
NE-1	4/9/1992	11	64	1.61	1.90	0 - 64	39 - 64	0 - 32	7 - 32			0 - 3.3	- - -	33.4 - 36.4	3.3 - 4.3	36.4 - 37.5	4.3 - 33.4	37.5 - 64
NE-3	4/21/1992	11	66	1.61	1.90	0 - 66	51 - 66	0 - 42.5	7.5 - 42.5			0 - 3.9	- - -	43.3 - 46.5	3.9 - 5	46.5 - 48.3	5 - 43.3	48.3 - 66
NW-1	10/26/1993	9.75	59	1.61	1.90	0 - 59	29 - 59	0 - 22	7 - 22			0 - 2	2.5 - 5	22 - 26	- - -	- - -	5 - 22	26 - 59
NW-2	*	9.75	68.7	1.61	1.90	0 - 68.7	48.7 - 68.7	0 - 42	12 - 42			0 - 4	4 - 7.1	43.1 - 47.3	7.1 - 8.1	47.3 - 47.9	8.1 - 42.8	47.9 - 68.7
P-1	6/2/1993	9.75	59	1.61	1.90	0 - 59	39 - 59	0 - 30	10 - 30			0 - 2	2 - 4	31.2 - 36.2	4 - 4.5	36.2 - 37.2	4.5 - 31.2	37.2 - 59
P-3	5/23/1993	9.75	55.4	1.61	1.90	0 - 55.4	40.4 - 55.4	0 - 29	9 - 29			0 - 2	2 - 4	30 - 34.1	4 - 5	34.1 - 36	5 - 30	36 - 55.4
PZ-1	6/3/1993	7.75	59.8	1.05	1.32	0 - 49.4	49.4 - 51	0 - 14.4	14.4 - 16			0 - 2.1						
PZ-2	6/4/1993	7.75	64	1.05	1.32	0 - 49.4	49.4 - 51	0 - 14.4	14.4 - 16			0 - 2						
PZ-3	6/3/1993	7.75	64.5	1.05	1.32	0 - 52.5	52.5 - 54.1	0 - 14.4	14.4 - 16			0 - 2						
PZ-4	6/5/1993	7.75	58.2	1.05	1.32	0 - 49.4	49.4 - 51	0 - 14.5	14.5 - 16.1			0 - 2						
PZ-5	6/7/1993	7.75	69.7	1.05	1.32	0 - 54.3	54.3 - 55.9	0 - 23.1	23.1 - 24.7			0 - 2						
PZ-6	6/7/1993	7.75	69.7	1.05	1.32	0 - 53.8	55.4 - 55.9	0 - 22.3	22.3 - 23.9			0 - 2.4						
PZ-7	6/8/1993	7.75	71	1.05	1.32	0 - 53.4	53.4 - 55	0 - 22.9	22.9 - 24.5			0 - 2						
PZ-8	5/28/1993	7.75	70	1.05	1.32	0 - 53.4	53.4 - 55	0 - 22.9	22.9 - 24.5			0 - 2						
SE-1	10/23/1993	9.75	53	1.61	1.90	0 - 53	43 - 53	0 - 38	8 - 38			0 - 2	2.5 - 5	38.5 - 43	- - -	- - -	5 - 38.5	43 - 53
SP-1	5/21/1993	9.75	64	1.61	1.90	0 - 62.5	42.5 - 62.5	0 - 30	10 - 30			0 - 2	2.5 - 4	31 - 35	4 - 5	35 - 37	5 - 31	37 - 64
SP-2	5/21/1993	9.75	62.5	1.61	1.90	0 - 62.5	47.5 - 62.5	0 - 41	11 - 41			0 - 3	- - -	42 - 45.3	4 - 5	45.3 - 47	5 - 42	47 - 62.5
SP-3	5/28/1993	9.75	71.2	1.61	1.90	0 - 71.2	46.2 - 71.2	0 - 36	11 - 36			0 - 2	3 - 5	37.3 - 41.7	5 - 6	41.7 - 43	6 - 37.3	43 - 71.2
SP-4	10/13/1993	9.75	67	1.61	1.90	0 - 66.5	46.5 - 66.5	0 - 41.1	11.1 - 41.1			0 - 1.7	2 - 4	41.1 - 46	4 - 5	46 - 46.5	5 - 41.1	46.5 - 67
SP-5	10/19/1993	9.75	62.9	1.61	1.90	0 - 62.9	42.9 - 62.9	0 - 35	10 - 35			0 - 2.3	2.5 - 5	35.5 - 40	- - -	- - -	5 - 35.5	40 - 62.9
SP-6	10/21/1993	9.75	66.2	1.61	1.90	0 - 66.2	46.2 - 66.2	0 - 36	11 - 36			0 - 2.3	2.5 - 4.9	36.7 - 41	- - -	- - -	4.9 - 36.7	41 - 66.2
SP-7	10/22/1993	9.75	56.5	1.61	1.90	0 - 56.5	36.5 - 56.5	0 - 28	8 - 28			0 - 2	2.5 - 5.3	29 - 35	- - -	- - -	5.3 - 29	35 - 56.5
SP-8	10/14/1993	9.75	58.5	1.61	1.90	0 - 58.5	33.5 - 58.5	0 - 28	8 - 28			0 - 2.3	2.8 - 4	28.6 - 32.5	4 - 4.8	32.5 - 33	4.8 - 28.6	33 - 58.5
V-1	*	9.75	57.9	1.61	1.90	0 - 57.9	42.9 - 57.9	0 - 33	8 - 33			0 - 4.5	4.5 - 6.2	34.2 - 38.1	6.2 - 7	38.1 - 39.1	7 - 34.2	39.1 - 57.9
V-2	*	9.75	57.9	1.61	1.90	0 - 57.9	42.9 - 57.9	0 - 34	9 - 34			0 - 4.4	4.4 - 5.9	35.1 - 39.2	5.9 - 6.8	39.2 - 40	6.8 - 35.1	40 - 57.9
V-3	*	9.75	57.5	1.61	1.90	0 - 57.5	42.5 - 57.5	0 - 36	11 - 36			0 - 4.1	4.1 - 5.9	37.1 - 40.9	5.9 - 7.1	40.9 - 41.3	7.1 - 37.1	41.3 - 57.5
V-4	*	9.75	66.3	1.61	1.90	0 - 66.3	36.3 - 66.3	0 - 29	9 - 29			0 - 4.5	4.5 - 6	29 - 34	6 - 6.9	34 - 35.2	6.9 - 29	35.2 - 66.3
V-5	*	9.75	59.8	1.61	1.90	0 - 59.8	44.8 - 59.8	0 - 37	7 - 37			0 - 4.5	4.5 - 6	37 - 43	6 - 6.5	43 - 44	6.5 - 37	44 - 59.8
V-6	*	9.75	71.4	1.61	1.90	0 - 71.4	46.4 - 71.4	0 - 38.5	8.5 - 38.5			0 - 4.3	4.3 - 5.6	39 - 43	5.6 - 6.9	43 - 44.1	6.9 - 39	44.1 - 71.4
V-7	*	9.75	68	1.61	1.90	0 - 68	43 - 68	0 - 36	11 - 36			0 - 4.5	4.5 - 6	36.9 - 41	6 - 7	41 - 41.5	7 - 36.9	41.5 - 68
V-8	*	9.75	58.8	1.61	1.90	0 - 58.8	43.8 - 58.8	0 - 34	9 - 34			0 - 4.6	4.6 - 6	34.9 - 39	6 - 7	39 - 39.9	7 - 34.9	39.9 - 58.8
V-9	*	9.75	68.5	1.61	1.90	0 - 68.5	43.5 - 68.5	0 - 35.5	10.5 - 35.5			0 - 4	4 - 6.9	37.3 - 41.5	6.9 - 8	41.5 - 42.1	8 - 35.5	42.1 - 68.5
V-10	11/13/2002	9.75	66	1.48	1.90	0 - 65.5	46 - 65.5	0 - 43	7.7 - 37.7			0 - 4	4 - 5	38 - 43	5 - 6	43 - 44	6 - 38	44 - 66
V-11	11/13/2002	9.75	64	1.48	1.90	0 - 63.5	43.5 - 63.5	0 - 39	9.6 - 34.6			0 - 4	4 - 5	35 - 40	5 - 6	40 - 41	6 - 35	41 - 64
V-12	11/13/2002	9.75	63	1.48	1.90	0 - 63	48 - 63	0 - 46	11.2 - 41.2			0 - 4	4 - 5	41.5 - 46.5	5 - 6	46.5 - 47	6 - 41.5	47 - 63
V-13	5/7/2004	8.00	60	1.5	?	0 - 59	49 - 59	0 - 41	21 - 41			0 - 16	16 - 18.5	42 - 47	18.5 - 19.5	47 - 47.5	19.5 - 42	47.5 - 60
V-14	5/6/2004	8.00	61.5	1.5	?	0 - 61.5	48 - 61.5	0 - 42	22 - 42			0 - 18	18 - 20	43 - 48	20 - 20.5	48 - 48.5	20.5 - 43	48.5 - 61.5
V-15	5/7/2004	8.00	57	1.5	?	0 - 55	45 - 55	0 - 37	17 - 37			0 - 13	13 - 15	38 - 43	15 - 15.5	43 - 43.5	15.5 - 38	43.5 - 57
V-16	5/18/2004	8.00	52	1.5	?	0 - 50	35 - 50	0 - 27	12 - 27			0 - 8	8 - 10	28 - 33	10 - 10.5	33 - 33.5	10.5 - 28	33.5 - 52
VB-1	5/24/1991	8	38.5	2	2.37	- - -	- - -	0 - 38.5	3.5 - 38.5			0 - 2	- - -	- - -	- - -	- - -	- - -	- - -
VB-2c	5/24/1991	8	38.5	2	2.37	- - -	- - -	0 - 38.5	3.5 - 38.5			0 - 2	- - -	- - -	- - -	- - -	- - -	- - -
VB-2f	5/24/1991	8	51	2	2.37	0 - 50	40 - 50	- - -	- - -			0 - 2	- - -	34 - 36.5	- - -	36.5 - 38	38.0 - 44	50 - 51
VB-3	5/24/1991	8	38.5	2	2.37	- - -	- - -	0 - 38.5	3.5 - 38.5			0 - 2	- - -	- - -	- - -	- - -	- - -	- - -
VB-4	6/28/1991	8	38.5	2	2.37	- - -	- - -	0 - 38.5	3.5 - 38.5			0 - 2	- - -	- - -	- - -	- - -	- - -	- - -
VP-18UA	2/17/2006	9.5 8	65 94	0.5	0.88	- - -	- - -	- - -	- - -	0-71.5	66.5-71.5	0 - 62	62 - 65.5	71.5 - 78.5	65.5 - 71.5	- - -	- - -	- - -
VP-19UA	2/15/2006	9.5 8	61 95	0.5	0.88	- - -	- - -	- - -	- - -	0-76	71-76	0 - 65	65 - 70	76 - 79	70 - 76	- - -	- - -	- - -
W-1	10/18/1993	9.75	59.8	1.61	1.90	0 - 59.8	34.8 - 59.8	0 - 28	8 - 28			0 - 2.7	3 - 4.6	27.9 - 32	4.6 - 5	32 - 32.2	5 - 27.9	32.2 - 59.8

* = Soil vapor wells installed during the period February 28 through March 6, 1996.

APPENDIX B

OPERATIONS AND MAINTENANCE

APPENDIX B

OPERATIONS AND MAINTENANCE

TABLE OF CONTENTS

Table

B-1 ANNUAL INSPECTION LOG

B-2 RATE AND VOLUME OF WATER EXTRACTED AND INJECTED DURING 2009 FOR GROUNDWATER REMEDIATION SYSTEM WELLS

B-3 CALCULATIONS FOR MASS OF VOLATILE ORGANIC COMPOUNDS REMOVED FROM THE UNIT A AQUIFER

HARGIS + ASSOCIATES, INC.

TABLE B-1

ANNUAL INSPECTION LOG
HASSAYAMPA LANDFILL
MARICOPA COUNTY, ARIZONA

Inspector: MEH/MFW Date: 10/15/09

Areas: All access roads and gravel cover, perimeter security fence, west parking area, vegetated soil cover and associated slopes, swales and installations. **Provide a complete description of needed/recommended actions for any "YES" responses**.

Inspect	*Inspect for*	*Inspected?*	*Action Required?*	*Location/Comments*
Vegetated Soil Cover	Erosion/Washouts	Yes/No	Yes/No	minor erosion @ main gate
	Bare Areas	Yes/No	Yes/No	
	Distressed Vegetation	Yes/No	Yes/No	
	Ponding	Yes/No	Yes/No	
	Animal Holes/Burrows	Yes/No	Yes/No	
	Other	Yes/No	Yes/No	
Access Roads & Gravel Cover	Erosion/Washouts	Yes/No	Yes/No	
	Obstructions	Yes/No	Yes/No	
	Grading/Potholes	Yes/No	Yes/No	
	Sufficient Cover	Yes/No	Yes/No	
	Drainage/Puddles	Yes/No	Yes/No	
	Debris	Yes/No	Yes/No	
	Other	Yes/No	Yes/No	
Monitoring Wells	Integrity of Bollards	Yes/No	Yes/No	
	Integrity of Casings	Yes/No	Yes/No	EW-1 vault sinking
	Security of Locks	Yes/No	Yes/No	
	Other	Yes/No	Yes/No	
Site Security Fence	Integrity of Fence	Yes/No	Yes/No	
	Integrity of Gates	Yes/No	Yes/No	
	Security of Locks	Yes/No	Yes/No	
	Signs	Yes/No	Yes/No	
	Other	Yes/No	Yes/No	
Groundwater Treatment Bldg	Security	Yes/No	Yes/No	

HARGIS + ASSOCIATES, INC.

TABLE B-2
RATE AND VOLUME OF WATER EXTRACTED AND INJECTED DURING 2009 FOR GROUNDWATER REMEDIATION SYSTEM WELLS

	EXTRACTION WELLS														Injection Well IW-1
	EW-1			EW-2			EW-3			EW-4			Total		
Month	Rate While Pumping (gpm)	Run Time (percent)	Average Pumping Rate (gpm)	Rate While Pumping (gpm)	Run Time (percent)	Average Pumping Rate (gpm)	Rate While Pumping (gpm)	Run Time (percent)	Average Pumping Rate (gpm)	Rate While Pumping (gpm)	Run Time (percent)	Average Pumping Rate (gpm)	Rate While Pumping (gpm)	Average Pumping Rate (gpm)	Injection Rate (gpm)
January	1.404	96.0	1.347	0.935	96.2	0.899	0.562	99.5	0.559	2.793	99.5	2.780	5.693	4.382	5.585
February	1.367	100.0	1.367	0.894	100.0	0.894	0.566	100.0	0.566	2.591	100.0	2.591	5.418	4.447	5.418
March	1.448	99.9	1.447	0.934	99.9	0.933	0.584	99.9	0.584	2.778	99.9	2.776	5.743	4.013	5.739
April	1.452	98.8	1.435	0.895	98.8	0.884	0.565	98.8	0.558	2.727	98.8	2.695	5.639	3.864	5.573
May	1.434	100.0	1.434	0.942	100.0	0.942	0.550	100.0	0.550	2.521	100.0	2.521	5.446	3.873	5.446
June	1.427	75.0	1.070	0.923	74.6	0.688	0.617	100.0	0.617	2.736	100.0	2.736	5.703	3.526	5.112
July	0.948	0.3	0.003	0.744	0.5	0.004	0.443	76.3	0.339	2.939	76.3	2.244	5.075	1.820	2.589
August	1.417	49.3	0.698	0.000	0.0	0.000	0.541	98.4	0.532	2.450	98.4	2.410	4.407	2.175	3.640
September	1.441	98.8	1.423	0.629	0.3	0.002	0.638	98.8	0.630	2.855	98.8	2.820	5.563	3.349	4.874
October	1.474	96.0	1.415	0.485	0.3	0.002	0.635	96.0	0.610	2.900	96.0	2.785	5.494	3.239	4.812
November	1.478	99.0	1.464	0.518	0.3	0.002	0.623	99.0	0.617	2.818	99.0	2.790	5.437	3.417	4.873
December	1.658	98.5	1.632	0.814	0.2	0.002	0.624	95.0	0.593	2.459	94.5	2.324	5.556	2.983	4.551
Average	**1.438**	**91.273**	**1.313**	**0.920**	**91.134**	**0.838**	**0.577**	**99.606**	**0.575**	**2.661**	**99.606**	**2.651**	**5.596**	**3.754**	**4.844**

	VOLUME OF WATER PUMPED OR INJECTED (gallons)					
Month	EW-1	EW-2	EW-3	EW-4	EWs	IW-1
January	60,147	40,149	24,935	124,101	249,332	195,601
February	55,123	36,028	22,823	104,467	218,440	179,303
March	64,595	41,646	26,054	123,916	256,211	179,152
April	61,991	38,204	24,120	116,435	240,749	166,908
May	64,002	42,044	24,553	112,530	243,128	172,892
June	46,231	29,724	26,669	118,203	220,827	152,312
July	114	156	15,111	100,172	115,553	81,245
August	31,154	0	23,748	107,600	162,503	97,091
September	61,458	75	27,216	121,815	210,565	144,673
October	63,177	73	27,230	124,322	214,802	144,598
November	63,230	78	26,662	120,535	210,504	147,594
December	72,868	73	26,470	103,741	203,153	133,148
Total	**644,089**	**228,249**	**295,591**	**1,377,838**	**2,545,767**	**1,794,516**

HARGIS + ASSOCIATES, INC.

TABLE B-3
CALCULATIONS FOR MASS OF VOLATILE ORGANIC COMPOUNDS REMOVED FROM THE UNIT A AQUIFER

DATE	CUMULATIVE VOLUME EXTRACTED (gallons)	VOLUME EXTRACTED DURING PERIOD (gallons)	VOCs REMOVED FROM AQUIFER (using data from GRS extraction wells)											GRS INFLUENT		
			INSTANTANEOUS TOTAL VOC CONCENTRATION AND FLOW RATE									AVERAGE VOC REMOVAL RATE (lbs/day)	VOCs REMOVED FROM UNIT A (lbs)	MEASURED INFLUENT VOC CONC. (ug/L)	AVERAGE VOC REMOVAL RATE (lbs/day)	VOCs REMOVED FROM GRS INFLUENT (lbs)
			EW-1UA		EW-2UA		EW-3UA		EW-4UA		WEIGHTED AVERAGE VOC CONC. (ug/L)					
			VOC CONC. (ug/L)	FLOW RATE (gpm)	VOC CONC. (ug/L)	FLOW RATE (gpm)	VOC CONC. (ug/L)	FLOW RATE (gpm)	VOC CONC. (ug/L)	FLOW RATE (gpm)						
03/04/1994	4,976	0	0.0	1.6	0.0	2.2	0.0	2.1	0.0	5.0	-	0.000	0	-	0.000	0
04/14/1994	216,255	211,279	0.0	1.7	0.0	1.7	0.0	1.9	0.0	4.7	-	0.000	0	-	0.000	0
05/03/1994	296,470	80,215	0.0	1.5	0.0	1.7	0.0	1.8	0.0	4.6	-	0.000	0	-	0.000	0
05/13/1994	422,205	125,735	0.0	1.6	0.0	1.7	0.0	1.9	0.5	4.6	0.2	0.000	0.000	-	0.000	0
05/20/1994	512,430	90,225	0.7	1.7	0.0	1.7	0.0	1.8	5.7	4.6	2.8	0.000	0.001	0.5	0.000	0.000
05/26/1994	577,360	64,930	0.0	1.5	0.0	1.7	0.3	1.8	4.5	4.7	2.2	0.000	0.003	0.5	0.000	0.000
06/02/1994	659,180	81,820	0.0	1.4	0.0	1.8	0.0	1.9	7.2	4.6	3.4	0.000	0.005	2.9	0.000	0.002
06/07/1994	734,590	75,410	0.2	1.8	0.0	1.7	0.0	2.1	8.4	4.5	3.8	0.000	0.007	1.1	0.000	0.003
06/14/1994	839,135	104,545	0.0	2.0	0.0	1.9	0.3	2.2	9.9	4.5	4.3	0.001	0.010	4.0	0.000	0.005
06/24/1994	972,955	133,820	0.0	2.0	0.0	1.7	0.0	2.2	6.6	4.5	2.9	0.000	0.014	0.3	0.000	0.008
06/30/1994	1,036,460	63,505	0.6	1.9	0.0	2.0	0.0	2.2	3.5	4.6	1.6	0.000	0.015	0.4	0.000	0.008
07/07/1994	1,096,370	59,910	0.0	1.7	0.0	1.7	0.0	2.0	5.9	4.6	2.7	0.000	0.017	2.7	0.000	0.008
07/13/1994	1,134,832	38,462	0.4	1.7	0.0	1.7	0.0	1.9	7.7	4.5	3.6	0.000	0.018	0.5	0.000	0.009
07/19/1994	1,196,478	61,646	0.4	2.0	0.0	2.1	0.0	2.2	6.9	4.6	3.0	0.000	0.019	2.8	0.000	0.010
07/27/1994	1,308,594	112,116	0.3	1.8	0.0	1.7	0.0	1.7	8.9	4.5	4.2	0.000	0.023	0.7	0.000	0.011
08/05/1994	1,421,187	112,593	0.4	1.8	0.0	1.7	0.0	1.7	7.9	4.5	3.7	0.000	0.026	1.0	0.000	0.012
09/02/1994	1,712,431	291,244	0.7	1.4	0.0	1.0	0.0	1.6	3.3	4.5	1.9	0.000	0.033	1.3	0.000	0.015
11/03/1994	2,208,000	495,569	0.0	1.5	0.0	1.1	1.5	2.4	0.6	4.5	0.7	0.000	0.038	-	0.000	0.018
11/30/1994	2,476,999	268,999	0.0	1.4	0.0	1.0	0.7	1.8	10.8	4.5	5.7	0.000	0.046	5.1	0.000	0.023
01/06/1995	2,925,463	448,464	0.4	1.4	0.0	1.0	1.3	1.8	31.3	4.5	16.5	0.001	0.087	12.7	0.001	0.057
02/08/1995	3,353,962	428,499	0.6	1.6	0.0	1.1	1.6	1.8	41.1	4.5	21.0	0.002	0.154	24.4	0.002	0.123
03/09/1995	3,707,817	353,855	1.6	1.6	0.0	1.1	1.5	1.9	101.4	4.4	50.2	0.004	0.259	48.7	0.004	0.231
04/03/1995	3,968,000	260,183	1.7	2.2	0.0	1.4	5.9	2.1	107.3	4.6	49.5	0.006	0.367	42.9	0.006	0.330
05/09/1995	4,375,500	407,500	0.0	1.1	0.0	1.1	0.7	1.6	192.8	4.5	105.3	0.008	0.631	94.9	0.007	0.565
06/08/1995	4,777,300	401,800	0.0	1.4	0.0	1.2	0.6	1.5	194.5	4.4	100.8	0.011	0.976	100.8	0.010	0.893
09/19/1995	5,771,300	994,000	1.2	1.5	0.0	1.2	3.7	1.3	380.8	4.3	198.1	0.015	2.216	174.7	0.014	2.035
12/14/1995	6,473,400	702,100	1.4	1.5	0.0	1.2	5.8	1.4	401.1	4.1	201.8	0.020	3.387	180.0	0.017	3.074
02/29/1996	7,303,800	830,400	1.2	1.5	0.0	1.2	8.4	1.2	417.3	4.0	212.8	0.020	4.823	204.5	0.018	4.406
03/22/1996	7,554,100	250,300	---	1.5	0.0	1.2	---	1.2	427.2	4.1	218.9	0.021	5.274	201.6	0.020	4.831
06/04/1996	8,385,300	831,200	1.8	1.5	0.0	1.1	14.9	1.2	443.9	4.0	230.3	0.021	6.832	182.7	0.018	6.163
09/05/1996	9,383,200	997,900	1.0	1.5	0.0	1.2	18.5	1.0	551.2	4.0	288.9	0.024	8.994	189.5	0.017	7.713
12/04/1996	10,351,200	968,000	2.1	1.5	0.0	1.0	35.5	1.4	562.0	3.6	276.8	0.025	11.278	292.1	0.022	9.658
03/06/1997	11,353,700	1,002,500	2.8	1.6	0.0	1.1	54.3	1.3	598.9	3.6	293.6	0.026	13.664	290.5	0.027	12.095
07/11/1997	12,702,400	1,348,700	1.6	1.5	0.0	1.1	69.0	1.3	835.0	3.6	413.1	0.032	17.640	468.0	0.034	16.363
09/18/1997	13,208,272	505,872	1.3	1.6	0.0	1.1	48.1	1.7	1,072.8	2.6	410.4	0.035	19.379	524.6	0.042	18.458
12/17/1997	13,936,768	728,496	---	1.5	---	1.1	---	1.3	---	3.6	275.6	0.031	21.464	275.6	0.036	20.890
05/26/1998	14,876,224	939,456	1.7	1.6	0.0	1.1	30.3	1.6	675.0	3.0	284.4	0.025	23.659	267.5	0.024	23.019
12/21/1998	16,541,674	1,665,450	0.0	1.6	0.0	0.9	42.0	1.4	543.2	3.0	244.7	0.022	27.335	236.9	0.021	26.523
06/01/1999	18,005,674	1,464,000	0.0	1.6	0.0	0.9	27.0	1.3	571.0	2.8	247.6	0.020	30.342	303.0	0.021	29.821
08/30/1999	18,243,430	237,756	---	1.6	---	0.9	---	1.1	---	3.2	369.5	0.025	30.954	369.5	0.027	30.488
09/07/1999	18,326,430	83,000	---	1.6	---	0.9	---	1.1	---	3.6	371.7	0.032	31.211	371.7	0.032	30.745
09/30/1999	18,564,430	238,000	---	1.6	---	0.9	---	1.1	---	3.6	305.5	0.029	31.883	305.5	0.029	31.417
11/15/1999	19,008,430	444,000	0.0	1.6	0.0	0.9	51.0	1.1	680.5	3.0	317.8	0.025	33.038	295.1	0.024	32.530

HARGIS + ASSOCIATES, INC.

TABLE B-3
CALCULATIONS FOR MASS OF VOLATILE ORGANIC COMPOUNDS REMOVED FROM THE UNIT A AQUIFER

DATE	CUMULATIVE VOLUME EXTRACTED (gallons)	VOLUME EXTRACTED DURING PERIOD (gallons)	VOCs REMOVED FROM AQUIFER (using data from GRS extraction wells)											GRS INFLUENT		
			INSTANTANEOUS TOTAL VOC CONCENTRATION AND FLOW RATE									AVERAGE VOC REMOVAL RATE (lbs/day)	VOCs REMOVED FROM UNIT A (lbs)	MEASURED INFLUENT VOC CONC. (ug/L)	AVERAGE VOC REMOVAL RATE (lbs/day)	VOCs REMOVED FROM GRS INFLUENT (lbs)
			EW-1UA		EW-2UA		EW-3UA		EW-4UA		WEIGHTED AVERAGE VOC CONC. (ug/L)					
			VOC CONC. (ug/L)	FLOW RATE (gpm)	VOC CONC. (ug/L)	FLOW RATE (gpm)	VOC CONC. (ug/L)	FLOW RATE (gpm)	VOC CONC. (ug/L)	FLOW RATE (gpm)						
03/01/2000	19,961,430	953,000	---	1.7	---	1.1	---	1.0	---	3.0	377.9	0.028	35.804	377.9	0.027	35.206
05/15/2000	20,669,430	708,000	0.0	1.7	0.0	0.9	31.0	1.0	956.0	2.7	414.6	0.030	38.145	406.5	0.030	37.523
06/22/2000	21,011,430	342,000	0.0	1.7	0.0	0.9	42.0	1.0	972.0	3.0	448.2	0.034	39.376	444.0	0.034	38.736
10/18/2000	21,903,905	892,475	0.0	1.7	0.0	1.0	41.9	1.0	1,326.0	2.9	595.7	0.041	43.263	543.6	0.038	42.414
02/09/2001	22,857,318	953,413	---	1.6	---	1.0	---	0.5	---	3.0	617.2	0.044	48.088	617.2	0.042	47.031
04/23/2001	23,612,994	755,676	0.0	1.6	0.0	0.9	50.3	0.7	2167.0	3.0	1,040.4	0.062	53.314	623.0	0.046	50.941
07/05/2001	24,241,676	628,682	---	1.5	---	1.1	---	0.8	---	3.0	454.8	0.057	57.236	454.8	0.041	53.768
10/08/2001	24,982,701	741,025	0.0	1.4	0.0	0.8	61.1	0.5	2,124.0	2.8	1,085.1	0.052	61.997	521.8	0.033	56.787
01/29/2002	25,897,778	915,077	---	1.6	---	0.8	---	0.5	---	2.8	645.3	0.059	68.603	645.3	0.040	61.243
04/22/2002	26,391,572	493,794	0.0	1.2	0.0	1.0	110.4	0.5	2,336.0	3.2	1,282.8	0.068	72.576	1,028.3	0.059	64.691
07/11/2002	26,986,247	594,675	---	0.9	---	0.8	---	0.8	---	3.1	1,277.9	0.086	78.929	1,277.9	0.078	70.413
10/29/2002	27,902,885	916,638	0.0	1.5	0.0	1.0	108.5	0.6	2,536.0	3.0	1,261.8	0.092	88.642	781.0	0.075	78.287
01/28/2003	28,452,266	549,381	---	1.4	---	1.0	124.7	0.6	2,299.0	2.9	1,140.8	0.085	94.149	984.2	0.063	82.333
04/15/2003	28,981,600	529,334	0.0	1.5	0.0	1.0	118.1	0.6	2,327.5	3.1	1,175.2	0.086	99.263	857.2	0.069	86.399
07/09/2003	29,665,516	683,916	0.0	1.5	0.0	1.0	151.0	0.6	2,685.0	3.1	1,357.1	0.094	106.489	858.2	0.064	91.294
10/20/2003	30,527,564	862,048	0.0	1.4	0.0	0.9	160.1	0.5	2,289.0	3.1	1,201.1	0.092	115.690	926.4	0.064	97.713
04/19/2004	31,871,754	1,344,190	0.0	1.4	0.0	0.9	203.3	0.5	3,166.5	3.0	1,639.4	0.101	131.619	902.8	0.065	107.971
10/25/2004	33,191,754	1,320,000	0.0	1.4	0.0	1.0	280.4	0.6	2,659.0	2.5	1,239.2	0.095	147.473	1,028.0	0.064	118.604
04/27/2005	34,561,754	1,370,000	0.0	1.4	0.0	0.9	462.0	0.6	2,825.0	2.9	1,460.3	0.094	162.903	1,187.0	0.077	131.265
10/25/2005	36,094,754	1,533,000	0.0	1.5	0.0	1.0	297.7	0.6	2,918.0	3.0	1,464.4	0.107	181.609	948.4	0.078	144.923
04/24/2006	37,509,754	1,415,000	0.0	1.4	0.0	0.9	271.0	0.6	2,760.0	3.0	1,430.9	0.103	198.702	1,136.0	0.074	157.229
10/23/2006	38,764,754	1,255,000	0.0	1.5	0.0	1.0	247.0	0.6	3,133.0	3.0	1,565.1	0.110	214.389	1,258.0	0.088	169.764
04/23/2007	40,174,754	1,410,000	0.0	1.5	0.0	1.1	266.0	0.6	2,796.0	3.0	1,378.6	0.110	231.707	1,223.0	0.092	184.359
10/10/2007	41,644,754	1,470,000	0.0	1.5	0.0	0.9	282.0	0.6	2,495.0	2.7	1,211.5	0.089	247.593	779.0	0.069	196.637
04/10/2008	43,140,754	1,496,000	0.0	1.4	0.0	0.9	131.0	0.6	2,635.0	2.8	1,308.2	0.086	263.319	1,160.0	0.066	208.740
10/16/2008	44,133,754	993,000	0.0	0.9	0.0	0.6	232.0	0.4	1,680.0	1.9	864.4	0.050	272.320	507.0	0.038	215.646
04/09/2009	45,179,954	1,046,200	0.0	1.5	0.0	0.9	80.0	0.6	3,075.0	2.7	1,495.8	0.080	282.622	1,182.0	0.057	223.019
10/07/2009	45,928,354	748,400	0.0	1.5	0.0	0.5	55.0	0.6	2,027.0	2.9	1,077.0	0.085	290.656	1,300.0	0.082	230.768

ASSUMPTIONS:

1) Average VOC removal rate based on:
   a. influent flow rate equals sum of measured average flow rates for extraction wells (I.e. assumes extraction wells pumping continuously);
   b. influent VOC concentration equals weighted average of VOC concentrations for extraction wells (weighting factor is extraction well flow rate), or measured VOC concentration in influent sample.
2) VOC mass removed to date calculated as:
   [(volume of water extracted during present time period) x (average of influent VOC concentration during present and previous time periods)] + (VOC mass removed during previous time periods).

ABBREVIATIONS:

CONC. = concentration
GRS = Groundwater Remediation System
VOC = volatile organic compound
gpm = gallons per minute
lbs = pounds
ug/L = micrograms per liter

APPENDIX C

FIELD SAMPLING FORMS

In an effort to conserve paper and energy, EPA/ADEQ agreed to have its hard copies of the 2009 Annual Report for the Hassayampa Site printed without a hard copy of this appendix. The complete content of this appendix can be found on the attached CD.

APPENDIX D

CHRONOLOGY OF EVENTS-2009

APPENDIX D

CHRONOLOGY OF EVENTS-2009

HASSAYAMPA LANDFILL EPA SUPERFUND SITE
MARICOPA COUNTY, ARIZONA

1. On January 2 GEO Inc. personnel shut down the SVE system in preparation for upcoming sampling.
2. On January 5, R&R Pest Control conducted an inspection of the cap for erosion and for rodents; no rodent problems were noted however a small amount of erosion was noted. Since the issue was minor R&R recommended monitoring. Odom's performed maintenance on the SVTS blowers.
3. On January 6, the monthly groundwater measurements were collected.
4. On January 8, 1Q09 groundwater sampling was started.
5. On January 9, Groundwater sampling continued, influent and effluent samples collected.
6. On January 12, GEO Inc. installed an additional re-gen system and performed SVE maintenance.
7. On January 13 soil vapor sampling and monthly GWTS O&M was performed. The Baker tank was emptied to the GWTS. GEO Inc. performed SVE system maintenance.
8. January 14 and 15, H+A performed soil vapor sampling and discharged the water tanks left over from GRS maintenance to the GWTS.
9. On January 19 GEO Inc. performed an inspection of the SVE system.
10. On January 20, H+A performed minor O&M to the SVE system.
11. On January 21, GEO Inc. performed maintenance to the SVE system and the Baker tank was removed from the site.
12. On January 23, H+A performed maintenance to the GRS system.
13. On January 26, Condensate was picked up from the site.
14. On January 27, HSC representatives performed a site visit.
15. On January 28, representatives from ADEQ, EPA, and ITSI visited the site.
16. On February 2, GEO, Inc. performed maintenance on the SVE system.
17. On February 5, GEO, Inc. performed maintenance on the SVE system. H+A conducted monthly O&M and collected water levels and soil vapor readings.
18. On February 12, H&A provided oversight of fence repairs and minor Site housekeeping.
19. On February 14, GEO, Inc. performed a status check on the SVE system.

20. On February 16, R&R Pest Control performed a cap inspection. No problems were noted.
21. On February 20, H+A collected soil vapor readings and oversaw rehab of to MW-15UB pump, seal, and piping.
22. On February 24, GEO, Inc. performed routine maintenance on the SVE system and changed out the carbon filters.
23. On February 25, Odom, Inc. conducted maintenance on the SVTS blowers and valves.
24. On March 5, H+A conducted monthly GWTS O&M and collected water levels and soil vapor readings. PDBs were installed for April groundwater sampling.
25. On March 10, GEO, Inc. performed routine maintenance on the SVE system.
26. On March 17, R&R Pest Control performed a cap inspection. No problems were noted.
27. On March 18, H+A collected bi-weekly soil vapor readings.
28. On March 25, H+A performed O&M on the GRS following a power outage from the previous evening. Odom's inc. installed a new pump in MW-15UB, and GEO, Inc performed SVE system maintenance.
29. On March 25, H+A completed repairs to the evaporative cooler.
30. On March 27, GEO, Inc performed SVE system maintenance.
31. On March 29, GEO, Inc performed minor repairs to the SVE system.
32. On April 2, H&A collected water level and soil vapor measurements.
33. On April 3, H+A restarted the GRS system following a minor power outage.
34. On April 4, GEO, Inc performed SVE system maintenance and restarted the SVE system.
35. On April 7 through 9, H&A performed quarterly groundwater sampling. Ben Costello visited the site during the first day of this event.
36. On April 11, H+A responded to a high equalization tank alarm and restarted the SVE system.
37. On April 16, H+A replaced the air meter on the GRS. R&R pest Control performed a cap inspection. No issues were reported.
38. On April 17, GEO, Inc performed SVE system maintenance.
39. On April 20, GEO, Inc performed SVE system O&M.
40. On April 22, H+A collected bi-weekly SVE readings and reported an issue with the SVE system.
41. On April 23, GEO, Inc performed SVE system maintenance.
42. On April 30, Odom's, Inc. conducted maintenance on the SVTS blowers and valves.
43. On May 4, H+A shut down the SVE system per instructions from GEO, Inc.

44. On May 6, H+A performed GRS inspection/maintenance, collected SVE readings and water levels and restarted the SVE system. Frank Van Alstine from ITSI visited the Site.
45. On May 7, H+A shut down the SVE system per instructions from GEO, Inc.
46. On May 9, GEO, Inc performed SVE repairs and restarted the system.
47. On May 10, GEO, Inc responded to a refrigeration issue with the SVE system.
48. On May 11, Condensate and chemical pick up was completed.
49. On May 12, H+A collected bi-weekly SVE readings and performed SV sampling.
50. On May 15, GEO, Inc performed SVE system O&M.
51. On May 21, H+A performed a check and shutdown of the SVE system at the request of GEO, Inc.
52. On May 30, GEO, Inc performed SVE system O&M.
53. On June 3, GEO, Inc performed SVE system O&M.
54. On June 4, H+A performed GRS inspection/maintenance and collected SVE readings and water levels.
55. On June 5, H+A installed PDBs for the July groundwater sampling event. Frank Van Alstine was on Site. GEO, Inc performed SVE system O&M.
56. On June 8, GEO, Inc oversaw a carbon change out for the SVE system.
57. On June 18, H+A collected bi-weekly SV readings. David Bellmont from St Paul insurance was on Site.
58. On June 19, GEO Inc performed SVE system O&M.
59. On June 23, H+ A collected water levels and shut down EW-01UA and EW-02UA as part of the GRS Pilot Test.
60. On June 24, H&A collected water levels as part of the Pilot Test and shut down the SVE system in preparation of sampling.
61. On June 29, GEO Inc was on Site to shut down the SVE system. Odom's, Inc. conducted maintenance on the SVTS blowers and valves.
62. On June 30, H+A collected water levels as part of the Pilot Test.
63. On July 1 and 2, GEO, Inc. performed an SVE system rebuild. H+A collected monthly water levels on July 2.
64. On July 6 and 7, GEO Inc performed SVE system O&M.
65. On July 8, H+A performed GRS O&M. 3Q09 groundwater sampling was performed 7/8 through 7/10. GRS PLC re-programming for the new air flow meter was performed July 9 and 10.
66. On July 11, GEO Inc restarted the SVE system.
67. On July 12 and 13, GEO Inc performed SVE system O&M. H+A identified issues with EW-01UA pump on July 13 and scheduled repairs

68. On July 14, Additional PLC programming was completed to implement automatic system shut down in the event of low air flow conditions.

69. On July 18, GEO, Inc. personnel visited the Site for SVE O&M and saw two men who had broken into the site. The men drove away and police were called.

70. On July 19, Inc performed SVE system O&M.

71. July 22, H+A performed bi-weekly SVE system monitoring.

72. On July 24 H+A identified damage to the SVE system as evidence of another break-in when arriving on-site for fence repair from the previous incident. Local police were contacted.

73. On July 25 GEO, Inc. assessed damage to the SVE system and began repairs.

74. July 27, R&R Pest Control on-site to perform cap inspection following heavy rain. Minor erosion damage to soil cap was identified and repaired. GEO, Inc. performed repairs to the SVE system and restarted the GRS after minor power outage.

75. On July 28 GEO, Inc. restarted the SVE system following completion of repairs.

76. On July 29, H+A provided oversight of installation of a new pump in EW-01UA.

77. On July 30, H+A was on-site to coordinate efforts to repair communication outage, as well as repairs to EW-01UA and portions of SVE piping damaged in recent storms. The phone company identified downed phone lines and began repairs

78. On August 5, H+A was on-site to coordinate further efforts to repair communication outage because July phone line repairs did not restore Site service. H&A also collected monthly water levels during this visit and GEO, Inc. rebooted the SVE system following a power outage.

79. On August 6, H+A was on-site to continue phone line repairs efforts and collect groundwater samples related to the GRS Pilot Test.

80. On August 7, H&A responded to a system alarm at the Site. The system was restarted without issues.

81. On August 10, H&A was on site to perform SVE monitoring and oversee maintenance to the GRS datalogger.

82. On August 14, H+A was on-site to restart EW-01UA after the pump shut down. The system was restarted without issues.

83. On August 16, GEO Inc. was onsite to check the SVE system.

84. On August 18, NES was on-site for a routine site visit and meeting re: site security.

85. On August 22, H+A responded to a power loss alarm and restarted the GRS and SVE systems. The power loss was area-wide and related to seasonal storms.

86. On August 24, H&A was on-site to replace the telephone modem and modem ground wire as part of the recent phone line repairs. H&A also performed SVE monitoring.

87. On August 25, Odom's, Inc. conducted maintenance on the SVTS blowers and valves.

88. On September 1, H&A collected monthly water level measurements and GEO, Inc. performed maintenance on the SVE system.

89. On September 2, GEO, Inc. and Clean Harbors were on-site to pump down SVE holding tanks. H&A performed SVE monitoring and monthly effluent sampling.

90. On September 3, GEO, Inc. performed maintenance on the SVE system.

91. On September 5, GEO, Inc. performed maintenance on the SVE system.

92. On September 8, GEO, Inc. performed maintenance on the SVE system.

93. On September 10, H&A performed monthly O&M for the GRS system and collected the monthly effluent sample.

94. On September 11, GEO, Inc. provided oversight of the carbon change out for the SVE system.

95. On September 13, GEO, Inc. was on-site to perform SVE system maintenance. GEO, Inc. personnel also restarted the GRS following an alarm and discussion with H&A.

96. On September 17, H+A was on-site to respond to a high level alarm. The system was restarted without issues. GEO, Inc. was also on-site this day for SVE system maintenance.

97. On September 17, H+A was on-site to respond to a GRS system alarm. The system was restarted without issues.

98. On September 22, GEO, Inc. was on-site to restart the SVE system due to storm-related power loss. GEO, Inc. also restarted the GRS system.

99. On September 23, H&A was on-site for SVE monitoring and to collect measurements for a pending secondary fence.

100. On September 24, GEO, Inc. was on-site to perform SVE system maintenance.

101. On October 6-9, H&A was on-site to conduct SVE monitoring and quarterly groundwater sampling.

102. On October 14 & 15, H+A, ITSI, ADEQ, and NES personnel were onsite to perform the annual breakdown, inspection, and cleaning of the GRS system.

103. On October 21, GEO, Inc. was on-site to perform SVE system maintenance and Odom's, Inc. conducted maintenance on the SVTS blowers and valves.

104. On October 22, H+A performed maintenance on the GRS.

105. On October 26, Geosyntec was on-site to inspect the SVE system.

106. On October 27, H&A was on-site to perform SVE monitoring.

107. On October 27, Geosyntec completed well-field modifications and performed SVE system maintenance.

108. On October 30, GEO, Inc. performed SVE system maintenance.

109. On October 31, H&A responded to a GRS alarm and restarted the SVE system.

110. On November 4, H+A performed monthly maintenance on the GWTS and collected effluent samples and groundwater elevations.

111. On November 5, H+A performed soil vapor monitoring.

112. On November 8, Geo, Inc. performed SVE system maintenance.

113. On November 14, H+A restarted the GRS and SVE systems following a power outage.

114. On November 16, H+A restarted the GRS in response to a system alarm.

115. On November 17, H+A restarted the GRS in response to a system alarm.

116. Over November 18, H&A performed monthly SVE system monitoring. NES, ADEQ, EPA, ITSI, and Geosyntec representatives were on-site for an agency site visit.

117. On November 19, H+A personnel were on-Site to collect monthly samples related to the Pilot Test. Geo, Inc. was onsite to oversee pickup of condensate from the SVE system.

118. On November 30, R&R Pest control was on-site for cap inspection.

119. On December 1, H+A performed monthly water level measurements and installed PDBs for the January sampling event.

120. On December 4, H+A performed bi-weekly SVE monitoring.

121. On December 6, H+A was on site in response to a GRS system alarm. Alarm was for EW-04 shut down. H+A performed minor maintenance to the Y-strainer and restarted the pump without issue.

122. On December 7, GEO Inc. performed inspection and maintenance of the soil vapor system.

123. On December 8, H+A responded to a system alarm related to an area power outage. Site condition indicated severe winds associated with a storm, crews in the area working on power outage. System not able to be restarted.

124. On December 9, GEO Inc. performed inspection and maintenance of the soil vapor system. H+A restarted the GRS after power to site restored.

125. On December 10, GEO Inc. performed inspection and maintenance of the soil vapor system and oversaw carbon chageout of the SVE system. H+A completed monthly O&M of the GRS and collected groundwater samples for the Pilot Test.

126. On December 11, H+A provided access to an insurance contractor associated with the 2008 break-in.

127. On December 17, H+A provided access to a fencing contractor in preparation of preparing bids for secondary fence installation.

128. On December 22, H+A collected bi-weekly soil vapor readings.

129. On December 24, GEO Inc. performed inspection and maintenance of the soil vapor system.

130. On December 29, Odom's, Inc. conducted maintenance on the SVTS blowers and valves.

131. On December 30, H+A responded to a GRS system alarm. The system not restarted.

APPENDIX E

SUMMARY OF FIELD PARAMETERS AND LABORATORY CHEMICAL RESULTS

HARGIS + ASSOCIATES, INC.

APPENDIX E

SUMMARY OF FIELD PARAMETERS AND LABORATORY CHEMICAL RESULTS

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HARGIS + ASSOCIATES, INC.

TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
EW-01UA	1/2/2008	929.66	109.00	820.66 P
	2/7/2008	929.66	102.02	827.64 P
	3/6/2008	929.66	102.10	827.56 P
	4/3/2008	929.66	102.06	827.60 P
	5/6/2008	929.66	101.96	827.70 P
	6/10/2008	929.66	102.01	827.65 P
	7/7/2008	929.66	101.47	828.19 P
	8/6/2008	929.66	102.09	827.57 P
	8/20/2008	929.66	94.82	834.84 NP
	9/4/2008	929.66	101.60	828.06 P
	10/13/2008	929.66	94.79	834.87 NP
	11/12/2008	929.66	100.44	829.22 P
	12/3/2008	929.66	101.16	828.50 P
	1/6/2009	929.66	101.49	828.17 P
	2/5/2009	929.66	101.26	828.40 P
	3/5/2009	929.66	101.42	828.24 P
	4/2/2009	929.66	101.46	828.20 P
	5/6/2009	929.66	101.36	828.30 P
	6/4/2009	929.66	101.51	828.15 P
	6/23/2009	929.66	101.52	828.14 P
	6/23/2009	929.66	96.57	833.09 NP
	6/24/2009	929.66	96.01	833.65 NP
	6/30/2009	929.66	95.46	834.20 NP
	7/2/2009	929.66	95.54	834.12 NP
	8/5/2009	929.66	94.77	834.89 NP
	9/1/2009	929.66	100.34	829.32 P
	10/6/2009	929.66	100.35	829.31 P
	11/9/2009	929.66	100.39	829.27 P
	12/1/2009	929.66	100.29	829.37 P
EW-02UA	1/2/2008	929.99	100.96	829.03 P
	2/7/2008	929.99	101.40	828.59 P
	3/6/2008	929.99	101.48	828.51 P
	4/3/2008	929.99	101.44	828.55 P
	5/6/2008	929.99	101.34	828.65 P
	6/10/2008	929.99	101.26	828.73 P
	7/7/2008	929.99	100.68	829.31 P
	8/6/2008	929.99	101.58	828.41 P

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
EW-02UA	8/20/2008	929.99	96.14	833.85 NP
	9/4/2008	929.99	100.91	829.08 P
	10/13/2008	929.99	96.09	833.90 NP
	11/12/2008	929.99	100.00	829.99 P
	12/3/2008	929.99	100.47	829.52 P
	1/6/2009	929.99	100.80	829.19 P
	2/5/2009	929.99	100.52	829.47 P
	3/5/2009	929.99	100.69	829.30 P
	4/2/2009	929.99	100.70	829.29 P
	5/6/2009	929.99	100.68	829.31 P
	6/4/2009	929.99	100.80	829.19 P
	6/23/2009	929.99	100.84	829.15 P
	6/23/2009	929.99	98.00	831.99 NP
	6/24/2009	929.99	97.43	832.56 NP
	6/30/2009	929.99	96.89	833.10 NP
	7/2/2009	929.99	97.00	832.99 NP
	8/5/2009	929.99	96.03	833.96 NP
	9/1/2009	929.99	98.32	831.67 NP
	10/6/2009	929.99	98.32	831.67 NP
	11/9/2009	929.99	98.28	831.71 NP
	12/1/2009	929.99	98.23	831.76 NP
EW-03UA	1/2/2008	919.48	89.09	830.39 P
	2/7/2008	919.48	89.60	829.88 P
	3/6/2008	919.48	89.65	829.83 P
	4/3/2008	919.48	90.32	829.16 P
	5/6/2008	919.48	90.18	829.30 P
	6/10/2008	919.48	90.00	829.48 P
	7/7/2008	919.48	88.31	831.17 P
	8/6/2008	919.48	90.26	829.22 P
	8/20/2008	919.48	85.54	833.94 NP
	9/4/2008	919.48	89.95	829.53 P
	10/13/2008	919.48	85.51	833.97 NP
	11/12/2008	919.48	88.60	830.88 P
	12/3/2008	919.48	89.33	830.15 P
	1/6/2009	919.48	89.79	829.69 P
	2/5/2009	919.48	89.60	829.88 P
	3/5/2009	919.48	89.84	829.64 P

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
EW-03UA	4/2/2009	919.48	89.92	829.56 P
	5/6/2009	919.48	89.83	829.65 P
	6/4/2009	919.48	90.00	829.48 P
	6/23/2009	919.48	90.38	829.10 P
	6/23/2009	919.48	89.95	829.53 P
	6/24/2009	919.48	89.74	829.74 P
	6/30/2009	919.48	89.36	830.12 P
	7/2/2009	919.48	89.59	829.89 P
	8/5/2009	919.48	87.03	832.45 P
	9/1/2009	919.48	89.96	829.52 P
	10/6/2009	919.48	89.96	829.52 P
	11/9/2009	919.48	89.93	829.55 P
	12/1/2009	919.48	89.81	829.67 P
EW-04UA	1/2/2008	916.37	86.96	829.41 P
	2/7/2008	916.37	82.98	833.39 P
	3/6/2008	916.37	88.89	827.48 P
	4/3/2008	916.37	88.55	827.82 P
	5/6/2008	916.37	88.88	827.49 P
	6/10/2008	916.37	88.36	828.01 P
	7/7/2008	916.37	82.93	833.44 P
	8/6/2008	916.37	96.62	819.75 P
	8/20/2008	916.37	82.47	833.90 NP
	9/4/2008	916.37		UTM
	10/13/2008	916.37	82.48	833.89 NP
	11/12/2008	916.37	86.56	829.81 P
	12/3/2008	916.37	87.08	829.29 P
	1/6/2009			P, UTM
	2/5/2009	916.37	87.69	828.68 P
	3/5/2009	916.37	88.00	828.37 P
	4/2/2009	916.37	88.07	828.30 P
	5/6/2009	916.37	87.96	828.41 P
	6/4/2009	916.37	87.46	828.91 P
	6/23/2009	916.37		P, UTM
	6/23/2009	916.37	88.00	828.37 P
	6/24/2009	916.37	87.67	828.70 P
	6/30/2009	916.37	87.59	828.78 P
	7/2/2009	916.37	88.58	827.79 P

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SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
EW-04UA	8/5/2009	916.37	85.88	830.49 P
	9/1/2009	916.37	89.53	826.84 P
	10/6/2009	916.37	89.66	826.71 P
	11/9/2009	916.37	89.07	827.30 P
	12/1/2009	916.37	87.85	828.52 P
IW-01UB	1/2/2008	920.10	94.70	825.40 I
	2/7/2008	920.10	92.62	827.48 NI
	3/6/2008	920.10	90.90	829.20 NI
	4/3/2008	920.10	82.50	837.60 NI
	5/6/2008	920.10	93.14	826.96 NI
	6/10/2008	920.10	90.04	830.06 NI
	7/7/2008	920.10	92.45	827.65 NI
	8/6/2008	920.10	98.43	821.67 NI
	8/20/2008	920.10	101.20	818.90 NI
	9/4/2008	920.10	98.65	821.45 NI
	10/13/2008	920.10	100.50	819.60 NI
	11/12/2008	920.10	96.95	823.15 I
	12/3/2008	920.10	97.40	822.70 NI
	1/6/2009	920.10	96.83	823.27 NI
	2/5/2009	920.10	97.11	822.99 I
	3/5/2009	920.10	86.24	833.86 I
	4/2/2009	920.10	95.68	824.42 I
	5/6/2009	920.10	96.22	823.88 NI
	6/4/2009	920.10	97.57	822.53 NI
	6/23/2009	920.10	92.29	827.81 NI
	6/23/2009	920.10	97.10	823.00 NI
	6/24/2009	920.10	89.22	830.88 I
	6/30/2009	920.10	93.75	826.35 I
	7/2/2009	920.10	96.31	823.79 I
	8/5/2009	920.10	100.72	819.38 I
	9/1/2009	920.10	94.22	825.88 NI
	10/6/2009	920.10	94.08	826.02 I
	11/9/2009	920.10	98.08	822.02 I
	12/1/2009	920.10	84.49	835.61 I
MW-01UA	1/2/2008	926.23	93.46	832.77
	2/7/2008	926.23	93.75	832.48

TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-01UA	3/6/2008	926.23	93.77	832.46
	4/3/2008	926.23	93.77	832.46
	5/6/2008	926.23	93.62	832.61
	6/10/2008	926.23	93.62	832.61
	7/7/2008	926.23	93.13	833.10
	8/6/2008	926.23	93.69	832.54
	8/20/2008	926.23	91.21	835.02
	9/4/2008	926.23	93.39	832.84
	10/13/2008	926.23	91.21	835.02
	11/12/2008	926.23	92.67	833.56
	12/3/2008	926.23	93.02	833.21
	1/6/2009	926.23	93.32	832.91
	2/5/2009	926.23	93.13	833.10
	3/5/2009	926.23	93.27	832.96
	4/2/2009	926.23	93.30	832.93
	5/6/2009	926.23	93.24	832.99
	6/4/2009	926.23	93.35	832.88
	6/23/2009	926.23	93.40	832.83
	6/23/2009	926.23	92.60	833.63
	6/24/2009	926.23	92.31	833.92
	6/30/2009	926.23	91.88	834.35
	7/2/2009	926.23	91.95	834.28
	8/5/2009	926.23	91.16	835.07
	9/1/2009	926.23	92.72	833.51
	10/6/2009	926.23	92.71	833.52
	11/9/2009	926.23	92.67	833.56
	12/1/2009	926.23	92.62	833.61
MW-01UB	1/2/2008	925.68	104.22	821.46
	2/7/2008	925.68	102.04	823.64
	3/6/2008	925.68	102.20	823.48
	4/3/2008	925.68	102.25	823.43
	5/6/2008	925.68	101.75	823.93
	6/10/2008	925.68	102.78	822.90
	7/7/2008	925.68	104.98	820.70
	8/6/2008	925.68	105.98	819.70
	8/20/2008	925.68	106.33	819.35
	9/4/2008	925.68	106.36	819.32

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-01UB	10/13/2008	925.68	105.71	819.97
	11/12/2008	925.68	104.99	820.69
	12/3/2008	925.68	104.39	821.29
	1/6/2009	925.68	103.73	821.95
	2/5/2009	925.68	103.73	821.95
	3/5/2009	925.68	103.67	822.01
	4/2/2009	925.68	102.75	822.93
	5/6/2009	925.68	102.92	822.76
	6/4/2009	925.68	103.76	821.92
	6/23/2009	925.68	103.76	821.92
	6/23/2009	925.68	103.75	821.93
	6/24/2009	925.68	103.88	821.80
	6/30/2009	925.68	104.21	821.47
	7/2/2009	925.68	104.40	821.28
	8/5/2009	925.68	105.05	820.63
	9/1/2009	925.68	105.21	820.47
	10/6/2009	925.68	105.06	820.62
	11/9/2009	925.68	104.95	820.73
	12/1/2009	925.68	104.38	821.30
MW-02UA	1/2/2008	918.66	86.97	831.69
	2/7/2008	918.66	87.45	831.21
	3/6/2008	918.66	87.57	831.09
	4/3/2008	918.66	87.60	831.06
	5/6/2008	918.66	87.53	831.13
	6/10/2008	918.66	87.48	831.18
	7/7/2008	918.66	86.39	832.27
	8/6/2008	918.66	87.74	830.92
	8/20/2008	918.66	84.86	833.80
	9/4/2008	918.66	87.45	831.21
	10/13/2008	918.66	84.86	833.80
	11/12/2008	918.66	86.41	832.25
	12/3/2008	918.66	86.99	831.67
	1/6/2009	918.66	87.39	831.27
	2/5/2009	918.66	87.07	831.59
	3/5/2009	918.66	87.22	831.44
	4/2/2009	918.66	87.30	831.36
	5/6/2009	918.66	87.22	831.44

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-02UA	6/4/2009	918.66	87.31	831.35
	6/23/2009	918.66	87.49	831.17
	6/23/2009	918.66	87.05	831.61
	6/24/2009	918.66	86.75	831.91
	6/30/2009	918.66	86.28	832.38
	7/2/2009	918.66	86.44	832.22
	8/5/2009	918.66	84.97	833.69
	9/1/2009	918.66	86.90	831.76
	10/6/2009	918.66	86.91	831.75
	11/9/2009	918.66	86.89	831.77
	12/1/2009	918.66	86.79	831.87
MW-02UB	1/2/2008	919.06	98.34	820.72
	2/7/2008	919.06	95.85	823.21
	3/6/2008	919.06	96.49	822.57
	4/3/2008	919.06	96.47	822.59
	5/6/2008	919.06	95.87	823.19
	6/10/2008	919.06	97.32	821.74
	7/7/2008	919.06	99.80	819.26
	8/6/2008	919.06	100.65	818.41
	8/20/2008	919.06	100.98	818.08
	9/4/2008	919.06	100.83	818.23
	10/13/2008	919.06	99.99	819.07
	11/12/2008	919.06	98.86	820.20
	12/3/2008	919.06	98.70	820.36
	1/6/2009	919.06	97.97	821.09
	2/5/2009	919.06	97.97	821.09
	3/5/2009	919.06	97.85	821.21
	4/2/2009	919.06	96.97	822.09
	5/6/2009	919.06	97.31	821.75
	6/4/2009	919.06	98.15	820.91
	6/23/2009	919.06	98.10	820.96
	6/23/2009	919.06	98.10	820.96
	6/24/2009	919.06	98.28	820.78
	6/30/2009	919.06	98.69	820.37
	7/2/2009	919.06	98.86	820.20
	8/5/2009	919.06	99.44	819.62
	9/1/2009	919.06	99.55	819.51

Please refer to last page for footnotes

TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-02UB	10/6/2009	919.06	99.37	819.69
	11/9/2009	919.06	99.24	819.82
	12/1/2009	919.06	98.67	820.39
MW-03UA	1/2/2008	916.84	84.58	832.26
	2/7/2008	916.84	85.12	831.72
	3/6/2008	916.84	85.28	831.56
	4/3/2008	916.84	85.30	831.54
	5/6/2008	916.84	85.27	831.57
	6/10/2008	916.84	85.23	831.61
	7/7/2008	916.84	83.77	833.07
	8/6/2008	916.84	85.82	831.02
	8/20/2008	916.84	83.47	833.37
	9/4/2008	916.84	85.68	831.16
	10/13/2008	916.84	83.52	833.32
	11/12/2008	916.84	84.56	832.28
	12/3/2008	916.84	85.27	831.57
	1/6/2009	916.84	85.66	831.18
	2/5/2009	916.84	85.30	831.54
	3/5/2009	916.84	85.50	831.34
	4/2/2009	916.84	85.51	831.33
	5/6/2009	916.84	85.43	831.41
	6/4/2009	916.84	85.51	831.33
	6/23/2009	916.84	85.75	831.09
	6/23/2009	916.84	85.61	831.23
	6/24/2009	916.84	85.44	831.40
	6/30/2009	916.84	85.15	831.69
	7/2/2009	916.84	85.35	831.49
	8/5/2009	916.84	83.77	833.07
	9/1/2009	916.84	85.60	831.24
	10/6/2009	916.84	85.62	831.22
	11/9/2009	916.84	85.59	831.25
	12/1/2009	916.84	85.49	831.35
MW-03UB	1/2/2008	916.18	94.79	821.39
	2/7/2008	916.18	92.16	824.02
	3/6/2008	916.18	92.89	823.29
	4/3/2008	916.18	92.79	823.39

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-03UB	5/6/2008	916.18	92.27	823.91
	6/10/2008	916.18	93.72	822.46
	7/7/2008	916.18	96.32	819.86
	8/6/2008	916.18	97.17	819.01
	8/20/2008	916.18	97.49	818.69
	9/4/2008	916.18	97.27	818.91
	10/13/2008	916.18	96.42	819.76
	11/12/2008	916.18	95.25	820.93
	12/3/2008	916.18	95.12	821.06
	1/6/2009	916.18	94.39	821.79
	2/5/2009	916.18	94.40	821.78
	3/5/2009	916.18	94.26	821.92
	4/2/2009	916.18	93.26	822.92
	5/6/2009	916.18	93.70	822.48
	6/4/2009	916.18	94.59	821.59
	6/23/2009	916.18	94.55	821.63
	6/23/2009	916.18	94.55	821.63
	6/24/2009	916.18	94.72	821.46
	6/30/2009	916.18	95.10	821.08
	7/2/2009	916.18	95.28	820.90
	8/5/2009	916.18	95.83	820.35
	9/1/2009	916.18	95.96	820.22
	10/6/2009	916.18	95.87	820.31
	11/9/2009	916.18	95.69	820.49
	12/1/2009	916.18	95.09	821.09
MW-04UA	1/2/2008	915.54	83.00	832.54
	2/7/2008	915.54	83.61	831.93
	3/6/2008	915.54	83.73	831.81
	4/3/2008	915.54	83.77	831.77
	5/6/2008	915.54	83.79	831.75
	6/10/2008	915.54	83.76	831.78
	7/7/2008	915.54	81.74	833.80
	8/6/2008	915.54	83.89	831.65
	8/20/2008	915.54	81.04	834.50
	9/4/2008	915.54	83.75	831.79
	10/13/2008	915.54	81.01	834.53
	11/12/2008	915.54	82.47	833.07

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-04UA	12/3/2008	915.54	83.22	832.32
	1/6/2009	915.54	83.78	831.76
	2/5/2009	915.54	83.48	832.06
	3/5/2009	915.54	83.66	831.88
	4/2/2009	915.54	83.71	831.83
	5/6/2009	915.54	83.53	832.01
	6/4/2009	915.54	83.58	831.96
	6/23/2009	915.54	83.91	831.63
	6/23/2009	915.54	83.67	831.87
	6/24/2009	915.54	83.52	832.02
	6/30/2009	915.54	83.30	832.24
	7/2/2009	915.54	84.54	831.00
	8/5/2009	915.54	81.59	833.95
	9/1/2009	915.54	83.71	831.83
	10/6/2009	915.54	83.76	831.78
	11/9/2009	915.54	83.74	831.80
	12/1/2009	915.54	83.61	831.93
MW-04UB	1/2/2008	916.19	93.41	822.78
	2/7/2008	916.19	91.14	825.05
	3/6/2008	916.19	91.26	824.93
	4/3/2008	916.19	91.25	824.94
	5/6/2008	916.19	90.76	825.43
	6/10/2008	916.19	91.74	824.45
	7/7/2008	916.19	93.95	822.24
	8/6/2008	916.19	94.94	821.25
	8/20/2008	916.19	95.34	820.85
	9/4/2008	916.19	95.42	820.77
	10/13/2008	916.19	94.73	821.46
	11/12/2008	916.19	93.97	822.22
	12/3/2008	916.19	93.55	822.64
	1/6/2009	916.19	92.85	823.34
	2/5/2009	916.19	92.85	823.34
	3/5/2009	916.19	92.75	823.44
	4/2/2009	916.19	91.75	824.44
	5/6/2009	916.19	91.99	824.20
	6/4/2009	916.19	92.77	823.42
	6/23/2009	916.19	92.77	823.42

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-04UB	6/23/2009	916.19	92.77	823.42
	6/24/2009	916.19	92.94	823.25
	6/30/2009	916.19	93.18	823.01
	7/2/2009	916.19	93.36	822.83
	8/5/2009	916.19	94.00	822.19
	9/1/2009	916.19	94.15	822.04
	10/6/2009	916.19	94.12	822.07
	11/9/2009	916.19	94.07	822.12
	12/1/2009	916.19	93.44	822.75
MW-05UA	1/2/2008	925.45	89.44	836.01
	2/7/2008	925.45	89.56	835.89
	3/6/2008	925.45	89.51	835.94
	4/3/2008	925.45	89.44	836.01
	5/6/2008	925.45	89.37	836.08
	6/10/2008	925.45	89.35	836.10
	7/7/2008	925.45	89.26	836.19
	8/6/2008	925.45	89.44	836.01
	8/20/2008	925.45	88.80	836.65
	9/4/2008	925.45	89.17	836.28
	10/13/2008	925.45	88.92	836.53
	11/12/2008	925.45	88.87	836.58
	12/3/2008	925.45	89.09	836.36
	1/6/2009	925.45	89.26	836.19
	2/5/2009	925.45	89.14	836.31
	3/5/2009	925.45	89.27	836.18
	4/2/2009	925.45	89.30	836.15
	5/6/2009	925.45	89.28	836.17
	6/4/2009	925.45	89.34	836.11
	6/23/2009	925.45	89.34	836.11
	6/23/2009	925.45	89.33	836.12
	6/24/2009	925.45	89.41	836.04
	6/30/2009	925.45	89.16	836.29
	7/2/2009	925.45	89.24	836.21
	8/5/2009	925.45	88.97	836.48
	9/1/2009	925.45	89.24	836.21
	10/6/2009	925.45	89.22	836.23
	11/9/2009	925.45	89.20	836.25

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-05UA	12/1/2009	925.45	89.16	836.29
MW-06UA	1/2/2008	917.13	84.50	832.63
	2/7/2008	917.13	84.81	832.32
	3/6/2008	917.13	84.88	832.25
	4/3/2008	917.13	84.96	832.17
	5/6/2008	917.13	84.86	832.27
	6/10/2008	917.13	84.98	832.15
	7/7/2008	917.13	84.01	833.12
	8/6/2008	917.13	85.18	831.95
	8/20/2008	917.13	83.81	833.32
	9/4/2008	917.13	85.00	832.13
	10/13/2008	917.13	83.83	833.30
	11/12/2008	917.13	84.27	832.86
	12/3/2008	917.13	84.76	832.37
	1/6/2009	917.13	85.06	832.07
	2/5/2009	917.13	84.86	832.27
	3/5/2009	917.13	84.92	832.21
	4/2/2009	917.13	84.98	832.15
	5/6/2009	917.13	84.98	832.15
	6/4/2009	917.13	84.90	832.23
	6/23/2009	917.13	85.11	832.02
	6/23/2009	917.13	85.10	832.03
	6/24/2009	917.13	85.06	832.07
	6/30/2009	917.13	84.98	832.15
	7/2/2009	917.13	85.11	832.02
	8/5/2009	917.13	84.29	832.84
	9/1/2009	917.13	84.98	832.15
	10/6/2009	917.13	85.22	831.91
	11/9/2009	917.13	85.19	831.94
	12/1/2009	917.13	85.14	831.99
MW-06UB	1/2/2008	917.65	94.46	823.19
	2/7/2008	917.65	92.28	825.37
	3/6/2008	917.65	92.41	825.24
	4/3/2008	917.65	92.45	825.20
	5/6/2008	917.65	91.86	825.79
	6/10/2008	917.65	92.86	824.79

TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-06UB	7/7/2008	917.65	95.06	822.59
	8/6/2008	917.65	96.05	821.60
	8/20/2008	917.65	96.43	821.22
	9/4/2008	917.65	96.59	821.06
	10/13/2008	917.65	95.91	821.74
	11/12/2008	917.65	95.00	822.65
	12/3/2008	917.65	94.67	822.98
	1/6/2009	917.65	93.96	823.69
	2/5/2009	917.65	93.96	823.69
	3/5/2009	917.65	93.88	823.77
	4/2/2009	917.65	92.92	824.73
	5/6/2009	917.65	93.07	824.58
	6/4/2009	917.65	93.85	823.80
	6/23/2009	917.65	93.87	823.78
	6/23/2009	917.65	93.86	823.79
	6/24/2009	917.65	94.03	823.62
	6/30/2009	917.65	94.28	823.37
	7/2/2009	917.65	94.46	823.19
	8/5/2009	917.65	95.12	822.53
	9/1/2009	917.65	95.27	822.38
	10/6/2009	917.65	95.21	822.44
	11/9/2009	917.65	95.21	822.44
	12/1/2009	917.65	94.61	823.04
MW-07UA	1/2/2008	921.19	88.14	833.05
	2/7/2008	921.19	88.74	832.45
	3/6/2008	921.19	88.85	832.34
	4/3/2008	921.19	88.86	832.33
	5/6/2008	921.19	88.78	832.41
	6/10/2008	921.19	88.82	832.37
	7/7/2008	921.19	87.30	833.89
	8/6/2008	921.19	88.93	832.26
	8/20/2008	921.19	86.50	834.69
	9/4/2008	921.19	88.71	832.48
	10/13/2008	921.19	86.41	834.78
	11/12/2008	921.19	87.38	833.81
	12/3/2008	921.19	88.22	832.97
	1/6/2009	921.19	88.73	832.46

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SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-07UA	2/5/2009	921.19	88.52	832.67
	3/5/2009	921.19	88.68	832.51
	4/2/2009	921.19	88.77	832.42
	5/6/2009	921.19	88.25	832.94
	6/4/2009	921.19	88.72	832.47
	6/23/2009	921.19	88.95	832.24
	6/23/2009	921.19	88.65	832.54
	6/24/2009	921.19	88.53	832.66
	6/30/2009	921.19	88.24	832.95
	7/2/2009	921.19	88.43	832.76
	8/5/2009	921.19	86.72	834.47
	9/1/2009	921.19	88.66	832.53
	10/6/2009	921.19	88.72	832.47
	11/9/2009	921.19	88.70	832.49
	12/1/2009	921.19	87.58	833.61
MW-08UA	1/2/2008	928.31	92.54	835.77
	2/7/2008	928.31	92.70	835.61
	3/6/2008	928.31	92.72	835.59
	4/3/2008	928.31	92.62	835.69
	5/6/2008	928.31	92.58	835.73
	6/10/2008	928.31	92.42	835.89
	7/7/2008	928.31	92.24	836.07
	8/6/2008	928.31	91.97	836.34
	8/20/2008	928.31	91.55	836.76
	9/4/2008	928.31	91.41	836.90
	10/13/2008	928.31	91.27	837.04
	11/12/2008	928.31	91.04	837.27
	12/3/2008	928.31	91.12	837.19
	1/6/2009	928.31	91.28	837.03
	2/5/2009	928.31	91.22	837.09
	3/5/2009	928.31	91.36	836.95
	4/2/2009	928.31	91.39	836.92
	5/6/2009	928.31	91.52	836.79
	6/4/2009	928.31	91.58	836.73
	6/23/2009	928.31	91.55	836.76
	6/23/2009	928.31	91.55	836.76
	6/24/2009	928.31	91.67	836.64

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-08UA	6/30/2009	928.31	91.58	836.73
	7/2/2009	928.31	91.64	836.67
	8/5/2009	928.31	91.33	836.98
	9/1/2009	928.31	91.13	837.18
	10/6/2009	928.31	90.75	837.56
	11/9/2009	928.31	90.57	837.74
	12/1/2009	928.31	90.60	837.71
MW-09UA	1/2/2008	916.79	82.82	833.97
	2/7/2008	916.79	82.84	833.95
	3/6/2008	916.79	82.98	833.81
	4/3/2008	916.79	82.82	833.97
	5/6/2008	916.79	82.76	834.03
	6/10/2008	916.79	82.60	834.19
	7/7/2008	916.79	82.45	834.34
	8/6/2008	916.79	82.31	834.48
	8/20/2008	916.79	81.76	835.03
	9/4/2008	916.79	81.78	835.01
	10/13/2008	916.79	81.54	835.25
	11/12/2008	916.79	81.37	835.42
	12/3/2008	916.79	81.38	835.41
	1/6/2009	916.79	81.96	834.83
	2/5/2009	916.79	81.46	835.33
	3/5/2009	916.79	81.58	835.21
	4/2/2009	916.79	81.59	835.20
	5/6/2009	916.79	81.73	835.06
	6/4/2009	916.79	81.79	835.00
	6/23/2009	916.79	81.75	835.04
	6/23/2009	916.79	81.78	835.01
	6/24/2009	916.79	81.91	834.88
	6/30/2009	916.79	81.70	835.09
	7/2/2009	916.79	81.77	835.02
	8/5/2009	916.79	81.41	835.38
	9/1/2009	916.79	81.35	835.44
	10/6/2009	916.79	81.08	835.71
	11/9/2009	916.79	80.98	835.81
	12/1/2009	916.79	81.04	835.75

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-09UB	1/2/2008	915.77	96.44	819.33
	2/7/2008	915.77	94.22	821.55
	3/6/2008	915.77	94.72	821.05
	4/3/2008	915.77	94.71	821.06
	5/6/2008	915.77	94.15	821.62
	6/10/2008	915.77	95.52	820.25
	7/7/2008	915.77	97.88	817.89
	8/6/2008	915.77	98.78	816.99
	8/20/2008	915.77	99.11	816.66
	9/4/2008	915.77	98.94	816.83
	10/13/2008	915.77	98.08	817.69
	11/12/2008	915.77	97.06	818.71
	12/3/2008	915.77	96.78	818.99
	1/6/2009	915.77	96.05	819.72
	2/5/2009	915.77	96.15	819.62
	3/5/2009	915.77	96.12	819.65
	4/2/2009	915.77	95.16	820.61
	5/6/2009	915.77	95.47	820.30
	6/4/2009	915.77	96.36	819.41
	6/23/2009	915.77	96.26	819.51
	6/23/2009	915.77	96.26	819.51
	6/24/2009	915.77	96.45	819.32
	6/30/2009	915.77	96.90	818.87
	7/2/2009	915.77	97.07	818.70
	8/5/2009	915.77	97.62	818.15
	9/1/2009	915.77	97.75	818.02
	10/6/2009	915.77	97.53	818.24
	11/9/2009	915.77	97.32	818.45
	12/1/2009	915.77	96.77	819.00
MW-10UA	1/2/2008	913.62	82.08	831.54
	2/7/2008	913.62	82.18	831.44
	3/6/2008	913.62	82.11	831.51
	4/3/2008	913.62	81.92	831.70
	5/6/2008	913.62	81.78	831.84
	6/10/2008	913.62	81.80	831.82
	7/7/2008	913.62	81.85	831.77
	8/6/2008	913.62	82.02	831.60

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-10UA	8/20/2008	913.62	81.77	831.85
	9/4/2008	913.62	81.85	831.77
	10/13/2008	913.62	81.97	831.65
	11/12/2008	913.62	81.71	831.91
	12/3/2008	913.62	81.64	831.98
	1/6/2009	913.62	81.62	832.00
	2/5/2009	913.62	81.41	832.21
	3/5/2009	913.62	81.43	832.19
	4/2/2009	913.62	81.35	832.27
	5/6/2009	913.62	81.33	832.29
	6/4/2009	913.62	81.41	832.21
	6/23/2009	913.62	81.33	832.29
	6/23/2009	913.62	81.36	832.26
	6/24/2009	913.62	81.51	832.11
	6/30/2009	913.62	81.43	832.19
	7/2/2009	913.62	81.52	832.10
	8/5/2009	913.62	81.41	832.21
	9/1/2009	913.62	81.47	832.15
	10/6/2009	913.62	81.43	832.19
	11/9/2009	913.62	81.46	832.16
	12/1/2009	913.62	81.37	832.25
MW-10UB	1/2/2008	913.05	92.68	820.37
	2/7/2008	913.05	90.33	822.72
	3/6/2008	913.05	90.94	822.11
	4/3/2008	913.05	90.84	822.21
	5/6/2008	913.05	90.28	822.77
	6/10/2008	913.05	91.68	821.37
	7/7/2008	913.05	94.17	818.88
	8/6/2008	913.05	95.04	818.01
	8/20/2008	913.05	95.39	817.66
	9/4/2008	913.05	95.25	817.80
	10/13/2008	913.05	94.41	818.64
	11/12/2008	913.05	93.27	819.78
	12/3/2008	913.05	93.07	819.98
	1/6/2009	913.05	92.27	820.78
	2/5/2009	913.05	92.45	820.60
	3/5/2009	913.05	92.47	820.58

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-10UB	4/2/2009	913.05	91.38	821.67
	5/6/2009	913.05	91.68	821.37
	6/4/2009	913.05	92.54	820.51
	6/23/2009	913.05	92.45	820.60
	6/23/2009	913.05	92.45	820.60
	6/24/2009	913.05	92.65	820.40
	6/30/2009	913.05	93.02	820.03
	7/2/2009	913.05	93.20	819.85
	8/5/2009	913.05	93.70	819.35
	9/1/2009	913.05	93.92	819.13
	10/6/2009	913.05	93.78	819.27
	11/9/2009	913.05	93.62	819.43
	12/1/2009	913.05	93.05	820.00
MW-11UA	1/2/2008	917.56	81.42	836.14
	2/7/2008	917.56	81.55	836.01
	3/6/2008	917.56	81.55	836.01
	4/3/2008	917.56	81.59	835.97
	5/6/2008	917.56	81.59	835.97
	6/10/2008	917.56	81.53	836.03
	7/7/2008	917.56	81.17	836.39
	8/6/2008	917.56	81.73	835.83
	8/20/2008	917.56	81.06	836.50
	9/4/2008	917.56	81.61	835.95
	10/13/2008	917.56	81.26	836.30
	11/12/2008	917.56	81.23	836.33
	12/3/2008	917.56	81.52	836.04
	1/6/2009	917.56	81.61	835.95
	2/5/2009	917.56	81.60	835.96
	3/5/2009	917.56	81.66	835.90
	4/2/2009	917.56	81.68	835.88
	5/6/2009	917.56	81.70	835.86
	6/4/2009	917.56	81.71	835.85
	6/23/2009	917.56	81.75	835.81
	6/23/2009	917.56	81.78	835.78
	6/24/2009	917.56	81.82	835.74
	6/30/2009	917.56	81.69	835.87
	7/2/2009	917.56	81.80	835.76

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-11UA	8/5/2009	917.56	81.36	836.20
	9/1/2009	917.56	81.88	835.68
	10/6/2009	917.56	81.88	835.68
	11/9/2009	917.56	81.87	835.69
	12/1/2009	917.56	81.87	835.69
MW-12UA	1/2/2008	911.75	78.38	833.37
	2/7/2008	911.75	78.54	833.21
	3/6/2008	911.75	78.59	833.16
	4/3/2008	911.75	78.63	833.12
	5/6/2008	911.75	78.60	833.15
	6/10/2008	911.75	78.63	833.12
	7/7/2008	911.75	77.98	833.77
	8/6/2008	911.75	78.82	832.93
	8/20/2008	911.75	77.94	833.81
	9/4/2008	911.75	78.73	833.02
	10/13/2008	911.75	77.93	833.82
	11/12/2008	911.75	78.13	833.62
	12/3/2008	911.75	78.54	833.21
	1/6/2009	911.75	78.80	832.95
	2/5/2009	911.75	78.73	833.02
	3/5/2009	911.75	78.96	832.79
	4/2/2009	911.75	78.89	832.86
	5/6/2009	911.75	78.86	832.89
	6/4/2009	911.75	78.88	832.87
	6/23/2009	911.75	78.99	832.76
	6/23/2009	911.75	78.97	832.78
	6/24/2009	911.75	78.98	832.77
	6/30/2009	911.75	78.89	832.86
	7/2/2009	911.75	78.99	832.76
	8/5/2009	911.75	78.43	833.32
	9/1/2009	911.75	79.05	832.70
	10/6/2009	911.75	79.10	832.65
	11/9/2009	911.75	79.12	832.63
	12/1/2009	911.75	79.09	832.66
MW-13UA	1/2/2008	929.02	96.88	832.14
	2/7/2008	929.02	97.00	832.02

TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-13UA	3/6/2008	929.02	97.09	831.93
	4/3/2008	929.02	97.01	832.01
	5/6/2008	929.02	96.91	832.11
	6/10/2008	929.02	96.89	832.13
	7/7/2008	929.02	96.52	832.50
	8/6/2008	929.02	97.54	831.48
	8/20/2008	929.02	94.52	834.50
	9/4/2008	929.02	96.51	832.51
	10/13/2008	929.02	94.49	834.53
	11/12/2008	929.02	95.79	833.23
	12/3/2008	929.02	95.09	833.93
	1/6/2009	929.02	96.36	832.66
	2/5/2009	929.02	96.14	832.88
	3/5/2009	929.02	96.30	832.72
	4/2/2009	929.02	96.32	832.70
	5/6/2009	929.02	96.29	832.73
	6/4/2009	929.02	96.42	832.60
	6/23/2009	929.02	96.42	832.60
	6/23/2009	929.02	96.00	833.02
	6/24/2009	929.02	95.50	833.52
	6/30/2009	929.02	94.92	834.10
	7/2/2009	929.02	94.97	834.05
	8/5/2009	929.02	94.34	834.68
	9/1/2009	929.02	95.64	833.38
	10/6/2009	929.02	95.61	833.41
	11/9/2009	929.02	95.57	833.45
	12/1/2009	929.02	95.52	833.50
MW-14UA	1/2/2008	915.79	84.52	831.27
	2/7/2008	915.79	85.25	830.54
	3/6/2008	915.79	85.39	830.40
	4/3/2008	915.79	85.40	830.39
	5/6/2008	915.79	85.42	830.37
	6/10/2008	915.79	85.40	830.39
	7/7/2008	915.79	82.39	833.40
	8/6/2008	915.79	85.78	830.01
	8/20/2008	915.79	81.90	833.89
	9/4/2008	915.79	85.66	830.13

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-14UA	10/13/2008	915.79	81.92	833.87
	11/12/2008	915.79	84.11	831.68
	12/3/2008	915.79	84.91	830.88
	1/6/2009	915.79	85.65	830.14
	2/5/2009	915.79	85.25	830.54
	3/5/2009	915.79	85.44	830.35
	4/2/2009	915.79	85.48	830.31
	5/6/2009	915.79	85.40	830.39
	6/4/2009	915.79	85.28	830.51
	6/23/2009	915.79	85.74	830.05
	6/23/2009	915.79	85.47	830.32
	6/24/2009	915.79	85.31	830.48
	6/30/2009	915.79	85.11	830.68
	7/2/2009	915.79	85.43	830.36
	8/5/2009	915.79	83.40	832.39
	9/1/2009	915.79	85.61	830.18
	10/6/2009	915.79	85.67	830.12
	11/9/2009	915.79	85.63	830.16
	12/1/2009	915.79	85.38	830.41
MW-15UB	1/2/2008	918.71	97.93	820.78
	2/7/2008	918.71	95.66	823.05
	3/6/2008	918.71	95.99	822.72
	4/3/2008	918.71	96.14	822.57
	5/6/2008	918.71	95.81	822.90
	6/10/2008	918.71	97.10	821.61
	7/7/2008	918.71	99.46	819.25
	8/6/2008	918.71	99.96	818.75
	8/20/2008	918.71	100.87	817.84
	9/4/2008	918.71	100.03	818.68
	10/13/2008	918.71	99.31	819.40
	11/12/2008	918.71	98.22	820.49
	12/3/2008	918.71	97.21	821.50
	1/6/2009	918.71	96.57	822.14
	2/5/2009	918.71	96.86	821.85
	3/5/2009	918.71	96.79	821.92
	4/2/2009	918.71	97.15	821.56
	5/6/2009	918.71	97.72	820.99

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SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-15UB	6/4/2009	918.71	98.40	820.31
	6/23/2009	918.71	98.54	820.17
	6/23/2009	918.71	98.62	820.09
	6/24/2009	918.71	98.84	819.87
	6/30/2009	918.71	99.43	819.28
	7/2/2009	918.71	99.56	819.15
	8/5/2009	918.71	100.37	818.34
	9/1/2009	918.71	100.05	818.66
	10/6/2009	918.71	99.08	819.63
	11/9/2009	918.71	98.83	819.88
	12/1/2009	918.71	98.07	820.64
MW-16UA	1/2/2008	911.34	78.56	832.78
	2/7/2008	911.34	78.38	832.96
	3/6/2008	911.34	78.38	832.96
	4/3/2008	911.34	78.42	832.92
	5/6/2008	911.34	78.35	832.99
	6/10/2008	911.34	78.51	832.83
	7/7/2008	911.34	78.20	833.14
	8/6/2008	911.34	78.90	832.44
	8/20/2008	911.34	78.58	832.76
	9/4/2008	911.34	78.92	832.42
	10/13/2008	911.34	78.43	832.91
	11/12/2008	911.34	78.37	832.97
	12/3/2008	911.34	78.62	832.72
	1/6/2009	911.34	78.84	832.50
	2/5/2009	911.34	78.91	832.43
	3/5/2009	911.34	78.88	832.46
	4/2/2009	911.34	78.78	832.56
	5/6/2009	911.34	78.82	832.52
	6/4/2009	911.34	78.83	832.51
	6/23/2009	911.34	78.91	832.43
	6/23/2009	911.34	78.91	832.43
	6/24/2009	911.34	78.91	832.43
	6/30/2009	911.34	78.94	832.40
	7/2/2009	911.34	78.94	832.40
	8/5/2009	911.34	78.96	832.38
	9/1/2009	911.34	79.04	832.30

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TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-16UA	10/6/2009	911.34	79.20	832.14
	11/9/2009	911.34	79.24	832.10
	12/1/2009	911.34	79.18	832.16
MW-17UA	1/2/2008	919.68	81.85	837.83
	2/7/2008	919.68	82.00	837.68
	3/6/2008	919.68	82.02	837.66
	4/3/2008	919.68	81.95	837.73
	5/6/2008	919.68	81.90	837.78
	6/10/2008	919.68	81.87	837.81
	7/7/2008	919.68	81.74	837.94
	8/6/2008	919.68	82.05	837.63
	8/20/2008	919.68	81.68	838.00
	9/4/2008	919.68	81.91	837.77
	10/13/2008	919.68	81.91	837.77
	11/12/2008	919.68	81.86	837.82
	12/3/2008	919.68	81.92	837.76
	1/6/2009	919.68	82.01	837.67
	2/5/2009	919.68	81.93	837.75
	3/5/2009	919.68	82.00	837.68
	4/2/2009	919.68	82.01	837.67
	5/6/2009	919.68	81.99	837.69
	6/4/2009	919.68	82.02	837.66
	6/23/2009	919.68	82.02	837.66
	6/23/2009	919.68	82.05	837.63
	6/24/2009	919.68	82.11	837.57
	6/30/2009	919.68	82.02	837.66
	7/2/2009	919.68	82.10	837.58
	8/5/2009	919.68	81.92	837.76
	9/1/2009	919.68	82.20	837.48
	10/6/2009	919.68	82.22	837.46
	11/9/2009	919.68	82.16	837.52
	12/1/2009	919.68	82.18	837.50
MW-18UA	1/2/2008	919.60	84.56	835.04
	2/7/2008	919.60	84.92	834.68
	3/6/2008	919.60	85.01	834.59
	4/3/2008	919.60	84.66	834.94

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SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-18UA	5/6/2008	919.60	84.87	834.73
	6/10/2008	919.60	84.86	834.74
	7/7/2008	919.60	84.21	835.39
	8/6/2008	919.60	85.09	834.51
	8/20/2008	919.60	84.00	835.60
	9/4/2008	919.60	84.87	834.73
	10/13/2008	919.60	84.04	835.56
	11/12/2008	919.60	84.33	835.27
	12/3/2008	919.60	84.74	834.86
	1/6/2009	919.60	84.97	834.63
	2/5/2009	919.60	84.79	834.81
	3/5/2009	919.60	84.90	834.70
	4/2/2009	919.60	84.83	834.77
	5/6/2009	919.60	84.92	834.68
	6/4/2009	919.60	84.84	834.76
	6/23/2009	919.60	85.02	834.58
	6/23/2009	919.60	85.03	834.57
	6/24/2009	919.60	84.93	834.67
	6/30/2009	919.60	84.92	834.68
	7/2/2009	919.60	85.02	834.58
	8/5/2009	919.60	84.36	835.24
	9/1/2009	919.60	84.09	835.51
	10/6/2009	919.60	85.16	834.44
	11/9/2009	919.60	85.11	834.49
	12/1/2009	919.60	85.04	834.56
MW-19UA	1/2/2008	920.96	86.33	834.63
	2/7/2008	920.96	86.69	834.27
	3/6/2008	920.96	86.78	834.18
	4/3/2008	920.96	86.78	834.18
	5/6/2008	920.96	86.75	834.21
	6/10/2008	920.96	86.75	834.21
	7/7/2008	920.96	85.92	835.04
	8/6/2008	920.96	86.91	834.05
	8/20/2008	920.96	85.65	835.31
	9/4/2008	920.96	86.73	834.23
	10/13/2008	920.96	85.66	835.30
	11/12/2008	920.96	86.07	834.89

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SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-19UA	12/3/2008	920.96	86.51	834.45
	1/6/2009	920.96	86.80	834.16
	2/5/2009	920.96	86.61	834.35
	3/5/2009	920.96	86.71	834.25
	4/2/2009	920.96	86.72	834.24
	5/6/2009	920.96	86.74	834.22
	6/4/2009	920.96	86.67	834.29
	6/23/2009	920.96	86.86	834.10
	6/23/2009	920.96	86.48	834.48
	6/24/2009	920.96	86.84	834.12
	6/30/2009	920.96	86.71	834.25
	7/2/2009	920.96	86.82	834.14
	8/5/2009	920.96	86.09	834.87
	9/1/2009	920.96	85.64	835.32
	10/6/2009	920.96	86.99	833.97
	11/9/2009	920.96	86.90	834.06
	12/1/2009	920.96	86.86	834.10
MW-20UA	1/2/2008	917.67	84.92	832.75
	2/7/2008	917.67	85.28	832.39
	3/6/2008	917.67	85.44	832.23
	4/3/2008	917.67	85.42	832.25
	5/6/2008	917.67	85.45	832.22
	6/10/2008	917.67	85.44	832.23
	7/7/2008	917.67	84.14	833.53
	8/6/2008	917.67	85.85	831.82
	8/20/2008	917.67	84.14	833.53
	9/4/2008	917.67	85.77	831.90
	10/13/2008	917.67	84.13	833.54
	11/12/2008	917.67	84.86	832.81
	12/3/2008	917.67	85.38	832.29
	1/6/2009	917.67	85.77	831.90
	2/5/2009	917.67	85.87	831.80
	3/5/2009	917.67	85.71	831.96
	4/2/2009	917.67	85.73	831.94
	5/6/2009	917.67	85.77	831.90
	6/4/2009	917.67	85.73	831.94
	6/23/2009	917.67	85.99	831.68

Please refer to last page for footnotes

TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
MW-20UA	6/23/2009	917.67	85.89	831.78
	6/24/2009	917.67	85.81	831.86
	6/30/2009	917.67	85.70	831.97
	7/2/2009	917.67	85.85	831.82
	8/5/2009	917.67	84.81	832.86
	9/1/2009	917.67	86.00	831.67
	10/6/2009	917.67	86.05	831.62
	11/9/2009	917.67	86.04	831.63
	12/1/2009	917.67	85.94	831.73
MW-21UA	8/6/2008	911.83	83.02	828.81
	8/20/2008	911.83	82.26	829.57
	9/4/2008	911.83	83.26	828.57
	10/13/2008	911.83	82.38	829.45
	11/12/2008	911.83	82.41	829.42
	12/3/2008	911.83	82.69	829.14
	1/6/2009	911.83	82.69	829.14
	2/5/2009	911.83	82.37	829.46
	3/5/2009	911.83	82.79	829.04
	4/2/2009	911.83	82.40	829.43
	5/6/2009	911.83	82.54	829.29
	6/4/2009	911.83	82.90	828.93
	6/23/2009	911.83	82.98	828.85
	6/23/2009	911.83	82.99	828.84
	6/24/2009	911.83	83.06	828.77
	6/30/2009	911.83	83.06	828.77
	7/2/2009	911.83	83.23	828.60
	8/5/2009	911.83	82.79	829.04
	9/1/2009	911.83	83.63	828.20
	10/6/2009	911.83	83.67	828.16
	11/9/2009	911.83	83.60	828.23
	12/1/2009	911.83	83.34	828.49
Robinson	1/2/2008		92.57	
	2/7/2008		91.21	
	3/6/2008		91.71	
	4/3/2008		91.28	
	5/6/2008		90.98	

Please refer to last page for footnotes

HARGIS + ASSOCIATES, INC.

TABLE E-1

SUMMARY OF WATER LEVEL MEASUREMENTS
FOR GROUNDWATER WELLS

LOCATION ID	DATE MEASURED	MEASURING POINT ALTITUDE (ft above MSL)	DEPTH TO WATER (ft bmp)	WATER LEVEL ALTITUDE (ft above MSL)
Robinson	6/10/2008		91.94	
	7/7/2008		93.66	
	8/6/2008		94.47	
	8/20/2008		94.86	
	9/4/2008		94.46	
	10/13/2008		93.85	
	11/12/2008		93.03	
	12/3/2008		92.72	
	1/6/2009		92.22	
	2/5/2009		92.19	
	3/5/2009		92.17	
	4/2/2009		91.60	
	5/6/2009		91.79	
	6/4/2009		92.47	
	6/23/2009		92.28	
	6/23/2009		92.32	
	6/24/2009		92.52	
	6/30/2009		92.90	
	7/2/2009		93.05	
	8/5/2009		93.57	
	9/1/2009		93.62	
	10/6/2009		93.26	
	11/9/2009		93.12	
	12/1/2009		92.66	

FOOTNOTES:

ft = feet
MSL = Mean Sea Level
bmp = Below measuring point
UTM = Unable to measure
SV = Water level measurement affected by soil vapor extraction in the well.
P = Water level measured while extraction well was pumping
NP = Water level measured while extraction well was not pumping
Rec. = Water level recovering after pump being turned off
Cycling = Pump cycling on and off
I = Water level measured while injection was occurring at the well
NI = Water level measured while injection was not occurring at the well
X = Water level data point does not match historic record; wl is considered to be problematic
GRS-P = Water level measured while GRS extraction wells were pumping
GRS-NP = Water level measured while GRS extraction wells were not pumping
? = Pumping or injection status not noted

Please refer to last page for footnotes

HARGIS + ASSOCIATES, INC.

TABLE E-2
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES

						Parameter	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
						Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Sample Method								
TREATMENT SYSTEM														
EFFLUENT	Effluent-0108	PRA0157-02	01/02/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent-020108	PRB0058-02	02/01/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	EFFLUENT-0308	PRC0558-02	03/08/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent-0408	PRD0757-15	04/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	EFFLUENT-0508	PRE0251-02	05/06/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent-0605	PRF0435-02	06/05/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent-0708	PRG0456-23	07/08/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent -0808	PRH0102-02	08/02/2008	TAMP	REG		65	44	3.9	ND	ND	14	ND	3.2
EFFLUENT	Effluent-0908	PRI0263-02	09/04/2008	TAMP	REG		244	64	6.4	2	2.9	20	ND	5.4
EFFLUENT	Effluent-0908	PRI1183-07	09/19/2008	TAMP	REG		77	40	4.2	ND	ND	29	ND	3.6
EFFLUENT	Effluent-110508	PRK0253-02	11/05/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent-110608	PRK0278-02	11/06/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent-110708	PRK0372-02	11/07/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent-111208	PRK0659-02	11/12/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent-111908	PRK1011-02	11/19/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent-112608	PRK1398-02	11/26/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent-120308	PRL0229-02	12/03/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	EFFLUENT-0109	PSA0425-14	01/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent-0209	PSB0438-02	02/05/2009	TAMP	REG		10	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent-0309	PSC0362-02	03/05/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	EFFLUENT-0409	PSD0560-15	04/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	EFFLUENT-0509	PSE0278-02	05/06/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	EFFLUENT-0609	PSF0388-02	06/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	EFFLUENT-0709	PSG0417-02	07/08/2009	TAMP	REG		12	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	EFFLUENT-0809	PSH0206-02	08/05/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	EFFLUENT-0909	PSI0125-02	09/02/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent 1009	PSJ0383-01	10/07/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent 1109	PSK0197-02	11/04/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent 1209	ISL1565-02	12/10/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
INFLUENT	Influent-0108	PRA0157-03	01/02/2008	TAMP	REG		1065	660	32	11	4.9	320	5.6	16
INFLUENT	Influent-0408	PRD0757-14	04/10/2008	TAMP	REG		1160	740	35	12	4.9	330	6.5	18
INFLUENT	Influent-0708	PRG0456-22	07/08/2008	TAMP	REG		2194	1300	56	21	11	740	9.8	29
INFLUENT	Influent-0908	PRI1183-06	09/19/2008	TAMP	REG		1072	550	38	14	9.8	410	7.3	21
INFLUENT	INFLUENT-0109	PSA0425-13	01/09/2009	TAMP	REG		1087	690	33	12	4.8	310	5.7	19
INFLUENT	INFLUENT-0409	PSD0560-13	04/09/2009	TAMP	REG		1182	750	32	12	6.2	350	5	17
INFLUENT	INFLUENT-0709	PSG0505-02	07/08/2009	TAMP	REG		2038	1400	69	24	ND	510	ND	35
INFLUENT	Influent-1009	PSJ0385-19	10/07/2009	TAMP	REG		1300	860	43	16	15	320	7.5	23
IW-01UB	IW-01UB-0908	PRI1398-02	09/24/2008	TAMP	REG		24	9.6	4	ND	ND	6.5	ND	3.4
IW-01UB	PL-503-1008	PRJ0906-03	10/15/2008	TAMP	FD		21	19	2	ND	ND	ND	ND	ND

TABLE E-2
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES

						Parameter	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
						Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Sample Method								
EXTRACTION WELLS														
EW-01UA	EW-01UA-0408	PRD0757-03	04/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-01UA	EW-01UA-0908	PRI1183-03	09/19/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-01UA	EW-01UA 5-1	PRJ1044-03	10/16/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-01UA	EW-01UA-0409	PSD0560-03	04/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-01UA	EW-01UA-0709	PSG0505-11	07/08/2009	TAMP	REG		9.4	ND	ND	ND	ND	ND	2.4	ND
EW-01UA	EW-01UA-0809	PSH0339-02	08/06/2009	TAMP	REG		13	ND	ND	ND	ND	ND	2.8	ND
EW-01UA	EW-01UA-0909	PSI0125-02	09/02/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-01UA	EW-01UA-1009	PSJ0513-11	10/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-01UA	EW-01UA-1109	ISK2201-02	11/19/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-01UA	EW-01UA-1209	ISL1566-02	12/10/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA-0108	PRA0600-10	01/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA-0408	PRD0757-02	04/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA-0708	PRG0456-02	07/08/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	PL-501-0708	PRG0456-03	07/08/2008	TAMP	FD		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA-0908	PRI1183-04	09/19/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA 5-1	PRJ1044-05	10/16/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA-0109	PSA0425-09	01/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA-0409	PSD0560-02	04/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA-0709	PSG0505-12	07/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA-0809	PSH0339-03	08/06/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA-0909	PSI0125-03	09/02/2009	TAMP	REG		5.2	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA-1009	PSJ0513-12	10/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA-1009	ISK2201-03	11/19/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-02UA	EW-02UA-1009	ISL1566-03	12/10/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
EW-03UA	EW-03UA-0108	PRA0600-11	01/10/2008	TAMP	REG		220	77	30	2.9	ND	110	ND	ND
EW-03UA	EW-03UA-0408	PRD0757-09	04/10/2008	TAMP	REG		131	23	23	2.3	ND	83	ND	ND
EW-03UA	EW-03UA-0708	PRG0456-12	07/08/2008	TAMP	REG		133	52	21	2.2	ND	58	ND	ND
EW-03UA	EW-03UA-0908	PRI1183-05	09/19/2008	TAMP	REG		123	52	31	3.3	ND	37	ND	ND
EW-03UA	EW-03UA 5-1	PRJ1044-04	10/16/2008	TAMP	REG		232	95	34	3.3	ND	100	ND	ND
EW-03UA	EW-03UA-0109	PSA0425-10	01/09/2009	TAMP	REG		122	52	22	2.1	ND	46	ND	ND
EW-03UA	PL-502-0109	PSA0425-11	01/09/2009	TAMP	FD		120	52	21	2	ND	45	ND	ND
EW-03UA	EW-03UA-0409	PSD0560-08	04/09/2009	TAMP	REG		80	28	17	ND	ND	35	ND	ND
EW-03UA	EW-03UA-0709	PSG0505-20	07/08/2009	TAMP	REG		47	7	17	ND	ND	23	ND	ND
EW-03UA	EW-03UA-1009	PSJ0385-10	10/07/2009	TAMP	REG		55	26	14	ND	ND	15	ND	ND
EW-04UA	EW-04UA-0108	PRA0600-12	01/10/2008	TAMP	REG		2568	1600	82	27	14	740	17	45
EW-04UA	EW-04UA-0408	PRD0757-10	04/10/2008	TAMP	REG		2635	1700	74	28	12	730	15	41
EW-04UA	EW-04UA-0708	PRG0456-13	07/08/2008	TAMP	REG		7576	4700	190	78	48	2300	40	110
EW-04UA	EW-04UA-0908	PRI1183-02	09/19/2008	TAMP	REG		2853	1300	82	32	23	1300	16	47
EW-04UA	EW-04UA 5-1	PRJ1044-02	10/16/2008	TAMP	REG		1680	800	35	12	13	770	5.9	20
EW-04UA	EW-04UA-0109	PSA0425-12	01/09/2009	TAMP	REG		2844	1800	85	33	14	810	16	49
EW-04UA	EW-04UA-0409	PSD0560-09	04/09/2009	TAMP	REG		3075	1900	82	32	16	930	14	46
EW-04UA	PL-506-0409	PSD0560-10	04/09/2009	TAMP	FD		3039	1900	81	33	17	920	13	44
EW-04UA	EW-04UA-0709	PSG0505-21	07/08/2009	TAMP	REG		3223	2100	110	37	23	900	ND	53
EW-04UA	EW-04UA-1009	PSJ0385-13	10/07/2009	TAMP	REG		2027	1100	87	37	41	640	19	59

TABLE E-2
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES

						Parameter	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
						Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Sample Method								
MONITORING WELLS UNIT A														
MW-01UA	MW-01UA-94.8-0108	PRA0600-09	01/09/2008	TAMP	REG	PDB	59	24	5.1	ND	ND	ND	30	ND
MW-01UA	MW-01UA-94.8-0408	PRD0529-06	04/08/2008	TAMP	REG	PDB	61	22	4.9	ND	ND	ND	34	ND
MW-01UA	PL-501-0408	PRD0529-07	04/08/2008	TAMP	FD	PDB	60	22	5.3	ND	ND	ND	33	ND
MW-01UA	MW-01UA-94.8-0708	PRG0456-04	07/08/2008	TAMP	REG	PDB	55	21	5	ND	ND	ND	29	ND
MW-01UA	MW-01UA-94.8-1008	PRJ0790-12	10/14/2008	TAMP	REG	PDB	47	21	4.2	2.5	ND	ND	19	ND
MW-01UA	MW-01UA-94.8-0109	PSA0425-08	01/08/2009	TAMP	REG	PDB	44	19	4.8	ND	ND	ND	20	ND
MW-01UA	MW-01UA-94.8-0409	PSD0360-06	04/07/2009	TAMP	REG	PDB	55*	25	4.2	ND	ND	ND	26	ND
MW-01UA	MW-01UA-94.8-0709	PSG0505-10	07/08/2009	TAMP	REG	PDB	38	13	3.2	ND	ND	ND	22	ND
MW-01UA	MW-01UA-94.8-1009	PSJ0385-07	10/07/2009	TAMP	REG	PDB	36	22	7.1	ND	ND	ND H	6.5	ND
MW-02UA	MW-02UA-0408	PRD0757-04	04/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-02UA	MW-02UA-1008	PRJ1225-05	10/22/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-02UA	MW-02UA-0409	PSD0560-04	04/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-02UA	MW-02UA-1009	PSJ0604-04	10/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UA	MW-03UA-0108	PRA0600-13	01/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UA	MW-03UA-0408	PRD0757-06	04/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UA	PL-505-0408	PRD0757-07	04/10/2008	TAMP	FD		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UA	MW-03UA-0708	PRG0456-11	07/08/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UA	MW-03UA-1008	PRJ1225-02	10/22/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UA	MW-03UA-0109	PSA0425-23	01/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UA	MW-03UA-0409	PSD0560-06	04/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UA	MW-03UA-0709	PSG0505-24	07/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UA	MW-03UA-1009	PSJ0604-07	10/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-04UA	MW-04UA-86.0-0108	PRA0600-16	01/10/2008	TAMP	REG	PDB	497	300	23	2.5	ND	160	ND	ND
MW-04UA	MW-04UA-86.0-0408	PRD0529-09	04/08/2008	TAMP	REG	PDB	259	140	13	ND	ND	100	ND	ND
MW-04UA	MW-04UA-86.0-0708	PRG0456-16	07/08/2008	TAMP	REG	PDB	589	370	24	2.4	ND	180	ND	ND
MW-04UA	MW-04UA-86.0-1008	PRJ0790-19	10/14/2008	TAMP	REG	PDB	418	220	18	2.4	ND	170	ND	ND
MW-04UA	MW-04UA-86.0-0109	PSA0425-16	01/08/2009	TAMP	REG	PDB	563	300	22	3.1	ND	230	ND	ND
MW-04UA	MW-04UA-86.0-0409	PSD0360-08	04/07/2009	TAMP	REG	PDB	329*	180	13	ND	ND	130	ND	ND
MW-04UA	PL-501-0409	PSD0360-09	04/07/2009	TAMP	FD	PDB	329*	180	13	ND	ND	130	ND	ND
MW-04UA	MW-04UA-86.0-0709	PSG0505-19	07/08/2009	TAMP	REG	PDB	526	340	26	ND	ND	160	ND	ND
MW-04UA	MW-04UA-86.0-1009	PSJ0385-09	10/07/2009	TAMP	REG	PDB	263	130	14	2.3	ND	110 H	ND	ND
MW-05UA	MW-05UA-0408	PRD0685-10	04/09/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-05UA	MW-05UA-0409	PSD0529-11	04/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-06UA	MW-06UA-86.2-0108	PRA0600-18	01/10/2008	TAMP	REG	PDB	766	370	30	13	43	290	5.4	6
MW-06UA	MW-06UA-86.2-0408	PRD0529-11	04/08/2008	TAMP	REG	PDB	3612	2000	160	50	940	350	33	61
MW-06UA	MW-06UA-86.2-0708	PRG0456-18	07/08/2008	TAMP	REG	PDB	1017†	470	67†	40†	420	150†	12†	25†
MW-06UA	MW-06UA-86.2-1008	PRJ0790-22	10/14/2008	TAMP	REG	PDB	53	21	2.6	3.2	11	15	ND	ND
MW-06UA	MW-06UA-86.2-0109	PSA0425-17	01/08/2009	TAMP	REG	PDB	1017	400	60	38	270	220	5.6	14
MW-06UA	MW-06UA-86.2-0409	PSD0360-11	04/07/2009	TAMP	REG	PDB	3461*	1800	120	42	980	340	30	62
MW-06UA	MW-06UA-86.2-0709	PSG0505-14	07/08/2009	TAMP	REG	PDB	290	ND	ND	ND	290	ND	ND	ND
MW-06UA	PL-503-0709	PSG0505-15	07/08/2009	TAMP	FD	PDB	280	ND	ND	ND	280	ND	ND	ND
MW-06UA	MW-06UA-86.2-1009	PSJ0385-15	10/07/2009	TAMP	REG	PDB	1959	810	95	37	500	390	21	71

TABLE E-2
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES

						Parameter	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
						Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Sample Method								
MONITORING WELLS UNIT A (Continued)														
MW-07UA	MW-07UA-91.3-0108	PRA0600-14	01/10/2008	TAMP	REG	PDB	351	160	83	5.2	ND	100	2.4	ND
MW-07UA	MW-07UA-91.3-0408	PRD0529-08	04/08/2008	TAMP	REG	PDB	260	110	75	5.6	ND	67	2	ND
MW-07UA	MW-07UA-91.3-0708	PRG0456-14	07/08/2008	TAMP	REG	PDB	351	160	88	6.5	ND	94	2.4	ND
MW-07UA	MW-07UA-91.3-1008	PRJ0790-18	10/14/2008	TAMP	REG	PDB	496	240	110	9.4	2.6	130	3.5	ND
MW-07UA	MW-07UA-91.3-0109	PSA0425-15	01/08/2009	TAMP	REG	PDB	328	150	99	7.4	ND	69	2.5	ND
MW-07UA	MW-07UA-91.3-0409	PSD0360-07	04/07/2009	TAMP	REG	PDB	278*	130	86	7.1	ND	53	2.2	ND
MW-07UA	MW-07UA-91.3-0709	PSG0505-18RE1	07/08/2009	TAMP	REG	PDB	372	170	120	8.7	ND	70	3	ND
MW-07UA	MW-07UA-91.3-1009	PSJ0385-08	10/07/2009	TAMP	REG	PDB	210	78	93	7.2	ND	29 H	2.3	ND
MW-08UA	MW-08UA-0408	PRD0685-07	04/09/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-08UA	MW-08UA-1008	PRJ1193-06	10/21/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-08UA	PL-506-1008	PRJ1193-07	10/21/2008	TAMP	FD		ND	ND	ND	ND	ND	ND	ND	ND
MW-08UA	MW-08UA-0409	PSD0529-07	04/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-08UA	MW-08UA-1009	PSJ0513-06	10/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-09UA	MW-09UA-0408	PRD0685-04	04/09/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-09UA	PL-503-0408	PRD0685-05	04/09/2008	TAMP	FD		ND	ND	ND	ND	ND	ND	ND	ND
MW-09UA	MW-09UA-1008	PRJ1193-04	10/21/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-09UA	MW-09UA-0409	PSD0529-05	04/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-09UA	MW-09UA-1009	PSJ0513-03	10/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-10UA	MW-10UA-0408	PRD0685-02	04/09/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-10UA	MW-10UA-1008	PRJ1193-02	10/21/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-10UA	MW-10UA-0409	PSD0529-02	04/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-10UA	MW-10UA-1009	PSJ0513-02	10/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-11UA	MW-11UA-93.1-0108	PRA0600-04	01/09/2008	TAMP	REG	PDB	57	ND	ND	ND	ND	57	ND	ND
MW-11UA	MW-11UA-93.1-0408	PRD0529-05	04/08/2008	TAMP	REG	PDB	47	ND	ND	ND	ND	47	ND	ND
MW-11UA	MW-11UA-93.1-0708	PRG0456-07	07/08/2008	TAMP	REG	PDB	41	ND	ND	ND	ND	41	ND	ND
MW-11UA	MW-11UA-93.1-1008	PRJ0790-03	10/14/2008	TAMP	REG	PDB	68	5.7	ND	ND	ND	62	ND	ND
MW-11UA	MW-11UA-93.1-0109	PSA0425-06	01/08/2009	TAMP	REG	PDB	51	ND	ND	ND	ND	51	ND	ND
MW-11UA	PL-501-0109	PSA0425-07	01/08/2009	TAMP	FD	PDB	52	ND	ND	ND	ND	52	ND	ND
MW-11UA	MW-11UA-0409	PSD0529-09	04/08/2009	TAMP	REG	PDB	44*	ND	ND	ND	ND	44	ND	ND
MW-11UA	MW-11UA-93.1-0709	PSG0505-09	07/08/2009	TAMP	REG	PDB	29	ND	ND	ND	ND	29	ND	ND
MW-11UA	MW-11UA-93.1-1009	PSJ0513-07	10/08/2009	TAMP	REG	PDB	40	ND	ND	ND	ND	40	ND	ND
MW-12UA	MW-12UA-80.8-0108	PRA0600-06	01/09/2008	TAMP	REG	PDB	4891	3700	130	37	4.9	830	24	45
MW-12UA	MW-12UA-80.8-0408	PRD0529-03	04/08/2008	TAMP	REG	PDB	6932	5100	130	45	4.4	1500	19	39
MW-12UA	MW-12UA-80.8-0708	PRG0456-10	07/08/2008	TAMP	REG	PDB	4078	3100	110	43	4.5	680	17	39
MW-12UA	MW-12UA-80.8-1008	PRJ0790-10	10/14/2008	TAMP	REG	PDB	2942	1800	66	50	ND	950	ND	22
MW-12UA	MW-12UA-80.8-0109	PSA0425-04	01/08/2009	TAMP	REG	PDB	10828	8300	240	110	13	1800	53	130
MW-12UA	MW-12UA-80.8-0409	PSD0360-04	04/07/2009	TAMP	REG	PDB	15381	11000	360	120	16	3500	60	130
MW-12UA	MW-12UA-80.8-0709	PSG0505-07	07/08/2009	TAMP	REG	PDB	10930	8000	330	ND	ND	2600	ND	ND
MW-12UA	MW-12UA-80.8-1009	PSJ0385-04	10/07/2009	TAMP	REG	PDB	8275	5000 H	310 H	120	12	2500 H	58	130

TABLE E-2
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES

						Parameter	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
						Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Sample Method								
MONITORING WELLS UNIT A (Continued)														
MW-13UA	MW-13UA-0408	PRD0685-11	04/09/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-13UA	MW-13UA-1008	PRJ1193-08	10/21/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-13UA	MW-13UA-0409	PSD0529-13	04/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-13UA	MW-13UA-0709	PSG0505-23	07/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-13UA	MW-13UA-0809	PSH0339-04	08/06/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-13UA	MW-13UA-0909	PSI0125-04	09/02/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-13UA	MW-13UA-1009	PSJ0604-02	10/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-13UA	MW-13UA-1009	ISK2201-04	11/19/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-13UA	MW-13UA-1009	ISL1566-04	12/10/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-14UA	MW-14UA-94.2-0408	PRD0529-10	04/08/2008	TAMP	REG	PDB	45	31	5	ND	ND	6.3	ND	2.6
MW-14UA	MW-14UA-94.2-1008	PRJ0790-20	10/14/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-14UA	MW-14UA-94.2-0409	PSD0360-10	04/07/2009	TAMP	REG	PDB	50*	38	3.8	ND	ND	6.4	ND	2
MW-14UA	MW-14UA-94.2-1009	PSJ0385-11	10/07/2009	TAMP	REG	PDB	55	41	4.8	ND	ND	6.7 H	ND	2.2
MW-14UA	PL-502-1009	PSJ0385-12	10/07/2009	TAMP	FD	PDB	52	39	4.7	ND	ND	5.6 H	ND	2.2
MW-16UA	MW-16UA-81.3-0108	PRA0600-05	01/09/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-16UA	MW-16UA-81.3-0408	PRD0529-02	04/08/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-16UA	MW-16UA-81.3-0708	PRG0456-09	07/08/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-16UA	MW-16UA-81.3-1008	PRJ0790-04	10/14/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-16UA	MW-16UA-81.3-0109	PSA0425-02	01/08/2009	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-16UA	MW-16UA-81.3-0409	PSD0360-02	04/07/2009	TAMP	REG	PDB	ND*	ND	ND	ND	ND	ND	ND	ND
MW-16UA	MW-16UA-81.3-0709	PSG0505-04	07/08/2009	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-16UA	PL-502-0709	PSG0505-05	07/08/2009	TAMP	FD	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-16UA	MW-16UA-81.3-1009	PSJ0385-02	10/07/2009	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-17UA	MW-17UA-85.3-0108	PRA0600-02	01/09/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-17UA	PL-501-0108	PRA0600-03	01/09/2008	TAMP	FD	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-17UA	MW-17UA-85.3-0408	PRD0529-04	04/08/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-17UA	MW-17UA-85.3-0708	PRG0456-06	07/08/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-17UA	MW-17UA-85.3-1008	PRJ0790-02	10/14/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-17UA	MW-17UA-85.3-0109	PSA0425-05	01/08/2009	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-17UA	MW-17UA-85.3-0409	PSD0360-05	04/07/2009	TAMP	REG	PDB	ND*	ND	ND	ND	ND	ND	ND	ND
MW-17UA	MW-17UA-85.3-0709	PSG0505-08	07/08/2009	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-17UA	MW-17UA-85.3-1009	PSJ0385-05	10/07/2009	TAMP	REG	PDB	48	ND	ND	ND	ND	ND H	ND	ND
MW-17UA	PL-501-1009	PSJ0385-06	10/07/2009	TAMP	FD	PDB	53	ND	ND	ND	ND	ND H	ND	ND
MW-18UA	MW-18UA-91.9-0108	PRA0600-22	01/10/2008	TAMP	REG	PDB	36654	14000	1500	1000	9100	9800	380	300
MW-18UA	MW-18UA-91.9-0408	PRD0529-13	04/08/2008	TAMP	REG	PDB	117011	42000	5800	1900	45000	14000	1100	2900
MW-18UA	MW-18UA-91.9-0708	PRG0456-19	07/08/2008	TAMP	REG	PDB	35409	15000	1200	900	8000	9800	180	260
MW-18UA	PL-503-0708	PRG0456-20	07/08/2008	TAMP	FD	PDB	52471	20000	3100	5000	8800	15000	180	320
MW-18UA	MW-18UA-91.9-1008	PRJ0790-24	10/14/2008	TAMP	REG	PDB	35183	15000	1000	380	4400	14000	200	180
MW-18UA	MW-18UA-91.9-0109	PSA0425-20	01/08/2009	TAMP	REG	PDB	36028	15000	1400	820	7400	10000	240	300
MW-18UA	MW-18UA-91.9-0409	PSD0360-13	04/07/2009	TAMP	REG	PDB	68608	29000	2300	790	13000	18000	340	1100
MW-18UA	MW-18UA-91.9-0709	PSG0505-16	07/08/2009	TAMP	REG	PDB	49115	21000	1600	810	10000	15000	240	360
MW-18UA	MW-18UA-91.9-1009	PSJ0385-17	10/07/2009	TAMP	REG	PDB	39210	11000 JH	2500	680	8700 JH	5000 JH	380	1700

TABLE E-2
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES

						Parameter	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
						Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Sample Method								
MONITORING WELLS UNIT A (Continued)														
MW-19UA	MW-19UA-93.3-0108	PRA0600-21	01/10/2008	TAMP	REG	PDB	8670	5000	470	430	920	1200	82	330
MW-19UA	MW-19UA-93.3-0408	PRD0529-12	04/08/2008	TAMP	REG	PDB	53832	19000	2400	910	12000	2900	700	4000
MW-19UA	MW-19UA-93.3-0708	PRG0456-21	07/08/2008	TAMP	REG	PDB	14733	7000	920	560	2900	2100	120	860
MW-19UA	MW-19UA-93.3-1008	PRJ0790-23	10/14/2008	TAMP	REG	PDB	3508	1900	170	91	470	620	58	170
MW-19UA	MW-19UA-93.3-0109	PSA0425-19	01/08/2009	TAMP	REG	PDB	27568	12000	1400	890	5400	5400	220	1100
MW-19UA	MW-19UA-0409	PSD0529-14	04/07/2009	TAMP	REG	PDB	73459*	22000	3300	1300	17000	3900	730	5400
MW-19UA	MW-19UA-93.3-0709	PSG0505-17	07/08/2009	TAMP	REG	PDB	24225	13000	1100	770	3800	4100	170	920
MW-19UA	MW-19UA-93.3-1009	PSJ0385-16	10/07/2009	TAMP	REG	PDB	33770	5000 H	1900	620	7000	4600 H	400	3900
MW-20UA	MW-20UA-88.3-0108	PRA0600-19	01/10/2008	TAMP	REG	PDB	1630	1500	53	18	ND	22	6.6	7.6
MW-20UA	PL-503-0108	PRA0600-20	01/10/2008	TAMP	FD	PDB	1622	1500	51	16	ND	19	6.1	6.8
MW-20UA	MW-20UA-88.3-0408	PRD0529-15	04/08/2008	TAMP	REG	PDB	3576	3300	110	43	3.2	40	11	8.7
MW-20UA	MW-20UA-88.3-0708	PRG0456-24	07/08/2008	TAMP	REG	PDB	959	870	33	16	ND	16	3.4	3.5
MW-20UA	MW-20UA-88.3-1008	PRJ0790-21	10/14/2008	TAMP	REG	PDB	3782	3500	110	37	ND	50	14	ND
MW-20UA	MW-20UA-88.3-0109	PSA0425-18	01/08/2009	TAMP	REG	PDB	4534	4000	160	72	2.8	170	17	12
MW-20UA	MW-20UA-88.3-0409	PSD0360-15	04/07/2009	TAMP	REG	PDB	3393*	3100	88	38	ND	100	10	7.2
MW-20UA	PL-503-0409	PSD0360-16	04/07/2009	TAMP	FD	PDB	3137*	2900	71	28	ND	81	9.1	6.6
MW-20UA	MW-20UA-88.3-0709	PSG0505-13	07/08/2009	TAMP	REG	PDB	3300	3300	ND	ND	ND	ND	ND	ND
MW-20UA	MW-20UA-88.3-1009	PSJ0385-14	10/07/2009	TAMP	REG	PDB	813	700	54	18	ND	ND H	5.6	4
MW-21UA	MW-21UA-85.7-0808	PRH1241-02	08/20/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-21UA	MW-21UA-89.3-0808	PRH1241-03	08/20/2008	TAMP	REG	PDB	ND*	ND	ND	ND	ND	ND	ND	ND
MW-21UA	MW-21UA-92.7-0808	PRH1241-04	08/20/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-21UA	MW-21UA-96.3-0808	PRH1241-05	08/20/2008	TAMP	REG	PDB	ND*	ND	ND	ND	ND	ND	ND	ND
MW-21UA	MW-21UA-85.7-1008	PRJ0790-05	10/14/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-21UA	PL-501-1008	PRJ0790-06	10/14/2008	TAMP	FD	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-21UA	MW-21UA-89.3-1008	PRJ0790-07	10/14/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-21UA	MW-21UA-92.7-1008	PRJ0790-08	10/14/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-21UA	MW-21UA-96.3-1008	PRJ0790-09	10/14/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-21UA	MW-21UA-96.3-0109	PSA0425-03	01/08/2009	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-21UA	MW-21UA-96.3-0409	PSD0360-03	04/07/2009	TAMP	REG	PDB	ND*	ND	ND	ND	ND	ND	ND	ND
MW-21UA	MW-21UA-96.3-0709	PSG0505-06	07/08/2009	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-21UA	MW-21UA-96.3-1009	PSJ0385-03	10/07/2009	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MONITORING WELLS UNIT B														
MW-01UB	MW-01UB-0108	PRA0600-08	01/09/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-01UB	MW-01UB-0408	PRD0757-16	04/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-01UB	MW-01UB-0708	PRG0456-05	07/08/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-01UB	MW-01UB-1008	PRJ1193-10	10/21/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-01UB	MW-01UB-0109	PSA0425-22	01/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-01UB	MW-01UB-0409	PSD0529-12	04/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-01UB	MW-01UB-0709	PSG0505-22	07/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-01UB	MW-01UB-1009	PSJ0513-10	10/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND

TABLE E-2
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES

						Parameter	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
						Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Sample Method								
MONITORING WELLS UNIT B (Continued)														
MW-02UB	MW-02UB-0408	PRD0757-05	04/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-02UB	MW-02UB-1008	PRJ1225-06	10/22/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-02UB	MW-02UB-0409	PSD0560-05	04/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-02UB	MW-02UB-1009	PSJ0604-05	10/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-02UB	PL-508-1009	PSJ0604-06	10/09/2009	TAMP	FD		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UB	MW-03UB-0408	PRD0757-08	04/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UB	MW-03UB-1008	PRJ1225-04	10/22/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UB	MW-03UB-0409	PSD0560-07	04/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-03UB	MW-03UB-1009	PSJ0604-08	10/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-04UB	MW-04UB-0108	PRA0600-15	01/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-04UB	MW-04UB-0408	PRD0757-13	04/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-04UB	MW-04UB-0708	PRG0552-02RE1	07/09/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-04UB	MW-04UB-1008	PRJ1193-11	10/21/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-04UB	MW-04UB-0109	PSA0425-26	01/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-04UB	PL-505-0109	PSA0425-27	01/09/2009	TAMP	FD		ND	ND	ND	ND	ND	ND	ND	ND
MW-04UB	MW-04UB-0409	PSD0560-12	04/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-04UB	MW-04UB-0709	PSG0505-27	07/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-04UB	MW-04UB-1009	PSJ0604-09	10/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-06UB	MW-06UB-0108	PRA0600-17	01/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-06UB	MW-06UB-0408	PRD0757-12	04/10/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-06UB	MW-06UB-0708	PRG0456-17	07/08/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-06UB	MW-06UB-1008	PRJ1193-12	10/21/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-06UB	MW-06UB-0109	PSA0425-24	01/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-06UB	MW-06UB-0409	PSD0560-11	04/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-06UB	MW-06UB-0709	PSG0505-25	07/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-06UB	PL-504-0709	PSG0505-26	07/09/2009	TAMP	FD		ND	ND	ND	ND	ND	ND	ND	ND
MW-06UB	MW-06UB-1009	PSJ0604-10	10/09/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-09UB	MW-09UB-0408	PRD0685-06	04/09/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-09UB	MW-09UB-1008	PRJ1193-05	10/21/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-09UB	MW-09UB-0409	PSD0529-06	04/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-09UB	MW-09UB-1009	PSJ0513-04	10/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-09UB	PL-504-1009	PSJ0513-05	10/08/2009	TAMP	FD		ND	ND	ND	ND	ND	ND	ND	ND
MW-10UB	MW-10UB-0408	PRD0685-03	04/09/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-10UB	MW-10UB-0409	PSD0529-03	04/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-10UB	PL-504-0409	PSD0529-04	04/08/2009	TAMP	FD		ND	ND	ND	ND	ND	ND	ND	ND

TABLE E-2
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES

						Parameter	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
						Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Sample Method								
MONITORING WELLS UNIT B (Continued)														
MW-15UB	MW-15UB-0408	PRD0685-08	04/09/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-15UB	MW-15UB-0908	PRI1398-03	09/24/2008	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND
MW-15UB	MW-15UB-112-1008	PRJ0790-13	10/14/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-15UB	MW-15UB-132-1008	PRJ0790-14	10/14/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-15UB	MW-15UB-152-1008	PRJ0790-15	10/14/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-15UB	MW-15UB-172-1008	PRJ0790-16	10/14/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-15UB	MW-15UB-192-1008	PRJ0790-17	10/14/2008	TAMP	REG	PDB	ND	ND	ND	ND	ND	ND	ND	ND
MW-15UB	MW-15UB-0409	PSD0529-08	04/08/2009	TAMP	REG		ND	ND	ND	ND	ND	ND	ND	ND

Note:Some low levels of Acetone detected have been detected periodically in various wells, effluent and trip blanks. Acetone is not included in the chemicals of concern.

Parameter Code Abbreviations

11DCA	= 1,1-Dichloroethane
12DCP	= 1,2-Dichloropropane
11DCE	= 1,1-Dichloroethene
PCE	= Tetrachloroethene
111TCA	= 1,1,1-Trichloroethane
TCE	= Trichloroethene
TCTFA	= Trichlorotrifluoroethane (Freon-113®)
TVOC	= Total volatile organic compounds - calculated by adding the numerical values of all detected compounds, include J flagged values

Sampling Method

PDB	= sample collected by passive diffusion bag
Blank	= submersible pump

Other Abbreviations

REG	= original
FD	= field duplicate
TAMP	= Test America Analytical, Phoenix, Arizona
ND	= not detected
J	= numerical value estimated
UJ	= analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate.
V	= qualified during data validation
H	= sample analyzed past hold time
µg/l	= micrograms per liter
*	= TVOC calculation adjusted for presence of blank or lab contamination
†	= concentrations reflect change from previous reported values due to lab error

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TABLE E-3
LABORATORY CHEMICAL RESULTS FOR OTHER VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES

						Parameter Code	112TCA	12DCA	12DCBZ	BZ	DCM	DMK	EB	NAP	nPBZ	pIPT	TCFM	TCM	TOL	XYL
						Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Sampling Method														
TREATMENT SYSTEM																				
EFFLUENT	Effluent-0908	PRI0263-02	09/04/2008	TAMP	REG						3.0	140								
EFFLUENT	Effluent-0209	PSB0438-02	02/05/2009	TAMP	REG							10 J								
EFFLUENT	EFFLUENT-0709	PSG0417-02	07/08/2009	TAMP	REG							12								
INFLUENT	Influent-0108	PRA0157-03	01/02/2008	TAMP	REG												15			
INFLUENT	Influent-0408	PRD0757-14	04/10/2008	TAMP	REG												14			
INFLUENT	Influent-0708	PRG0456-22	07/08/2008	TAMP	REG												27			
INFLUENT	Influent-0908	PRI1183-06	09/19/2008	TAMP	REG												22			
INFLUENT	Influent 1-1	PRJ0656-02	10/09/2008	TAMP	SPEC												12			
INFLUENT	Influent 1-2	PRJ0656-04	10/09/2008	TAMP	SPEC												12			
INFLUENT	Influent 5-1	PRJ1044-06	10/16/2008	TAMP	SPEC												8.1			
INFLUENT	Influent 5-2	PRJ1044-08	10/16/2008	TAMP	SPEC												7.6			
INFLUENT	INFLUENT-0109	PSA0425-13	01/09/2009	TAMP	REG												12			
INFLUENT	INFLUENT-0409	PSD0560-13	04/09/2009	TAMP	REG												10			
INFLUENT	Influent-1009	PSJ0385-19	10/07/2009	TAMP	REG												15			
EXTRACTION WELLS UNIT A																				
EW-01UA	EW-01UA-0709	PSG0505-11	07/08/2009	TAMP	REG						7.0									
EW-01UA	EW-01UA-0809	PSH0339-02	08/06/2009	TAMP	REG						10.0									
EW-02UA	EW-02UA-0909	PSI0125-03	09/02/2009	TAMP	REG												5.2			
EW-04UA	EW-04UA-0108	PRA0600-12	01/10/2008	TAMP	REG												43			
EW-04UA	EW-04UA-0408	PRD0757-10	04/10/2008	TAMP	REG												35			
EW-04UA	EW-04UA-0708	PRG0456-13	07/08/2008	TAMP	REG												110			
EW-04UA	EW-04UA-0908	PRI1183-02	09/19/2008	TAMP	REG												53			
EW-04UA	EW-04UA 5-1	PRJ1044-02	10/16/2008	TAMP	REG												24			
EW-04UA	EW-04UA-0109	PSA0425-12	01/09/2009	TAMP	REG												37			
EW-04UA	EW-04UA-0409	PSD0560-09	04/09/2009	TAMP	REG						17						38			
EW-04UA	PL-506-0409	PSD0560-10	04/09/2009	TAMP	FD												31			
EW-04UA	EW-04UA-1009	PSJ0385-13	10/07/2009	TAMP	REG												44			
MONITOR WELLS UNIT A																				
MW-01UA	MW-01UA-94.8-0409	PSD0360-06	04/07/2009	TAMP	REG	PDB						16								
MW-04UA	MW-04UA-86.0-0108	PRA0600-16	01/10/2008	TAMP	REG	PDB											11			
MW-04UA	MW-04UA-86.0-0408	PRD0529-09	04/08/2008	TAMP	REG	PDB											5.6			
MW-04UA	MW-04UA-86.0-0708	PRG0456-16	07/08/2008	TAMP	REG	PDB											13			
MW-04UA	MW-04UA-86.0-1008	PRJ0790-19	10/14/2008	TAMP	REG	PDB											7.1			
MW-04UA	MW-04UA-86.0-0109	PSA0425-16	01/08/2009	TAMP	REG	PDB											8.2			
MW-04UA	MW-04UA-86.0-0409	PSD0360-08	04/07/2009	TAMP	REG	PDB						23					5.9			
MW-04UA	PL-501-0409	PSD0360-09	04/07/2009	TAMP	FD	PDB						27					5.7			
MW-04UA	MW-04UA-86.0-1009	PSJ0385-09	10/07/2009	TAMP	REG	PDB											7.1			

TABLE E-3
LABORATORY CHEMICAL RESULTS FOR OTHER VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES

						Parameter Code	112TCA	12DCA	12DCBZ	BZ	DCM	DMK	EB	NAP	nPBZ	pIPT	TCFM	TCM	TOL	XYL
						Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Sampling Method														
MONITOR WELLS UNIT A (continued)																				
MW-06UA	MW-06UA-86.2-0108	PRA0600-18	01/10/2008	TAMP	REG	PDB											8.4			
MW-06UA	MW-06UA-86.2-0408	PRD0529-11	04/08/2008	TAMP	REG	PDB											18			
MW-06UA	MW-06UA-86.2-0708	PRG0456-18	07/08/2008	TAMP	REG	PDB											69			
MW-06UA	MW-06UA-86.2-0109	PSA0425-17	01/08/2009	TAMP	REG	PDB											9.6			
MW-06UA	MW-06UA-86.2-0409	PSD0360-11	04/07/2009	TAMP	REG	PDB					66	18					21			
MW-06UA	MW-06UA-86.2-1009	PSJ0385-15	10/07/2009	TAMP	REG	PDB											35			
MW-07UA	MW-07UA-91.3-0409	PSD0360-07	04/07/2009	TAMP	REG	PDB						18								
MW-11UA	MW-11UA-0409	PSD0529-09	04/08/2009	TAMP	REG	PDB						25								
MW-12UA	MW-12UA-80.8-0108	PRA0600-06	01/09/2008	TAMP	REG	PDB											120			
MW-12UA	MW-12UA-80.8-0408	PRD0529-03	04/08/2008	TAMP	REG	PDB											95			
MW-12UA	MW-12UA-80.8-0708	PRG0456-10	07/08/2008	TAMP	REG	PDB											84			
MW-12UA	MW-12UA-80.8-1008	PRJ0790-10	10/14/2008	TAMP	REG	PDB											54			
MW-12UA	MW-12UA-80.8-0109	PSA0425-04	01/08/2009	TAMP	REG	PDB				2.3							180			
MW-12UA	MW-12UA-80.8-0409	PSD0360-04	04/07/2009	TAMP	REG	PDB				2.7							190	2.0		
MW-12UA	MW-12UA-80.8-1009	PSJ0385-04	10/07/2009	TAMP	REG	PDB				2.5							140	2.1		
MW-14UA	MW-14UA-94.2-0409	PSD0360-10	04/07/2009	TAMP	REG	PDB						16								
MW-16UA	MW-16UA-81.3-0409	PSD0360-02	04/07/2009	TAMP	REG	PDB						12								
MW-17UA	MW-17UA-85.3-0409	PSD0360-05	04/07/2009	TAMP	REG	PDB						15								
MW-17UA	MW-17UA-85.3-1009	PSJ0385-05	10/07/2009	TAMP	REG	PDB						48								
MW-17UA	PL-501-1009	PSJ0385-06	10/07/2009	TAMP	FD	PDB						53								
MW-18UA	MW-18UA-91.9-0108	PRA0600-22	01/10/2008	TAMP	REG	PDB	3.8	8.2	22	12	98		28		3.3	5.2	190	3.8	110	32
MW-18UA	MW-18UA-91.9-0408	PRD0529-13	04/08/2008	TAMP	REG	PDB	91	310	62	81			79		3.2	8.9	360	38	2800	380
MW-18UA	MW-18UA-91.9-0708	PRG0456-19	07/08/2008	TAMP	REG	PDB	5.3	7.4	17	12								4.8	19	
MW-18UA	PL-503-0708	PRG0456-20	07/08/2008	TAMP	FD	PDB	5.7	7.1	16	13								4.6	21	
MW-18UA	MW-18UA-91.9-1008	PRJ0790-24	10/14/2008	TAMP	REG	PDB	3.7	4.4 J	2.1	9.3								3.6		
MW-18UA	MW-18UA-91.9-0109	PSA0425-20	01/08/2009	TAMP	REG	PDB	5.0	12	14	14	510		6.0				170	4.2	110	20
MW-18UA	MW-18UA-91.9-0409	PSD0360-13	04/07/2009	TAMP	REG	PDB	31	66	18	29	3700		3.6					12	180	29
MW-18UA	MW-18UA-91.9-0709	PSG0505-16	07/08/2009	TAMP	REG	PDB	6.4	8.1	9.7	16	10	27						5.1	5.5	
MW-18UA	MW-18UA-91.9-1009	PSJ0385-17	10/07/2009	TAMP	REG	PDB					8800								450	

TABLE E-3
LABORATORY CHEMICAL RESULTS FOR OTHER VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER SAMPLES

						Parameter Code	112TCA	12DCA	12DCBZ	BZ	DCM	DMK	EB	NAP	nPBZ	pIPT	TCFM	TCM	TOL	XYL
						Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Sampling Method														
MONITOR WELLS UNIT A (continued)																				
MW-19UA	MW-19UA-93.3-0108	PRA0600-21	01/10/2008	TAMP	REG	PDB	3.6		15	4.1	20	110	2.6				68	3.7	7.9	
MW-19UA	MW-19UA-93.3-0408	PRD0529-12	04/08/2008	TAMP	REG	PDB	61	100	37	31	11000		12				150	29	460	19
MW-19UA	MW-19UA-93.3-0708	PRG0456-21	07/08/2008	TAMP	REG	PDB	11	8.6	18	7.4	71						99	6.8	42	
MW-19UA	MW-19UA-93.3-1008	PRJ0790-23	10/14/2008	TAMP	REG	PDB	2.4	2.6									24			
MW-19UA	MW-19UA-93.3-0109	PSA0425-19	01/08/2009	TAMP	REG	PDB	14	16	27	12	540		12			2.2	160	9.3	240	110
MW-19UA	MW-19UA-0409	PSD0529-14	04/07/2009	TAMP	REG	PDB	64	130	36	36	18000	21	32		2.3	2.9	170	33	1100	190
MW-19UA	MW-19UA-93.3-0709	PSG0505-17	07/08/2009	TAMP	REG	PDB	10	7.5	19	9.0	100		10				110	7.2	53	31
MW-19UA	MW-19UA-93.3-1009	PSJ0385-16	10/07/2009	TAMP	REG	PDB					6500		220	1000					640	1600
MW-20UA	MW-20UA-88.3-0108	PRA0600-19	01/10/2008	TAMP	REG	PDB											23			
MW-20UA	PL-503-0108	PRA0600-20	01/10/2008	TAMP	FD	PDB											23			
MW-20UA	MW-20UA-88.3-0408	PRD0529-15	04/08/2008	TAMP	REG	PDB					2.5						58			
MW-20UA	MW-20UA-88.3-0708	PRG0456-24	07/08/2008	TAMP	REG	PDB											17			
MW-20UA	MW-20UA-88.3-1008	PRJ0790-21	10/14/2008	TAMP	REG												71			
MW-20UA	MW-20UA-88.3-0109	PSA0425-18	01/08/2009	TAMP	REG	PDB											100			
MW-20UA	MW-20UA-88.3-0409	PSD0360-15	04/07/2009	TAMP	REG	PDB						23					50			
MW-20UA	PL-503-0409	PSD0360-16	04/07/2009	TAMP	FD	PDB						26					41			
MW-20UA	MW-20UA-88.3-1009	PSJ0385-14	10/07/2009	TAMP	REG	PDB											31			
MW-21UA	MW-21UA-96.3-0409	PSD0360-03	04/07/2009	TAMP	REG	PDB						14					71			

112TCA = 1,1,2-Trichlorethane
12DCA = 1,2-dDichloroethane
12DCBZ = 1,2-Dichlorobenzene
BZ = benzene
DCM = Dichloromethane (Methylene chloride)
DMK = Dimethylketone (Acetone)
EB = Ethylbenzene
NAP = Naphthalene
nPBZ = n-Propylbenzene
pIPT = p-Isopropyltoluene
TCFM = Trichlorofluoromethane (Freon-11®)
TCM = Chloroform
TOL = toluene
XYL = xylenes

REG = original
FD = field duplicate

TAMP = Test America Analytical, Phoenix, Arizona
J = Estimated
µg/L = micrograms per liter

Sampling Method
PDB = sample collected by passive diffusion bag
Blank = submersible pump

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TABLE E-4
LABORATORY CHEMICAL RESULTS FOR SEMI-VOLATILE ORGANIC CHEMICALS, ORGANOCHLORINE PESTICIDES AND POLYCHLORINATED BIPHENYLS (PCBs) IN GROUNDWATER SAMPLES

LOCATION	SAMPLE IDENTIFIER FIELD	SAMPLE IDENTIFIER LAB	DATE SAMPLED	DATE ANALYZED	LAB	EPA METHOD	SEMI-VOLATILE ORGANIC COMPOUNDS (micrograms per liter)	ORGANOCHLORINE PESTICIDES (micrograms per liter)	PCBs (micrograms per liter)
INFLUENT	Influent-1008	PRJ1079-06	10/16/2008	10/22/2008	TAMP	8270C	ND	---	---
	Influent-1008	PRJ1079-06	10/16/2008	10/22/2008	TAMP	8081A	---	ND	---
	Influent-1008	PRJ1079-06	10/16/2008	10/22/2008	TAMP	8082	---	---	ND
	Influent-1009	PSJ0385-19	10/7/2009	10/12/2009	TAMP	8270C	ND	---	---
	Influent-1009	PSJ0385-19	10/7/2009	10/13/2009	TAMP	8081A	---	ND	---
	Influent-1009	PSJ0385-19	10/7/2009	10/13/2009	TAMP	8082	---	---	ND
EFFLUENT	Effluent-1008	PRJ1079-07	10/16/2008	10/22/2008	TAMP	8270C	ND	---	---
	Effluent-1008	PRJ1079-07	10/16/2008	10/22/2008	TAMP	8081A	---	ND	---
	Effluent-1008	PRJ1079-07	10/16/2008	10/22/2008	TAMP	8082	---	---	ND
	Effluent-1009	PSJ0383-01	10/7/2009	10/12/2009	TAMP	8270C	ND	---	---
	Effluent-1009	PSJ0383-01	10/7/2009	10/13/2009	TAMP	8081A	---	ND	---
	Effluent-1009	PSJ0383-01	10/7/2009	10/13/2009	TAMP	8082	---	---	ND

Notes:
ND = not detected
--- = not analyzed

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TABLE E-5
SUMMARY OF FIELD PARAMETERS FOR GROUNDWATER SAMPLES

ROUTINE FIELD PARAMETERS					
LOCATION	DATE SAMPLED	pH	ELECTRICAL CONDUCTANCE (micromohs per centimeter)	TEMPERATURE (degrees Celsius)	OXYGEN REDUCTION POTENTIAL (millivolts)
EFFLUENT	04/10/2008	8.50	NT	20.2	54.0
EFFLUENT	07/08/2008	8.48	1262	26.7	104
EFFLUENT	09/19/2008	8.24	1363	26.9	-35.0
EFFLUENT	10/09/2008	7.86	1018	23.9	NT
EFFLUENT	10/09/2008	7.66	1025	25.0	NT
EFFLUENT	10/16/2008	8.38	968	22.4	490
EFFLUENT	10/16/2008	8.45	979	22.1	453
EFFLUENT	10/16/2008	8.41	928	22.3	484
EFFLUENT	01/09/2009	8.50	1287	17.3	25.0
EFFLUENT	04/09/2009	8.49	1158	20.3	-90.0
EFFLUENT	07/08/2009	7.94	1612	22.6	129
EFFLUENT	08/05/2009	7.71	1645	26.5	73.0
EFFLUENT	09/10/2009	8.56	1428	24.7	-22.0
EFFLUENT	10/07/2009	8.35	1425	20.9	-12.0
EFFLUENT	11/04/2009	7.77	1419	19.6	91.0
EFFLUENT	12/10/2009	7.79	1421	15.5	16.0
EW-01UA	04/10/2008	7.64	NT	27.3	73.0
EW-01UA	09/19/2008	7.75	997	27.9	-48.0
EW-01UA	10/16/2008	7.96	765	27.7	384
EW-01UA	10/16/2008	8.12	769	27.8	381
EW-01UA	04/09/2009	7.60	891	27.1	-50.0
EW-01UA	07/08/2009	7.80	974	28.8	-2.00
EW-01UA	10/08/2009	7.92	998	27.7	57.0
EW-02UA	01/10/2008	7.61	997	26.4	172
EW-02UA	04/10/2008	7.42	NT	27.2	116
EW-02UA	07/08/2008	7.45	1115	27.6	-6.00
EW-02UA	09/19/2008	7.60	1160	27.8	-23.0
EW-02UA	10/16/2008	7.99	903	27.9	438
EW-02UA	10/16/2008	7.81	879	27.3	452
EW-02UA	01/09/2009	7.71	1113	26.7	-14.0
EW-02UA	04/09/2009	7.62	969	27.1	-51.0
EW-02UA	07/08/2009	7.91	1070	27.9	14.0
EW-02UA	10/08/2009	8.11	985	27.8	50.0
EW-03UA	01/10/2008	7.61	1439	27.8	87.0
EW-03UA	04/10/2008	7.68	NT	27.6	-3.00
EW-03UA	07/08/2008	746	16.1	28.6	7.00
EW-03UA	09/19/2008	7.61	1697	28.5	-26.0
EW-03UA	10/16/2008	7.78	1165	28.4	583
EW-03UA	10/16/2008	7.93	1110	28.1	556
EW-03UA	01/09/2009	7.61	1714	28.2	-2.00
EW-03UA	04/09/2009	7.66	1546	26.7	-55.0
EW-03UA	07/08/2009	6.93	1854	28.5	1853
EW-03UA	10/07/2009	7.07	1890	27.6	21.0

Notes:
ND - denotes result was below the detection limit
NT - sample not tested for the given parameter

HARGIS + ASSOCIATES, INC.

TABLE E-5
SUMMARY OF FIELD PARAMETERS FOR GROUNDWATER SAMPLES

ROUTINE FIELD PARAMETERS					
LOCATION	DATE SAMPLED	pH	ELECTRICAL CONDUCTANCE (micromohs per centimeter)	TEMPERATURE (degrees Celsius)	OXYGEN REDUCTION POTENTIAL (millivolts)
EW-04UA	01/10/2008	7.58	1555	25.0	77.0
EW-04UA	04/10/2008	7.56	NT	25.2	8.00
EW-04UA	07/08/2008	7.75	1356	26.7	-121
EW-04UA	09/19/2008	7.49	1504	26.0	42.0
EW-04UA	10/16/2008	7.84	1357	25.5	664
EW-04UA	10/16/2008	7.68	1046	26.5	524
EW-04UA	01/09/2009	7.62	1577	25.1	NT
EW-04UA	04/09/2009	7.56	1352	25.4	-60.0
EW-04UA	07/08/2009	7.37	1544	25.9	-532
EW-04UA	10/07/2009	7.59	1544	25.5	-4.00
INFLUENT	04/10/2008	7.71	NT	25.2	36.0
INFLUENT	07/08/2008	7.64	12.7	27.8	85.0
INFLUENT	09/19/2008	7.67	1351	29.0	39.0
INFLUENT	10/09/2008	7.30	1002	29.6	NT
INFLUENT	10/09/2008	6.57	1026	28.9	NT
INFLUENT	10/16/2008	8.00	980	28.1	491
INFLUENT	10/16/2008	8.00	957	28.6	472
INFLUENT	10/16/2008	7.74	943	28.4	480
INFLUENT	01/09/2009	7.72	1359	23.9	21.0
INFLUENT	04/09/2009	7.74	1175	23.4	-51.0
INFLUENT	07/08/2009	6.91	1604	26.8	167
INFLUENT	10/07/2009	7.43	1426	26.3	-16.0
IW-01UB	10/15/2008	7.58	1251	25.9	-106
MW-01UB	01/09/2008	7.81	6.22	25.4	-9.00
MW-01UB	04/10/2008	7.83	NT	25.4	50.0
MW-01UB	07/08/2008	7.62	712	26.1	10.0
MW-01UB	10/21/2008	7.76	506	25.7	253
MW-01UB	01/09/2009	7.77	675	25.1	NT
MW-01UB	04/08/2009	7.86		25.4	-27.0
MW-01UB	07/09/2009	7.78	717	26.0	62.0
MW-01UB	10/08/2009	7.70	658	25.9	63.0
MW-02UA	04/10/2008	7.15	NT	25.6	-105
MW-02UA	10/22/2008	6.93	838	25.8	419
MW-02UA	04/09/2009	6.76	1213	22.6	-69.0
MW-02UA	10/09/2009	7.22	1400	26.5	-106
MW-02UB	04/10/2008	7.88	NT	24.7	-10.0
MW-02UB	10/22/2008	7.52	484	24.6	242
MW-02UB	04/09/2009	7.66	711	21.0	-52.0
MW-02UB	10/09/2009	7.77	782	25.4	12.0

Notes:

ND - denotes result was below the detection limit

NT - sample not tested for the given parameter

HARGIS + ASSOCIATES, INC.

TABLE E-5
SUMMARY OF FIELD PARAMETERS FOR GROUNDWATER SAMPLES

ROUTINE FIELD PARAMETERS					
LOCATION	DATE SAMPLED	pH	ELECTRICAL CONDUCTANCE (micromohs per centimeter)	TEMPERATURE (degrees Celsius)	OXYGEN REDUCTION POTENTIAL (millivolts)
MW-03UA	01/10/2008	7.31	1493	25.2	-73.0
MW-03UA	04/10/2008	7.38	NT	25.7	-78.0
MW-03UA	07/08/2008	7.34	1653	26.3	-125
MW-03UA	10/22/2008	7.05	862	24.9	426
MW-03UA	01/09/2009	7.30	1649	25.5	NT
MW-03UA	04/09/2009	7.09	1331	20.0	-85.0
MW-03UA	07/09/2009	7.31	1603	26.6	-53.0
MW-03UA	10/09/2009	7.17	1512	26.3	-99.0
MW-03UB	04/10/2008	7.75	NT	24.9	-31.0
MW-03UB	10/22/2008	7.55	544	24.1	272
MW-03UB	04/09/2009	7.70	800	22.9	-41.0
MW-03UB	10/09/2009	7.49	891	25.3	85.0
MW-04UB	01/10/2008	7.88	644	25.0	16.0
MW-04UB	04/10/2008	7.70	NT	25.3	35.0
MW-04UB	07/09/2008	7.62	674	26.0	9.00
MW-04UB	10/21/2008	7.69	534	25.4	268
MW-04UB	01/09/2009	7.39	760	22.1	NT
MW-04UB	04/09/2009	7.78	618	24.1	-65.0
MW-04UB	07/09/2009	8.26	716	25.7	47.0
MW-04UB	10/09/2009	7.68	675	25.4	-9.00
MW-05UA	04/09/2008	6.99	NT	26.4	-82.0
MW-05UA	04/08/2009	6.78	NT	26.0	-87.0
MW-06UB	01/10/2008	7.72	692	25.0	-55.0
MW-06UB	04/10/2008	7.73	NT	25.3	8.00
MW-06UB	07/08/2008	7.59	718	25.9	53.0
MW-06UB	10/21/2008	7.50	556	25.3	278
MW-06UB	01/09/2009	7.63	760	24.5	NT
MW-06UB	04/09/2009	7.71	652	23.3	-74.0
MW-06UB	07/09/2009	7.93	768	25.8	-2.00
MW-06UB	10/09/2009	7.73	729	25.5	-41.0
MW-08UA	04/09/2008	7.41	2605	27.7	-82.0
MW-08UA	10/21/2008	7.37	1468	26.8	734
MW-08UA	04/08/2009	7.48	1538	27.4	-88.0
MW-08UA	10/08/2009	7.86	2741	27.3	-76.0
MW-09UA	04/09/2008	6.88	1690	26.2	-81.0
MW-09UA	10/21/2008	7.12	1198	26.5	600
MW-09UA	04/08/2009	6.77	1980	26.2	-85.0
MW-09UA	10/08/2009	7.06	2095	26.1	-56.0
MW-09UB	04/09/2008	7.61	1577	26.5	-19.0
MW-09UB	10/21/2008	7.50	951	25.6	475
MW-09UB	04/08/2009	7.35	1712	26.0	-49.0
MW-09UB	10/08/2009	7.65	1729	25.7	-13.0

Notes:

ND - denotes result was below the detection limit

NT - sample not tested for the given parameter

HARGIS + ASSOCIATES, INC.

TABLE E-5
SUMMARY OF FIELD PARAMETERS FOR GROUNDWATER SAMPLES

ROUTINE FIELD PARAMETERS					
LOCATION	DATE SAMPLED	pH	ELECTRICAL CONDUCTANCE (micromohs per centimeter)	TEMPERATURE (degrees Celsius)	OXYGEN REDUCTION POTENTIAL (millivolts)
MW-10UA	04/09/2008	0.326	1471	25.0	-81.0
MW-10UA	10/21/2008	7.51	1047	25.3	522
MW-10UA	4/08/2009	7.64	1548	25.5	-115
MW-10UA	10/08/2009	7.36	1552	25.4	-66.0
MW-10UB	04/09/2008	7.59	1767	24.2	-12.0
MW-10UB	04/08/2009	7.14	1949	24.4	-15.0
MW-11UA	04/08/2008	7.24	NT	27.2	-133
MW-11UA	10/21/2008	7.40	743	26.8	371
MW-11UA	04/08/2009	7.50	1010	26.4	-30.0
MW-11UA	10/08/2009	8.44	1007	26.5	67.0
MW-13UA	04/09/2008	7.78	NT	27.7	-17.0
MW-13UA	10/21/2008	7.71	585	27.1	293
MW-13UA	04/08/2009	7.71	547	27.3	-82.0
MW-13UA	07/09/2009	7.88	867	27.5	50.0
MW-15UB	04/09/2008	9.19	949	25.1	50.0
MW-15UB	04/08/2009	7.79	1041	24.9	-50.0

Notes:

ND - denotes result was below the detection limit

NT - sample not tested for the given parameter

HARGIS + ASSOCIATES, INC.

TABLE E-6
LABORATORY CHEMICAL RESULTS FOR COMMON CONSTITUENTS AND
ROUTINE PARAMETERS IN GROUNDWATER SAMPLES

					Parameter	Alkalinity as CaCO3	Ammonia-N	Bicarbonate Alkalinity as CaCO3	Calcium	Carbonate Alkalinity as CaCO3	Chloride	Fluoride
					Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose							
TREATMENT SYSTEM												
EFFLUENT	EFFLUENT-1008	PRJ1079-07	10/16/2008		REG	220	0.0	220	36	0.0	180	2.0
EFFLUENT	EFFLUENT-1008	PRJ1079-10	10/16/2008		REG	---	---	---	---	---	---	---
EFFLUENT	Effluent 1009	PSJ0383-01	10/07/2009		REG	340	0.0	340	---	0.0	210	1.8
EFFLUENT	Effluent-1009	PSJ0383-02	10/07/2009		REG	---	---	---	48	---	---	---
INFLUENT	INFLUENT-1008	PRJ1079-06	10/16/2008		REG	230	0.0	230	35	0.0	180	2.0
INFLUENT	INFLUENT-1008	PRJ1079-09	10/16/2008		REG	---	---	---	---	---	---	---
INFLUENT	Influent-1009	PSJ0385-19	10/07/2009		REG	210	0.0	210	---	0.0	210	1.8
INFLUENT	Influent-1009	PSJ0385-20	10/07/2009		REG	---	---	---	42	---	---	---
MONITOR WELLS UNIT A												
MW-08UA	MW-08UA-0408	08040240-04B	04/09/2008		REG	---	---	---	140	---	---	---
MW-08UA	MW-08UA-0408	08040240-04C	04/09/2008		REG	130	---	130	---	---	680	1.3
MW-08UA	MW-08UA-0408	08040240-04D	04/09/2008		REG	---	---	---	---	---	---	---
MW-08UA	MW-08UA-1008	08100341-04A	10/21/2008		REG	---	---	---	170	---	---	---
MW-08UA	MW-08UA-1008	08100341-04B	10/21/2008		REG	---	---	---	---	---	---	---
MW-08UA	MW-08UA-1008	08100341-04D	10/21/2008		REG	130	---	130	---	0.0	910	0.96
MW-08UA	MW-08UA-0409	09040123-04B	04/08/2009		REG	---	---	---	160	---	---	---
MW-08UA	MW-08UA-0409	09040123-04C	04/08/2009		REG	130	---	130	---	0.0	770	1.1
MW-08UA	MW-08UA-0409	09040123-04D	04/08/2009		REG	---	---	---	---	---	---	---
MW-08UA	MW-08UA-1009	09100142-04B	10/08/2009		REG	---	---	---	120	---	---	---
MW-08UA	MW-08UA-1009	09100142-04C	10/08/2009		REG	140	---	140	---	0.0	610	1.2
MW-08UA	MW-08UA-1009	09100142-04D	10/08/2009		REG	---	---	---	---	---	---	---
MW-09UA	MW-09UA-0408	08040240-03B	04/09/2008		REG	---	---	---	58	---	---	---
MW-09UA	MW-09UA-0408	08040240-03C	04/09/2008		REG	120	---	120	---		430	1.6
MW-09UA	MW-09UA-0408	08040240-03D	04/09/2008		REG	---	---	---	---	---	---	---
MW-09UA	MW-09UA-1008	08100341-03A	10/21/2008		REG	---	---	---	81	---	---	---
MW-09UA	MW-09UA-1008	08100341-03B	10/21/2008		REG	---	---	---	---	---	---	---
MW-09UA	MW-09UA-1008	08100341-03D	10/21/2008		REG	150	---	150	---	0.0	560	1.3
MW-09UA	MW-09UA-0409	09040123-03B	04/08/2009		REG	---	---	---	73	---	---	---
MW-09UA	MW-09UA-0409	09040123-03C	04/08/2009		REG	150	---	150	---	0.0	450	1.6
MW-09UA	MW-09UA-0409	09040123-03D	04/08/2009		REG	---	---	---	---	---	---	---
MW-09UA	MW-09UA-1009	09100142-03B	10/08/2009		REG	---	---	---	69	---	---	---
MW-09UA	MW-09UA-1009	09100142-03C	10/08/2009		REG	150	---	150	---	0.0	490	1.4
MW-09UA	MW-09UA-1009	09100142-03D	10/08/2009		REG	---	---	---	---	---	---	---

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TABLE E-6
LABORATORY CHEMICAL RESULTS FOR COMMON CONSTITUENTS AND
ROUTINE PARAMETERS IN GROUNDWATER SAMPLES

Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Alkalinity as CaCO3	Ammonia-N	Bicarbonate Alkalinity as CaCO3	Calcium	Carbonate Alkalinity as CaCO3	Chloride	Fluoride
					Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MONITOR WELLS UNIT A (Continued)												
MW-10UA	MW-10UA-0408	08040240-02B	04/09/2008		REG	---	---	---	54	---	---	---
MW-10UA	MW-10UA-0408	08040240-02C	04/09/2008		REG	200	---	200	---		250	1.3
MW-10UA	MW-10UA-0408	08040240-02D	04/09/2008		REG	---	---	---	---	---	---	---
MW-10UA	MW-10UA-1008	08100341-02A	10/21/2008		REG	---	---	---	54	---	---	---
MW-10UA	MW-10UA-1008	08100341-02B	10/21/2008		REG	---	---	---	---	---	---	---
MW-10UA	MW-10UA-1008	08100341-02D	10/21/2008		REG	200	---	200	---	0.0	210	1.1
MW-10UA	MW-10UA-0409	09040123-02B	04/08/2009		REG	---	---	---	50	---	---	---
MW-10UA	MW-10UA-0409	09040123-02C	04/08/2009		REG	200	---	200	---	0.0	250	0.0
MW-10UA	MW-10UA-0409	09040123-02D	04/08/2009		REG	---	---	---	---	---	---	---
MW-10UA	MW-10UA-1009	09100142-02B	10/08/2009		REG	---	---	---	47	---	---	---
MW-10UA	MW-10UA-1009	09100142-02C	10/08/2009		REG	190	---	190	---	0.0	210	1.3
MW-10UA	MW-10UA-1009	09100142-02D	10/08/2009		REG	---	---	---	---	---	---	---
MW-11UA	MW-11UA-0408	08040240-05B	04/09/2008		REG	---	---	---	22	---	---	---
MW-11UA	MW-11UA-0408	08040240-05C	04/09/2008		REG	240	---	240	---		70	1.4
MW-11UA	MW-11UA-0408	08040240-05D	04/09/2008		REG	---	---	---	---	---	---	---
MW-11UA	MW-11UA-1008	08100341-05A	10/21/2008		REG	---	---	---	24	---	---	---
MW-11UA	MW-11UA-1008	08100341-05B	10/21/2008		REG	---	---	---	---	---	---	---
MW-11UA	MW-11UA-1008	08100341-05D	10/21/2008		REG	280	---	280	---	0.0	68	1.1
MW-11UA	MW-11UA-0409	09040123-05B	04/08/2009		REG	---	---	---	26	---	---	---
MW-11UA	MW-11UA-0409	09040123-05C	04/08/2009		REG	280	---	280	---	0.0	69	1.2
MW-11UA	MW-11UA-0409	09040123-05D	04/08/2009		REG	---	---	---	---	---	---	---
MW-11UA	MW-11UA-1009	09100142-05B	10/08/2009		REG	---	---	---	25	---	---	---
MW-11UA	MW-11UA-1009	09100142-05C	10/08/2009		REG	290	---	290	---	0.0	70	1.3
MW-11UA	MW-11UA-1009	09100142-05D	10/08/2009		REG	---	---	---	---	---	---	---
MONITOR WELLS UNIT B												
MW-15UB	MW-15UB-0408	PRD0685-08	04/09/2008		REG	---	---	---	---	---	---	---
MW-15UB	MW-15UB-0409	PSD0529-08	04/08/2009		REG	---	---	---	---	---	---	---

HARGIS + ASSOCIATES, INC.

TABLE E-6
LABORATORY CHEMICAL RESULTS FOR COMMON CONSTITUENTS AND
ROUTINE PARAMETERS IN GROUNDWATER SAMPLES

					Parameter	Hydroxide Alkalinity as CaCO3	Langlier index	Magnesium	Nitrate-N	Nitrate/Nitrite-N	Nitrite-N	Orthophosphate
					Units	mg/L	SI Units	mg/L	mg/L	mg/L	mg/L	mg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose							
TREATMENT SYSTEM												
EFFLUENT	EFFLUENT-1008	PRJ1079-07	10/16/2008		REG	---	0.69	16	13	---	---	---
EFFLUENT	EFFLUENT-1008	PRJ1079-10	10/16/2008		REG	---	---	---	---	---	---	---
EFFLUENT	Effluent 1009	PSJ0383-01	10/07/2009		REG	0.0	1.1	---	16	---	---	---
EFFLUENT	Effluent-1009	PSJ0383-02	10/07/2009		REG	---	---	21	---	---	---	---
INFLUENT	INFLUENT-1008	PRJ1079-06	10/16/2008		REG	---	0.40	15	13	---	---	---
INFLUENT	INFLUENT-1008	PRJ1079-09	10/16/2008		REG	---	---	---	---	---	---	---
INFLUENT	Influent-1009	PSJ0385-19	10/07/2009		REG	0.0	0.59	---	15	---	---	---
INFLUENT	Influent-1009	PSJ0385-20	10/07/2009		REG	---	---	19	---	---	---	---
MONITOR WELLS UNIT A												
MW-08UA	MW-08UA-0408	08040240-04B	04/09/2008		REG	---	---	49	---	---	---	---
MW-08UA	MW-08UA-0408	08040240-04C	04/09/2008		REG	---	---	---	---	---	---	---
MW-08UA	MW-08UA-0408	08040240-04D	04/09/2008		REG	---	---	---	21	21	---	---
MW-08UA	MW-08UA-1008	08100341-04A	10/21/2008		REG	---	---	65	---	---	---	---
MW-08UA	MW-08UA-1008	08100341-04B	10/21/2008		REG	---	---	---	19	19	---	---
MW-08UA	MW-08UA-1008	08100341-04D	10/21/2008		REG	---	---	---	---	---	---	---
MW-08UA	MW-08UA-0409	09040123-04B	04/08/2009		REG	---	---	62	---	---	---	---
MW-08UA	MW-08UA-0409	09040123-04C	04/08/2009		REG	0.0	---	---	---	---	0.0	---
MW-08UA	MW-08UA-0409	09040123-04D	04/08/2009		REG	---	---	---	18	18	---	---
MW-08UA	MW-08UA-1009	09100142-04B	10/08/2009		REG	---	---	44	---	---	---	---
MW-08UA	MW-08UA-1009	09100142-04C	10/08/2009		REG	0.0	---	---	---	---	0.0	---
MW-08UA	MW-08UA-1009	09100142-04D	10/08/2009		REG	---	---	---	16	16	---	---
MW-09UA	MW-09UA-0408	08040240-03B	04/09/2008		REG	---	---	23	---	---	---	---
MW-09UA	MW-09UA-0408	08040240-03C	04/09/2008		REG	---	---	---	---	---	---	---
MW-09UA	MW-09UA-0408	08040240-03D	04/09/2008		REG	---	---	---	6.6	6.6	---	---
MW-09UA	MW-09UA-1008	08100341-03A	10/21/2008		REG	---	---	32	---	---	---	---
MW-09UA	MW-09UA-1008	08100341-03B	10/21/2008		REG	---	---	---	8.3	8.3	---	---
MW-09UA	MW-09UA-1008	08100341-03D	10/21/2008		REG	---	---	---	---	---	---	---
MW-09UA	MW-09UA-0409	09040123-03B	04/08/2009		REG	---	---	30	---	---	---	---
MW-09UA	MW-09UA-0409	09040123-03C	04/08/2009		REG	0.0	---	---	---	---	0.0	---
MW-09UA	MW-09UA-0409	09040123-03D	04/08/2009		REG	---	---	---	6.9	6.9	---	---
MW-09UA	MW-09UA-1009	09100142-03B	10/08/2009		REG	---	---	27	---	---	---	---
MW-09UA	MW-09UA-1009	09100142-03C	10/08/2009		REG	0.0	---	---	---	---	0.0	---
MW-09UA	MW-09UA-1009	09100142-03D	10/08/2009		REG	---	---	---	7.4	7.4	---	---

TABLE E-6
LABORATORY CHEMICAL RESULTS FOR COMMON CONSTITUENTS AND
ROUTINE PARAMETERS IN GROUNDWATER SAMPLES

Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose	Hydroxide Alkalinity as CaCO3	Langlier index	Magnesium	Nitrate-N	Nitrate/Nitrite-N	Nitrite-N	Orthophosphate
					Units	mg/L	SI Units	mg/L	mg/L	mg/L	mg/L	mg/L
MONITOR WELLS UNIT A (Continued)												
MW-10UA	MW-10UA-0408	08040240-02B	04/09/2008		REG	---	---	28	---	---	---	---
MW-10UA	MW-10UA-0408	08040240-02C	04/09/2008		REG	---	---	---	---	---	0.076	---
MW-10UA	MW-10UA-0408	08040240-02D	04/09/2008		REG	---	---	---	31	31	---	---
MW-10UA	MW-10UA-1008	08100341-02A	10/21/2008		REG	---	---	28	---	---	---	---
MW-10UA	MW-10UA-1008	08100341-02B	10/21/2008		REG	---	---	---	32	32	---	---
MW-10UA	MW-10UA-1008	08100341-02D	10/21/2008		REG	---	---	---	---	---	---	---
MW-10UA	MW-10UA-0409	09040123-02B	04/08/2009		REG	---	---	27	---	---	---	---
MW-10UA	MW-10UA-0409	09040123-02C	04/08/2009		REG	0.0	---	---	---	---	0.077	---
MW-10UA	MW-10UA-0409	09040123-02D	04/08/2009		REG	---	---	---	29	29	---	---
MW-10UA	MW-10UA-1009	09100142-02B	10/08/2009		REG	---	---	25	---	---	---	---
MW-10UA	MW-10UA-1009	09100142-02C	10/08/2009		REG	0.0	---	---	---	---	0.087	---
MW-10UA	MW-10UA-1009	09100142-02D	10/08/2009		REG	---	---	---	28	28	---	---
MW-11UA	MW-11UA-0408	08040240-05B	04/09/2008		REG		---	11	---	---	---	---
MW-11UA	MW-11UA-0408	08040240-05C	04/09/2008		REG	---	---	---	---	---	---	---
MW-11UA	MW-11UA-0408	08040240-05D	04/09/2008		REG	---	---	---	3.8	3.8	---	---
MW-11UA	MW-11UA-1008	08100341-05A	10/21/2008		REG	---	---	12	---	---	---	---
MW-11UA	MW-11UA-1008	08100341-05B	10/21/2008		REG	---	---	---	3.7	3.7	---	---
MW-11UA	MW-11UA-1008	08100341-05D	10/21/2008		REG	---	---	---	---	---	---	---
MW-11UA	MW-11UA-0409	09040123-05B	04/08/2009		REG	---	---	13	---	---	---	---
MW-11UA	MW-11UA-0409	09040123-05C	04/08/2009		REG	0.0	---	---	---	---	0.0	---
MW-11UA	MW-11UA-0409	09040123-05D	04/08/2009		REG	---	---	---	4.1	4.1	---	---
MW-11UA	MW-11UA-1009	09100142-05B	10/08/2009		REG	---	---	12	---	---	---	---
MW-11UA	MW-11UA-1009	09100142-05C	10/08/2009		REG	0.0	---	---	---	---	0.0	---
MW-11UA	MW-11UA-1009	09100142-05D	10/08/2009		REG	---	---	---	4.1	4.1	---	---
MONITOR WELLS UNIT B												
MW-15UB	MW-15UB-0408	PRD0685-08	04/09/2008		REG	---	---	---	12	---	---	--
MW-15UB	MW-15UB-0409	PSD0529-08	04/08/2009		REG	---	---	---	12	---	---	---

HARGIS + ASSOCIATES, INC.

TABLE E-6
LABORATORY CHEMICAL RESULTS FOR COMMON CONSTITUENTS AND
ROUTINE PARAMETERS IN GROUNDWATER SAMPLES

Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Parameter	Phosphorus	pH	Potassium	Silica	Sodium	Specific Conductance	Sulfate	Total Dissolved Solids
					Units	mg/L	pH Units	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L
					Sample Purpose								
TREATMENT SYSTEM													
EFFLUENT	EFFLUENT-1008	PRJ1079-07	10/16/2008		REG	0.21	8.3	0.0	30	200	1300	110	730
EFFLUENT	EFFLUENT-1008	PRJ1079-10	10/16/2008		REG	---	---	---	32	---	---	---	---
EFFLUENT	Effluent 1009	PSJ0383-01	10/07/2009		REG	0.0	8.4	---	32	---	1400	130	820
EFFLUENT	Effluent-1009	PSJ0383-02	10/07/2009		REG	---	---	0.0	37	240	---	---	---
INFLUENT	INFLUENT-1008	PRJ1079-06	10/16/2008		REG	0.18	8.0	0.0	29	200	1300	110	730
INFLUENT	INFLUENT-1008	PRJ1079-09	10/16/2008		REG	---	---	---	31	---	---	---	---
INFLUENT	Influent-1009	PSJ0385-19	10/07/2009		REG	0.12	8.2	---	32	---	1400	120	860
INFLUENT	Influent-1009	PSJ0385-20	10/07/2009		REG	---	---	0.0	32	210	---	---	---
MONITOR WELLS UNIT A													
MW-08UA	MW-08UA-0408	08040240-04B	04/09/2008		REG	---	---	3.2	30	350	---	---	---
MW-08UA	MW-08UA-0408	08040240-04C	04/09/2008		REG	---	7.8	---	---	---	2600	110	1500
MW-08UA	MW-08UA-0408	08040240-04D	04/09/2008		REG	---	---	---	---	---	---	---	---
MW-08UA	MW-08UA-1008	08100341-04A	10/21/2008		REG	---	---	3.8	32	420	---	---	---
MW-08UA	MW-08UA-1008	08100341-04B	10/21/2008		REG	---	---	---	---	---	---	---	---
MW-08UA	MW-08UA-1008	08100341-04D	10/21/2008		REG	---	7.4	---	---	---	3100	120	2000
MW-08UA	MW-08UA-0409	09040123-04B	04/08/2009		REG	---	---	4.2	32	370	---	---	---
MW-08UA	MW-08UA-0409	09040123-04C	04/08/2009		REG	---	7.5	---	---	---	3100	120	1900
MW-08UA	MW-08UA-0409	09040123-04D	04/08/2009		REG	---	---	---	---	---	---	---	---
MW-08UA	MW-08UA-1009	09100142-04B	10/08/2009		REG	---	---	3.7	30	340	---	---	---
MW-08UA	MW-08UA-1009	09100142-04C	10/08/2009		REG	---	7.6	---	---	---	2700	120	1700
MW-08UA	MW-08UA-1009	09100142-04D	10/08/2009		REG	---	---	---	---	---	---	---	---
MW-09UA	MW-09UA-0408	08040240-03B	04/09/2008		REG	---	---		26	260	---	---	---
MW-09UA	MW-09UA-0408	08040240-03C	04/09/2008		REG	---	7.0	---	---	---	1700	57	970
MW-09UA	MW-09UA-0408	08040240-03D	04/09/2008		REG	---	---	---	---	---	---	---	---
MW-09UA	MW-09UA-1008	08100341-03A	10/21/2008		REG	---	---	2.6	28	310	---	---	---
MW-09UA	MW-09UA-1008	08100341-03B	10/21/2008		REG	---	---	---	---	---	---	---	---
MW-09UA	MW-09UA-1008	08100341-03D	10/21/2008		REG	---	7.2	---	---	---	2100	61	1200
MW-09UA	MW-09UA-0409	09040123-03B	04/08/2009		REG	---	---	2.6	26	270	---	---	---
MW-09UA	MW-09UA-0409	09040123-03C	04/08/2009		REG	---	7.3	---	---	---	2000	74	1000
MW-09UA	MW-09UA-0409	09040123-03D	04/08/2009		REG	---	---	---	---	---	---	---	---
MW-09UA	MW-09UA-1009	09100142-03B	10/08/2009		REG	---	---	3.2	26	300	---	---	---
MW-09UA	MW-09UA-1009	09100142-03C	10/08/2009		REG	---	7.3	---	---	---	2100	73	1000
MW-09UA	MW-09UA-1009	09100142-03D	10/08/2009		REG	---	---	---	---	---	---	---	---

HARGIS + ASSOCIATES, INC.

TABLE E-6
LABORATORY CHEMICAL RESULTS FOR COMMON CONSTITUENTS AND
ROUTINE PARAMETERS IN GROUNDWATER SAMPLES

Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Parameter	Phosphorus	pH	Potassium	Silica	Sodium	Specific Conductance	Sulfate	Total Dissolved Solids
					Units	mg/L	pH Units	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L
					Sample Purpose								
MONITOR WELLS UNIT A (Continued)													
MW-10UA	MW-10UA-0408	08040240-02B	04/09/2008		REG	---	---	---	36	240	---	---	---
MW-10UA	MW-10UA-0408	08040240-02C	04/09/2008		REG	---	7.7	---	---	---	1400	84	930
MW-10UA	MW-10UA-0408	08040240-02D	04/09/2008		REG	---	---	---	---	---	---	---	---
MW-10UA	MW-10UA-1008	08100341-02A	10/21/2008		REG	---	---	0.0	36	210	---	---	---
MW-10UA	MW-10UA-1008	08100341-02B	10/21/2008		REG	---	---	---	---	---	---	---	---
MW-10UA	MW-10UA-1008	08100341-02D	10/21/2008		REG	---	7.6	---	---	---	1500	81	950
MW-10UA	MW-10UA-0409	09040123-02B	04/08/2009		REG	---	---	2.2	35	210	---	---	---
MW-10UA	MW-10UA-0409	09040123-02C	04/08/2009		REG	---	7.7	---	---	---	1500	0.0	910
MW-10UA	MW-10UA-0409	09040123-02D	04/08/2009		REG	---	---	---	---	---	---	---	---
MW-10UA	MW-10UA-1009	09100142-02B	10/08/2009		REG	---	---	2.3	34	250	---	---	---
MW-10UA	MW-10UA-1009	09100142-02C	10/08/2009		REG	---	8.1	---	---	---	1600	100	820
MW-10UA	MW-10UA-1009	09100142-02D	10/08/2009		REG	---	---	---	---	---	---	---	---
MW-11UA	MW-11UA-0408	08040240-05B	04/09/2008		REG	---	---		30	180	---	---	---
MW-11UA	MW-11UA-0408	08040240-05C	04/09/2008		REG	---	7.7	---	---	---	970	100	680
MW-11UA	MW-11UA-0408	08040240-05D	04/09/2008		REG	---	---	---	---	---	---	---	---
MW-11UA	MW-11UA-1008	08100341-05A	10/21/2008		REG	---	---	0.0	33	170	---	---	---
MW-11UA	MW-11UA-1008	08100341-05B	10/21/2008		REG	---	---	---	---	---	---	---	---
MW-11UA	MW-11UA-1008	08100341-05D	10/21/2008		REG	---	7.9	---	---	---	1000	110	640
MW-11UA	MW-11UA-0409	09040123-05B	04/08/2009		REG	---	---	0.0	34	190	---	---	---
MW-11UA	MW-11UA-0409	09040123-05C	04/08/2009		REG	---	8.0	---	---	---	1000	110	660
MW-11UA	MW-11UA-0409	09040123-05D	04/08/2009		REG	---	---	---	---	---	---	---	---
MW-11UA	MW-11UA-1009	09100142-05B	10/08/2009		REG	---	---	0.0	34	190	---	---	---
MW-11UA	MW-11UA-1009	09100142-05C	10/08/2009		REG	---	8.0	---	---	---	1100	110	600
MW-11UA	MW-11UA-1009	09100142-05D	10/08/2009		REG	---	---	---	---	---	---	---	---
MONITOR WELLS UNIT B													
MW-15UB	MW-15UB-0408	PRD0685-08	04/09/2008		REG	---	---	---	---	---	---	---	---
MW-15UB	MW-15UB-0409	PSD0529-08	04/08/2009		REG	---	---	---	---	---	---	---	---

Notes:
All analyses performed by Test America or Columia Analytica Services

ND = not detected
--- = Not analyzed
mg/L = milligrams per liter
umhos/cm = micromohs per centimeter

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TABLE E-7
LABORATORY CHEMICAL RESULTS FOR TRACE CONSTITUENTS IN GROUNDWATER SAMPLES

				Parameter	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Cyanide	Iron
				Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Location	Field Sample ID	Lab Sample ID	Date	Sample Purpose												
TREATMENT SYSTEM																
EFFLUENT	EFFLUENT-1008	PRJ1079-07	10/16/2008	REG	ND	ND	0.0080	0.068	ND	--	ND	ND	ND	ND	ND	ND
EFFLUENT	Effluent 1009	PSJ0383-01	10/07/2009	REG	--	--	--	--	--	--	--	--	--	--	ND	--
EFFLUENT	Effluent-1009	PSJ0383-02	10/07/2009	REG	ND	ND	0.0075	0.087	ND	--	ND	0.018	ND	0.015	ND	ND
INFLUENT	INFLUENT-1008	PRJ1079-06	10/16/2008	REG	ND	ND	0.0078	0.067	ND	--	ND	ND	ND	0.015	ND	0.054
INFLUENT	Influent-1009	PSJ0385-19	10/07/2009	REG	--	--	--	--	--	--	--	--	--	--	ND	--
INFLUENT	Influent-1009	PSJ0385-20	10/07/2009	REG	ND	ND	0.0071	0.076	ND	--	ND	0.016	ND	0.010	--	ND
MONITOR WELLS UNIT A																
MW-08UA	MW-08UA-0408	08040240-04B	04/09/2008	REG	--	--	--	0.094	--	0.49	--	--	--	--	--	0.33
MW-08UA	MW-08UA-1008	08100341-04A	10/21/2008	REG	ND	ND	ND	0.12	ND	0.53	ND	ND	ND	ND	---	0.27
MW-08UA	MW-08UA-0409	09040123-04B	04/08/2009	REG	ND	ND	ND	0.12	ND	0.50	ND	ND	ND	ND	--	0.51
MW-08UA	MW-08UA-0409	09040123-04B	04/08/2009	REG	--	--	--	--	--	--	--	ND	--	--	--	
MW-08UA	MW-08UA-1009	09100142-04B	10/08/2009	REG	ND	ND	ND	0.088	ND	0.47	ND	ND	ND	ND	--	0.38
MW-09UA	MW-09UA-0408	08040240-03B	04/09/2008	REG	--	--	--	0.13	--	0.39	--	--	--	--	--	7.5
MW-09UA	MW-09UA-1008	08100341-03A	10/21/2008	REG	ND	ND	ND	0.18	ND	0.44	ND	ND	ND	ND	---	2.5
MW-09UA	MW-09UA-0409	09040123-03B	04/08/2009	REG	ND	ND	ND	0.17	ND	0.44	ND	ND	ND	ND	--	4.1
MW-09UA	MW-09UA-0409	09040123-03B	04/08/2009	REG	--	--	--	--	--	--	--	ND	--	--	--	--
MW-09UA	MW-09UA-1009	09100142-03B	10/08/2009	REG	ND	ND	ND	0.15	ND	0.42	ND	ND	ND	ND	--	2.8
MW-10UA	MW-10UA-0408	08040240-02B	04/09/2008	REG	--	--	--	0.10	--	0.44	--	--	--	--	--	0.39
MW-10UA	MW-10UA-1008	08100341-02A	10/21/2008	REG	ND	ND	ND	0.099	ND	0.46	ND	ND	ND	ND	---	0.36
MW-10UA	MW-10UA-0409	09040123-02B	04/08/2009	REG	ND	ND	ND	0.097	ND	0.43	ND	ND	ND	ND	--	0.54
MW-10UA	MW-10UA-0409	09040123-02B	04/08/2009	REG	--	--	--	--	--	--	--	0.0056	--	--	--	--
MW-10UA	MW-10UA-1009	09100142-02B	10/08/2009	REG	ND	ND	ND	0.093	ND	0.40	ND	ND	ND	ND	--	0.94
MW-11UA	MW-11UA-0408	08040240-05B	04/09/2008	REG	--	--	--	0.029	--	0.41	--	--	--	--	--	2.7
MW-11UA	MW-11UA-1008	08100341-05A	10/21/2008	REG	ND	ND	0.0052	0.032	ND	0.44	ND	0.013	ND	ND	---	ND
MW-11UA	MW-11UA-0409	09040123-05B	04/08/2009	REG	ND	ND	0.0076	0.037	ND	0.44	ND	0.027	ND	ND	--	0.54
MW-11UA	MW-11UA-0409	09040123-05B	04/08/2009	REG	--	--	--	--	--	--	--	0.029	--	--	--	--
MW-11UA	MW-11UA-1009	09100142-05B	10/08/2009	REG	ND	ND	ND	0.026	ND	0.42	ND	ND	ND	ND	--	ND
MONITOR WELLS UNIT B																
MW-15UB	MW-15UB-0408	PRD0685-08	04/09/2008	REG	--	ND	0.0087	--	--	--	--	0.027	--	--	--	--
MW-15UB	MW-15UB-0409	PSD0529-08	04/08/2009	REG	--	ND	0.0088	--	--	--	--	0.026	--	--	--	--

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TABLE E-7
LABORATORY CHEMICAL RESULTS FOR TRACE CONSTITUENTS IN GROUNDWATER SAMPLES

				Parameter	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Tin	Vanadium	Zinc
				Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Location	Field Sample ID	Lab Sample ID	Date	Sample Purpose											
TREATMENT SYSTEM															
EFFLUENT	EFFLUENT-1008	PRJ1079-07	10/16/2008	REG	ND	ND	ND	--	ND	0.0023	ND	ND	ND	0.025	ND
EFFLUENT	Effluent 1009	PSJ0383-01	10/07/2009	REG	--	--	--	--	--	--	--	--	ND	--	--
EFFLUENT	Effluent-1009	PSJ0383-02	10/07/2009	REG	ND	ND	ND	--	ND	ND	ND	ND	ND	0.019	ND
INFLUENT	INFLUENT-1008	PRJ1079-06	10/16/2008	REG	ND	0.013	ND	--	ND	0.0020	ND	ND	ND	0.026	0.073
INFLUENT	Influent-1009	PSJ0385-19	10/07/2009	REG	--	--	--	--	--	--	--	--	ND	--	--
INFLUENT	Influent-1009	PSJ0385-20	10/07/2009	REG	ND	ND	ND	--	ND	0.0033	ND	ND	ND	0.013	ND
MONITOR WELLS UNIT A															
MW-08UA	MW-08UA-0408	08040240-04B	04/09/2008	REG	--	0.055	--	--		0.016	--	--	--	--	0.53
MW-08UA	MW-08UA-1008	08100341-04A	10/21/2008	REG	ND	0.066	ND	ND	0.016	ND	ND	---	ND	0.48	
MW-08UA	MW-08UA-0409	09040123-04B	04/08/2009	REG	ND	0.095	ND	--	ND	0.015	ND	ND	--	ND	0.54
MW-08UA	MW-08UA-0409	09040123-04B	04/08/2009	REG	--	--	--	--	--	--	--	--	--	--	--
MW-08UA	MW-08UA-1009	09100142-04B	10/08/2009	REG	ND	0.065	ND	--	ND	0.012	ND	ND	--	0.055	0.62
MW-09UA	MW-09UA-0408	08040240-03B	04/09/2008	REG	--	0.43		--		0.0090	--	--	--	--	2.5
MW-09UA	MW-09UA-1008	08100341-03A	10/21/2008	REG	ND	0.26	ND	--	ND	0.011	ND	ND	---	ND	1.4
MW-09UA	MW-09UA-0409	09040123-03B	04/08/2009	REG	ND	0.32	ND	--	ND	0.0080	ND	ND	--	ND	2.1
MW-09UA	MW-09UA-0409	09040123-03B	04/08/2009	REG	--	--	--	--	--	--	--	--	--	--	--
MW-09UA	MW-09UA-1009	09100142-03B	10/08/2009	REG	ND	0.20	ND	--	ND	0.0079	ND	0.0006	--	0.037	1.8
MW-10UA	MW-10UA-0408	08040240-02B	04/09/2008	REG		0.043		--	--	0.0041	--	--	--	0.015	0.16
MW-10UA	MW-10UA-1008	08100341-02A	10/21/2008	REG	ND	0.037	ND	--	ND	0.0035	ND	ND	---	0.014	0.22
MW-10UA	MW-10UA-0409	09040123-02B	04/08/2009	REG	ND	0.057	ND	--	ND	0.0032	ND	ND	--	0.012	0.17
MW-10UA	MW-10UA-0409	09040123-02B	04/08/2009	REG	--	--	--	--	--	--	--	--	--	--	--
MW-10UA	MW-10UA-1009	09100142-02B	10/08/2009	REG	ND	0.14	ND	--	ND	0.0030	ND	0.0006	--	0.043	0.21
MW-11UA	MW-11UA-0408	08040240-05B	04/09/2008	REG	--	0.26	--	--	--	--	--	--	--	--	0.073
MW-11UA	MW-11UA-1008	08100341-05A	10/21/2008	REG	ND	0.011	ND	--	ND	ND	ND	ND	---	0.026	ND
MW-11UA	MW-11UA-0409	09040123-05B	04/08/2009	REG	ND	0.021	ND	--	ND	ND	ND	ND	--	0.032	0.053
MW-11UA	MW-11UA-0409	09040123-05B	04/08/2009	REG	--	--	--	--	--	--	--	--	--	--	--
MW-11UA	MW-11UA-1009	09100142-05B	10/08/2009	REG	ND	0.070	ND	--	ND	ND	ND	ND	--	0.036	ND
MONITOR WELLS UNIT B															
MW-15UB	MW-15UB-0408	PRD0685-08	04/09/2008	REG	0.0033	--	--	--	--	--	--	--	--	--	--
MW-15UB	MW-15UB-0409	PSD0529-08	04/08/2009	REG	0.0018	--	--	--	--	--	--	--	--	--	--

Notes:
All analyses performed by TestAmerica or Columbia Analytical Services
Test America or Columbia Analytical Services

ND = not detected
--- = Not analyzed
mg/L = milligrams per liter

HARGIS + ASSOCIATES, INC.

TABLE E-8
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR SAMPLES

					Parameter Code	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
					Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose								
GROUNDWATER MONITOR WELLS													
MW-01UA	MW-01UA-0108	P2800106-022	01/15/2008	CAS	REG	79	34	0.88	5.2	0.48	0.97	20	ND
MW-01UA	MW-01UA	3D80901-03	04/09/2008	EST	REG	ND	ND	ND	ND	ND	ND	ND	ND
MW-01UA	MW-01UA-0109	P0900177-049	01/15/2009	CAS	REG	85	37	0.94	4.4	ND	1.8	22	ND
MW-03UA	MW-03UA	3D80901-14	04/09/2008	EST	REG	ND	ND	ND	ND	ND	ND	ND	ND
MW-04UA	MW-04UA-0108	P2800124-015	01/16/2008	CAS	REG	78	9.2	2.9	0.95	ND	17	ND	ND
MW-04UA	MW-04UA	3D80901-04	04/09/2008	EST	REG	1.1	ND	ND	ND	ND	1.1	ND	ND
MW-04UA	MW-04UA-0708	P0802134-002	07/09/2008	CAS	REG	2.8	0.85	0.058	0.020	ND	1.8	ND	ND
MW-04UA	MW-04UA-1008	P0803584-013	10/23/2008	CAS	REG	29	7.2	0.66	0.21	ND	20	ND	ND
MW-04UA	MW-04UA-0109	P0900177-051	01/15/2009	CAS	REG	24	8.5	1.0	0.24	ND	14	ND	ND
MW-04UA	MW-04UA-0709	P0902383-006	07/10/2009	CAS	REG	2.5	0.98	0.067	0.022	ND	1.4	ND	ND
MW-06UA	MW-06UA-0108	P2800124-016	01/16/2008	CAS	REG	3873	1700	56	28	150	1900	ND	ND
MW-06UA	MW-06UA	3D80901-06	04/09/2008	EST	REG	406	140	ND	ND	66	200	ND	ND
MW-06UA	MW-06UA	P0801025-003	04/09/2008	CAS	FD	1560	450	31	17	270	750	6.6	4.7
MW-06UA	MW-06UA-0708	P0802134-003	07/09/2008	CAS	REG	1085	390	28	15	200	440	ND	5.1
MW-06UA	PL-515-0708	P0802134-004	07/09/2008	CAS	FD	805	290	9.8	ND	100	400	ND	ND
MW-06UA	MW-06UA-1008	P0803584-014	10/23/2008	CAS	REG	1813	470	46	29	490	640	11	13
MW-06UA	MW-06UA-0109	P0900177-052	01/15/2009	CAS	REG	1835	640	44	28	310	800	ND	ND
MW-06UA	MW-06UA-0709	P0902383-007	07/10/2009	CAS	REG	774	260	18	17	160	300	3.3	4.7
MW-07UA	MW-07UA-0108	P2800124-010	01/16/2008	CAS	REG	287	10	12	5.0	0.97	36	ND	ND
MW-07UA	MW-07UA	3D80901-05	04/09/2008	EST	REG	5.0	1.1	ND	ND	ND	3.9	ND	ND
MW-07UA	MW-07UA-0708	P0802134-001	07/09/2008	CAS	REG	40	9.5	3.6	0.62	ND	26	ND	ND
MW-07UA	MW-07UA-1008	P0803584-011	10/23/2008	CAS	REG	47	13	4.7	0.83	0.85	28	ND	ND
MW-07UA	PL-511-1008	P0803584-012	10/23/2008	CAS	FD	47	14	4.6	0.72	0.60	27	ND	ND
MW-07UA	MW-07UA-0109	P0900177-050	01/15/2009	CAS	REG	46	8.1	3.2	0.73	0.12	33	0.10	ND
MW-07UA	MW-07UA-0709	P0902383-005	07/10/2009	CAS	REG	8.3	2.0	0.73	0.11	ND	5.4	ND	ND
MW-11UA	MW-11UA-0108	P2800106-001	01/15/2008	CAS	REG	136	5.4	ND	ND	ND	130	ND	ND
MW-11UA	PL-511-0108	P2800106-002	01/15/2008	CAS	FD	135	5.4	ND	ND	ND	130	ND	ND
MW-11UA	MW-11UA	3D80901-02	04/09/2008	EST	REG	22	ND	ND	ND	ND	22	ND	ND
MW-11UA	MW-11UA-1008	P0803584-010	10/23/2008	CAS	REG	231	8.3	ND	2.1	11	210	ND	ND
MW-11UA	MW-11UA-0109	P0900177-013	01/13/2009	CAS	REG	336	14	ND	ND	ND	320	ND	ND
MW-12UA	MW-12UA-0108	P2800093-003	01/14/2008	CAS	REG	36	13	0.22	0.088	ND	22	ND	ND
MW-12UA	MW-12UA	3D80901-01	04/09/2008	EST	REG	19	6.5	ND	ND	ND	12	ND	ND
MW-12UA	MW-12UA-0109	P0900177-003	01/13/2009	CAS	REG	52	28	0.41	0.20	ND	22	ND	ND
MW-20UA	MW-20UA	3D80901-13	04/09/2008	EST	REG	224	50	16	17	64	40	ND	4.2
MW-21UA	MW-21UA-0808	P0802750-001	08/20/2008	CAS	REG	7.1	0.79	0.33	0.93	2.0	1.3	0.011	0.096

HARGIS + ASSOCIATES, INC.

TABLE E-8
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR SAMPLES

					Parameter Code	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
					Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose								
SOIL VAPOR MONITOR WELLS													
N-01-COARSE	N-01-C-0108	P2800106-009	01/15/2008	CAS	REG	2.9	0.59	0.063	0.047	ND	2.2	ND	ND
N-01-COARSE	N-01-C	3D80801-01	04/08/2008	EST	REG	2.5	ND	ND	ND	ND	ND	ND	ND
N-01-FINE	N-01-F-0107	P2700516-005	02/26/2007	CAS	REG	4604	690	110	100	1300	1700	20	63
N-01-FINE	N-01-F-0108	P2800106-010	01/15/2008	CAS	REG	20	5.2	0.56	0.25	ND	13	0.22	0.78
N-02-COARSE	N-02-C-0108	P2800106-005	01/15/2008	CAS	REG	54	8.3	0.76	0.57	ND	41	1.6	0.61
N-02-COARSE	N-02-C	3D80801-02	04/08/2008	EST	REG	16	2.1	ND	ND	ND	11	ND	ND
N-02-COARSE	N-02-C-0109	P0900177-016	01/13/2009	CAS	REG	56	8.7	0.70	0.32	ND	45	0.28	0.61
N-02-FINE	N-02-F-0108	P2800106-006	01/15/2008	CAS	REG	137	31	3.4	1.4	ND	97	1.1	1.8
N-02-FINE	N-02-F	3D80801-03	04/08/2008	EST	REG	123	32	2.7	ND	ND	82	1.3	2.1
N-02-FINE	N-02-F-0109	P0900177-017	01/13/2009	CAS	REG	131	32	3.4	1.2	ND	91	1.2	1.9
N-03-COARSE	N-03-C-0108	P2800106-003	01/15/2008	CAS	REG	124	14	ND	ND	ND	110	ND	ND
N-03-COARSE	N-03-C	3D80801-04	04/08/2008	EST	REG	136	13	ND	ND	ND	120	ND	ND
N-03-COARSE	N-03-C-0109	P0900177-014	01/13/2009	CAS	REG	113	13	1.1	ND	ND	99	ND	ND
N-03-FINE	N-03-F-0108	P2800106-004	01/15/2008	CAS	REG	244	31	2.5	ND	ND	210	ND	ND
N-03-FINE	N-03-F	3D80901-09	04/09/2008	EST	REG	688	88	ND	ND	ND	600	ND	ND
N-03-FINE	N-03-F	P0801025-002	04/09/2008	CAS	FD	150	21	4.0	2.1	ND	120	0.82	0.47
N-03-FINE	N-03-F-1008	P0803584-003	10/23/2008	CAS	REG	104	13	1.3	ND	ND	90	ND	ND
N-03-FINE	N-03-F-0109	P0900177-015	01/13/2009	CAS	REG	188	24	1.9	0.99	ND	160	ND	ND
NE-01-COARSE	NE-01-C-0108	P2800106-007	01/15/2008	CAS	REG	17	4.2	0.20	0.13	ND	12	ND	ND
NE-01-COARSE	NE-01-C	3D80801-07	04/08/2008	EST	REG	2.4	ND	ND	ND	ND	ND	ND	ND
NE-01-FINE	NE-01-F-0108	P2800106-008	01/15/2008	CAS	REG	62	20	0.84	ND	ND	41	ND	ND
NE-03-COARSE	NE-03-C-0108	P2800093-009	01/14/2008	CAS	REG	249	54	1.8	1.1	ND	190	ND	ND
NE-03-COARSE	NE-03-C	3D80801-12	04/08/2008	EST	REG	1042	190	27	ND	ND	790	10	ND
NE-03-COARSE	PL-510-0109	P0900177-009	01/13/2009	CAS	FD	154	31	1.1	0.77	ND	120	ND	ND
NE-03-COARSE	NE-03-C-0109	P0900177-008	01/13/2009	CAS	REG	156	33	1.1	0.81	ND	120	ND	ND
NE-03-FINE	NE-03-F-0108	P2800093-010	01/14/2008	CAS	REG	326	78	2.9	1.7	ND	240	ND	ND
NE-03-FINE	NE-03-F	3D80801-13	04/08/2008	EST	REG	1611	350	24	ND	ND	1200	ND	ND
NE-03-FINE	NE-03-F-0109	P0900177-010	01/13/2009	CAS	REG	355	88	2.7	1.8	ND	260	ND	ND
NW-01-COARSE	NW-01-C-0108	P2800106-020	01/15/2008	CAS	REG	48	11	0.80	0.38	ND	35	ND	ND
NW-01-COARSE	NW-01-C	3D80801-05	04/08/2008	EST	REG	4.9	ND	ND	ND	ND	ND	ND	ND
NW-01-COARSE	NW-01-C-0109	P0900177-018	01/13/2009	CAS	REG	29	9.3	0.46	0.23	ND	19	0.13	0.18
NW-01-FINE	NW-01-F-0108	P2800106-021	01/15/2008	CAS	REG	108	29	2.1	0.83	ND	74	0.62	1.1
NW-01-FINE	NW-01-F	3D80801-06	04/08/2008	EST	REG	12	2.4	ND	ND	ND	4.2	ND	ND
NW-01-FINE	NW-01-F-1008	P0803584-004	10/23/2008	CAS	REG	52	11	0.86	0.49	ND	39	ND	0.47
NW-01-FINE	NW-01-F-0109	P0900177-019	01/13/2009	CAS	REG	67	19	1.2	0.47	ND	45	0.34	0.66

HARGIS + ASSOCIATES, INC.

TABLE E-8
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR SAMPLES

					Parameter Code	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
					Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose								
NW-02-COARSE	NW-02-C-0108	P2800106-011	01/15/2008	CAS	REG	9.0	2.3	0.22	0.11	ND	6.1	0.077	0.15
NW-02-COARSE	NW-02-C	3D80801-08	04/08/2008	EST	REG	2.4	ND	ND	ND	ND	ND	ND	ND
NW-02-COARSE	PL-511-0109	P0900177-021	01/13/2009	CAS	FD	15	2.2	1.8	1.1	4.0	4.4	0.15	0.28
NW-02-COARSE	NW-02-C-0109	P0900177-020	01/13/2009	CAS	REG	19	3.2	2.3	1.3	4.5	5.9	0.21	0.40
NW-02-FINE	NW-02-F-0108	P2800106-012	01/15/2008	CAS	REG	40	16	1.8	0.72	ND	18	0.58	1.7
NW-02-FINE	NW-02-F-1008	P0803584-005	10/23/2008	CAS	REG	302	24	13	21	140	55	3.3	4.4
NW-02-FINE	NW-02-F-0109	P0900177-022	01/13/2009	CAS	REG	47	11	4.5	2.2	6.4	14	0.69	1.6
P-01-COARSE	P-01-C-0108	P2800140-009	01/17/2008	CAS	REG	2439	56	45	330	1400	290	35	34
P-01-COARSE	PL-515-0109	P0900177-059	01/15/2009	CAS	FD	243	6.6	9.7	15	47	10	ND	2.5
P-01-COARSE	P-01-C-0109	P0900177-058	01/15/2009	CAS	REG	287	7.5	11	18	54	12	ND	2.9
P-01-FINE	P-01-F-0108	P2800140-010	01/17/2008	CAS	REG	1969	9.0	8.1	60	89	14	ND	ND
P-01-FINE	P-01-F-0109	P0900177-060	01/15/2009	CAS	REG	6855	140	58	88	590	270	ND	ND
P-03-COARSE	P-03-C-0108	P2800124-022	01/16/2008	CAS	REG	63	8.2	1.2	4.2	ND	42	5.8	ND
P-03-COARSE	P-03-C-0109	P0900177-045	01/14/2009	CAS	REG	53	5.8	3.7	4.7	0.74	21	5.5	0.20
P-03-FINE	P-03-F-0108	P2800124-023	01/16/2008	CAS	REG	2720	280	ND	ND	ND	2300	140	ND
P-03-FINE	P-03-F-0109	P0900177-046	01/14/2009	CAS	REG	2192	190	16	13	ND	1800	150	6.6
SE-01-COARSE	SE-01-C-0108	P2800124-017	01/16/2008	CAS	REG	95	22	2.0	1.8	1.6	61	0.26	ND
SE-01-COARSE	PL-514-0109	P0900177-054	01/15/2009	CAS	FD	15	2.7	0.15	0.17	0.16	11	ND	ND
SE-01-COARSE	SE-01-C-0109	P0900177-053	01/15/2009	CAS	REG	21	3.9	0.55	0.89	1.8	12	ND	0.078
SE-01-FINE	SE-01-F-0108	P2800124-018	01/16/2008	CAS	REG	94	18	1.2	0.75	0.13	69	0.34	0.11
SE-01-FINE	SE-01-F-0109	P0900177-055	01/15/2009	CAS	REG	19	4.0	0.19	0.13	ND	14	ND	ND
SP-01-COARSE	SP-01-C-0108	P2800124-011	01/16/2008	CAS	REG	3525	55	320	91	64	54	24	ND
SP-01-COARSE	SP-01-C-0109	P0900177-040	01/14/2009	CAS	REG	2402	12	99	47	34	ND	9.9	ND
SP-01-FINE	SP-01-F-0108	P2800124-012	01/16/2008	CAS	REG	9591	530	2400	200	340	800	ND	ND
SP-01-FINE	SP-01-F-0109	P0900177-041	01/14/2009	CAS	REG	4589	55	620	89	88	46	ND	ND
SP-02-COARSE	SP-02-C-0108	P2800124-007	01/16/2008	CAS	REG	1049	62	180	50	110	28	66	ND
SP-02-COARSE	PL-513-0108	P2800124-008	01/16/2008	CAS	FD	1111	63	190	52	120	28	67	ND
SP-02-COARSE	SP-02-C-0109	P0900177-031	01/14/2009	CAS	REG	1125	11	63	38	93	ND	28	ND
SP-02-FINE	SP-02-F-0108	P2800124-009	01/16/2008	CAS	REG	3405	230	550	90	100	140	56	ND
SP-02-FINE	SP-02-F-0109	P0900177-032	01/14/2009	CAS	REG	2016	55	240	62	140	38	21	ND

HARGIS + ASSOCIATES, INC.

TABLE E-8
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR SAMPLES

					Parameter Code	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
					Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose								
SOIL VAPOR MONITOR WELLS (Continued)													
SP-03-COARSE	SP-03-C-0108	P2800124-003	01/16/2008	CAS	REG	389	64	21	10	39	14	130	ND
SP-03-COARSE	SP-03-C-0109	P0900177-035	01/14/2009	CAS	REG	191	23	5.9	5.9	13	1.9	84	ND
SP-03-FINE	SP-03-F-0108	P2800124-004	01/16/2008	CAS	REG	594	140	91	25	31	57	120	ND
SP-03-FINE	SP-03-F-0109	P0900177-036	01/14/2009	CAS	REG	340	60	39	13	15	12	120	ND
SP-04-COARSE	SP-04-C-0108	P2800106-018	01/15/2008	CAS	REG	58	15	12	2.8	1.8	10	1.3	ND
SP-04-COARSE	SP-04-C-0109	P0900177-027	01/13/2009	CAS	REG	66	14	13	4.3	2.5	15	2.5	ND
SP-04-FINE	SP-04-F-0108	P2800106-019	01/15/2008	CAS	REG	82	23	24	4.8	2.5	12	1.6	ND
SP-04-FINE	SP-04-F-0109	P0900177-028	01/13/2009	CAS	REG	115	30	38	8.0	4.0	21	2.5	ND
SP-05-COARSE	SP-05-C-0108	P2800106-023	01/15/2008	CAS	REG	72	8.3	5.8	4.1	38	2.6	6.8	ND
SP-05-COARSE	SP-05-C-0109	P0900177-029	01/14/2009	CAS	REG	67	1.5	4.8	4.7	6.3	0.80	1.3	ND
SP-05-FINE	SP-05-F-0108	P2800106-024	01/15/2008	CAS	REG	743	150	180	31	21	61	32	ND
SP-05-FINE	SP-05-F-0109	P0900177-030	01/14/2009	CAS	REG	478	95	120	16	12	39	28	ND
SP-06-COARSE	SP-06-C-0108	P2800124-001	01/16/2008	CAS	REG	377	32	4.4	8.3	33	0.91	99	ND
SP-06-COARSE	SP-06-C-0109	P0900177-033	01/14/2009	CAS	REG	213	10	2.2	5.4	9.5	ND	55	ND
SP-06-FINE	SP-06-F-0108	P2800124-002	01/16/2008	CAS	REG	589	49	5.1	9.6	27	ND	130	ND
SP-06-FINE	SP-06-F-1008	P0803584-008	10/23/2008	CAS	REG	396	32	3.6	8.5	30	0.97	94	ND
SP-06-FINE	SP-06-F-0109	P0900177-034	01/14/2009	CAS	REG	275	16	2.4	5.5	8.1	ND	67	ND
SP-07-COARSE	SP-07-C-0108	P2800124-005	01/16/2008	CAS	REG	80	15	13	5.1	0.91	26	10	ND
SP-07-COARSE	SP-07-C-0109	P0900177-037	01/14/2009	CAS	REG	24	3.7	3.7	1.6	0.26	6.3	4.6	ND
SP-07-COARSE	PL-512-0109	P0900177-038	01/14/2009	CAS	FD	21	3.6	3.4	1.4	0.16	6.4	4.2	ND
SP-07-FINE	SP-07-F-0108	P2800124-006	01/16/2008	CAS	REG	134	27	33	10	1.1	43	12	ND
SP-07-FINE	SP-07-F-0109	P0900177-039	01/14/2009	CAS	REG	46	8.6	9.7	4.2	0.30	13	7.9	ND
SP-08-COARSE	SP-08-C-0108	P2800124-013	01/16/2008	CAS	REG	1586	85	95	22	ND	540	5.0	ND
SP-08-COARSE	SP-08-C-0109	P0900177-047	01/14/2009	CAS	REG	153	15	8.8	2.3	ND	120	2.3	ND
SP-08-FINE	SP-08-F-0108	P2800124-014	01/16/2008	CAS	REG	1009	110	43	13	0.79	730	8.3	ND
SP-08-FINE	SP-08-F-0109	P0900177-048	01/14/2009	CAS	REG	408	56	32	6.9	ND	300	6.2	ND
V-02-COARSE	V-02-C	3D80801-10	04/08/2008	EST	REG	493	71	180	40	31	74	32	ND
V-02-COARSE	V-02-C-0109	P0900177-042	01/14/2009	CAS	REG	83	7.3	17	5.3	8.0	3.3	1.5	ND
V-02-FINE	V-02-F	3D80801-11	04/08/2008	EST	REG	28858	4800	3700	910	260	16000	2500	66
V-02-FINE	PL-513-0109	P0900177-044	01/14/2009	CAS	FD	2233	490	520	140	110	800	140	ND
V-02-FINE	V-02-F-0109	P0900177-043	01/14/2009	CAS	REG	2013	410	450	120	92	660	120	3.3

TABLE E-8
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR SAMPLES

					Parameter Code	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
					Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose								
SOIL VAPOR MONITOR WELLS (Continued)													
V-08-COARSE	V-08-C-0109	P0900177-056	01/15/2009	CAS	REG	89	16	24	7.9	16	8.5	1.6	ND
V-08-FINE	V-08-F-0109	P0900177-057	01/15/2009	CAS	REG	40	9.7	11	2.7	4.3	6.1	0.65	ND
V-09-COARSE	V-09-C-0108	P2800140-001	01/17/2008	CAS	REG	273	32	11	24	98	76	ND	6.4
V-09-FINE	V-09-F-0108	P2800140-002	01/17/2008	CAS	REG	290	68	5.8	19	28	160	ND	2.2
V-10-COARSE	V-10-C-0108	P2800140-005	01/17/2008	CAS	REG	782	51	48	120	200	110	ND	11
V-10-FINE	V-10-F-0108	P2800140-006	01/17/2008	CAS	REG	102	4.8	5.2	34	20	9.8	ND	1.2
V-11-COARSE	V-11-C-0108	P2800140-007	01/17/2008	CAS	REG	18	1.2	1.1	4.3	3.9	2.1	ND	0.19
V-11-COARSE	V-11-C-0109	P0900177-062	01/15/2009	CAS	REG	10	0.20	0.40	0.68	0.86	0.34	ND	0.053
V-11-FINE	V-11-F-0108	P2800140-008	01/17/2008	CAS	REG	171	6.9	6.0	31	48	13	ND	1.9
V-11-FINE	V-11-F-1008	P0803584-009	10/23/2008	CAS	REG	4462	290	120	140	1500	600	14	33
V-11-FINE	V-11-F-0109	P0900177-063	01/15/2009	CAS	REG	6058	440	150	150	3100	910	ND	50
V-12-COARSE	V-12-C-0108	P2800106-013	01/15/2008	CAS	REG	3.0	0.22	0.22	0.82	0.27	0.60	ND	0.078
V-12-COARSE	PL-512-0108	P2800106-014	01/15/2008	CAS	FD	2.7	0.19	0.22	0.84	0.28	0.58	ND	0.072
V-12-COARSE	V-12-C	3D80801-20	04/08/2008	EST	REG	7.2	1.5	1.2	ND	2.1	2.4	ND	ND
V-12-COARSE	V-12-C-0708	P0802134-009	07/09/2008	CAS	REG	235	8.7	6.4	45	46	15	ND	4.8
V-12-COARSE	V-12-C-0109	P0900177-023	01/13/2009	CAS	REG	118	3.8	1.3	26	10	9.2	0.13	0.40
V-12-COARSE	V-12-C-0709	P0902383-001	07/10/2009	CAS	REG	204	7.2	4.2	42	39	14	ND	2.0
V-12-FINE	V-12-F-0108	P2800106-015	01/15/2008	CAS	REG	1287	50	55	130	340	90	2.8	32
V-12-FINE	V-12-F-0708	P0802134-010	07/09/2008	CAS	REG	20	1.1	0.97	2.2	4.8	1.6	ND	0.60
V-12-FINE	V-12-F-1008	P0803584-006	10/23/2008	CAS	REG	2530	170	46	27	1400	600	28	ND
V-12-FINE	V-12-F-0109	P0900177-024	01/13/2009	CAS	REG	2122	130	66	100	820	350	ND	40
V-12-FINE	V-12-F-0709	P0902383-002	07/10/2009	CAS	REG	16	0.65	0.40	1.2	2.2	0.99	0.028	0.10
V-13-COARSE	V-13-C-0108	P2800093-011	01/14/2008	CAS	REG	107	12	ND	ND	ND	94	ND	ND
V-13-COARSE	V-13-C	3D80801-14	04/08/2008	EST	REG	324	28	5.6	ND	ND	290	ND	ND
V-13-COARSE	V-13-C-0109	P0900177-011	01/13/2009	CAS	REG	97	9.1	ND	ND	ND	87	ND	ND
V-13-FINE	V-13-F-0108	P2800093-012	01/14/2008	CAS	REG	122	12	ND	ND	ND	110	ND	ND
V-13-FINE	V-13-F	3D80801-15	04/08/2008	EST	REG	393	36	6.8	ND	ND	350	ND	ND
V-13-FINE	V-13-F-0109	P0900177-012	01/13/2009	CAS	REG	123	12	ND	ND	ND	110	ND	ND
V-14-COARSE	V-14-C-0108	P2800093-006	01/14/2008	CAS	REG	645	190	11	5.2	ND	430	1.7	0.89
V-14-COARSE	PL-510-0108	P2800093-007	01/14/2008	CAS	FD	679	230	8.5	4.2	ND	430	1.2	ND
V-14-COARSE	V-14-C	3D80901-10	04/09/2008	EST	REG	880	230	ND	ND	ND	650	ND	ND
V-14-COARSE	V-14-C	P0801025-001	04/09/2008	CAS	FD	478	130	8.2	3.5	ND	330	1.2	ND
V-14-COARSE	V-14-C-0708	P0802134-007	07/09/2008	CAS	REG	452	150	7.7	ND	ND	290	ND	ND
V-14-COARSE	V-14-C-0109	P0900177-006	01/13/2009	CAS	REG	535	180	7.0	3.7	ND	340	ND	ND
V-14-COARSE	V-14-C-0709	P0902383-003	07/10/2009	CAS	REG	307	98	4.5	2.2	ND	200	ND	ND

TABLE E-8
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR SAMPLES

					Parameter Code	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
					Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose								
SOIL VAPOR MONITOR WELLS (Continued)													
V-14-FINE	V-14-F-0108	P2800093-008	01/14/2008	CAS	REG	782	250	14	6.6	ND	500	2.1	1.1
V-14-FINE	V-14-F	3D80801-09	04/08/2008	EST	REG	1160	300	ND	ND	ND	640	ND	ND
V-14-FINE	V-14-F-0708	P0802134-008	07/09/2008	CAS	REG	497	180	9.6	3.9	ND	300	ND	ND
V-14-FINE	V-14-F-1008	P0803584-001	10/23/2008	CAS	REG	454	150	6.8	3.7	ND	290	ND	ND
V-14-FINE	V-14-F-0109	P0900177-007	01/13/2009	CAS	REG	628	220	9.5	4.4	ND	390	ND	ND
V-14-FINE	V-14-F-0709	P0902383-004	07/10/2009	CAS	REG	360	130	6.4	3.1	ND	220	ND	ND
V-15-COARSE	V-15-C-0108	P2800093-004	01/14/2008	CAS	REG	338	71	2.2	1.4	ND	260	ND	ND
V-15-COARSE	V-15-C	3D80801-16	04/08/2008	EST	REG	920	170	ND	ND	ND	750	ND	ND
V-15-COARSE	V-15-C-0109	P0900177-004	01/13/2009	CAS	REG	285	60	1.4	1.0	ND	220	ND	ND
V-15-FINE	V-15-F-0108	P2800093-005	01/14/2008	CAS	REG	355	78	2.4	1.5	ND	270	ND	ND
V-15-FINE	V-15-F	3D80801-17	04/08/2008	EST	REG	2011	380	13	ND	ND	1600	ND	ND
V-15-FINE	V-15-F-1008	P0803584-002	10/23/2008	CAS	REG	291	53	ND	ND	ND	220	ND	ND
V-15-FINE	V-15-F-0109	P0900177-005	01/13/2009	CAS	REG	286	60	1.7	1.3	ND	220	ND	ND
V-16-COARSE	V-16-C-0108	P2800093-001	01/14/2008	CAS	REG	14	3.6	0.32	0.090	ND	10	0.31	ND
V-16-COARSE	V-16-C	3D80801-18	04/08/2008	EST	REG	65	14	ND	ND	ND	51	ND	ND
V-16-COARSE	V-16-C-0109	P0900177-001	01/13/2009	CAS	REG	18	2.4	0.38	0.47	3.6	11	0.20	0.13
V-16-FINE	V-16-F-0108	P2800093-002	01/14/2008	CAS	REG	19	5.0	0.46	0.12	ND	13	0.46	0.082
V-16-FINE	V-16-F	3D80801-19	04/08/2008	EST	REG	70	14	ND	ND	ND	56	ND	ND
V-16-FINE	V-16-F-0109	P0900177-002	01/13/2009	CAS	REG	16	3.6	0.43	0.13	0.13	11	0.38	0.090
VB-02-COARSE	VB-02-C-0108	P2800124-019	01/16/2008	CAS	REG	6.7	0.70	0.55	0.18	0.037	1.8	ND	ND
VB-02-COARSE	VB-02-C	3D80901-12	04/09/2008	EST	REG	ND	ND	ND	ND	ND	ND	ND	ND
VB-02-FINE	VB-02-F-0108	P2800124-020	01/16/2008	CAS	REG	11	1.9	0.42	0.12	0.019	4.4	0.058	0.11
VB-02-FINE	PL-514-0108	P2800124-021	01/16/2008	CAS	FD	9.3	1.9	0.16	0.057	0.016	4.5	0.060	0.12
VP-18UA	VP-18UA-0108	P2800140-003	01/17/2008	CAS	REG	13115	2400	680	480	2800	5100	43	170
VP-18UA	PL-515-0108	P2800140-004	01/17/2008	CAS	FD	46059	9200	800	460	13000	20000	77	200
VP-18UA	VP-18UA	3D80901-07	04/09/2008	EST	REG	69300	14000	2000	1500	16000	30000	170	560
VP-18UA	VP-18UA-0708	P0802134-005	07/09/2008	CAS	REG	47758	9100	1000	780	11000	23000	68	240
VP-18UA	VP-18UA-1008	P0803584-015	10/23/2008	CAS	REG	103960	19000	1900	1200	24000	52000	ND	ND
VP-18UA	VP-18UA-0109	P0900177-064	01/15/2009	CAS	REG	75670	15000	1700	1700	23000	30000	ND	420
VP-18UA	VP-18UA-0709	P0902383-009	07/10/2009	CAS	REG	35880	7100	930	690	10000	15000	ND	260
VP-18UA	PL-505-0709	P0902383-010	07/10/2009	CAS	FD	39576	7800	1100	780	11000	16000	86	300
VP-19UA	VP-19UA-0108	P2800124-024	01/16/2008	CAS	REG	67446	14000	1100	620	27000	18000	190	690
VP-19UA	VP-19UA	3D80901-08	04/09/2008	EST	REG	14140	3000	250	150	3700	5800	ND	170
VP-19UA	VP-19UA-0708	P0802134-006	07/09/2008	CAS	REG	2794	600	81	41	1100	590	14	51
VP-19UA	VP-19UA-1008	P0803584-016	10/23/2008	CAS	REG	46010	10000	1000	510	16000	14000	190	680
VP-19UA	PL-512-1008	P0803584-017	10/23/2008	CAS	FD	48580	9900	950	450	20000	13000	ND	650
VP-19UA	VP-19UA-0109	P0900177-061	01/15/2009	CAS	REG	57740	12000	1200	770	20000	19000	240	740
VP-19UA	VP-19UA-0709	P0902383-008	07/10/2009	CAS	REG	61940	12000	1300	640	24000	19000	260	910

TABLE E-8
LABORATORY CHEMICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR SAMPLES

					Parameter Code	TVOC	11DCE	TCE	PCE	111TCA	TCTFA	11DCA	12DCP
					Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose								
SOIL VAPOR MONITOR WELLS (Continued)													
W-01-COARSE	W-01-C-0108	P2800106-016	01/15/2008	CAS	REG	58	7.1	4.6	7.7	9.3	13	0.33	0.71
W-01-COARSE	W-01-C	3D80901-11	04/09/2008	EST	REG	181	23	17	25	55	18	1.0	4.6
W-01-COARSE	W-01-C-0109	P0900177-025	01/13/2009	CAS	REG	52	5.3	8.3	6.7	13	7.2	0.45	0.63
W-01-FINE	W-01-F-0108	P2800106-017	01/15/2008	CAS	REG	156	36	21	6.7	11	60	0.88	0.72
W-01-FINE	W-01-F-1008	P0803584-007	10/23/2008	CAS	REG	240	15	12	23	93	34	2.3	3.4
W-01-FINE	W-01-F-0109	P0900177-026	01/13/2009	CAS	REG	166	40	24	8.8	10	56	1.2	0.86

[a] COARSE = Well completed in coarse-grained zone of the upper alluvial deposits unit.
FINE = Well completed in fine-grained zone of the upper alluvial deposits unit.

Parameter Code Abbreviations
- 11DCA = 1,1-Dichloroethane
- 12DCP = 1,2-Dichloropropane
- 11DCE = 1,1-Dichloroethene
- PCE = Tetrachloroethene
- 111TCA = 1,1,1-Trichloroethane
- TCE = Trichloroethene
- TCTFA = Trichlorotrifluoroethane (Freon-113®)
- TVOC = Total volatile organic compounds - calculated by adding the numerical values of all detected compounds

Other Abbreviations
- REG = original
- FD = field duplicate
- EST = Environmental Support Technologies
- CAS =Columbia Analytical Services, Phoenix, Arizona
- ND = not detected
- µg/L = micrograms per liter

The units "micrograms per liter" is equivalent to milligrams per cubic meter, which is the unit used on most laboratory reports.

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TABLE E-9
LABORATORY CHEMICAL RESULTS FOR OTHER VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR SAMPLES

					Parameter	11DCP	124TMBZ	12DCA	12DCBZ	14DCBZ	BZ	C12DCE	CDS	CET	CME	CT	DCDFM	DCDM	DCM	DMK	EB	MEK	MIBK	mp-XYL	MTBE	o-XYL	TCFM	TCM	TOL	VC
					Units	µg/l	µg/l	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/l	µg/l	µg/l	µg/L	µg/l	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/l	µg/L	µg/l	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose																									
GROUNDWATER MONITOR WELLS																														
MW-01UA	MW-01UA-0108	P2800106-022	01/15/2008	CAS	REG						0.40	0.086						3.0	6.2								7.3	0.21	0.48	0.12
MW-01UA	MW-01UA-0109	P0900177-049	01/15/2009	CAS	REG													0.71	6.0					0.52			11		0.53	
MW-04UA	MW-04UA-0108	P2800124-015	01/16/2008	CAS	REG				8.2												3.8			25		11	0.42			
MW-04UA	MW-04UA-0708	P0802134-002	07/09/2008	CAS	REG																						0.030			
MW-04UA	MW-04UA-1008	P0803584-013	10/23/2008	CAS	REG																						0.48			
MW-04UA	MW-04UA-0109	P0900177-051	01/15/2009	CAS	REG																			0.063			0.55			
MW-04UA	MW-04UA-0709	P0902383-006	07/10/2009	CAS	REG																						0.043			
MW-06UA	MW-06UA-0108	P2800124-016	01/16/2008	CAS	REG																						39			
MW-06UA	MW-06UA	P0801025-003	04/09/2008	CAS	FD													9.0	9.5								12			
MW-06UA	MW-06UA-0708	P0802134-003	07/09/2008	CAS	REG																						6.7			
MW-06UA	PL-515-0708	P0802134-004	07/09/2008	CAS	FD																						5.4			
MW-06UA	MW-06UA-1008	P0803584-014	10/23/2008	CAS	REG														13	79		8.9					7.6		5.8	
MW-06UA	MW-06UA-0109	P0900177-052	01/15/2009	CAS	REG																						13			
MW-06UA	MW-06UA-0709	P0902383-007	07/10/2009	CAS	REG																			6.3			4.4			
MW-07UA	MW-07UA-0108	P2800124-010	01/16/2008	CAS	REG				27	1.1											24			120		49			2.4	
MW-07UA	PL-511-1008	P0803584-012	10/23/2008	CAS	FD																						0.41			
MW-07UA	MW-07UA-0109	P0900177-050	01/15/2009	CAS	REG																			0.17			0.36			
MW-07UA	MW-07UA-0709	P0902383-005	07/10/2009	CAS	REG																						0.048			
MW-11UA	MW-11UA-0108	P2800106-001	01/15/2008	CAS	REG																						0.64			
MW-11UA	MW-11UA-0109	P0900177-013	01/13/2009	CAS	REG																						1.5			
MW-12UA	MW-12UA-0108	P2800093-003	01/14/2008	CAS	REG																						0.52			
MW-12UA	MW-12UA-0109	P0900177-003	01/13/2009	CAS	REG																						0.94			
MW-20UA	MW-20UA	3D80901-13	04/09/2008	EST	REG												1.3		13		1.0			3.3		1.0	1.7		11	
MW-21UA	MW-21UA-0808	P0802750-001	08/20/2008	CAS	REG				0.12	0.012	0.011								0.12	0.11	0.10	0.028		0.36		0.14	0.12		0.48	
SOIL VAPOR MONITOR WELLS																														
N-01-COARSE	N-01-C	3D80801-01	04/08/2008	EST	REG																			1.3					1.2	
N-02-COARSE	N-02-C-0108	P2800106-005	01/15/2008	CAS	REG																						0.79			
N-02-COARSE	N-02-C	3D80801-02	04/08/2008	EST	REG																			1.3					1.3	
N-02-COARSE	N-02-C-0109	P0900177-016	01/13/2009	CAS	REG																						0.22			
N-02-FINE	N-02-F-0108	P2800106-006	01/15/2008	CAS	REG																						0.80			
N-02-FINE	N-02-F	3D80801-03	04/08/2008	EST	REG																			1.2					1.2	
N-02-FINE	N-02-F-0109	P0900177-017	01/13/2009	CAS	REG																						0.59			
N-03-COARSE	N-03-C	3D80801-04	04/08/2008	EST	REG																			1.3					1.2	
N-03-FINE	N-03-F	P0801025-002	04/09/2008	CAS	FD																						1.4			
N-03-FINE	N-03-F-0109	P0900177-015	01/13/2009	CAS	REG																						0.74			
NE-01-COARSE	NE-01-C-0108	P2800106-007	01/15/2008	CAS	REG																						0.14			
NE-01-COARSE	NE-01-C	3D80801-07	04/08/2008	EST	REG																			1.2					1.2	
NE-03-COARSE	NE-03-C-0108	P2800093-009	01/14/2008	CAS	REG																						2.3			
NE-03-COARSE	NE-03-C	3D80801-12	04/08/2008	EST	REG																			12					13	
NE-03-COARSE	NE-03-C-0109	P0900177-008	01/13/2009	CAS	REG																						1.2			
NE-03-COARSE	PL-510-0109	P0900177-009	01/13/2009	CAS	FD																						1.2			
NE-03-FINE	NE-03-F-0108	P2800093-010	01/14/2008	CAS	REG																						3.0			
NE-03-FINE	NE-03-F	3D80801-13	04/08/2008	EST	REG																			12			13		12	
NE-03-FINE	NE-03-F-0109	P0900177-010	01/13/2009	CAS	REG																						2.9			
NW-01-COARSE	NW-01-C-0108	P2800106-020	01/15/2008	CAS	REG																					0.30	0.24			
NW-01-COARSE	NW-01-C	3D80801-05	04/08/2008	EST	REG																			2.4					2.5	
NW-01-COARSE	NW-01-C-0109	P0900177-018	01/13/2009	CAS	REG																						0.18			
NW-01-FINE	NW-01-F	3D80801-06	04/08/2008	EST	REG																			2.6					2.5	
NW-01-FINE	NW-01-F-0109	P0900177-019	01/13/2009	CAS	REG																						0.31			

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TABLE E-9
LABORATORY CHEMICAL RESULTS FOR OTHER VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR SAMPLES

					Parameter	11DCP	124TMBZ	12DCA	12DCBZ	14DCBZ	BZ	C12DCE	CDS	CET	CME	CT	DCDFM	DCDM	DCM	DMK	EB	MEK	MIBK	mp-XYL	MTBE	o-XYL	TCFM	TCM	TOL	VC
					Units	µg/l	µg/l	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/l	µg/l	µg/l	µg/L	µg/l	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/l	µg/L	µg/l	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose																									
SOIL VAPOR MONITOR WELLS (Continued)																														
NW-02-COARSE	NW-02-C	3D80801-08	04/08/2008	EST	REG																			1.2					1.2	
NW-02-COARSE	NW-02-C-0109	P0900177-020	01/13/2009	CAS	REG				0.36																	1.0				
NW-02-COARSE	PL-511-0109	P0900177-021	01/13/2009	CAS	FD				0.28																	0.80				
NW-02-FINE	NW-02-F-0108	P2800106-012	01/15/2008	CAS	REG														0.94											
NW-02-FINE	NW-02-F-1008	P0803584-005	10/23/2008	CAS	REG														2.2	28				2.8		3.6			4.9	
NW-02-FINE	NW-02-F-0109	P0900177-022	01/13/2009	CAS	REG				1.6										0.23		0.20			0.80		3.6	0.17		0.089	
P-01-COARSE	P-01-C-0108	P2800140-009	01/17/2008	CAS	REG														99					77		32			41	
P-01-COARSE	P-01-C-0109	P0900177-058	01/15/2009	CAS	REG				10										4.5	88	8.6	3.3		44		17			5.8	
P-01-COARSE	PL-515-0109	P0900177-059	01/15/2009	CAS	FD				9.2										3.7	66	8.1	2.1		42		16			4.8	
P-01-FINE	P-01-F-0108	P2800140-010	01/17/2008	CAS	REG														18	1600		110	7.0	27		11			16	
P-01-FINE	P-01-F-0109	P0900177-060	01/15/2009	CAS	REG								75						210	5100		170		73					81	
P-03-COARSE	P-03-C-0108	P2800124-022	01/16/2008	CAS	REG																			1.0			1.0			
P-03-COARSE	P-03-C-0109	P0900177-045	01/14/2009	CAS	REG				2.8	0.15											0.87			4.9		2.0	0.78		0.12	
P-03-FINE	P-03-F-0109	P0900177-046	01/14/2009	CAS	REG																						16			
SE-01-COARSE	SE-01-C-0108	P2800124-017	01/16/2008	CAS	REG				1.0												0.43			2.9		1.1	0.82			
SE-01-COARSE	SE-01-C-0109	P0900177-053	01/15/2009	CAS	REG				0.47												0.10			0.53		0.29	0.17			
SE-01-COARSE	PL-514-0109	P0900177-054	01/15/2009	CAS	FD				0.17															0.16		0.075	0.14			
SE-01-FINE	SE-01-F-0108	P2800124-018	01/16/2008	CAS	REG				0.58										0.076		0.25			1.8		0.61	0.92			
SE-01-FINE	SE-01-F-0109	P0900177-055	01/15/2009	CAS	REG				0.071															0.085			0.20			
SP-01-COARSE	SP-01-C-0108	P2800124-011	01/16/2008	CAS	REG				160										4.7	26	240			1600		870		4.9	11	
SP-01-COARSE	SP-01-C-0109	P0900177-040	01/14/2009	CAS	REG				270												170			1000		760				
SP-01-FINE	SP-01-F-0108	P2800124-012	01/16/2008	CAS	REG				91										82		700			3300		1100			48	
SP-01-FINE	SP-01-F-0109	P0900177-041	01/14/2009	CAS	REG				110											180	510	31		2100		730			30	
SP-02-COARSE	SP-02-C-0108	P2800124-007	01/16/2008	CAS	REG				27									3.1	9.0	14	45			290		150		3.5	11	
SP-02-COARSE	PL-513-0108	P2800124-008	01/16/2008	CAS	FD				31									3.1	9.0	14	48			310		160		3.6	12	
SP-02-COARSE	SP-02-C-0109	P0900177-031	01/14/2009	CAS	REG				59											48	83			490		200			12	
SP-02-FINE	SP-02-F-0108	P2800124-009	01/16/2008	CAS	REG				75										110		270			1300		410			74	
SP-02-FINE	SP-02-F-0109	P0900177-032	01/14/2009	CAS	REG				54										20	110	180			780		280			36	
SP-03-COARSE	SP-03-C-0108	P2800124-003	01/16/2008	CAS	REG													24	26		6.0			24		13	6.8		11	
SP-03-COARSE	SP-03-C-0109	P0900177-035	01/14/2009	CAS	REG				1.1		0.85	0.42						2.3	16		4.1			12		6.0	4.1	0.40	8.9	1.2
SP-03-FINE	SP-03-F-0108	P2800124-004	01/16/2008	CAS	REG				5.6									23	13		6.6			15		43	15		8.3	
SP-03-FINE	SP-03-F-0109	P0900177-036	01/14/2009	CAS	REG				4.6									3.9	18		4.1			5.8		24	8.5		10	2.0
SP-04-COARSE	SP-04-C-0108	P2800106-018	01/15/2008	CAS	REG				0.85		0.69	2.4							0.60					0.63		3.3		0.70	6.0	
SP-04-COARSE	SP-04-C-0109	P0900177-027	01/13/2009	CAS	REG				0.51		1.3	0.96							0.25						0.12	1.3	0.14	7.3	3.1	
SP-04-FINE	SP-04-F-0108	P2800106-019	01/15/2008	CAS	REG				1.0		0.55	1.8							0.49							6.1		0.90	3.3	
SP-04-FINE	SP-04-F-0109	P0900177-028	01/13/2009	CAS	REG						0.98	1.1							1.3			0.68				1.0		5.3	1.3	
SP-05-COARSE	SP-05-C-0108	P2800106-023	01/15/2008	CAS	REG				0.50									0.72	1.1		0.51			1.1		1.3			1.3	
SP-05-COARSE	SP-05-C-0109	P0900177-029	01/14/2009	CAS	REG				4.7	0.43	0.068	0.22		0.11				0.15	0.35		3.4			25	0.16	11	0.35	0.16	1.1	
SP-05-FINE	SP-05-F-0108	P2800106-024	01/15/2008	CAS	REG				12									2.7	39		19			100		66		2.3	27	
SP-05-FINE	SP-05-F-0109	P0900177-030	01/14/2009	CAS	REG				9.0										33		13			53		42			18	
SP-06-COARSE	SP-06-C-0108	P2800124-001	01/16/2008	CAS	REG						1.6	0.87		1.4				36	88		5.6			22		7.4	7.6		28	0.71
SP-06-COARSE	SP-06-C-0109	P0900177-033	01/14/2009	CAS	REG			0.29	8.1	0.55	0.79	0.51		0.74				2.6	47	6.4	6.2			25	0.40	9.6	4.4		18	0.77
SP-06-FINE	SP-06-F-0108	P2800124-002	01/16/2008	CAS	REG													50	240		5.1			23		6.7	10		33	
SP-06-FINE	SP-06-F-1008	P0803584-008	10/23/2008	CAS	REG			0.81			1.5	0.75		0.94				3.6	150		6.2			19		5.5	7.1		32	0.78
SP-06-FINE	SP-06-F-0109	P0900177-034	01/14/2009	CAS	REG						0.94							3.4	120		4.3			15		4.8	4.4		22	1.1
SP-07-COARSE	SP-07-C-0108	P2800124-005	01/16/2008	CAS	REG				0.95		0.23			0.46				2.4	0.24		0.31			0.82		2.5	2.0	0.34	0.20	
SP-07-COARSE	SP-07-C-0109	P0900177-037	01/14/2009	CAS	REG				0.75	0.027	0.087	0.027		0.072					0.14		0.16			0.49		1.0	0.86	0.11	0.17	0.061
SP-07-COARSE	SP07-C-0109	P0900177-037	01/14/2009	CAS	REG													0.10												
SP-07-COARSE	PL-512-0109	P0900177-038	01/14/2009	CAS	FD				0.27		0.079	0.025		0.069				0.091	0.066		0.040			0.19		0.18	0.83	0.11	0.031	0.048

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TABLE E-9
LABORATORY CHEMICAL RESULTS FOR OTHER VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR SAMPLES

					Parameter	11DCP	124TMBZ	12DCA	12DCBZ	14DCBZ	BZ	C12DCE	CDS	CET	CME	CT	DCDFM	DCDM	DCM	DMK	EB	MEK	MIBK	mp-XYL	MTBE	o-XYL	TCFM	TCM	TOL	VC
					Units	µg/l	µg/l	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/l	µg/l	µg/l	µg/L	µg/l	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/l	µg/L	µg/l	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose																									
SOIL VAPOR MONITOR WELLS (Continued)																														
SP-07-FINE	SP-07-F-0108	P2800124-006	01/16/2008	CAS	REG									0.65				3.5								0.41	2.9	0.67		
SP-07-FINE	SP-07-F-0109	P0900177-039	01/14/2009	CAS	REG						0.16			0.16				0.21						0.15			1.4	0.31		0.13
SP-08-COARSE	SP-08-C-0108	P2800124-013	01/16/2008	CAS	REG				30												91			520		190	7.6			
SP-08-COARSE	SP-08-C-0109	P0900177-047	01/14/2009	CAS	REG				0.84															2.0		0.66	1.5			
SP-08-FINE	SP-08-F-0108	P2800124-014	01/16/2008	CAS	REG				19									0.38			13			43		17	11	0.34	0.26	
SP-08-FINE	SP-08-F-0109	P0900177-048	01/14/2009	CAS	REG																			1.8			4.9			
V-02-COARSE	V-02-C	3D80801-10	04/08/2008	EST	REG												28				5.6			6.4		18			7.1	
V-02-COARSE	V-02-C-0109	P0900177-042	01/14/2009	CAS	REG				4.7												4.4			20		11			0.80	
V-02-FINE	V-02-F	3D80801-11	04/08/2008	EST	REG												270							72			200		80	
V-02-FINE	V-02-F-0109	P0900177-043	01/14/2009	CAS	REG				18												16			78		32	9.9	2.3	1.5	
V-02-FINE	PL-513-0109	P0900177-044	01/14/2009	CAS	FD																			23			10			
V-08-COARSE	V-08-C-0109	P0900177-056	01/15/2009	CAS	REG				3.1																	11		0.24	0.21	
V-08-FINE	V-08-F-0109	P0900177-057	01/15/2009	CAS	REG				1.1										0.14		0.19			0.46		3.7			0.21	
V-09-COARSE	V-09-C-0108	P2800140-001	01/17/2008	CAS	REG														7.4		1.6			6.1		2.4			8.5	
V-09-FINE	V-09-F-0108	P2800140-002	01/17/2008	CAS	REG														1.3					1.6		0.89	1.4		1.9	
V-10-COARSE	V-10-C-0108	P2800140-005	01/17/2008	CAS	REG				2.2										18	90	11	3.8		44		15			58	
V-10-FINE	V-10-F-0108	P2800140-006	01/17/2008	CAS	REG				0.84										2.6		2.2			7.7		3.1			11	
V-11-COARSE	V-11-C-0108	P2800140-007	01/17/2008	CAS	REG				0.65	0.086									0.44		0.43			1.8		0.76		0.068	1.3	
V-11-COARSE	V-11-C-0109	P0900177-062	01/15/2009	CAS	REG				1.8	0.082									0.19	1.0	0.42	0.055		2.5		1.3		0.049	0.14	
V-11-FINE	V-11-F-0108	P2800140-008	01/17/2008	CAS	REG				3.1										7.8		4.3			28		11			10	
V-11-FINE	V-11-F-1008	P0803584-009	10/23/2008	CAS	REG														450	1100	14	42		60		18			81	
V-11-FINE	V-11-F-0109	P0900177-063	01/15/2009	CAS	REG														690	410				71					87	
V-12-COARSE	V-12-C-0108	P2800106-013	01/15/2008	CAS	REG														0.25					0.099		0.058		0.15	0.18	
V-12-COARSE	PL-512-0108	P2800106-014	01/15/2008	CAS	FD														0.26									0.16	0.13	
V-12-COARSE	V-12-C-0708	P0802134-009	07/09/2008	CAS	REG														17	59	2.4	2.0		9.4		4.8			14	
V-12-COARSE	V-12-C-0109	P0900177-023	01/13/2009	CAS	REG				0.27										2.9	48	1.5	0.96		4.3		2.3		0.11	6.4	
V-12-COARSE	V-12-C-0709	P0902383-001	07/10/2009	CAS	REG														11	61	2.6	0.95		8.9		3.4			7.4	
V-12-FINE	V-12-F-0108	P2800106-015	01/15/2008	CAS	REG				6.2										87	280	15	31	3.1	71		28			63	
V-12-FINE	V-12-F-0708	P0802134-010	07/09/2008	CAS	REG				0.45										1.9	2.8	0.28	0.47		1.3		0.76			0.84	
V-12-FINE	V-12-F-1008	P0803584-006	10/23/2008	CAS	REG														98	140		21								
V-12-FINE	V-12-F-0109	P0900177-024	01/13/2009	CAS	REG								10						220	220	17			71		27			51	
V-12-FINE	V-12-F-0709	P0902383-002	07/10/2009	CAS	REG				1.2	0.036									0.51	2.3	0.88	0.16		4.0		1.5			0.28	
V-13-COARSE	V-13-C-0108	P2800093-011	01/14/2008	CAS	REG																						0.92			
V-13-COARSE	V-13-C-0109	P0900177-011	01/13/2009	CAS	REG																						0.75			
V-13-FINE	V-13-F-0109	P0900177-012	01/13/2009	CAS	REG																						0.95			
V-14-COARSE	V-14-C-0108	P2800093-006	01/14/2008	CAS	REG																						6.2			
V-14-COARSE	PL-510-0108	P2800093-007	01/14/2008	CAS	FD																						4.7			
V-14-COARSE	V-14-C	P0801025-001	04/09/2008	CAS	FD																						5.3			
V-14-COARSE	V-14-C-0708	P0802134-007	07/09/2008	CAS	REG																						3.8			
V-14-COARSE	V-14-C-0109	P0900177-006	01/13/2009	CAS	REG																						3.8			
V-14-COARSE	V-14-C-0709	P0902383-003	07/10/2009	CAS	REG																						2.3			
V-14-FINE	V-14-F-0108	P2800093-008	01/14/2008	CAS	REG														1.0								6.7			
V-14-FINE	V-14-F	3D80801-09	04/08/2008	EST	REG																			110					110	
V-14-FINE	V-14-F-0708	P0802134-008	07/09/2008	CAS	REG																						3.9			
V-14-FINE	V-14-F-1008	P0803584-001	10/23/2008	CAS	REG																						3.5			
V-14-FINE	V-14-F-0109	P0900177-007	01/13/2009	CAS	REG																						4.3			
V-15-COARSE	V-15-C-0108	P2800093-004	01/14/2008	CAS	REG																						3.1			
V-15-COARSE	V-15-C-0109	P0900177-004	01/13/2009	CAS	REG																						2.4			
V-15-FINE	V-15-F-0108	P2800093-005	01/14/2008	CAS	REG																						3.4			
V-15-FINE	V-15-F	3D80801-17	04/08/2008	EST	REG																						18			
V-15-FINE	V-15-F-1008	P0803584-002	10/23/2008	CAS	REG					5.2												7.3			2.8		2.7			
V-15-FINE	V-15-F-0109	P0900177-005	01/13/2009	CAS	REG																						2.5			

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TABLE E-9
LABORATORY CHEMICAL RESULTS FOR OTHER VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR SAMPLES

					Parameter	11DCP	124TMBZ	12DCA	12DCBZ	14DCBZ	BZ	C12DCE	CDS	CET	CME	CT	DCDFM	DCDM	DCM	DMK	EB	MEK	MIBK	mp-XYL	MTBE	o-XYL	TCFM	TCM	TOL	VC
					Units	µg/l	µg/l	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/l	µg/l	µg/l	µg/L	µg/l	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/l	µg/L	µg/l	µg/L
Location	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose																									
SOIL VAPOR MONITOR WELLS (Continued)																														
V-16-COARSE	V-16-C-0108	P2800093-001	01/14/2008	CAS	REG																						0.14			
V-16-COARSE	V-16-C-0109	P0900177-001	01/13/2009	CAS	REG																			0.067			0.10		0.11	
V-16-FINE	V-16-F-0108	P2800093-002	01/14/2008	CAS	REG																						0.19		0.079	
V-16-FINE	V-16-F-0109	P0900177-002	01/13/2009	CAS	REG																						0.14			
VB-02-COARSE	VB-02-C-0108	P2800124-019	01/16/2008	CAS	REG				0.42										0.050		0.30			2.0		0.66	0.023		0.017	
VB-02-FINE	VB-02-F-0108	P2800124-020	01/16/2008	CAS	REG				0.26										1.7		0.22			1.5		0.48	0.061			
VB-02-FINE	PL-514-0108	P2800124-021	01/16/2008	CAS	FD				0.085										1.8		0.053			0.39		0.12	0.064			
VP-18UA	VP-18UA-0108	P2800140-003	01/17/2008	CAS	REG														870		22			82		23	75		370	
VP-18UA	PL-515-0108	P2800140-004	01/17/2008	CAS	FD														1700					72			180		370	
VP-18UA	VP-18UA	3D80901-07	04/09/2008	EST	REG														3400					210			260		1200	
VP-18UA	VP-18UA-0708	P0802134-005	07/09/2008	CAS	REG														1800					120			140		510	
VP-18UA	VP-18UA-1008	P0803584-015	10/23/2008	CAS	REG														4500								480		880	
VP-18UA	VP-18UA-0109	P0900177-064	01/15/2009	CAS	REG														2800								250		800	
VP-18UA	VP-18UA-0709	P0902383-009	07/10/2009	CAS	REG														1400										500	
VP-18UA	PL-505-0709	P0902383-010	07/10/2009	CAS	FD														1700					110			140		560	
VP-19UA	VP-19UA-0108	P2800124-024	01/16/2008	CAS	REG														5100					96			240		410	
VP-19UA	VP-19UA	3D80901-08	04/09/2008	EST	REG														950										120	
VP-19UA	VP-19UA-0708	P0802134-006	07/09/2008	CAS	REG														290										27	
VP-19UA	VP-19UA-1008	P0803584-016	10/23/2008	CAS	REG														3100								190		340	
VP-19UA	PL-512-1008	P0803584-017	10/23/2008	CAS	FD								220						3100										310	
VP-19UA	VP-19UA-0109	P0900177-061	01/15/2009	CAS	REG														3200								210		380	
VP-19UA	VP-19UA-0709	P0902383-008	07/10/2009	CAS	REG														3200								210		420	
W-01-COARSE	W-01-C-0108	P2800106-016	01/15/2008	CAS	REG				1.2	0.15									0.45	2.6	0.94	0.36	0.076	4.7		2.1	0.12	0.23	2.0	
W-01-COARSE	W-01-C	3D80901-11	04/09/2008	EST	REG				1.0										11		2.2			4.8		4.2			14	
W-01-COARSE	W-01-C-0109	P0900177-025	01/13/2009	CAS	REG				1.1										0.75	1.2	0.61			2.9		2.8		0.17	0.94	
W-01-FINE	W-01-F-0108	P2800106-017	01/15/2008	CAS	REG				1.8										1.1		4.0			1.8		9.3	0.48		1.1	
W-01-FINE	W-01-F-1008	P0803584-007	10/23/2008	CAS	REG				1.0										4.1	34	2.3	1.4		2.5		5.6			5.9	
W-01-FINE	W-01-F-0109	P0900177-026	01/13/2009	CAS	REG				5.4	0.18									1.4		3.6			1.3		11	0.68	0.35	0.81	

[a] COARSE = Well completed in coarse-grained zone of the upper alluvial deposits unit.
FINE = Well completed in fine-grained zone of the upper alluvial deposits unit.

Parameter Code Abbreviations

11DCP = 1,1-Dichloropropane
124TMBZ = 1,2,4-Trimethylbenzene
12DCA = 1,2-Dichloroethane
12DCBZ = 1,2-Dichlorobenzene
14DCBZ =1,4-dichlorobenzene
BZ = benzene
C12DCE = cis-1,2-Dichloroethene
CDS = carbon disulfide
CET = Chloroethane
CME = Chloromethane
CT = Carbon Tetrachloride
DCDFM = Dichlorodifluoromethane
DCDM = Dichlorofluoromethane (Freon-21®)
DCM = Dichloromethane (Methylene chloride)
DMK = Dimethylketone (Acetone)
EB = Ethylbenzene
MEK = 2-Butanone (Methyl ethyl ketone)
MIBK = 4-Methyl-2-pentanone (Methyl isobutyl ketone)
mp-XYL = 1,3- and 1,4-Dimethylbenzene
MTBE = Methyl-tert-butyl Ether
o-XYL = 1,2-Dimethylbenzene
TCFM = Trichlorofluoromethane (Freon-11®)
TCM = chloroform
TOL = toluene
VC = Vinyl Chloride

Other Abbreviations

REG = original
FD = field duplicate
SPT = split sample
EST = Environmental Support Technologies
CAS =Columbia Analytical Services, Phoenix, Arizona
ND = not detected
µg/L = micrograms per liter

The units "micrograms per liter" is equivalent to milligrams per cubic meter, which is the unit used on most laboratory reports.

HARGIS + ASSOCIATES, INC.

TABLE E-10

SUMMARY OF FIELD MONITORING RESULTS FOR LANDFILL GASES IN SOIL VAPOR AND GROUNDWATER MONITOR WELLS

	Parameter	CARBON DIOXIDE	METHANE	OXYGEN	TRACE ORGANIC GASES
	Units	PERCENT	PERCENT	PERCENT	PPM
Location	Date				
GROUNDWATER MONITOR WELLS					
MW-01UA	1/15/2008	11	0.80	3.9	26
MW-01UA	01/15/2009	8.4	0.50	5.7	379
MW-04UA	1/16/2008	0.0	0.0	20	77
MW-04UA	7/9/2008	0.0	0.0	21	1.6
MW-04UA	10/23/2008	0.0	0.0	21	5.7
MW-04UA	01/15/2009	0.0	0.0	21	161
MW-04UA	07/10/2009	0.0	0.0	21	2.0
MW-06UA	1/16/2008	0.40	0.10	20	480
MW-06UA	7/9/2008	0.20	0.0	21	130
MW-06UA	10/23/2008	0.20	0.0	20	306
MW-06UA	01/15/2009	0.30	0.0	20	1553
MW-06UA	07/10/2009	0.30	0.0	20	160
MW-07UA	1/16/2008	0.0	0.0	21	94
MW-07UA	7/9/2008	0.0	0.0	21	7.3
MW-07UA	10/23/2008	0.0	0.0	21	13
MW-07UA	01/15/2009	0.0	0.0	21	389
MW-07UA	07/10/2009	0.0	0.0	21	3.0
MW-11UA	1/15/2008	0.10	0.0	20	0.80
MW-11UA	10/23/2008	0.0	0.0	21	392
MW-11UA	01/13/2009	0.10	0.0	21	91
MW-12UA	1/14/2008	0.0	0.0	20	7.0
MW-12UA	01/13/2009	0.0	0.0	20	657
MW-20UA	1/18/2008	0.0	0.0	21	207
MW-21UA	8/20/2008	0.0	0.0	21	1.7
SOIL VAPOR MONITOR WELLS					
N-01-COARSE	1/15/2008	0.0	0.0	21	38
N-01-FINE	1/15/2008	0.0	0.0	21	16
N-02-COARSE	1/15/2008	0.0	0.0	20	37
N-02-COARSE	01/13/2009	0.0	0.0	21	9.8
N-02-FINE	1/15/2008	0.0	0.0	20	50
N-02-FINE	01/13/2009	0.0	0.0	21	11
N-03-COARSE	1/15/2008	0.0	0.0	20	67
N-03-COARSE	01/13/2009	0.0	0.0	21	10
N-03-FINE	1/15/2008	0.0	0.0	20	35
N-03-FINE	10/23/2008	0.0	0.0	20	greater than 9999
N-03-FINE	01/13/2009	0.0	0.0	21	13

HARGIS + ASSOCIATES, INC.

TABLE E-10

SUMMARY OF FIELD MONITORING RESULTS FOR LANDFILL GASES IN SOIL VAPOR AND GROUNDWATER MONITOR WELLS

	Parameter	CARBON DIOXIDE	METHANE	OXYGEN	TRACE ORGANIC GASES
	Units	PERCENT	PERCENT	PERCENT	PPM
Location	Date				
SOIL VAPOR MONITOR WELLS (Continued)					
NE-01-COARSE	1/15/2008	0.0	0.0	21	51
NE-01-FINE	1/15/2008	0.0	0.0	21	44
NE-03-COARSE	1/14/2008	0.0	0.0	21	12
NE-03-COARSE	01/13/2009	0.0	0.10	21	205
NE-03-FINE	1/14/2008	0.0	0.0	21	17
NE-03-FINE	01/13/2009	0.0	0.10	21	94
NW-01-COARSE	1/15/2008	0.0	0.0	21	14
NW-01-COARSE	01/13/2009	0.0	0.0	21	1.9
NW-01-FINE	1/15/2008	0.0	0.0	22	19
NW-01-FINE	10/23/2008	0.0	0.0	21	7127
NW-01-FINE	01/13/2009	0.0	0.0	21	4.8
NW-02-COARSE	1/15/2008	0.0	0.0	21	9.6
NW-02-COARSE	01/13/2009	0.0	0.0	21	3.5
NW-02-FINE	1/15/2008	0.0	0.0	21	12
NW-02-FINE	10/23/2008	0.0	0.0	21	68
NW-02-FINE	01/13/2009	0.0	0.0	21	8.5
P-01-COARSE	1/17/2008	2.8	0.40	20	419
P-01-COARSE	01/15/2009	0.10	0.10	22	278
P-01-FINE	1/17/2008	0.10	0.60	20	1271
P-01-FINE	01/15/2009	2.4	1.4	18	31
P-03-COARSE	1/16/2008	2.1	0.0	13	35
P-03-COARSE	01/14/2009	2.6	0.0	13	648
P-03-FINE	1/16/2008	2.4	0.10	11	116
P-03-FINE	01/14/2009	2.6	0.0	12	522
SE-01-COARSE	1/16/2008	0.10	0.10	21	66
SE-01-COARSE	01/15/2009	0.0	0.0	21	197
SE-01-FINE	1/16/2008	0.10	0.0	21	51
SE-01-FINE	01/15/2009	0.0	0.0	22	342
SP-01-COARSE	1/16/2008	6.0	0.80	9.5	869
SP-01-COARSE	01/14/2009	3.3	0.40	16	660
SP-01-FINE	1/16/2008	6.1	5.6	5.6	1874
SP-01-FINE	01/14/2009	1.8	1.5	20	2280

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TABLE E-10

SUMMARY OF FIELD MONITORING RESULTS FOR LANDFILL GASES IN SOIL VAPOR AND GROUNDWATER MONITOR WELLS

	Parameter	CARBON DIOXIDE	METHANE	OXYGEN	TRACE ORGANIC GASES
	Units	PERCENT	PERCENT	PERCENT	PPM
Location	Date				
SOIL VAPOR MONITOR WELLS (Continued)					
SP-02-COARSE	1/16/2008	14	1.0	4.3	272
SP-02-COARSE	01/14/2009	11	1.1	6.3	535
SP-02-FINE	1/16/2008	14	3.7	3.9	725
SP-02-FINE	01/14/2009	7.8	2.4	12	970
SP-03-COARSE	1/16/2008	10	4.5	3.0	41
SP-03-COARSE	01/14/2009	6.9	2.6	6.1	28
SP-03-FINE	1/16/2008	9.0	5.5	2.8	45
SP-03-FINE	01/14/2009	9.1	3.8	2.8	28
SP-04-COARSE	1/15/2008	19	7.0	3.4	30
SP-04-COARSE	01/13/2009	13	0.70	6.9	67
SP-04-FINE	1/15/2008	19	7.2	3.4	69
SP-04-FINE	01/13/2009	14	1.1	6.6	61
SP-05-COARSE	1/15/2008	18	3.4	3.2	8.2
SP-05-COARSE	01/14/2009	0.20	0.0	20	368
SP-05-FINE	1/15/2008	18	8.2	3.4	40
SP-05-FINE	01/14/2009	19	9.6	2.5	202
SP-06-COARSE	1/16/2008	11	6.0	2.4	19
SP-06-COARSE	01/14/2009	6.4	2.9	4.3	321
SP-06-FINE	1/16/2008	14	6.4	2.9	24
SP-06-FINE	10/23/2008	0.0	0.0	21	41
SP-06-FINE	01/14/2009	10	3.4	8.9	55
SP-07-COARSE	1/16/2008	3.9	0.60	8.7	25
SP-07-COARSE	01/14/2009	2.9	0.10	12	12
SP-07-FINE	1/16/2008	4.9	1.5	3.9	26
SP-07-FINE	01/14/2009	4.1	0.30	9.0	15
SP-08-COARSE	1/16/2008	1.8	0.40	14	205
SP-08-COARSE	01/14/2009	1.2	0.0	20	405
SP-08-FINE	1/16/2008	2.2	0.30	13	156
SP-08-FINE	01/14/2009	1.9	0.0	17	354
V-02-COARSE	1/18/2008	4.0	0.60	12	122
V-02-COARSE	01/14/2009	1.2	0.20	20	1167
V-02-FINE	1/18/2008	3.7	0.80	9.2	222
V-02-FINE	01/14/2009	5.1	1.1	11	907

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TABLE E-10

SUMMARY OF FIELD MONITORING RESULTS FOR LANDFILL GASES IN SOIL VAPOR AND GROUNDWATER MONITOR WELLS

	Parameter	CARBON DIOXIDE	METHANE	OXYGEN	TRACE ORGANIC GASES
	Units	PERCENT	PERCENT	PERCENT	PPM
Location	Date				
SOIL VAPOR MONITOR WELLS (Continued)					
V-04-COARSE	1/18/2008	14	5.3	13	340
V-04-COARSE	01/14/2009	14	3.1	6.6	1280
V-04-FINE	1/18/2008	12	8.4	2.9	733
V-04-FINE	01/14/2009	13	6.3	4.4	1632
V-05-COARSE	1/18/2008	8.5	3.1	11	1017
V-05-COARSE	01/14/2009	14	7.5	6.2	828
V-05-FINE	1/18/2008	14	19	3.5	1340
V-05-FINE	01/14/2009	14	25	5.0	1489
V-06-COARSE	1/16/2008	16	2.5	4.5	16
V-06-COARSE	01/14/2009	15	2.2	5.8	1150
V-06-FINE	1/16/2008	16	6.0	2.9	22
V-06-FINE	01/14/2009	17	5.0	2.9	895
V-07-COARSE	1/18/2008	11	4.4	11	626
V-07-COARSE	01/14/2009	16	2.8	4.5	85
V-07-FINE	1/18/2008	21	12	2.8	216
V-07-FINE	01/14/2009	19	8.1	2.6	332
V-08-COARSE	1/17/2008	0.30	0.10	20	76
V-08-COARSE	01/15/2009	1.5	0.10	19	84
V-08-FINE	1/17/2008	0.0	0.0	20	104
V-08-FINE	01/15/2009	0.50	0.0	21	48
V-09-COARSE	1/17/2008	0.10	0.0	19	19
V-09-FINE	1/17/2008	0.20	0.0	19	42
V-10-COARSE	1/17/2008	0.10	0.0	20	134
V-10-FINE	1/17/2008	0.10	0.0	20	93
V-11-COARSE	1/17/2008	0.10	0.0	19	33
V-11-COARSE	01/15/2009	0.10	0.0	21	111
V-11-FINE	1/17/2008	0.10	0.10	20	214
V-11-FINE	10/23/2008	0.0	0.0	21	1230
V-11-FINE	01/15/2009	1.6	0.40	19	819

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TABLE E-10

SUMMARY OF FIELD MONITORING RESULTS FOR LANDFILL GASES IN SOIL VAPOR AND GROUNDWATER MONITOR WELLS

	Parameter	CARBON DIOXIDE	METHANE	OXYGEN	TRACE ORGANIC GASES
	Units	PERCENT	PERCENT	PERCENT	PPM
Location	Date				
SOIL VAPOR MONITOR WELLS (Continued)					
V-12-COARSE	1/15/2008	0.0	0.0	20	14
V-12-COARSE	7/9/2008	0.10	0.0	20	104
V-12-COARSE	01/13/2009	0.10	0.0	20	55
V-12-COARSE	07/10/2009	0.20	0.10	20	98
V-12-FINE	1/15/2008	0.10	0.40	21	361
V-12-FINE	7/9/2008	0.0	0.0	21	17
V-12-FINE	10/23/2008	0.0	0.0	21	350
V-12-FINE	01/13/2009	1.0	0.30	19	394
V-12-FINE	07/10/2009	0.0	0.0	21	13
V-13-COARSE	1/14/2008	0.0	0.0	21	1.6
V-13-COARSE	01/13/2009	0.0	0.10	21	4.3
V-13-FINE	1/14/2008	0.0	0.0	21	1.7
V-13-FINE	01/13/2009	0.0	0.10	21	8.9
V-14-COARSE	1/14/2008	0.0	0.0	21	55
V-14-COARSE	7/9/2008	0.0	0.0	21	46
V-14-COARSE	01/13/2009	0.0	0.10	20	101
V-14-COARSE	07/10/2009	0.10	0.0	21	39
V-14-FINE	1/14/2008	0.10	0.0	21	66
V-14-FINE	7/9/2008	0.0	0.0	21	57
V-14-FINE	10/23/2008	0.0	0.10	20	greater than 9999
V-14-FINE	01/13/2009	0.0	0.10	21	100
V-14-FINE	07/10/2009	0.10	0.0	21	54
V-15-COARSE	1/14/2008	0.10	0.0	21	15
V-15-COARSE	01/13/2009	0.10	0.0	20	45
V-15-FINE	1/14/2008	0.20	0.0	21	17
V-15-FINE	10/23/2008	0.0	0.0	20	greater than 9999
V-15-FINE	01/13/2009	0.10	0.0	20	38
V-16-COARSE	1/14/2008	0.0	0.0	21	0.0
V-16-COARSE	01/13/2009	0.0	0.0	20	100
V-16-FINE	1/14/2008	0.0	0.0	21	0.20
V-16-FINE	01/13/2009	0.10	0.0	20	69
VB-02-COARSE	1/16/2008	0.0	0.0	21	54
VB-02-FINE	1/16/2008	0.0	0.0	21	40
VP-18UA	1/17/2008	5.8	0.70	7.1	1036
VP-18UA	7/9/2008	4.8	0.0	8.9	1759
VP-18UA	10/23/2008	5.4	0.30	8.5	1732
VP-18UA	01/15/2009	5.2	1.0	13	1655
VP-18UA	07/10/2009	4.2	0.70	12	1858

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TABLE E-10

SUMMARY OF FIELD MONITORING RESULTS FOR LANDFILL GASES IN SOIL VAPOR AND GROUNDWATER MONITOR WELLS

	Parameter	CARBON DIOXIDE	METHANE	OXYGEN	TRACE ORGANIC GASES
	Units	PERCENT	PERCENT	PERCENT	PPM
Location	Date				
SOIL VAPOR MONITOR WELLS (Continued)					
VP-19UA	1/16/2008	4.6	0.60	12	883
VP-19UA	7/9/2008	1.0	0.0	17	375
VP-19UA	10/23/2008	1.1	0.0	8.9	1658
VP-19UA	01/15/2009	5.1	0.70	8.5	1475
VP-19UA	07/10/2009	4.3	0.60	10	1646
W-01-COARSE	1/15/2008	0.80	0.10	19	36
W-01-COARSE	01/13/2009	0.60	0.0	20	54
W-01-FINE	1/15/2008	1.0	0.40	19	50
W-01-FINE	10/23/2008	0.0	0.0	21	51
W-01-FINE	01/13/2009	0.80	0.0	20	48

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TABLE E-11

SUMMARY OF LABORATORY RESULTS FOR LANDFILL GASES IN SOIL VAPOR

PURGED FROM SOIL VAPOR AND GROUNDWATER MONITOR WELLS

					Parameter	Carbon Dioxide	Carbon Monoxide	Hydrogen	Methane	Nitrogen	Oxygen
					Units	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
Location[a]	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose						
GROUNDWATER MONITOR WELLS											
MW-01UA	MW-01UA-0108	P2800106-022	1/15/2008	CAS	REG	7.4	ND	ND	0.51	81	11
MW-01UA	MW-01UA-0109	P0900177-049	01/15/2009	CAS	REG	9.5	ND	ND	0.63	84	6.0
MW-04UA	MW-04UA-0108	P2800124-015	1/16/2008	CAS	REG	ND	ND	ND	ND	78	22
MW-04UA	MW-04UA-0109	P0900177-051	01/15/2009	CAS	REG	ND	ND	ND	ND	78	22
MW-04UA	MW-04UA-0709	P0902383-006	07/10/2009	CAS	REG	ND	ND	ND	ND	78	22
MW-06UA	MW-06UA-0108	P2800124-016	1/16/2008	CAS	REG	0.46	ND	ND	ND	79	21
MW-06UA	MW-06UA-0109	P0900177-052	01/15/2009	CAS	REG	0.38	ND	ND	ND	79	21
MW-06UA	MW-06UA-0709	P0902383-007	07/10/2009	CAS	REG	0.37	ND	ND	ND	78	21
MW-07UA	MW-07UA-0108	P2800124-010	1/16/2008	CAS	REG	ND	ND	ND	ND	78	22
MW-07UA	MW-07UA-0109	P0900177-050	01/15/2009	CAS	REG	ND	ND	ND	ND	78	22
MW-07UA	MW-07UA-0709	P0902383-005	07/10/2009	CAS	REG	ND	ND	ND	ND	78	22
MW-11UA	MW-11UA-0108	P2800106-001	1/15/2008	CAS	REG	ND	ND	ND	ND	78	22
MW-11UA	PL-511-0108	P2800106-002	1/15/2008	CAS	FD	ND	ND	ND	ND	78	22
MW-11UA	MW-11UA-0109	P0900177-013	01/13/2009	CAS	REG	ND	ND	ND	ND	78	22
MW-12UA	MW-12UA-0109	P0900177-003	01/13/2009	CAS	REG	ND	ND	ND	ND	78	22
SOIL VAPOR MONITOR WELLS											
NE-03-COARSE	NE-03-C-0109	P0900177-008	01/13/2009	CAS	REG	ND	ND	ND	ND	78	22
N-03-FINE	N-03-F-0108	P2800106-004DUP	1/15/2008	CAS	LD	ND	ND	ND	ND	78	22
N-03-FINE	N-03-F-0108	P2800106-004	1/15/2008	CAS	REG	ND	ND	ND	ND	78	22
NE-01-COARSE	NE-01-C-0108	P2800106-007	1/15/2008	CAS	REG	ND	ND	ND	ND	78	22
NW-01-FINE	NW-01-F-0109	P0900177-019	01/13/2009	CAS	REG	ND	ND	ND	ND	78	22
SP-01-COARSE	SP-01-C-0109	P0900177-040	01/14/2009	CAS	REG	3.9	ND	ND	0.28	80	16
SP-02-FINE	SP-02-F-0108	P2800124-009	1/16/2008	CAS	REG	16	ND	ND	2.9	78	3.1
SP-03-COARSE	SP-03-C-0109	P0900177-035DUP	01/14/2009	CAS	LD	8.7	ND	ND	3.1	84	4.4
SP-03-COARSE	SP-03-C-0109	P0900177-035	01/14/2009	CAS	REG	8.7	ND	ND	3.1	84	4.4
SP-08-COARSE	SP-08-C-0108	P2800124-013	1/16/2008	CAS	REG	2.1	ND	ND	0.21	83	15
V-08-FINE	V-08-F-0109	P0900177-057	01/15/2009	CAS	REG	0.57	ND	ND	ND	78	21
V-11-COARSE	V-11-C-0108	P2800140-007	1/17/2008	CAS	REG	0.28	ND	ND	ND	80	20

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TABLE E-11

SUMMARY OF LABORATORY RESULTS FOR LANDFILL GASES IN SOIL VAPOR

PURGED FROM SOIL VAPOR AND GROUNDWATER MONITOR WELLS

					Parameter	Carbon Dioxide	Carbon Monoxide	Hydrogen	Methane	Nitrogen	Oxygen
					Units	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
Location[a]	Field Sample ID	Lab Sample ID	Date	Lab Name	Sample Purpose						
SOIL VAPOR MONITOR WELLS (Continued)											
V-14-FINE	V-14-F-0709	P0902383-004DUP	07/10/2009	CAS	LD	0.16	ND	ND	ND	78	22
V-14-FINE	V-14-F-0709	P0902383-004	07/10/2009	CAS	REG	0.15	ND	ND	ND	78	22
VP-18UA	VP-18UA-0108	P2800140-003	1/17/2008	CAS	REG	1.7	ND	ND	ND	80	19
VP-18UA	PL-515-0108	P2800140-004	1/17/2008	CAS	FD	6.2	ND	ND	ND	85	8.3
VP-18UA	VP-18UA-0109	P0900177-064	01/15/2009	CAS	REG	6.5	ND	ND	ND	82	12
VP-18UA	PL-505-0709	P0902383-010	07/10/2009	CAS	FD	5.9	ND	ND	ND	82	12
VP-18UA	VP-18UA-0709	P0902383-009	07/10/2009	CAS	REG	6.0	ND	ND	ND	83	12
VP-19UA	VP-19UA-0109	P0900177-061	01/15/2009	CAS	REG	6.2	ND	ND	0.18	86	7.4
VP-19UA	VP-19UA-0709	P0902383-008	07/10/2009	CAS	REG	6.0	ND	ND	ND	85	9.1
W-01-COARSE	W-01-C-0108	P2800106-016	1/15/2008	CAS	REG	0.91	ND	ND	ND	79	20

[a] COARSE = Well completed in coarse-grained zone of the upper alluvial deposits unit.
FINE = Well completed in fine-grained zone of the upper alluvial deposits unit.

Abbreviations

REG = original
FD = field duplicate
ND = not detected
CAS =Columbia Analytical Services, Phoenix, Arizona

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APPENDIX F

DATA VERIFICATION/VALIDATION FOR LABORATORY CHEMICAL RESULTS

2009

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

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Interoffice Memorandum

Date: 3/20/2009 Project No: 617.04

To: File

cc:

From: Jeffrey W. Menken

Re: Hassayampa Landfill January through March 2009 Soil Vapor Data Verification

The following memorandum was compiled to summarize the data verification of January 2009 analytical results for soil vapor samples collected from Hassayampa soil vapor monitor wells at the Hassayampa Landfill Superfund Site, Maricopa County, Arizona (Table 1). All samples were analyzed for volatile organic compounds (VOCs – TO-15). The project laboratory for the sampling event was Columbia Analytical Services (CAS), Simi Valley, California. Selected samples were analyzed for additional analytes.

Samples were collected, analyzed and verified according to procedures listed in the following documents:

> Montgomery, Errol L., & Associates, Inc., 2000. Draft Quality Assurance Project Plan, Hassayampa Landfill EPA Superfund Site, Maricopa County, Arizona. June 15, 2000.

One hundred percent of the samples collected were verified. In cases where CAS re-analyzed a compound, only the re-analyzed concentration was entered into the database.

SUMMARY

The Data Quality Objectives (DQOs) for soil vapor sampling are to provide data that are representative of site conditions. The data will be used to monitor the extent of remediation required, the effectiveness of the remediation and the potential for release of contaminants to the environment associated with the remediation.

Four compounds were assigned the qualifiers of “UJ to indicate and estimated concentration. The qualifiers were based on precision, accuracy, or other data supplied by the laboratory. All data points generated by this soil vapor sampling event are valid and were entered into the database. The completeness is 100%.

The current set of samples was collected according to procedures specified in the current QAPP and analyzed by the same method and laboratory. These data are comparable. In addition, the sampling

plan's Standard Operating Procedures (SOPs) were consistently implemented throughout previous soil vapor sampling events. These SOPs will remain consistent for future sampling events.

OVERALL: the soil vapor data are acceptable for the DQOs of the project.

The following categories of support documentation associated with analytical data were evaluated as part of data verification procedures. If items were noted that were outside laboratory control limits, further data evaluation included: looking at associated quality control data to see if data were outside limits as well (percent recoveries and relative percent differences of LCS/LCSD and MS/MSD, for instance); and comparing the concentration of the potentially affected compound to its historic data. If associated data were within criteria or if the concentration of the compound agreed with its historic data trending, then the validity of the compound was not affected.

1. Sample Holding Times

   .. All samples were analyzed within the method specified holding time.

2. Preservation Procedures

   .. All samples were collected in the field using pre-evacuated canisters.
   .. All samples arrived at CAS at the method-specified temperature.

3. Analytical Methods and Data Reporting

   .. All samples were analyzed as requested on the chain of custody.
   .. No analyses were lost due to breakage, misidentification or incorrect analyses.
   .. All compounds were reported for each sample.

4. Blanks

   .. Laboratory method blanks (MBs) were reviewed for detectable concentrations.
   .. No compounds were detected in the MBs.

5. Laboratory Control Sample/ Laboratory Control Sample Duplicate (LCS/LCSD)

   .. Some laboratory control samples percent recoveries (accuracy) were outside the control limits. Associated quality control data were within criteria and sample concentrations were within historic trends. Therefore the data were not qualified.

6. Surrogate Standard Recoveries

   The surrogate standard recoveries (accuracy) were within control limits.

7. Other

.. "Data Qualifiers" column on each CAS's analytical report sheet
.. For the soil vapor sample SP-06-C-0109 (P0900177-033), a qualifier indicated that acetone concentration may have been biased high by a co-eluting peak. The concentration was on trend and, therefore, not qualified.

8. Data Validation

Selected analyses for January 2009 were validated by Laboratory Data Consultants, Inc. (LDC), Carlsbad, California. The samples were from the report P0900177.
.. LDC qualified data based on: continuing calibration percent differences outside the limits (Table 2).
.. LDC determined all data to be acceptable per the data quality objectives of the Quality Assurance Project Plan, June 15, 2000.

9. Corrective Actions:

None.

Table 1
Soil Vapor Samples
1st Quarter 2009

Field_Sample_ID	Location_ID	Lab_sample_ID	Sample_Date	Sample_Purpose	Analytical_Method	Sample_matrix
MW-01UA-0109	MW-01UA	P0900177-049	15-Jan-09	REG	3C	Air
MW-01UA-0109	MW-01UA	P0900177-049	15-Jan-09	REG	TO-15	Air
MW-04UA-0109	MW-04UA	P0900177-051	15-Jan-09	REG	3C	Air
MW-04UA-0109	MW-04UA	P0900177-051	15-Jan-09	REG	TO-15	Air
MW-06UA-0109	MW-06UA	P0900177-052	15-Jan-09	REG	3C	Air
MW-06UA-0109	MW-06UA	P0900177-052	15-Jan-09	REG	TO-15	Air
MW-07UA-0109	MW-07UA	P0900177-050	15-Jan-09	REG	3C	Air
MW-07UA-0109	MW-07UA	P0900177-050	15-Jan-09	REG	TO-15	Air
MW-11UA-0109	MW-11UA	P0900177-013	13-Jan-09	REG	3C	Air
MW-11UA-0109	MW-11UA	P0900177-013	13-Jan-09	REG	TO-15	Air
MW-12UA-0109	MW-12UA	P0900177-003	13-Jan-09	REG	3C	Air
MW-12UA-0109	MW-12UA	P0900177-003	13-Jan-09	REG	TO-15	Air
N-02-C-0109	N-02-COARSE	P0900177-016	13-Jan-09	REG	TO-15	Air
N-02-F-0109	N-02-FINE	P0900177-017	13-Jan-09	REG	TO-15	Air
N-03-C-0109	N-03-COARSE	P0900177-014	13-Jan-09	REG	TO-15	Air
N-03-F-0109	N-03-FINE	P0900177-015	13-Jan-09	REG	TO-15	Air
NE-03-C-0109	NE-03-COARSE	P0900177-008	13-Jan-09	REG	3C	Air
NE-03-C-0109	NE-03-COARSE	P0900177-008	13-Jan-09	REG	TO-15	Air
NE-03-F-0109	NE-03-FINE	P0900177-010	13-Jan-09	REG	TO-15	Air
NW-01-C-0109	NW-01-COARSE	P0900177-018	13-Jan-09	REG	TO-15	Air
NW-01-F-0109	NW-01-FINE	P0900177-019	13-Jan-09	REG	3C	Air
NW-01-F-0109	NW-01-FINE	P0900177-019	13-Jan-09	REG	TO-15	Air
NW-02-C-0109	NW-02-COARSE	P0900177-020	13-Jan-09	REG	TO-15	Air
NW-02-F-0109	NW-02-FINE	P0900177-022	13-Jan-09	REG	TO-15	Air
P-01-C-0109	P-01-COARSE	P0900177-058	15-Jan-09	REG	TO-15	Air
P-01-F-0109	P-01-FINE	P0900177-060	15-Jan-09	REG	TO-15	Air
P-03-C-0109	P-03-COARSE	P0900177-045	14-Jan-09	REG	TO-15	Air
P-03-F-0109	P-03-FINE	P0900177-046	14-Jan-09	REG	TO-15	Air
SE-01-C-0109	SE-01-COARSE	P0900177-053	15-Jan-09	REG	TO-15	Air
SE-01-F-0109	SE-01-FINE	P0900177-055	15-Jan-09	REG	TO-15	Air
SP-01-C-0109	SP-01-COARSE	P0900177-040	14-Jan-09	REG	3C	Air
SP-01-C-0109	SP-01-COARSE	P0900177-040	14-Jan-09	REG	TO-15	Air
SP-01-F-0109	SP-01-FINE	P0900177-041	14-Jan-09	REG	TO-15	Air
SP-02-C-0109	SP-02-COARSE	P0900177-031	14-Jan-09	REG	TO-15	Air
SP-02-F-0109	SP-02-FINE	P0900177-032	14-Jan-09	REG	TO-15	Air
SP-03-C-0109	SP-03-COARSE	P0900177-035	14-Jan-09	REG	3C	Air
SP-03-C-0109	SP-03-COARSE	P0900177-035	14-Jan-09	REG	TO-15	Air
SP-03-F-0109	SP-03-FINE	P0900177-036	14-Jan-09	REG	TO-15	Air
SP-04-C-0109	SP-04-COARSE	P0900177-027	13-Jan-09	REG	TO-15	Air

Table 1
Soil Vapor Samples
1st Quarter 2009

Field_Sample_ID	Location_ID	Lab_sample_ID	Sample_Date	Sample_Purpose	Analytical_Method	Sample_matrix
SP-04-F-0109	SP-04-FINE	P0900177-028	13-Jan-09	REG	TO-15	Air
SP-05-C-0109	SP-05-COARSE	P0900177-029	14-Jan-09	REG	TO-15	Air
SP-05-F-0109	SP-05-FINE	P0900177-030	14-Jan-09	REG	TO-15	Air
SP-06-C-0109	SP-06-COARSE	P0900177-033	14-Jan-09	REG	TO-15	Air
SP-06-F-0109	SP-06-FINE	P0900177-034	14-Jan-09	REG	TO-15	Air
SP-07-C-0109	SP-07-COARSE	P0900177-037	14-Jan-09	REG	TO-15	Air
SP07-C-0109	SP-07-COARSE	P0900177-037	14-Jan-09	REG	TO-15	Air
SP-07-F-0109	SP-07-FINE	P0900177-039	14-Jan-09	REG	TO-15	Air
SP-08-C-0109	SP-08-COARSE	P0900177-047	14-Jan-09	REG	TO-15	Air
SP-08-F-0109	SP-08-FINE	P0900177-048	14-Jan-09	REG	TO-15	Air
V-02-C-0109	V-02-COARSE	P0900177-042	14-Jan-09	REG	TO-15	Air
V-02-F-0109	V-02-FINE	P0900177-043	14-Jan-09	REG	TO-15	Air
V-08-C-0109	V-08-COARSE	P0900177-056	15-Jan-09	REG	TO-15	Air
V-08-F-0109	V-08-FINE	P0900177-057	15-Jan-09	REG	3C	Air
V-08-F-0109	V-08-FINE	P0900177-057	15-Jan-09	REG	TO-15	Air

Table 1
Soil Vapor Samples
1st Quarter 2009

Field_Sample_ID	Location_ID	Lab_sample_ID	Sample_Date	Sample_Purpose	Analytical_Method	Sample_matrix
V-11-C-0109	V-11-COARSE	P0900177-062	15-Jan-09	REG	TO-15	Air
V-11-F-0109	V-11-FINE	P0900177-063	15-Jan-09	REG	TO-15	Air
V-12-C-0109	V-12-COARSE	P0900177-023	13-Jan-09	REG	TO-15	Air
V-12-F-0109	V-12-FINE	P0900177-024	13-Jan-09	REG	TO-15	Air
V-13-C-0109	V-13-COARSE	P0900177-011	13-Jan-09	REG	TO-15	Air
V-13-F-0109	V-13-FINE	P0900177-012	13-Jan-09	REG	TO-15	Air
V-14-C-0109	V-14-COARSE	P0900177-006	13-Jan-09	REG	TO-15	Air
V-14-F-0109	V-14-FINE	P0900177-007	13-Jan-09	REG	TO-15	Air
V-15-C-0109	V-15-COARSE	P0900177-004	13-Jan-09	REG	TO-15	Air
V-15-F-0109	V-15-FINE	P0900177-005	13-Jan-09	REG	TO-15	Air
V-16-C-0109	V-16-COARSE	P0900177-001	13-Jan-09	REG	TO-15	Air
V-16-F-0109	V-16-FINE	P0900177-002	13-Jan-09	REG	TO-15	Air
VP-18UA-0109	VP-18UA	P0900177-064	15-Jan-09	REG	3C	Air
VP-18UA-0109	VP-18UA	P0900177-064	15-Jan-09	REG	TO-15	Air
VP-19UA-0109	VP-19UA	P0900177-061	15-Jan-09	REG	3C	Air
VP-19UA-0109	VP-19UA	P0900177-061	15-Jan-09	REG	TO-15	Air
W-01-C-0109	W-01-COARSE	P0900177-025	13-Jan-09	REG	TO-15	Air
W-01-F-0109	W-01-FINE	P0900177-026	13-Jan-09	REG	TO-15	Air

TB = trip blank
REG = regular sample
FD = field duplicate
FB = field blank

Table 2
Soil Vapor Qualified Data
1st Quarter 2009

Analysis_Lot_ID	Detect_flag	Lab_result	Field_Sample_ID	Parameter_Code	Parameter_Name	Lab_sample_ID	Validation_Qualifier	HA_Qualifer	Sample_matrix
	N	2.3	MW-01UA-0109	67-64-1	Acetone	P0900177-049	UJ	V	Air
	N	0.062	SE-01-F-0109	74-87-3	Chloromethane	P0900177-055	UJ	V	Air
	N	0.062	SE-01-F-0109	75-01-4	Vinyl Chloride	P0900177-055	UJ	V	Air
	N	0.31	SE-01-F-0109	67-64-1	Acetone	P0900177-055	UJ	V	Air

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Interoffice Memorandum

Date: 9/30/2009 Project No: 617.04

To: File

cc:

From: Jeffrey W. Menken

Re: Hassayampa Landfill July through September 2009 Soil Vapor Data Verification

The following memorandum was compiled to summarize the data verification of July 2009 analytical results for soil vapor samples collected from Hassayampa soil vapor monitor wells at the Hassayampa Landfill Superfund Site, Maricopa County, Arizona (Table 1). All samples were analyzed for volatile organic compounds (VOCs – TO-15). The project laboratory for the sampling event was Columbia Analytical Services (CAS), Simi Valley, California. Selected samples were analyzed for additional analytes.

Samples were collected, analyzed and verified according to procedures listed in the following documents:

> Montgomery, Errol L., & Associates, Inc., 2000. Draft Quality Assurance Project Plan, Hassayampa Landfill EPA Superfund Site, Maricopa County, Arizona. June 15, 2000.

One hundred percent of the samples collected were verified. In cases where CAS re-analyzed a compound, only the re-analyzed concentration was entered into the database.

SUMMARY

The Data Quality Objectives (DQOs) for soil vapor sampling are to provide data that are representative of site conditions. The data will be used to monitor the extent of remediation required, the effectiveness of the remediation and the potential for release of contaminants to the environment associated with the remediation.

All data points generated by this soil vapor sampling event are valid and were entered into the database. The completeness is 100%.

The current set of samples was collected according to procedures specified in the current QAPP and analyzed by the same method and laboratory. These data are comparable. In addition, the sampling plan's Standard Operating Procedures (SOPs) were consistently implemented throughout previous soil vapor sampling events. These SOPs will remain consistent for future sampling events.

OVERALL: the soil vapor data are acceptable for the DQOs of the project.

The following categories of support documentation associated with analytical data were evaluated as part of data verification procedures. If items were noted that were outside laboratory control limits, further data evaluation included: looking at associated quality control data to see if data were outside limits as well (percent recoveries and relative percent differences of LCS/LCSD and MS/MSD, for instance); and comparing the concentration of the potentially affected compound to its historic data. If associated data were within criteria or if the concentration of the compound agreed with its historic data trending, then the validity of the compound was not affected.

1. Sample Holding Times

   .. All samples were analyzed within the method specified holding time.

2. Preservation Procedures

   .. All samples were collected in the field using pre-evacuated canisters.
   .. All samples arrived at CAS at the method-specified temperature.

3. Analytical Methods and Data Reporting

   .. All samples were analyzed as requested on the chain of custody.
   .. No analyses were lost due to breakage, misidentification or incorrect analyses.
   .. All compounds were reported for each sample.

4. Blanks

   .. Laboratory method blanks (MBs) were reviewed for detectable concentrations.
   .. No compounds were detected in the MBs.

5. Laboratory Control Sample/ Laboratory Control Sample Duplicate (LCS/LCSD)

   .. Some laboratory control samples percent recoveries (accuracy) were outside the control limits. Associated quality control data were within criteria and sample concentrations were within historic trends. Therefore the data were not qualified.

6. Surrogate Standard Recoveries

   The surrogate standard recoveries (accuracy) were within control limits.

7. Other

   .. "Data Qualifiers" column on each CAS's analytical report sheet
      .. For the soil vapor samples, there were no other items reported for project samples that required qualification of data.

8. Data Validation

   .. No data were validated for this event.

9. Corrective Actions:

   None.

Table 1
Soil Vapor Samples
3rd Quarter 2009

Field_Sample_ID	Location_ID	Lab_sample_ID	Sample_Date	Sample_Purpose	Analytical_Method	Sample_matrix
MW-04UA-0709	MW-04UA	P0902383-006	10-Jul-09	REG	3C	Air
MW-04UA-0709	MW-04UA	P0902383-006	10-Jul-09	REG	TO-15	Air
MW-06UA-0709	MW-06UA	P0902383-007	10-Jul-09	REG	3C	Air
MW-06UA-0709	MW-06UA	P0902383-007	10-Jul-09	REG	TO-15	Air
MW-07UA-0709	MW-07UA	P0902383-005	10-Jul-09	REG	3C	Air
MW-07UA-0709	MW-07UA	P0902383-005	10-Jul-09	REG	TO-15	Air
PL-505-0709	VP-18UA	P0902383-010	10-Jul-09	FD	3C	Air
PL-505-0709	VP-18UA	P0902383-010	10-Jul-09	FD	TO-15	Air
V-12-C-0709	V-12-COARSE	P0902383-001	10-Jul-09	REG	TO-15	Air
V-12-F-0709	V-12-FINE	P0902383-002	10-Jul-09	REG	TO-15	Air
V-14-C-0709	V-14-COARSE	P0902383-003	10-Jul-09	REG	TO-15	Air
V-14-F-0709	V-14-FINE	P0902383-004	10-Jul-09	REG	3C	Air
V-14-F-0709	V-14-FINE	P0902383-004	10-Jul-09	REG	TO-15	Air
VP-18UA-0709	VP-18UA	P0902383-009	10-Jul-09	REG	3C	Air
VP-18UA-0709	VP-18UA	P0902383-009	10-Jul-09	REG	TO-15	Air
VP-19UA-0709	VP-19UA	P0902383-008	10-Jul-09	REG	3C	Air
VP-19UA-0709	VP-19UA	P0902383-008	10-Jul-09	REG	TO-15	Air

TB = trip blank	NA
REG = regular sample	15
FD = field duplicate	2
FB = field blank	0

Table 2
Soil Vapor Qualified Data
3rd Quarter 2009

Analysis_Lot_ID	Detect_flag	Lab_result	Field_Sample_ID	Parameter_Code	Parameter_Name	Lab_sample_ID	Validation_Qualifier	HA_Qualifer	Sample_matrix
				No data qualified					

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Interoffice Memorandum

Date: 3/20/2009 Project No: 617.04

To: File

cc:

From: Jeffrey W. Menken

Re: Hassayampa Landfill January through March 2009 Water Data Verification

The following memorandum was compiled to summarize the data verification of January through March 2009 analytical results for water samples collected from Hassayampa monitor wells and influent and effluent at the Hassayampa Landfill Superfund Site, Maricopa County, Arizona (Table 1). All samples were analyzed for volatile organic compounds (VOCs - EPA 8260B). The project laboratory for the sampling event was Test America (TAMP), Phoenix, Arizona.

Samples were collected, analyzed and verified according to procedures listed in the following documents:

> Montgomery, Errol L., & Associates, Inc., 2000. Draft Quality Assurance Project Plan, Hassayampa Landfill EPA Superfund Site, Maricopa County, Arizona. June 15, 2000.

One hundred percent of the samples collected were verified. In cases where the lab re-analyzed a compound, only the re-analyzed concentration was entered into the database.

SUMMARY

The Data Quality Objectives (DQOs) for water sampling are to provide data that are representative of site conditions. The data will be used to monitor the extent of remediation required, the effectiveness of the remediation and the potential for release of contaminants to the environment associated with the remediation.

All data were satisfactory. The review was based on precision, accuracy, or other data supplied by the laboratory. All data points generated by this soil vapor sampling event are valid and were entered into the database. The completeness is 100%.

The current set of samples was collected according to procedures specified in the current QAPP and analyzed by the same method and laboratory. These data are comparable. In addition, the sampling plan's Standard Operating Procedures (SOPs) were consistently implemented throughout previous groundwater sampling events. These SOPs will remain consistent for future sampling events.

OVERALL: the water data are acceptable for the DQOs of the project.

The following categories of support documentation associated with analytical data were evaluated as part of data verification procedures. If items were noted that were outside laboratory control limits, further data evaluation included: looking at associated quality control data to see if data were outside limits as well (percent recoveries and relative percent differences of LCS/LCSD and MS/MSD, for instance); and comparing the concentration of the potentially affected compound to its historic data. If associated data were within criteria or if the concentration of the compound agreed with its historic data trending, then the validity of the compound was not affected.

1. Sample Holding Times

   .. All samples were analyzed within the method specified holding time.

2. Preservation Procedures

   .. All samples were collected in the field using bottles with the appropriate preservative.
   .. All samples arrived at TAMP the method-specified temperature.

3. Analytical Methods and Data Reporting

   .. All samples were analyzed as requested on the chain of custody.
   .. No analyses were lost due to breakage, misidentification or incorrect analyses.
   .. All compounds were reported for each sample.

4. Blanks

   .. Trip Blanks (TBs), field blanks (FBs), and laboratory method blanks (MBs) were reviewed for detectable concentrations. No detections occurred in the TBs, FBs or MBs.

5. Laboratory Control Sample/ Laboratory Control Sample Duplicate (LCS/LCSD)

   .. Some laboratory control samples percent recoveries (accuracy) and relative percent differences (RPD) precision were outside the control limits. Associated quality control data were within criteria and sample concentrations were within historic trend. Therefore, data was not qualified.

6. Matrix Spike/Matrix Spike Duplicates (MS/MSDs)

   .. MS/MSDs were reviewed for project samples only.

.. Some MS or MSD percent recoveries (accuracy) were outside the control limits. Associated quality control data were within criteria and sample concentrations were within the historical trend. Therefore the data were not qualified.
.. Some MS/MSD relative percent difference (RPD; precision) values were outside the control limits. Associated quality control data were within criteria and sample concentrations were within the historical trend. Therefore the data were not qualified.

7. Surrogate Standard Recoveries

The surrogate standard recoveries (accuracy) were within control limits.

8. Field Duplicates

.. A field duplicate RPD criterion of 35%, previously established for the routine groundwater monitoring program at the site, is used (EPA Data Review Guidance Manual).
.. All field duplicates RPD's were within the 35% criterion. No samples were qualified.

9. Other

.. "Data Qualifiers" column on each DMA's analytical report sheet
.. For the groundwater samples, there were no other items reported for project samples that required qualification of data.

10. Data Validation

.. No data were validated for this event.

11. Corrective Actions:

None.

Table 1
Groundwater Samples
1st Quarter 2009

Field_Sample_ID	Location_ID	Lab_sample_ID	Sample_Date	Sample_Purpose	Analytical_Method	Sampling_Method_Code
TB-010809	NA	PSA0425-01	1/8/2009	TB	EPA 8260B	
MW-16UA-81.3-0109	MW-16UA	PSA0425-02	1/8/2009	REG	EPA 8260B	PDB
MW-21UA-96.3-0109	MW-21UA	PSA0425-03	1/8/2009	REG	EPA 8260B	PDB
MW-12UA-80.8-0109	MW-12UA	PSA0425-04	1/8/2009	REG	EPA 8260B	PDB
MW-12UA-80.8-0109	MW-12UA	PSA0425-04RE1	1/8/2009	REG	EPA 8260B	PDB
MW-17UA-85.3-0109	MW-17UA	PSA0425-05	1/8/2009	REG	EPA 8260B	PDB
MW-11UA-93.1-0109	MW-11UA	PSA0425-06	1/8/2009	REG	EPA 8260B	PDB
PL-501-0109	MW-11UA	PSA0425-07	1/8/2009	FD	EPA 8260B	PDB
MW-01UA-94.8-0109	MW-01UA	PSA0425-08	1/8/2009	REG	EPA 8260B	PDB
EW-02UA-0109	EW-02UA	PSA0425-09	1/9/2009	REG	EPA 8260B	
EW-03UA-0109	EW-03UA	PSA0425-10	1/9/2009	REG	EPA 8260B	
PL-502-0109	EW-03UA	PSA0425-11	1/9/2009	FD	EPA 8260B	
EW-04UA-0109	EW-04UA	PSA0425-12	1/9/2009	REG	EPA 8260B	
EW-04UA-0109	EW-04UA	PSA0425-12RE1	1/9/2009	REG	EPA 8260B	
INFLUENT-0109	INFLUENT	PSA0425-13	1/9/2009	REG	EPA 8260B	
INFLUENT-0109	INFLUENT	PSA0425-13RE1	1/9/2009	REG	EPA 8260B	
EFFLUENT-0109	EFFLUENT	PSA0425-14	1/9/2009	REG	EPA 8260B	
MW-07UA-91.3-0109	MW-07UA	PSA0425-15	1/8/2009	REG	EPA 8260B	PDB
MW-04UA-86.0-0109	MW-04UA	PSA0425-16	1/8/2009	REG	EPA 8260B	PDB
MW-04UA-86.0-0109	MW-04UA	PSA0425-16RE1	1/8/2009	REG	EPA 8260B	PDB
MW-06UA-86.2-0109	MW-06UA	PSA0425-17	1/8/2009	REG	EPA 8260B	PDB
MW-06UA-86.2-0109	MW-06UA	PSA0425-17RE1	1/8/2009	REG	EPA 8260B	PDB
MW-20UA-88.3-0109	MW-20UA	PSA0425-18	1/8/2009	REG	EPA 8260B	PDB
MW-20UA-88.3-0109	MW-20UA	PSA0425-18RE1	1/8/2009	REG	EPA 8260B	PDB
MW-19UA-93.3-0109	MW-19UA	PSA0425-19	1/8/2009	REG	EPA 8260B	PDB
MW-19UA-93.3-0109	MW-19UA	PSA0425-19RE1	1/8/2009	REG	EPA 8260B	PDB
MW-18UA-91.9-0109	MW-18UA	PSA0425-20	1/8/2009	REG	EPA 8260B	PDB
MW-18UA-91.9-0109	MW-18UA	PSA0425-20RE1	1/8/2009	REG	EPA 8260B	PDB
PL-503-0109	NA	PSA0425-21	1/8/2009	FB	EPA 8260B	
MW-01UB-0109	MW-01UB	PSA0425-22	1/9/2009	REG	EPA 8260B	
MW-03UA-0109	MW-03UA	PSA0425-23	1/9/2009	REG	EPA 8260B	
MW-06UB-0109	MW-06UB	PSA0425-24	1/9/2009	REG	EPA 8260B	
PL-504-0109	NA	PSA0425-25	1/9/2009	FB	EPA 8260B	
MW-04UB-0109	MW-04UB	PSA0425-26	1/9/2009	REG	EPA 8260B	
PL-505-0109	MW-04UB	PSA0425-27	1/9/2009	FD	EPA 8260B	
TB-020509	NA	PSB0438-01	2/5/2009	TB	EPA 8260B	
Effluent-0209	EFFLUENT	PSB0438-02	2/5/2009	REG	EPA 8260B	
Effluent-0209	EFFLUENT	PSB0438-02RE1	2/5/2009	REG	EPA 8260B	
TB-030509	NA	PSC0362-01	3/5/2009	TB	EPA 8260B	
Effluent-0309	EFFLUENT	PSC0362-02	3/5/2009	REG	EPA 8260B	

TB = trip blank
REG = regular sample
FD = field duplicate
FB = field blank

Table 2
Groundwater Qualified Data
1st Quarter 2009

Analysis Lot ID	Type	QC Result	Detect flag	Lab result	Field Sample ID	Parameter Code	Parameter Name	Lab sample ID	Validation Qualifier	HA Qualifer	SAMPLE PURPOSE

No data qualified

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Interoffice Memorandum

Date: 6/30/2009 Project No: 617.04

To: File

cc:

From: Jeffrey W. Menken

Re: Hassayampa Landfill April through June 2009 Water Data Verification

The following memorandum was compiled to summarize the data verification of April through June 2009 analytical results for water samples collected from Hassayampa monitor wells and influent and effluent at the Hassayampa Landfill Superfund Site, Maricopa County, Arizona (Table 1). All samples were analyzed for volatile organic compounds (VOCs - EPA 8260B). The project laboratory for the sampling event was Test America (TAMP), Phoenix, Arizona.

Samples were collected, analyzed and verified according to procedures listed in the following documents:

> Montgomery, Errol L., & Associates, Inc., 2000. Draft Quality Assurance Project Plan, Hassayampa Landfill EPA Superfund Site, Maricopa County, Arizona. June 15, 2000.

One hundred percent of the samples collected were verified. In cases where the lab re-analyzed a compound, only the re-analyzed concentration was entered into the database.

SUMMARY

The Data Quality Objectives (DQOs) for water sampling are to provide data that are representative of site conditions. The data will be used to monitor the extent of remediation required, the effectiveness of the remediation and the potential for release of contaminants to the environment associated with the remediation.

Eight compounds were assigned the qualifier of “UJ” to indicate an estimated concentration. The review was based on precision, accuracy, or other data supplied by the laboratory. All data points generated by this soil vapor sampling event are valid and were entered into the database. The completeness is 100%.

The current set of samples was collected according to procedures specified in the current QAPP and analyzed by the same method and laboratory. These data are comparable. In addition, the sampling plan’s Standard Operating Procedures (SOPs) were consistently implemented throughout previous groundwater sampling events. These SOPs will remain consistent for future sampling events.

OVERALL: the water data are acceptable for the DQOs of the project.

The following categories of support documentation associated with analytical data were evaluated as part of data verification procedures. If items were noted that were outside laboratory control limits, further data evaluation included: looking at associated quality control data to see if data were outside limits as well (percent recoveries and relative percent differences of LCS/LCSD and MS/MSD, for instance); and comparing the concentration of the potentially affected compound to its historic data. If associated data were within criteria or if the concentration of the compound agreed with its historic data trending, then the validity of the compound was not affected.

1. Sample Holding Times

   .. All samples were analyzed within the method specified holding time.

2. Preservation Procedures

   .. All samples were collected in the field using bottles with the appropriate preservative.
   .. All samples arrived at TAMP the method-specified temperature.

3. Analytical Methods and Data Reporting

   .. All samples were analyzed as requested on the chain of custody.
   .. No analyses were lost due to breakage, misidentification or incorrect analyses.
   .. All compounds were reported for each sample.

4. Blanks

   .. Trip Blanks (TBs), field blanks (FBs), and laboratory method blanks (MBs) were reviewed for detectable concentrations. No detections occurred in the TBs, FBs or MBs.

5. Laboratory Control Sample/ Laboratory Control Sample Duplicate (LCS/LCSD)

   .. Some laboratory control samples percent recoveries (accuracy) and relative percent differences (RPD) precision were outside the control limits. Associated quality control data were within criteria and sample concentrations were either ND or within historic trend. Therefore, data was not qualified.

6. Matrix Spike/Matrix Spike Duplicates (MS/MSDs)

   .. MS/MSDs were reviewed for project samples only.

   .. Some MS or MSD percent recoveries (accuracy) were outside the control limits. Associated quality control data were within criteria and sample concentrations were within the historical trend. Therefore the data were not qualified.

.. Some MS/MSD relative percent difference (RPD; precision) values were outside the control limits. Associated quality control data were within criteria and sample concentrations were within the historical trend. Therefore the data were not qualified.

7. Surrogate Standard Recoveries

The surrogate standard recoveries (accuracy) were within control limits.

8. Field Duplicates

.. A field duplicate RPD criterion of 35%, previously established for the routine groundwater monitoring program at the site, is used (EPA Data Review Guidance Manual).
.. All field duplicates RPD's were within the 35% criterion. No samples were qualified.

9. Other

.. "Data Qualifiers" column on each DMA's analytical report sheet
.. Acetone was reported in laboratory results for nine groundwater samples collected on April 7, 2009. Evidence suggests the results are due o lab contamination and are not representative of groundwater. The April acetone concentrations have therefore been excluded from Total VOC calculations.

10. Data Validation

.. .. Selected analyses for April 2009 were validated by Laboratory Data Consultants, Inc. (LDC), Carlsbad, California. The samples were from the report PSD0529.
.. LDC qualified data based on: continuing calibration percent differences outside the limits (Table 2).
.. LDC determined all data to be acceptable per the data quality objectives of the Quality Assurance Project Plan, June 15, 2000.

11. Corrective Actions:

None.

TABLE 1
HASSAYAMPA LANDFILL GROUNDWATER SAMPLES
APRIL THROUGH JUNE 2009

Field_Sample_ID	Location_ID	Lab_sample_ID	Sample Date	Sample Purpose	Analytical Method	Sampling Method Code(1)
TB-040809	NA	09040123-01A	08-Apr-09	TB	SW8260B	
MW-10UA-0409	MW-10UA	09040123-02A	08-Apr-09	REG	SW8260B	
MW-10UA-0409	MW-10UA	09040123-02B	08-Apr-09	REG	EPA200.7 Dissolved	
MW-10UA-0409	MW-10UA	09040123-02B	08-Apr-09	REG	EPA200.8 Dissolved	
MW-10UA-0409	MW-10UA	09040123-02B	08-Apr-09	REG	EPA245.1 Dissolved	
MW-10UA-0409	MW-10UA	09040123-02C	08-Apr-09	REG	EPA150.1	
MW-10UA-0409	MW-10UA	09040123-02C	08-Apr-09	REG	EPA300	
MW-10UA-0409	MW-10UA	09040123-02C	08-Apr-09	REG	Ion Balance	
MW-10UA-0409	MW-10UA	09040123-02C	08-Apr-09	REG	SM 2510 B	
MW-10UA-0409	MW-10UA	09040123-02C	08-Apr-09	REG	SM 2540 C	
MW-10UA-0409	MW-10UA	09040123-02C	08-Apr-09	REG	SM 4500-NO2 B	
MW-10UA-0409	MW-10UA	09040123-02C	08-Apr-09	REG	SM2320 B	
MW-10UA-0409	MW-10UA	09040123-02D	08-Apr-09	REG	EPA353.2	
MW-09UA-0409	MW-09UA	09040123-03A	08-Apr-09	REG	SW8260B	
MW-09UA-0409	MW-09UA	09040123-03B	08-Apr-09	REG	EPA200.7 Dissolved	
MW-09UA-0409	MW-09UA	09040123-03B	08-Apr-09	REG	EPA200.8 Dissolved	
MW-09UA-0409	MW-09UA	09040123-03B	08-Apr-09	REG	EPA245.1 Dissolved	
MW-09UA-0409	MW-09UA	09040123-03C	08-Apr-09	REG	EPA150.1	
MW-09UA-0409	MW-09UA	09040123-03C	08-Apr-09	REG	EPA300	
MW-09UA-0409	MW-09UA	09040123-03C	08-Apr-09	REG	Ion Balance	
MW-09UA-0409	MW-09UA	09040123-03C	08-Apr-09	REG	SM 2510 B	
MW-09UA-0409	MW-09UA	09040123-03C	08-Apr-09	REG	SM 2540 C	
MW-09UA-0409	MW-09UA	09040123-03C	08-Apr-09	REG	SM 4500-NO2 B	
MW-09UA-0409	MW-09UA	09040123-03C	08-Apr-09	REG	SM2320 B	
MW-09UA-0409	MW-09UA	09040123-03D	08-Apr-09	REG	EPA353.2	
MW-08UA-0409	MW-08UA	09040123-04A	08-Apr-09	REG	SW8260B	
MW-08UA-0409	MW-08UA	09040123-04B	08-Apr-09	REG	EPA200.7 Dissolved	
MW-08UA-0409	MW-08UA	09040123-04B	08-Apr-09	REG	EPA200.8 Dissolved	
MW-08UA-0409	MW-08UA	09040123-04B	08-Apr-09	REG	EPA245.1 Dissolved	
MW-08UA-0409	MW-08UA	09040123-04C	08-Apr-09	REG	EPA150.1	
MW-08UA-0409	MW-08UA	09040123-04C	08-Apr-09	REG	EPA300	
MW-08UA-0409	MW-08UA	09040123-04C	08-Apr-09	REG	Ion Balance	
MW-08UA-0409	MW-08UA	09040123-04C	08-Apr-09	REG	SM 2510 B	
MW-08UA-0409	MW-08UA	09040123-04C	08-Apr-09	REG	SM 2540 C	
MW-08UA-0409	MW-08UA	09040123-04C	08-Apr-09	REG	SM 4500-NO2 B	
MW-08UA-0409	MW-08UA	09040123-04C	08-Apr-09	REG	SM2320 B	
MW-08UA-0409	MW-08UA	09040123-04D	08-Apr-09	REG	EPA353.2	

TB = trip blank
REG = regular sample
FD = field duplicate
FB = field blank

(1) submersible pump unless otherwise indicated

TABLE 1
HASSAYAMPA LANDFILL GROUNDWATER SAMPLES
APRIL THROUGH JUNE 2009

Field_Sample_ID	Location_ID	Lab_sample_ID	Sample Date	Sample Purpose	Analytical Method	Sampling Method Code(1)
MW-11UA-0409	MW-11UA	09040123-05A	08-Apr-09	REG	SW8260B	
MW-11UA-0409	MW-11UA	09040123-05B	08-Apr-09	REG	EPA200.7 Dissolved	
MW-11UA-0409	MW-11UA	09040123-05B	08-Apr-09	REG	EPA200.8 Dissolved	
MW-11UA-0409	MW-11UA	09040123-05B	08-Apr-09	REG	EPA245.1 Dissolved	
MW-11UA-0409	MW-11UA	09040123-05C	08-Apr-09	REG	EPA150.1	
MW-11UA-0409	MW-11UA	09040123-05C	08-Apr-09	REG	EPA300	
MW-11UA-0409	MW-11UA	09040123-05C	08-Apr-09	REG	Ion Balance	
MW-11UA-0409	MW-11UA	09040123-05C	08-Apr-09	REG	SM 2510 B	
MW-11UA-0409	MW-11UA	09040123-05C	08-Apr-09	REG	SM 2540 C	
MW-11UA-0409	MW-11UA	09040123-05C	08-Apr-09	REG	SM 4500-NO2 B	
MW-11UA-0409	MW-11UA	09040123-05C	08-Apr-09	REG	SM2320 B	
MW-11UA-0409	MW-11UA	09040123-05D	08-Apr-09	REG	EPA353.2	
TB-040709	NA	PSD0360-01	07-Apr-09	TB	EPA 8260B	
MW-16UA-81.3-0409	MW-16UA	PSD0360-02	07-Apr-09	REG	EPA 8260B	PDB
MW-16UA-81.3-0409	MW-16UA	PSD0360-02RE1	07-Apr-09	REG	EPA 8260B	PDB
MW-21UA-96.3-0409	MW-21UA	PSD0360-03	07-Apr-09	REG	EPA 8260B	PDB
MW-21UA-96.3-0409	MW-21UA	PSD0360-03RE1	07-Apr-09	REG	EPA 8260B	PDB
MW-12UA-80.8-0409	MW-12UA	PSD0360-04	07-Apr-09	REG	EPA 8260B	PDB
MW-12UA-80.8-0409	MW-12UA	PSD0360-04RE1	07-Apr-09	REG	EPA 8260B	PDB
MW-17UA-85.3-0409	MW-17UA	PSD0360-05	07-Apr-09	REG	EPA 8260B	PDB
MW-17UA-85.3-0409	MW-17UA	PSD0360-05RE1	07-Apr-09	REG	EPA 8260B	PDB
MW-01UA-94.8-0409	MW-01UA	PSD0360-06	07-Apr-09	REG	EPA 8260B	PDB
MW-01UA-94.8-0409	MW-01UA	PSD0360-06RE1	07-Apr-09	REG	EPA 8260B	PDB
MW-07UA-91.3-0409	MW-07UA	PSD0360-07	07-Apr-09	REG	EPA 8260B	PDB
MW-07UA-91.3-0409	MW-07UA	PSD0360-07RE1	07-Apr-09	REG	EPA 8260B	PDB
MW-04UA-86.0-0409	MW-04UA	PSD0360-08	07-Apr-09	REG	EPA 8260B	PDB
MW-04UA-86.0-0409	MW-04UA	PSD0360-08RE1	07-Apr-09	REG	EPA 8260B	PDB
PL-501-0409	MW-04UA	PSD0360-09	07-Apr-09	FD	EPA 8260B	PDB
PL-501-0409	MW-04UA	PSD0360-09RE1	07-Apr-09	FD	EPA 8260B	PDB
MW-14UA-94.2-0409	MW-14UA	PSD0360-10	07-Apr-09	REG	EPA 8260B	PDB
MW-14UA-94.2-0409	MW-14UA	PSD0360-10RE1	07-Apr-09	REG	EPA 8260B	PDB
MW-06UA-86.2-0409	MW-06UA	PSD0360-11	07-Apr-09	REG	EPA 8260B	PDB
MW-06UA-86.2-0409	MW-06UA	PSD0360-11RE1	07-Apr-09	REG	EPA 8260B	PDB
MW-06UA-86.2-0409	MW-06UA	PSD0360-11RE2	07-Apr-09	REG	EPA 8260B	PDB
MW-18UA-91.9-0409	MW-18UA	PSD0360-13	07-Apr-09	REG	EPA 8260B	PDB
MW-18UA-91.9-0409	MW-18UA	PSD0360-13RE2	07-Apr-09	REG	EPA 8260B	PDB
MW-18UA-91.9-0409	MW-18UA	PSD0360-13RE3	07-Apr-09	REG	EPA 8260B	PDB
PL-502-0409	NA	PSD0360-14	07-Apr-09	FB	EPA 8260B	
PL-502-0409	NA	PSD0360-14RE1	07-Apr-09	FB	EPA 8260B	

TB = trip blank
REG = regular sample
FD = field duplicate
FB = field blank

(1) submersible pump unless otherwise indicated

TABLE 1
HASSAYAMPA LANDFILL GROUNDWATER SAMPLES
APRIL THROUGH JUNE 2009

Field_Sample_ID	Location_ID	Lab_sample_ID	Sample Date	Sample Purpose	Analytical Method	Sampling Method Code(1)
MW-20UA-88.3-0409	MW-20UA	PSD0360-15	07-Apr-09	REG	EPA 8260B	PDB
MW-20UA-88.3-0409	MW-20UA	PSD0360-15RE1	07-Apr-09	REG	EPA 8260B	PDB
MW-20UA-88.3-0409	MW-20UA	PSD0360-15RE2	07-Apr-09	REG	EPA 8260B	PDB
PL-503-0409	MW-20UA	PSD0360-16	07-Apr-09	FD	EPA 8260B	PDB
PL-503-0409	MW-20UA	PSD0360-16RE1	07-Apr-09	FD	EPA 8260B	PDB
PL-503-0409	MW-20UA	PSD0360-16RE2	07-Apr-09	FD	EPA 8260B	PDB
TB-040809	NA	PSD0529-01	08-Apr-09	TB	EPA 8260B	
MW-10UA-0409	MW-10UA	PSD0529-02	08-Apr-09	REG	EPA 8260B	
MW-10UB-0409	MW-10UB	PSD0529-03	08-Apr-09	REG	EPA 8260B	
PL-504-0409	MW-10UB	PSD0529-04	08-Apr-09	FD	EPA 8260B	
MW-09UA-0409	MW-09UA	PSD0529-05	08-Apr-09	REG	EPA 8260B	
MW-09UB-0409	MW-09UB	PSD0529-06	08-Apr-09	REG	EPA 8260B	
MW-08UA-0409	MW-08UA	PSD0529-07	08-Apr-09	REG	EPA 8260B	
MW-15UB-0409	MW-15UB	PSD0529-08	08-Apr-09	REG	E200.7	
MW-15UB-0409	MW-15UB	PSD0529-08	08-Apr-09	REG	E200.8	
MW-15UB-0409	MW-15UB	PSD0529-08	08-Apr-09	REG	E300	
MW-15UB-0409	MW-15UB	PSD0529-08	08-Apr-09	REG	EPA 8260B	
MW-11UA-0409	MW-11UA	PSD0529-09	08-Apr-09	REG	EPA 8260B	PDB
PL-505-0409	NA	PSD0529-10	08-Apr-09	FB	EPA 8260B	
MW-05UA-0409	MW-05UA	PSD0529-11	08-Apr-09	REG	EPA 8260B	
MW-01UB-0409	MW-01UB	PSD0529-12	08-Apr-09	REG	EPA 8260B	
MW-13UA-0409	MW-13UA	PSD0529-13	08-Apr-09	REG	EPA 8260B	
MW-19UA-0409	MW-19UA	PSD0529-14	07-Apr-09	REG	EPA 8260B	PDB
MW-19UA-0409	MW-19UA	PSD0529-14RE1	07-Apr-09	REG	EPA 8260B	PDB
TB-040909	NA	PSD0560-01	09-Apr-09	TB	EPA 8260B	
EW-02UA-0409	EW-02UA	PSD0560-02	09-Apr-09	REG	EPA 8260B	
EW-01UA-0409	EW-01UA	PSD0560-03	09-Apr-09	REG	EPA 8260B	
MW-02UA-0409	MW-02UA	PSD0560-04	09-Apr-09	REG	EPA 8260B	
MW-02UB-0409	MW-02UB	PSD0560-05	09-Apr-09	REG	EPA 8260B	
MW-03UA-0409	MW-03UA	PSD0560-06	09-Apr-09	REG	EPA 8260B	
MW-03UB-0409	MW-03UB	PSD0560-07	09-Apr-09	REG	EPA 8260B	
EW-03UA-0409	EW-03UA	PSD0560-08	09-Apr-09	REG	EPA 8260B	
EW-04UA-0409	EW-04UA	PSD0560-09	09-Apr-09	REG	EPA 8260B	
EW-04UA-0409	EW-04UA	PSD0560-09RE1	09-Apr-09	REG	EPA 8260B	
PL-506-0409	EW-04UA	PSD0560-10	09-Apr-09	FD	EPA 8260B	
PL-506-0409	EW-04UA	PSD0560-10RE1	09-Apr-09	FD	EPA 8260B	
MW-06UB-0409	MW-06UB	PSD0560-11	09-Apr-09	REG	EPA 8260B	
MW-04UB-0409	MW-04UB	PSD0560-12	09-Apr-09	REG	EPA 8260B	

TB = trip blank
REG = regular sample
FD = field duplicate
FB = field blank

(1) submersible pump unless otherwise indicated

TABLE 1
HASSAYAMPA LANDFILL GROUNDWATER SAMPLES
APRIL THROUGH JUNE 2009

Field_Sample_ID	Location_ID	Lab_sample_ID	Sample Date	Sample Purpose	Analytical Method	Sampling Method Code(1)
INFLUENT-0409	INFLUENT	PSD0560-13	09-Apr-09	REG	EPA 8260B	
INFLUENT-0409	INFLUENT	PSD0560-13RE1	09-Apr-09	REG	EPA 8260B	
PL-507-0409	PL-507	PSD0560-14	09-Apr-09	FB	EPA 8260B	
EFFLUENT-0409	EFFLUENT	PSD0560-15	09-Apr-09	REG	EPA 8260B	
TB-050609	NA	PSE0278-01	06-May-09	TB	EPA 8260B	
Effluent-0509	EFFLUENT	PSE0278-02	06-May-09	REG	EPA 8260B	
TB-060509	NA	PSF0388-01	05-Jun-09	REG	EPA 8260B	
Effluent-0609	EFFLUENT	PSF0388-02	05-Jun-09	REG	EPA 8260B	

REG	105
FD	8
TB	5
FB	4

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TABLE 2
GROUNDWATER QUALIFIED DATA
APRIL-JUNE 2009

Analysis Lot ID	Type	QC Result	Detect flag	Lab result	Field Sample ID	Parameter Code	Parameter Name	Lab sample ID	Validation Qualifier	HA Qualifer	SAMPLE PURPOSE
P9D1038	10. Data validation	Continuing calibration (%D)	N	10	MW-10UA-0409	591-78-6	2-Hexanone	PSD0529-02	UJ	V	REG
P9D1038	10. Data validation	Continuing calibration (%D)	N	10	MW-10UB-0409	591-78-6	2-Hexanone	PSD0529-03	UJ	V	REG
P9D1038	10. Data validation	Continuing calibration (%D)	N	10	MW-10UA-0409	67-64-1	Acetone	PSD0529-02	UJ	V	REG
P9D1038	10. Data validation	Continuing calibration (%D)	N	10	MW-10UB-0409	67-64-1	Acetone	PSD0529-03	UJ	V	REG
P9D1038	10. Data validation	Continuing calibration (%D)	N	5	MW-10UA-0409	75-71-8	Dichlorodifluoromethane	PSD0529-02	UJ	V	REG
P9D1038	10. Data validation	Continuing calibration (%D)	N	5	MW-10UB-0409	75-71-8	Dichlorodifluoromethane	PSD0529-03	UJ	V	REG
P9D1038	10. Data validation	Continuing calibration (%D)	N	10	MW-10UA-0409	78-93-3	2-Butanone (MEK)	PSD0529-02	UJ	V	REG
P9D1038	10. Data validation	Continuing calibration (%D)	N	10	MW-10UB-0409	78-93-3	2-Butanone (MEK)	PSD0529-03	UJ	V	REG

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

1640 South Stapley Drive
Suite 124
Mesa, AZ 85204
Phone: 480.345.0888
Fax: 480.730.0508

Interoffice Memorandum

Date: 9/30/2009 Project No: 617.04

To: File

cc:

From: Jeffrey W. Menken

Re: Hassayampa Landfill July through September 2009 Water Data Verification

The following memorandum was compiled to summarize the data verification of July through September 2009 analytical results for water samples collected from Hassayampa monitor wells and influent and effluent at the Hassayampa Landfill Superfund Site, Maricopa County, Arizona (Table 1). All samples were analyzed for volatile organic compounds (VOCs - EPA 8260B). The project laboratory for the sampling event was Test America (TAMP), Phoenix, Arizona.

Samples were collected, analyzed and verified according to procedures listed in the following documents:

> Montgomery, Errol L., & Associates, Inc., 2000. Draft Quality Assurance Project Plan, Hassayampa Landfill EPA Superfund Site, Maricopa County, Arizona. June 15, 2000.

One hundred percent of the samples collected were verified. In cases where the lab re-analyzed a compound, only the re-analyzed concentration was entered into the database.

SUMMARY

The Data Quality Objectives (DQOs) for water sampling are to provide data that are representative of site conditions. The data will be used to monitor the extent of remediation required, the effectiveness of the remediation and the potential for release of contaminants to the environment associated with the remediation.

All data were satisfactory. The review was based on precision, accuracy, or other data supplied by the laboratory. All data points generated by this soil vapor sampling event are valid and were entered into the database. The completeness is 100%.

The current set of samples was collected according to procedures specified in the current QAPP and analyzed by the same method and laboratory. These data are comparable. In addition, the sampling plan's Standard Operating Procedures (SOPs) were consistently implemented throughout previous groundwater sampling events. These SOPs will remain consistent for future sampling events.

OVERALL: the water data are acceptable for the DQOs of the project.

The following categories of support documentation associated with analytical data were evaluated as part of data verification procedures. If items were noted that were outside laboratory control limits, further data evaluation included: looking at associated quality control data to see if data were outside limits as well (percent recoveries and relative percent differences of LCS/LCSD and MS/MSD, for instance); and comparing the concentration of the potentially affected compound to its historic data. If associated data were within criteria or if the concentration of the compound agreed with its historic data trending, then the validity of the compound was not affected.

1. Sample Holding Times

   .. All samples were analyzed within the method specified holding time.

2. Preservation Procedures

   .. All samples were collected in the field using bottles with the appropriate preservative.
   .. All samples arrived at TAMP the method-specified temperature.

3. Analytical Methods and Data Reporting

   .. All samples were analyzed as requested on the chain of custody.
   .. No analyses were lost due to breakage, misidentification or incorrect analyses.
   .. All compounds were reported for each sample.

4. Blanks

   .. Trip Blanks (TBs), field blanks (FBs), and laboratory method blanks (MBs) were reviewed for detectable concentrations. Acetone was detected in trip blank samples from July 8 and August 6. Acetone was not repoted in groundwater samples from these batches. No detections occurred in the other TBs, FBs or MBs.

5. Laboratory Control Sample/ Laboratory Control Sample Duplicate (LCS/LCSD)

   .. Some laboratory control samples percent recoveries (accuracy) and relative percent differences (RPD) precision were outside the control limits. Associated quality control data were within criteria and sample concentrations were within historic trend. Therefore, data was not qualified.

6. Matrix Spike/Matrix Spike Duplicates (MS/MSDs)

   .. MS/MSDs were reviewed for project samples only.

.. Some MS or MSD percent recoveries (accuracy) were outside the control limits. Associated quality control data were within criteria and sample concentrations were within the historical trend. Therefore the data were not qualified.
.. Some MS/MSD relative percent difference (RPD; precision) values were outside the control limits. Associated quality control data were within criteria and sample concentrations were within the historical trend. Therefore the data were not qualified.

7. Surrogate Standard Recoveries

The surrogate standard recoveries (accuracy) were within control limits.

8. Field Duplicates

.. A field duplicate RPD criterion of 35%, previously established for the routine groundwater monitoring program at the site, is used (EPA Data Review Guidance Manual).
.. All field duplicates RPD's were within the 35% criterion. No samples were qualified.

9. Other

.. "Data Qualifiers" column on each DMA's analytical report sheet
.. For the groundwater samples, there were no other items reported for project samples that required qualification of data.

10. Data Validation

.. No data were validated for this event.

11. Corrective Actions:

None.

TABLE 1
HASSAYAMPA LANDFILL GROUNDWATER SAMPLES
JULY THROUGH SEPTEMBER 2009

Field_Sample_ID	Location_ID	Lab_sample_ID	Sample_Date	Sample_Purpose	Analytical_Method	Sampling_Method_Code
TB-070809B	NA	PSG0417-01	08-Jul-09	TB	EPA 8260B	
EFFLUENT-0709	EFFLUENT	PSG0417-02	08-Jul-09	REG	EPA 8260B	
TB-070809A	NA	PSG0505-01	08-Jul-09	TB	EPA 8260B	
INFLUENT-0709	INFLUENT	PSG0505-02	08-Jul-09	REG	EPA 8260B	
PL-501-0709	NA	PSG0505-03	08-Jul-09	FB	EPA 8260B	
MW-16UA-81.3-0709	MW-16UA	PSG0505-04	08-Jul-09	REG	EPA 8260B	PDB
PL-502-0709	MW-16UA	PSG0505-05	08-Jul-09	FD	EPA 8260B	PDB
MW-21UA-96.3-0709	MW-21UA	PSG0505-06	08-Jul-09	REG	EPA 8260B	PDB
MW-12UA-80.8-0709	MW-12UA	PSG0505-07	08-Jul-09	REG	EPA 8260B	PDB
MW-17UA-85.3-0709	MW-17UA	PSG0505-08	08-Jul-09	REG	EPA 8260B	PDB
MW-11UA-93.1-0709	MW-11UA	PSG0505-09	08-Jul-09	REG	EPA 8260B	PDB
MW-01UA-94.8-0709	MW-01UA	PSG0505-10	08-Jul-09	REG	EPA 8260B	PDB
EW-01UA-0709	EW-01UA	PSG0505-11	08-Jul-09	REG	EPA 8260B	
EW-02UA-0709	EW-02UA	PSG0505-12	08-Jul-09	REG	EPA 8260B	
MW-20UA-88.3-0709	MW-20UA	PSG0505-13	08-Jul-09	REG	EPA 8260B	PDB
MW-06UA-86.2-0709	MW-06UA	PSG0505-14	08-Jul-09	REG	EPA 8260B	PDB
PL-503-0709	MW-06UA	PSG0505-15	08-Jul-09	FD	EPA 8260B	PDB
MW-18UA-91.9-0709	MW-18UA	PSG0505-16	08-Jul-09	REG	EPA 8260B	PDB
MW-18UA-91.9-0709	MW-18UA	PSG0505-16RE1	08-Jul-09	REG	EPA 8260B	PDB
MW-18UA-91.9-0709	MW-18UA	PSG0505-16RE2	08-Jul-09	REG	EPA 8260B	PDB
MW-19UA-93.3-0709	MW-19UA	PSG0505-17	08-Jul-09	REG	EPA 8260B	PDB
MW-19UA-93.3-0709	MW-19UA	PSG0505-17RE1	08-Jul-09	REG	EPA 8260B	PDB
MW-07UA-91.3-0709	MW-07UA	PSG0505-18RE1	08-Jul-09	REG	EPA 8260B	PDB
MW-04UA-86.0-0709	MW-04UA	PSG0505-19	08-Jul-09	REG	EPA 8260B	PDB
EW-03UA-0709	EW-03UA	PSG0505-20	08-Jul-09	REG	EPA 8260B	
EW-04UA-0709	EW-04UA	PSG0505-21	08-Jul-09	REG	EPA 8260B	
EW-04UA-0709	EW-04UA	PSG0505-21RE1	08-Jul-09	REG	EPA 8260B	
MW-01UB-0709	MW-01UB	PSG0505-22	09-Jul-09	REG	EPA 8260B	
MW-13UA-0709	MW-13UA	PSG0505-23	09-Jul-09	REG	EPA 8260B	
MW-03UA-0709	MW-03UA	PSG0505-24	09-Jul-09	REG	EPA 8260B	
MW-06UB-0709	MW-06UB	PSG0505-25	09-Jul-09	REG	EPA 8260B	
PL-504-0709	MW-06UB	PSG0505-26	09-Jul-09	FD	EPA 8260B	
MW-04UB-0709	MW-04UB	PSG0505-27	09-Jul-09	REG	EPA 8260B	
PL-505-0709	NA	PSG0505-28	09-Jul-09	FB	EPA 8260B	

TB = trip blank
REG = regular sample
FD = field duplicate
FB = field blank

(1) submersible pump unless otherwise indicated

TABLE 1
HASSAYAMPA LANDFILL GROUNDWATER SAMPLES
JULY THROUGH SEPTEMBER 2009

Field_Sample_ID	Location_ID	Lab_sample_ID	Sample_Date	Sample_Purpose	Analytical_Method	Sampling_Method_Code
TB-080509	NA	PSH0206-01	05-Aug-09	TB	EPA 8260B	
EFFLUENT-0809	EFFLUENT	PSH0206-02	05-Aug-09	REG	EPA 8260B	
TB-080609	NA	PSH0339-01	06-Aug-09	TB	EPA 8260B	
EW-01UA-0809	EW-01UA	PSH0339-02	06-Aug-09	REG	EPA 8260B	
EW-02UA-0809	EW-02UA	PSH0339-03	06-Aug-09	REG	EPA 8260B	
EW-02UA-0809	EW-02UA	PSH0339-03RE1	06-Aug-09	REG	EPA 8260B	
MW-13UA-0809	MW-13UA	PSH0339-04	06-Aug-09	REG	EPA 8260B	
MW-13UA-0809	MW-13UA	PSH0339-04RE1	06-Aug-09	REG	EPA 8260B	
				REG	33	
				FD	3	
				TB	2	
				FB	4	

TB = trip blank
REG = regular sample
FD = field duplicate
FB = field blank

(1) submersible pump unless otherwise indicated

Table 2
Groundwater Qualified Data
3rd Quarter 2009

Analysis Lot ID	Type	QC Result	Detect flag	Lab result	Field Sample ID	Parameter Code	Parameter Name	Lab sample ID	Validation Qualifier	HA Qualifer	SAMPLE PURPOSE
				No data qualified							

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Mesa, AZ 85204
Phone: 480.345.0888
Fax: 480.730.0508

Interoffice Memorandum

Date: 1/25/2010 Project No: 617.04

To: File

cc:

From: Jeffrey W. Menken

Re: Hassayampa Landfill October through December 2009 Water Data Verification

The following memorandum was compiled to summarize the data verification of October through December 2009 analytical results for water samples collected from Hassayampa monitor wells and influent and effluent at the Hassayampa Landfill Superfund Site, Maricopa County, Arizona (Table 1). All samples were analyzed for volatile organic compounds (VOCs - EPA 8260B). The project laboratory for the sampling event prior to November was Test America, Phoenix, Arizona. The project laboratory for the sampling event after November was Test America, Irvine, California.

Samples were collected, analyzed and verified according to procedures listed in the following documents:

> Montgomery, Errol L., & Associates, Inc., 2000. Draft Quality Assurance Project Plan, Hassayampa Landfill EPA Superfund Site, Maricopa County, Arizona. June 15, 2000.

One hundred percent of the samples collected were verified. In cases where the lab re-analyzed a compound, only the re-analyzed concentration was entered into the database.

SUMMARY

The Data Quality Objectives (DQOs) for water sampling are to provide data that are representative of site conditions. The data will be used to monitor the extent of remediation required, the effectiveness of the remediation and the potential for release of contaminants to the environment associated with the remediation.

All data were satisfactory. The review was based on precision, accuracy, or other data supplied by the laboratory. All data points generated by this soil vapor sampling event are valid and were entered into the database. The completeness is 100%.

The current set of samples was collected according to procedures specified in the current QAPP and analyzed by the same method and laboratory. These data are comparable. In addition, the sampling plan's Standard Operating Procedures (SOPs) were consistently implemented throughout previous groundwater sampling events. These SOPs will remain consistent for future sampling events.

OVERALL: the water data are acceptable for the DQOs of the project.

The following categories of support documentation associated with analytical data were evaluated as part of data verification procedures. If items were noted that were outside laboratory control limits, further data evaluation included: looking at associated quality control data to see if data were outside limits as well (percent recoveries and relative percent differences of LCS/LCSD and MS/MSD, for instance); and comparing the concentration of the potentially affected compound to its historic data. If associated data were within criteria or if the concentration of the compound agreed with its historic data trending, then the validity of the compound was not affected.

1. Sample Holding Times

   .. Several samples collected on October 7, 2009 were analyzed outside the method specified holding time. Analyses for Freon 113 in samples from MW-01UA, MW-04UA, MW-06UA, MW-07UA, MW-12UA, MW-14UA, MW-17UA, MW-07UA dup, MW-18UA, MW-19UA, EW-03UA, EW-04UA, and influent were run past hold. In addition, samples run at a dilution for MW-12UA (1,1-DCE and TCE), MW-18UA (1,1-DCE and 1,1,1-TCE), and MW-19UA (1,1-DCE) were processed past hold. All other groundwater samples for 4Q09 were processed within method specified hold times.

2. Preservation Procedures

   .. All samples were collected in the field using bottles with the appropriate preservative.
   .. All samples arrived at TAMP the method-specified temperature.

3. Analytical Methods and Data Reporting

   .. All samples were analyzed as requested on the chain of custody.
   .. No analyses were lost due to breakage, misidentification or incorrect analyses.
   .. All compounds were reported for each sample.

4. Blanks

   .. Trip Blanks (TBs), field blanks (FBs), and laboratory method blanks (MBs) were reviewed for detectable concentrations. No detections occurred in the other TBs, FBs or MBs.

5. Laboratory Control Sample/ Laboratory Control Sample Duplicate (LCS/LCSD)

   .. Some laboratory control samples percent recoveries (accuracy) and relative percent differences (RPD) precision were outside the control limits. Associated quality control data were within criteria and sample concentrations were within historic trend. Therefore, data was not qualified.

6. Matrix Spike/Matrix Spike Duplicates (MS/MSDs)

   .. MS/MSDs were reviewed for project samples only.

   .. Some MS or MSD percent recoveries (accuracy) were outside the control limits. Associated quality control data were within criteria and sample concentrations were within the historical trend. Therefore the data were not qualified.
   .. Some MS/MSD relative percent difference (RPD; precision) values were outside the control limits. Associated quality control data were within criteria and sample concentrations were within the historical trend. Therefore the data were not qualified.

7. Surrogate Standard Recoveries

   The surrogate standard recoveries (accuracy) were within control limits.

8. Field Duplicates

   .. A field duplicate RPD criterion of 35%, previously established for the routine groundwater monitoring program at the site, is used (EPA Data Review Guidance Manual).
   .. All field duplicates RPD's were within the 35% criterion. No samples were qualified.

9. Other

   .. "Data Qualifiers" column on each DMA's analytical report sheet
      .. For the groundwater samples, there were no other items reported for project samples that required qualification of data.

10. Data Validation

    .. Selected analyses for October 2009 were validated by Laboratory Data Consultants, Inc. (LDC), Carlsbad, California. The samples were from the report PSJ0385.
    .. LDC qualified data based on: technical holding times, continuing calibration percent differences outside the limits, laboratory control samples percent recovery outside limits and compound quantitation and CRQLs outside criteria (Table 2).
    .. LDC determined all data to be acceptable per the data quality objectives of the Quality Assurance Project Plan, June 15, 2000.

11. Corrective Actions:

    Due to the recurrence of laboratory errors associated with the TestAmerica Phoenix laboratory, beginning December 2009 all samples will be processed by TestAmerica Laboratory in Irvine California.

TABLE 1
HASSAYAMPA LANDFILL GROUNDWATER SAMPLES
OCTOBER THROUGH DECEMBER 2009

Location ID	Field Sample ID	Lab sample ID	Sample Date	Sample Purpose	Analytical Method	Sampling Method Code
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	Calc	
EFFLUENT	Effluent 1009	PSJ0383-01RE1	07-Oct-09	REG	SW8082	
EFFLUENT	Effluent 1009	PSJ0383-01RE1	07-Oct-09	REG	EPA 300.0	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	SW8270C	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	SW8081A	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	SM4500-NH3D	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	EPA 8260B	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	E300	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	SM2540C	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	EPA 300.0	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	M2320 B	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	M2510 B	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	M4500-CN E	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	M4500-H+	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	M4500-P B, E	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	SM2330B	
EFFLUENT	Effluent 1009	PSJ0383-01	07-Oct-09	REG	E200.7	
EFFLUENT	Effluent-1009	PSJ0383-02RE1	07-Oct-09	REG	E200.8	
EFFLUENT	Effluent-1009	PSJ0383-02	07-Oct-09	REG	E245.1	
EFFLUENT	Effluent-1009	PSJ0383-02	07-Oct-09	REG	E200.7	
EFFLUENT	EFFLUENT-1109	PSK0197-02	04-Nov-09	REG	EPA 8260B	
EFFLUENT	EFFLUENT-1209	ISL1565-02	10-Dec-09	REG	EPA 8260B	
EW-01UA	EW-01UA-1009	PSJ0513-11	08-Oct-09	REG	EPA 8260B	
EW-01UA	EW-01UA-1209	ISL1566-02	10-Dec-09	REG	EPA 8260B	
EW-02UA	EW-02UA-1009	PSJ0513-12	08-Oct-09	REG	EPA 8260B	
EW-02UA	EW-02UA-1209	ISL1566-03	10-Dec-09	REG	EPA 8260B	
EW-03UA	EW-03UA-1009	PSJ0385-10	07-Oct-09	REG	EPA 8260B	
EW-03UA	EW-03UA-1009	PSJ0385-10RE1	07-Oct-09	REG	EPA 8260B	
EW-04UA	EW-04UA-1009	PSJ0385-13RE1	07-Oct-09	REG	EPA 8260B	
EW-04UA	EW-04UA-1009	PSJ0385-13RE2	07-Oct-09	REG	EPA 8260B	
EW-04UA	EW-04UA-1009	PSJ0385-13RE3	07-Oct-09	REG	EPA 8260B	
EW-04UA	EW-04UA-1009	PSJ0385-13	07-Oct-09	REG	EPA 8260B	
INFLUENT	Influent-1009	PSJ0385-20	07-Oct-09	REG	E200.8	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	SM4500-NH3D	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	SW8081A	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	SW8270C	
INFLUENT	Influent-1009	PSJ0385-19RE1	07-Oct-09	REG	EPA 300.0	
INFLUENT	Influent-1009	PSJ0385-19RE1	07-Oct-09	REG	EPA 8260B	
INFLUENT	Influent-1009	PSJ0385-20	07-Oct-09	REG	E200.7	
INFLUENT	Influent-1009	PSJ0385-20	07-Oct-09	REG	E245.1	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	M4500-CN E	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	SM2540C	
INFLUENT	Influent-1009	PSJ0385-19RE1	07-Oct-09	REG	SW8082	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	E300	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	SM2330B	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	E200.7	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	EPA 300.0	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	EPA 8260B	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	M2320 B	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	M2510 B	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	M4500-P B, E	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	M4500-H+	
INFLUENT	Influent-1009	PSJ0385-19	07-Oct-09	REG	Calc	
MW-01UA	MW-01UA-94.8-1009	PSJ0385-07RE1	07-Oct-09	REG	EPA 8260B	PDB
MW-01UA	MW-01UA-94.8-1009	PSJ0385-07	07-Oct-09	REG	EPA 8260B	PDB
MW-01UB	MW-01UB-1009	PSJ0513-10	08-Oct-09	REG	EPA 8260B	
MW-02UA	MW-02UA-1009	PSJ0604-04	09-Oct-09	REG	EPA 8260B	
MW-02UB	MW-02UB-1009	PSJ0604-05	09-Oct-09	REG	EPA 8260B	
MW-02UB	PL-508-1009	PSJ0604-06	09-Oct-09	FD	EPA 8260B	
MW-03UA	MW-03UA-1009	PSJ0604-07	09-Oct-09	REG	EPA 8260B	
MW-03UB	MW-03UB-1009	PSJ0604-08	09-Oct-09	REG	EPA 8260B	
MW-04UA	MW-04UA-86.0-1009	PSJ0385-09	07-Oct-09	REG	EPA 8260B	PDB
MW-04UA	MW-04UA-86.0-1009	PSJ0385-09RE2	07-Oct-09	REG	EPA 8260B	PDB
MW-04UA	MW-04UA-86.0-1009	PSJ0385-09RE1	07-Oct-09	REG	EPA 8260B	PDB
MW-04UB	MW-04UB-1009	PSJ0604-09	09-Oct-09	REG	EPA 8260B	
MW-06UA	MW-06UA-86.2-1009	PSJ0385-15	07-Oct-09	REG	EPA 8260B	PDB
MW-06UA	MW-06UA-86.2-1009	PSJ0385-15RE1	07-Oct-09	REG	EPA 8260B	PDB
MW-06UA	MW-06UA-86.2-1009	PSJ0385-15RE2	07-Oct-09	REG	EPA 8260B	PDB
MW-06UA	MW-06UA-86.2-1009	PSJ0385-15RE3	07-Oct-09	REG	EPA 8260B	PDB
MW-06UB	MW-06UB-1009	PSJ0604-10	09-Oct-09	REG	EPA 8260B	
MW-07UA	MW-07UA-91.3-1009	PSJ0385-08	07-Oct-09	REG	EPA 8260B	PDB
MW-07UA	MW-07UA-91.3-1009	PSJ0385-08RE1	07-Oct-09	REG	EPA 8260B	PDB
MW-07UA	MW-07UA-91.3-1009	PSJ0385-08RE2	07-Oct-09	REG	EPA 8260B	PDB
MW-08UA	MW-08UA-1009	09100142-04C	08-Oct-09	REG	SM 2540 C	
MW-08UA	MW-08UA-1009	09100142-04A	08-Oct-09	REG	SW8260B	
MW-08UA	MW-08UA-1009	09100142-04B	08-Oct-09	REG	EPA200.7 Dissolved	
MW-08UA	MW-08UA-1009	09100142-04B	08-Oct-09	REG	EPA200.8 Dissolved	
MW-08UA	MW-08UA-1009	09100142-04B	08-Oct-09	REG	EPA245.1 Dissolved	
MW-08UA	MW-08UA-1009	09100142-04C	08-Oct-09	REG	EPA150.1	
MW-08UA	MW-08UA-1009	09100142-04C	08-Oct-09	REG	EPA300	
MW-08UA	MW-08UA-1009	09100142-04C	08-Oct-09	REG	SM 2510 B	
MW-08UA	MW-08UA-1009	09100142-04C	08-Oct-09	REG	SM 4500-NO2 B	
MW-08UA	MW-08UA-1009	09100142-04C	08-Oct-09	REG	SM2320 B	
MW-08UA	MW-08UA-1009	09100142-04D	08-Oct-09	REG	EPA353.2	
MW-08UA	MW-08UA-1009	PSJ0513-06	08-Oct-09	REG	EPA 8260B	
MW-08UA	MW-08UA-1009	09100142-04C	08-Oct-09	REG	Ion Balance	

TB = trip blank
REG = regular sample
FD = field duplicate
FB = field blank
ERB = equipment rinsate blank

(1) submersible pump unless otherwise indicated

TABLE 1
HASSAYAMPA LANDFILL GROUNDWATER SAMPLES
OCTOBER THROUGH DECEMBER 2009

Location ID	Field Sample ID	Lab sample ID	Sample Date	Sample Purpose	Analytical Method	Sampling Method Code
MW-09UA	MW-09UA-1009	09100142-03B	08-Oct-09	REG	EPA245.1 Dissolved	
MW-09UA	MW-09UA-1009	PSJ0513-03	08-Oct-09	REG	EPA 8260B	
MW-09UA	MW-09UA-1009	09100142-03D	08-Oct-09	REG	EPA353.2	
MW-09UA	MW-09UA-1009	09100142-03C	08-Oct-09	REG	SM2320 B	
MW-09UA	MW-09UA-1009	09100142-03C	08-Oct-09	REG	SM 4500-NO2 B	
MW-09UA	MW-09UA-1009	09100142-03C	08-Oct-09	REG	SM 2540 C	
MW-09UA	MW-09UA-1009	09100142-03C	08-Oct-09	REG	SM 2510 B	
MW-09UA	MW-09UA-1009	09100142-03C	08-Oct-09	REG	Ion Balance	
MW-09UA	MW-09UA-1009	09100142-03C	08-Oct-09	REG	EPA150.1	
MW-09UA	MW-09UA-1009	09100142-03B	08-Oct-09	REG	EPA200.8 Dissolved	
MW-09UA	MW-09UA-1009	09100142-03B	08-Oct-09	REG	EPA200.7 Dissolved	
MW-09UA	MW-09UA-1009	09100142-03A	08-Oct-09	REG	SW8260B	
MW-09UA	MW-09UA-1009	09100142-03C	08-Oct-09	REG	EPA300	
MW-09UB	MW-09UB-1009	PSJ0513-04	08-Oct-09	REG	EPA 8260B	
MW-09UB	PL-504-1009	PSJ0513-05	08-Oct-09	FD	EPA 8260B	
MW-10UA	MW-10UA-1009	09100142-02C	08-Oct-09	REG	SM 2540 C	
MW-10UA	MW-10UA-1009	PSJ0513-02	08-Oct-09	REG	EPA 8260B	
MW-10UA	MW-10UA-1009	09100142-02D	08-Oct-09	REG	EPA353.2	
MW-10UA	MW-10UA-1009	09100142-02A	08-Oct-09	REG	SW8260B	
MW-10UA	MW-10UA-1009	09100142-02C	08-Oct-09	REG	SM 4500-NO2 B	
MW-10UA	MW-10UA-1009	09100142-02C	08-Oct-09	REG	SM 2510 B	
MW-10UA	MW-10UA-1009	09100142-02C	08-Oct-09	REG	Ion Balance	
MW-10UA	MW-10UA-1009	09100142-02C	08-Oct-09	REG	EPA300	
MW-10UA	MW-10UA-1009	09100142-02C	08-Oct-09	REG	EPA150.1	
MW-10UA	MW-10UA-1009	09100142-02B	08-Oct-09	REG	EPA245.1 Dissolved	
MW-10UA	MW-10UA-1009	09100142-02B	08-Oct-09	REG	EPA200.8 Dissolved	
MW-10UA	MW-10UA-1009	09100142-02B	08-Oct-09	REG	EPA200.7 Dissolved	
MW-10UA	MW-10UA-1009	09100142-02C	08-Oct-09	REG	SM2320 B	
MW-11UA	MW-11UA-1009	09100142-05C	08-Oct-09	REG	SM 2510 B	
MW-11UA	MW-11UA-1009	09100142-05D	08-Oct-09	REG	EPA353.2	
MW-11UA	MW-11UA-1009	09100142-05C	08-Oct-09	REG	SM2320 B	
MW-11UA	MW-11UA-1009	09100142-05C	08-Oct-09	REG	SM 4500-NO2 B	
MW-11UA	MW-11UA-1009	09100142-05C	08-Oct-09	REG	Ion Balance	
MW-11UA	MW-11UA-1009	09100142-05C	08-Oct-09	REG	EPA300	
MW-11UA	MW-11UA-1009	09100142-05C	08-Oct-09	REG	EPA150.1	
MW-11UA	MW-11UA-1009	09100142-05B	08-Oct-09	REG	EPA245.1 Dissolved	
MW-11UA	MW-11UA-1009	09100142-05B	08-Oct-09	REG	EPA200.8 Dissolved	
MW-11UA	MW-11UA-1009	09100142-05B	08-Oct-09	REG	EPA200.7 Dissolved	
MW-11UA	MW-11UA-1009	09100142-05A	08-Oct-09	REG	SW8260B	
MW-11UA	MW-11UA-1009	09100142-05C	08-Oct-09	REG	SM 2540 C	
MW-11UA	MW-11UA-93.1-1009	PSJ0513-07	08-Oct-09	REG	EPA 8260B	PDB
MW-12UA	MW-12UA-80.8-1009	PSJ0385-04RE2	07-Oct-09	REG	EPA 8260B	PDB
MW-12UA	MW-12UA-80.8-1009	PSJ0385-04	07-Oct-09	REG	EPA 8260B	PDB
MW-12UA	MW-12UA-80.8-1009	PSJ0385-04RE1	07-Oct-09	REG	EPA 8260B	PDB
MW-13UA	MW-13UA-1009	PSJ0604-02	09-Oct-09	REG	EPA 8260B	
MW-13UA	MW-13UA-1209	ISL1566-04	10-Dec-09	REG	EPA 8260B	
MW-14UA	MW-14UA-94.2-1009	PSJ0385-11	07-Oct-09	REG	EPA 8260B	PDB
MW-14UA	MW-14UA-94.2-1009	PSJ0385-11RE1	07-Oct-09	REG	EPA 8260B	PDB
MW-14UA	PL-502-1009	PSJ0385-12	07-Oct-09	FD	EPA 8260B	PDB
MW-14UA	PL-502-1009	PSJ0385-12RE1	07-Oct-09	FD	EPA 8260B	PDB
MW-16UA	MW-16UA-81.3-1009	PSJ0385-02	07-Oct-09	REG	EPA 8260B	PDB
MW-17UA	MW-17UA-85.3-1009	PSJ0385-05	07-Oct-09	REG	EPA 8260B	PDB
MW-17UA	MW-17UA-85.3-1009	PSJ0385-05RE1	07-Oct-09	REG	EPA 8260B	PDB
MW-17UA	PL-501-1009	PSJ0385-06RE1	07-Oct-09	FD	EPA 8260B	PDB
MW-17UA	PL-501-1009	PSJ0385-06	07-Oct-09	FD	EPA 8260B	PDB
MW-18UA	MW-18UA-91.9-1009	PSJ0385-17	07-Oct-09	REG	EPA 8260B	PDB
MW-18UA	MW-18UA-91.9-1009	PSJ0385-17RE1	07-Oct-09	REG	EPA 8260B	PDB
MW-19UA	MW-19UA-93.3-1009	PSJ0385-16	07-Oct-09	REG	EPA 8260B	PDB
MW-19UA	MW-19UA-93.3-1009	PSJ0385-16RE1	07-Oct-09	REG	EPA 8260B	PDB
MW-19UA	MW-19UA-93.3-1009	PSJ0385-16RE2	07-Oct-09	REG	EPA 8260B	PDB
MW-20UA	MW-20UA-88.3-1009	PSJ0385-14	07-Oct-09	REG	EPA 8260B	PDB
MW-20UA	MW-20UA-88.3-1009	PSJ0385-14RE1	07-Oct-09	REG	EPA 8260B	PDB
MW-20UA	MW-20UA-88.3-1009	PSJ0385-14RE2	07-Oct-09	REG	EPA 8260B	PDB
MW-21UA	MW-21UA-96.3-1009	PSJ0385-03	07-Oct-09	REG	EPA 8260B	PDB
NA	PL-503-1009	PSJ0385-18	07-Oct-09	FB	EPA 8260B	
NA	TB-100709	PSJ0385-01	07-Oct-09	TB	EPA 8260B	
NA	PL-505-1009	PSJ0513-08	08-Oct-09	FB	EPA 8260B	
NA	PL-506-1009	PSJ0513-09	08-Oct-09	ERB	EPA 8260B	
NA	TB-100809A	PSJ0513-01	08-Oct-09	TB	EPA 8260B	
NA	TB-100809B	09100142-01A	08-Oct-09	TB	SW8260B	
NA	TB-100809B	09100142-01A	08-Oct-09	REG	SW8260B	
NA	PL-507-1009	PSJ0604-03	09-Oct-09	FB	EPA 8260B	
NA	TB-100909	PSJ0604-01	09-Oct-09	TB	EPA 8260B	
NA	TB-110409	PSK0197-01	04-Nov-09	TB	EPA 8260B	
NA	TB-121009A	ISL1565-01	10-Dec-09	TB	EPA 8260B	
NA	TB-121009B	ISL1566-01	10-Dec-09	TB	EPA 8260B	

REG	145
FD	6
TB	7
FB	3
ERB	1

TB = trip blank
REG = regular sample
FD = field duplicate
FB = field blank
ERB = equipment rinsate blank

(1) submersible pump unless otherwise indicated

Table 2
Groundwater Qualified Data
4th Quarter 2009

Analysis Lot ID	Type	QC Result	Detect flag	Lab result	Field Sample ID	Parameter Code	Parameter Name	Lab sample ID	Validation Qualifier	H&A Qualifer	Sample Purpose
P9J1962	10. validation	Continuing calibration (%D)	N	2	MW-01UA-94.8-1009	4227-95-6	Iodomethane	PSJ0385-07	UJ	V	REG
P9J1962	10. validation	Continuing calibration (%D)	N	10	MW-01UA-94.8-1009	67-64-1	Acetone	PSJ0385-07	UJ	V	REG
P9J1962	10. validation	Continuing calibration (%D)	N	5	MW-01UA-94.8-1009	74-87-3	Chloromethane	PSJ0385-07	UJ	V	REG
P9J1962	10. validation	Continuing calibration (%D)	N	5	MW-01UA-94.8-1009	75-71-8	Dichlorodifluoromethane	PSJ0385-07	UJ	V	REG
P9J3004	1. hold times	Technical holding times	N	5	MW-01UA-94.8-1009	76-13-1	Freon 113	PSJ0385-07RE1	UJ	(V)H	REG
P9J2278	1. hold times	Technical holding times and compound quantitation and CRQLs	Y	8700	MW-18UA-91.9-1009	71-55-6	1,1,1-Trichloroethane	PSJ0385-17RE1	J	(V)H	REG
P9J2139	10. validation	Continuing calibration (%D)	N	500	MW-18UA-91.9-1009	74-87-3	Chloromethane	PSJ0385-17	UJ	V	REG
P9J2278	1. hold times	Technical holding times and compound quantitation and CRQLs	Y	11000	MW-18UA-91.9-1009	75-35-4	1,1-Dichloroethene	PSJ0385-17RE1	J	(V)H	REG
P9J2139	10. validation	Continuing calibration (%D) and LCS (%R)	N	500	MW-18UA-91.9-1009	75-71-8	Dichlorodifluoromethane	PSJ0385-17	UJ	V	REG
P9J2278	1. hold times	Technical holding times	Y	5000	MW-18UA-91.9-1009	76-13-1	Freon 113	PSJ0385-17RE1	J	(V)H	REG

HARGIS + ASSOCIATES, INC.

APPENDIX G

2009 SAMPLING LABORATORY DATA

In an effort to conserve paper and energy, EPA/ADEQ agreed to have its hard copies of the 2009 Annual Report for the Hassayampa Site printed without a hard copy of this appendix. The complete content of this appendix can be found on the attached CD.

HARGIS + ASSOCIATES, INC.

APPENDIX H

WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR GROUNDWATER EXTRACTION AND MONITOR WELLS

HARGIS + ASSOCIATES, INC.

APPENDIX H

WATER LEVEL AND WATER QUALITY HYDROGRAPHS FOR GROUNDWATER EXTRACTION AND MONITOR WELLS

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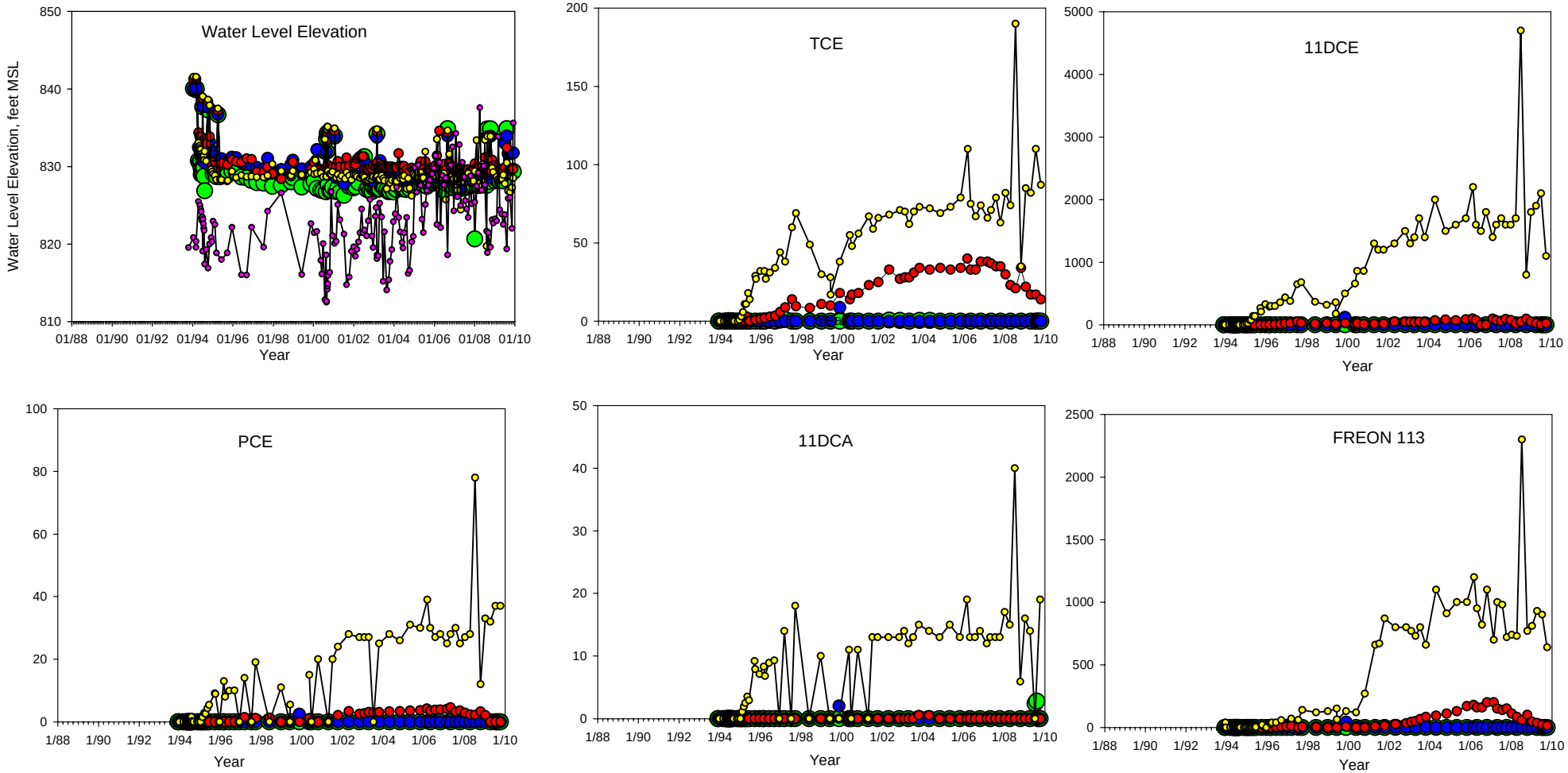


TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

Note: Constituents reported as non-detectable are plotted as zero.

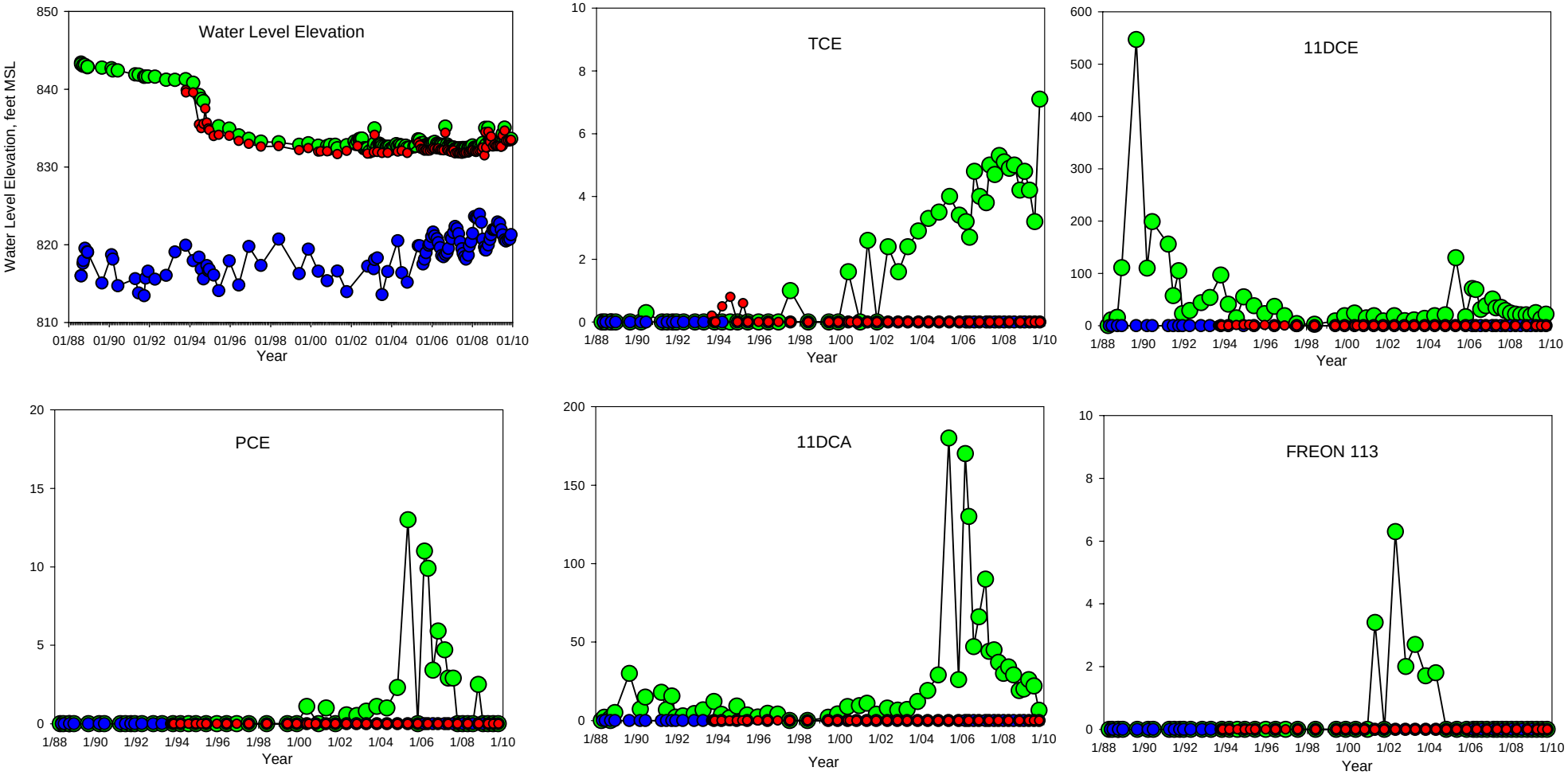
All concentrations in micrograms per liter

COLOR KEY:

- EW-01UA
- EW-02UA
- EW-03UA
- EW-04UA
- IW-01UB

FIGURE H-1. WATER LEVEL AND WATER QUALITY HYDROGRAPHS
EW-01UA, EW-02UA, EW-03UA, EW-04UA AND IW-01UB

HARGIS + ASSOCIATES, INC.



TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

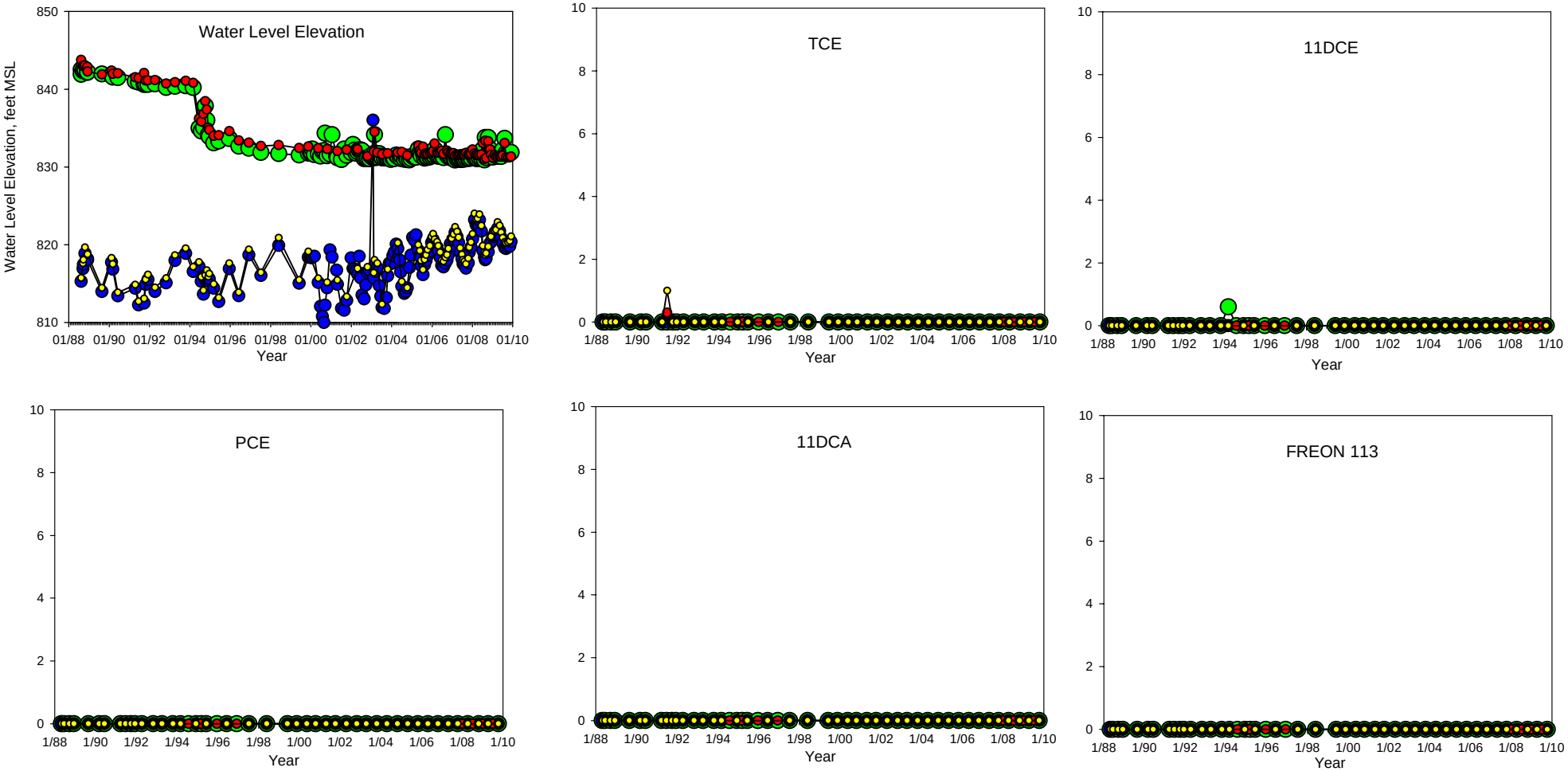
*PDBs used to sample well MW-01UA starting in February 2006.

COLOR KEY:

- MW-01UA*
- MW-01UB
- MW-13UA

FIGURE H-2. WATER LEVEL AND WATER QUALITY HYDROGRAPHS
MW-01UA, MW-01UB, AND MW-13UA

HARGIS + ASSOCIATES, INC.



TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

Note: Constituents reported as non-detectable are plotted as zero.

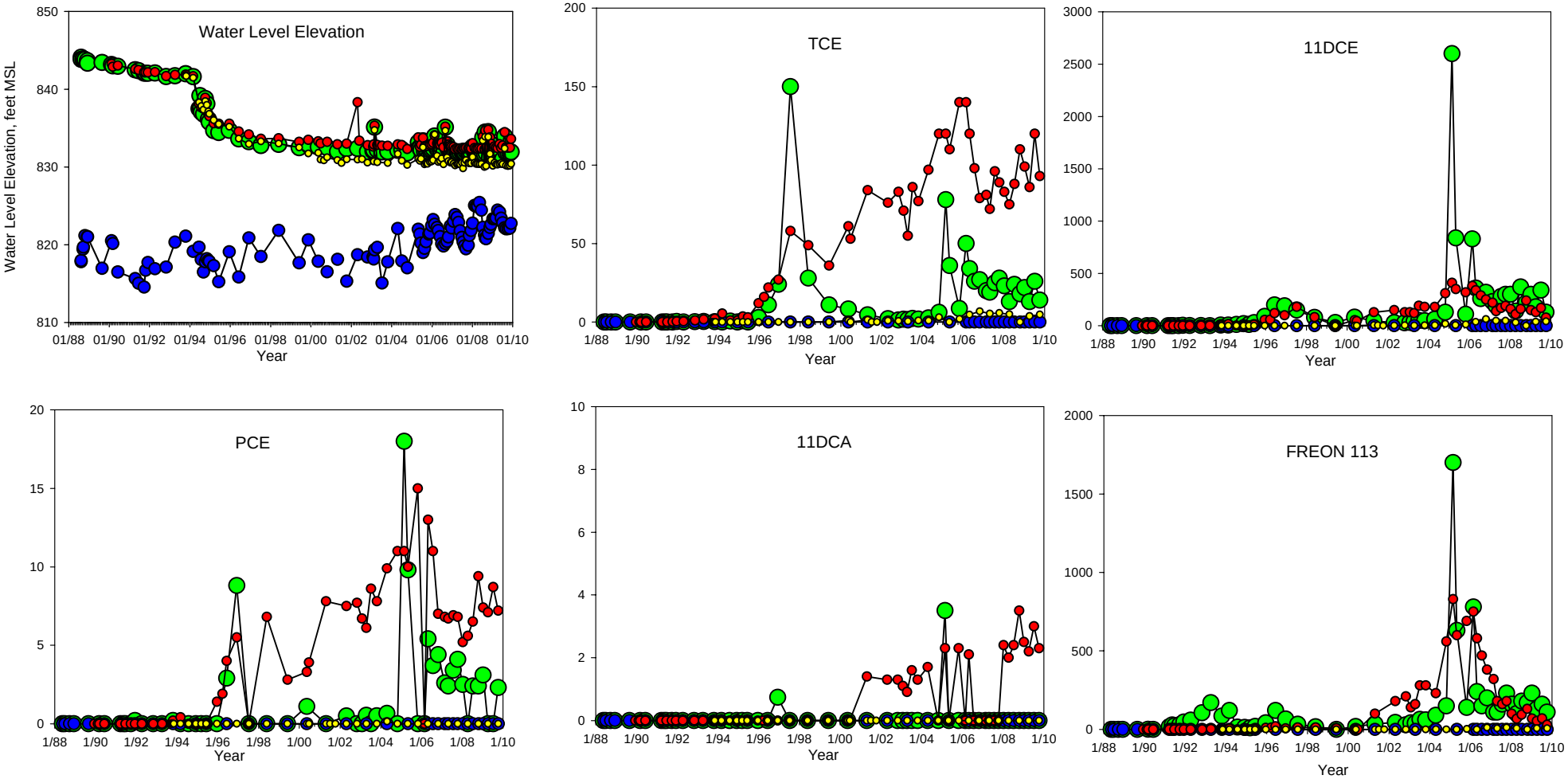
All concentrations in micrograms per liter

COLOR KEY:

- MW-02UA
- MW-02UB
- MW-03UA
- MW-03UB

FIGURE H-3. WATER LEVEL AND WATER QUALITY HYDROGRAPHS
MW-02UA, MW-02UB, MW-03UA, AND MW-03UB

HARGIS + ASSOCIATES, INC.



TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

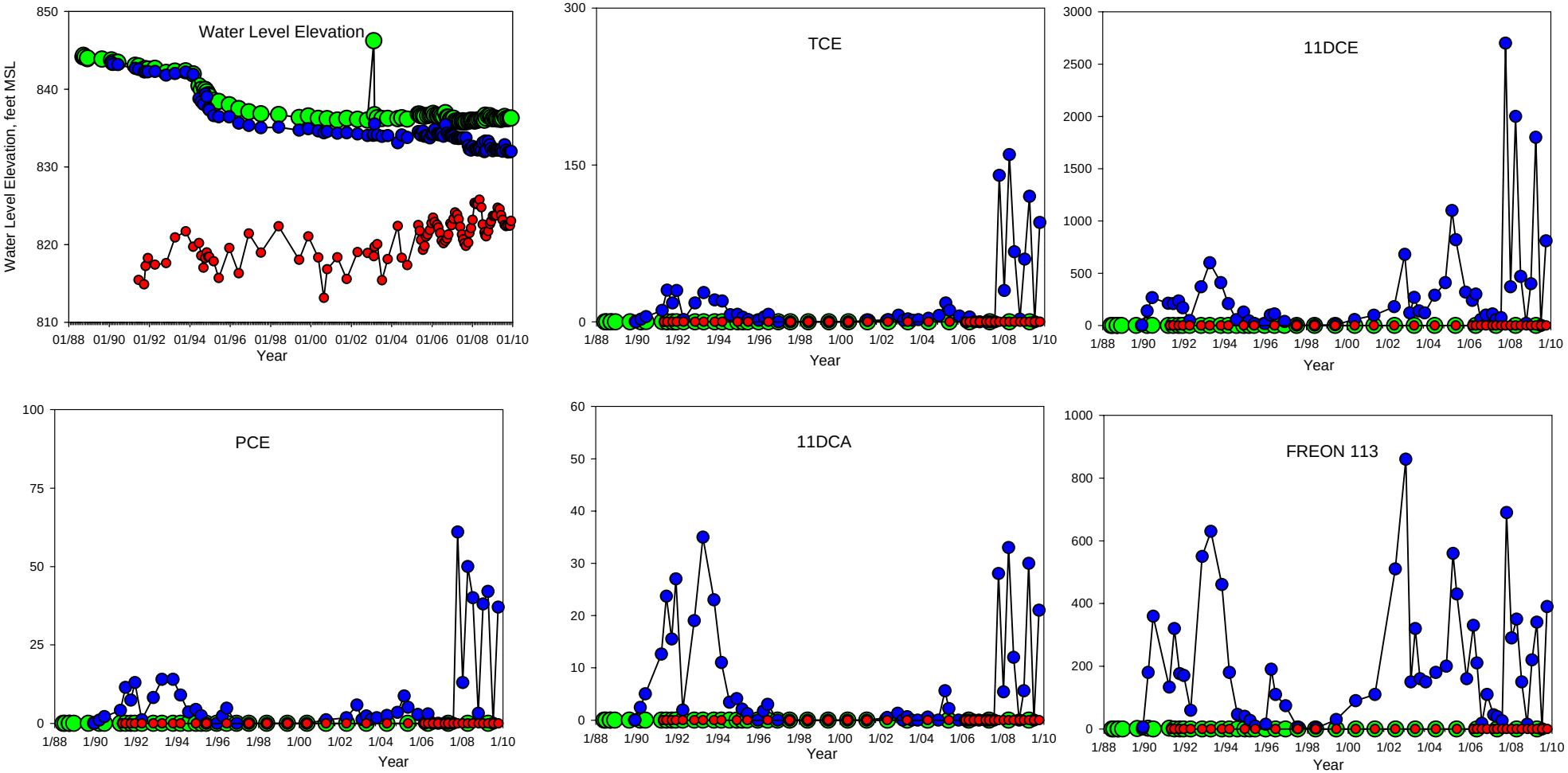
*PDBs used to sample wells MW-04UA, MW-07UA, and MW-14UA starting in February 2006.

COLOR KEY:

- MW-04UA*
- MW-04UB
- MW-07UA*
- MW-14UA*

FIGURE H-4. WATER LEVEL AND WATER QUALITY HYDROGRAPHS
MW-04UA, MW-04UB, MW-07UA, AND MW-14UA

HARGIS + ASSOCIATES, INC.



TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

COLOR KEY:

- MW-05UA
- MW-06UA*
- MW-06UB

Note: Constituents reported as non-detectable are plotted as zero.

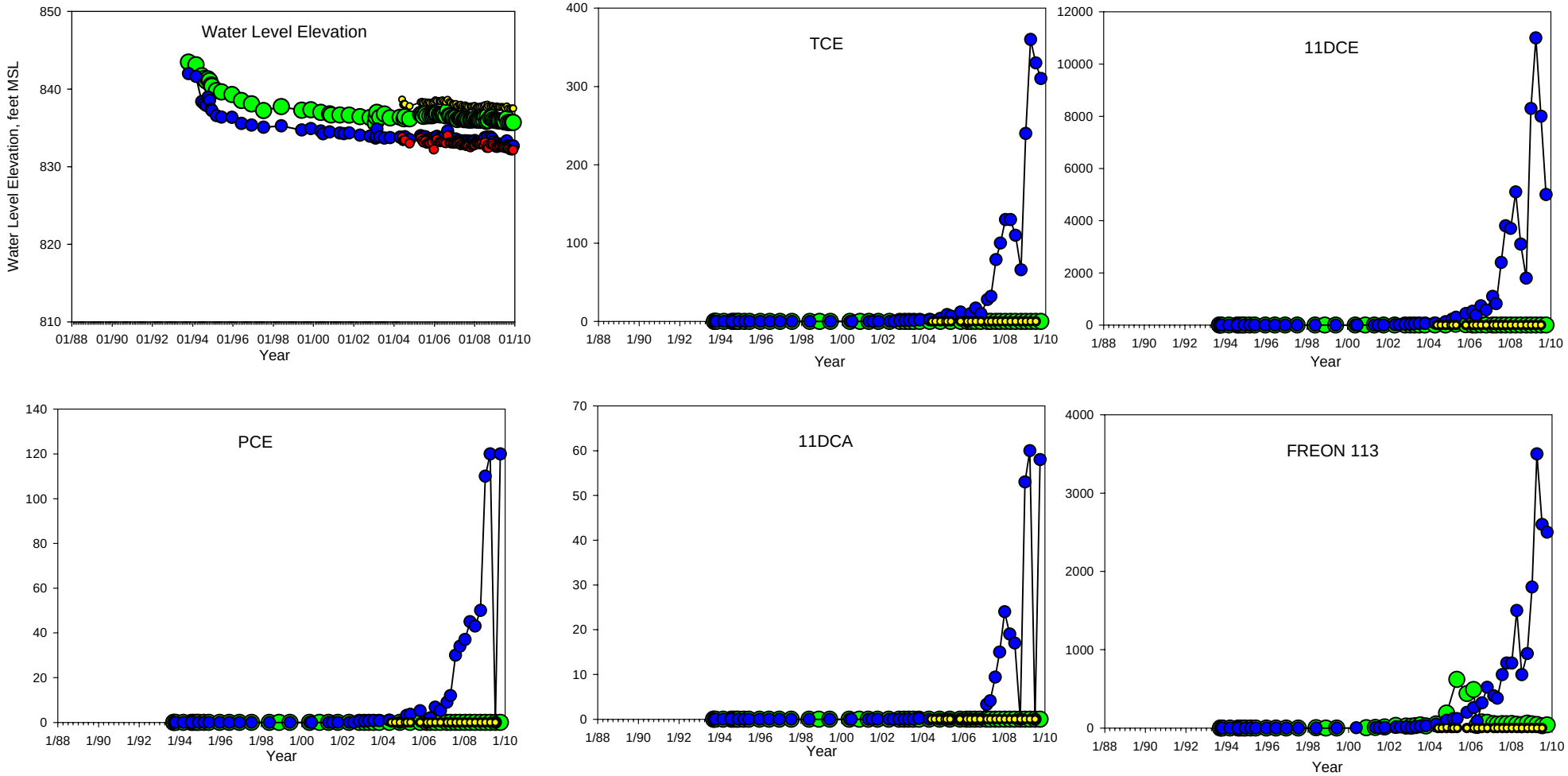
All concentrations in micrograms per liter.

*PDBs used to sample well MW-06UA starting in February 2006.

MW-6UA values reflect data correction; see Appendix B

FIGURE H-5. WATER LEVEL AND WATER QUALITY HYDROGRAPHS
MW-05UA, MW-06UA, AND MW-06UB

HARGIS + ASSOCIATES, INC.



TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

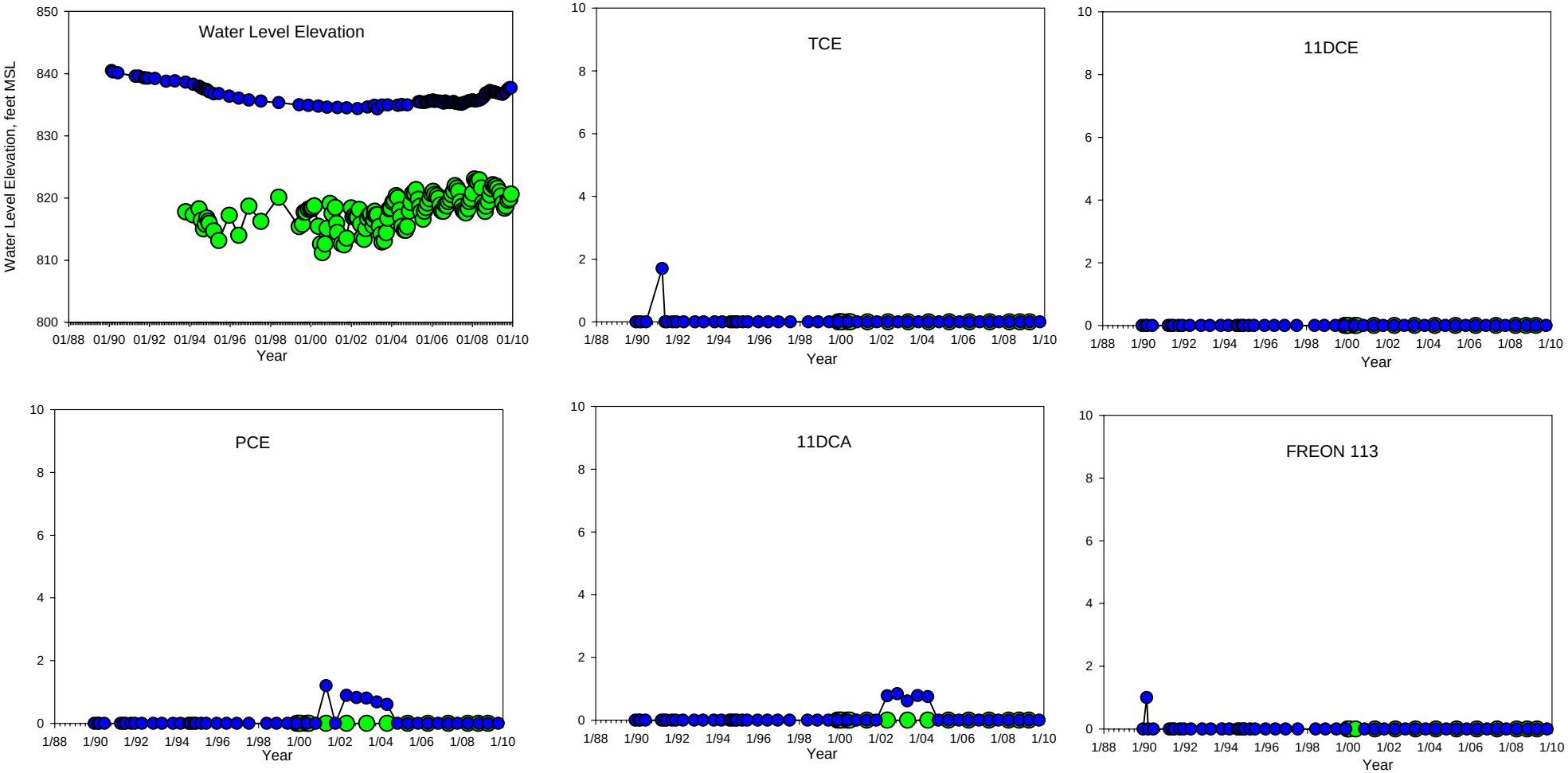
*PDBs used to sample wells MW-11UA, MW-12UA, MW-16UA, and MW-17UA starting in February 2006.

COLOR KEY:

- MW-11UA*
- MW-12UA*
- MW-16UA*
- MW-17UA*

FIGURE H-6. WATER LEVEL AND WATER QUALITY HYDROGRAPHS
MW-11UA, MW-12UA, MW-16UA, AND MW-17UA

HARGIS + ASSOCIATES, INC.



TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

Note: Constituents reported as non-detectable are plotted as zero.

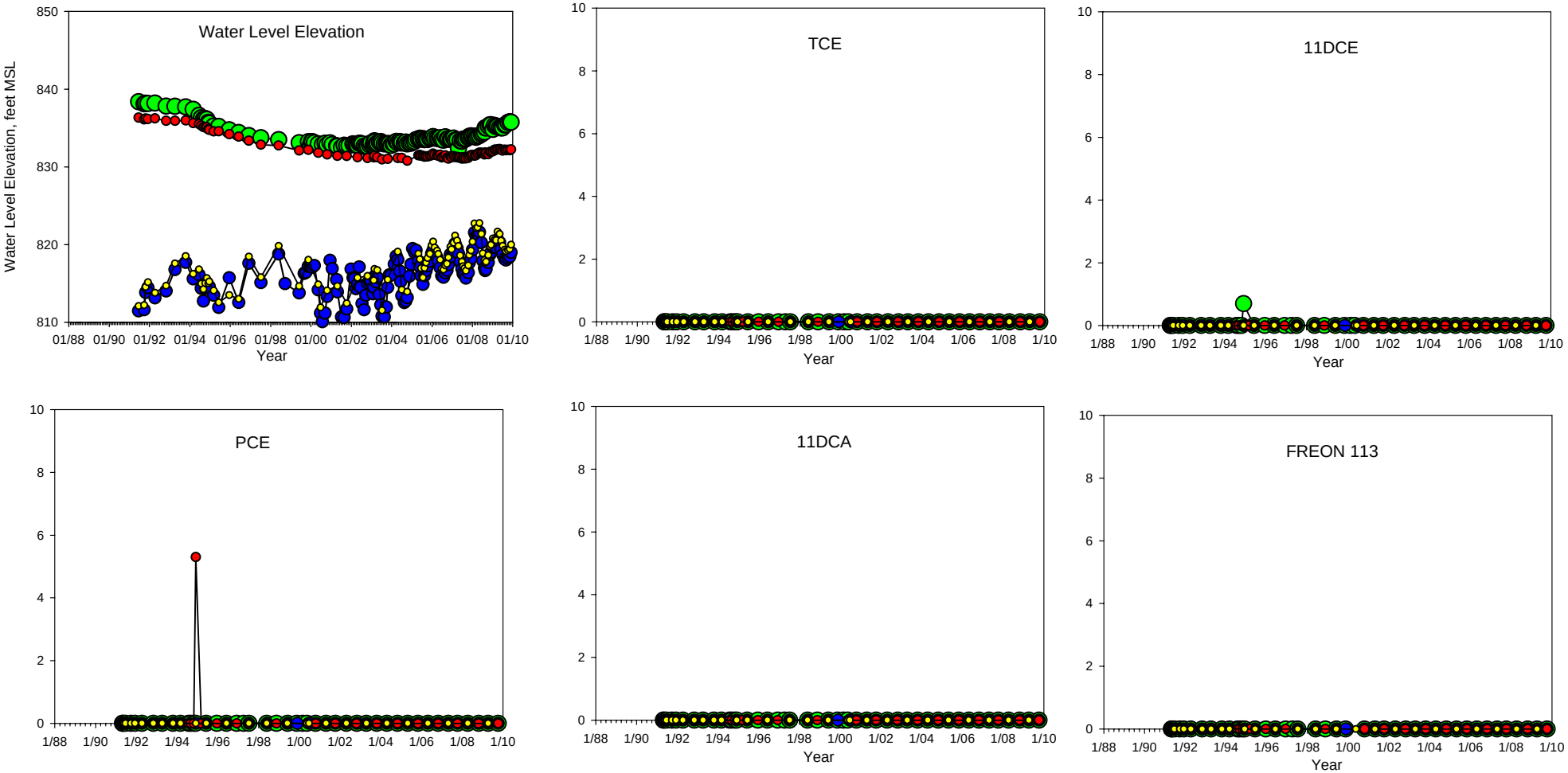
All concentrations in micrograms per liter

COLOR KEY:

MW-15UB
MW-08UA

FIGURE H-7. WATER LEVEL AND WATER QUALITY HYDROGRAPHS
MW-15UB AND MW-08UA

HARGIS + ASSOCIATES, INC.



TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

Note: Constituents reported as non-detectable are plotted as zero.

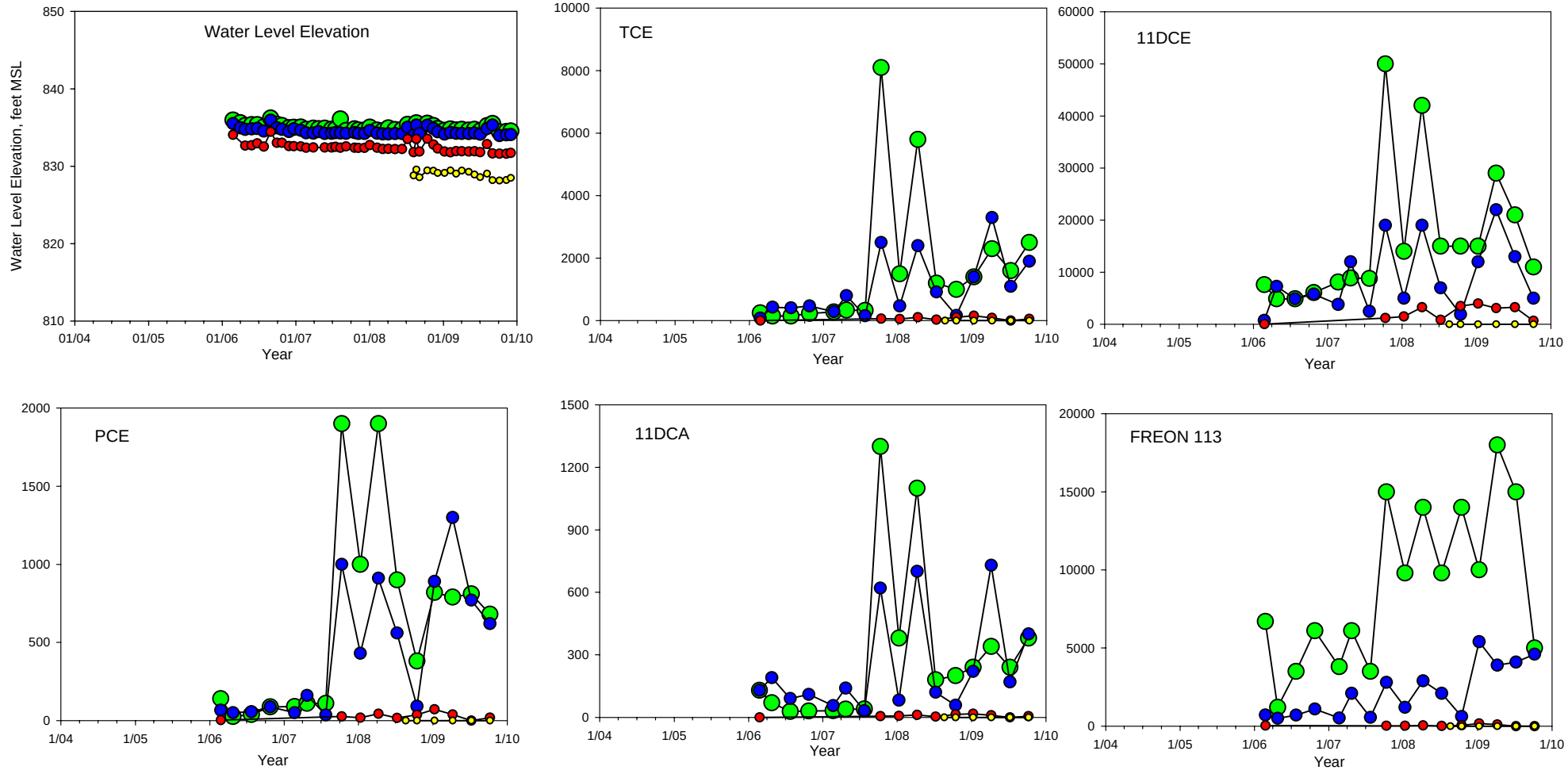
All concentrations in micrograms per liter

COLOR KEY:

- MW-09UA
- MW-09UB
- MW-10UA
- MW-10UB

FIGURE H-8. WATER LEVEL AND WATER QUALITY HYDROGRAPHS
MW-09UA, MW-09UB, MW-10UA, AND MW-10UB

HARGIS + ASSOCIATES, INC.



TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

*PDBs used to sample wells MW-18UA and MW-19UA starting in February 2006; well MW-20UA in October 2007; and well MW-21UA starting in August 2008 .

COLOR KEY:

- MW-18UA*
- MW-19UA*
- MW-20UA*
- MW-21UA*

FIGURE H-9. WATER LEVEL AND WATER QUALITY HYDROGRAPHS
MW-18UA, MW-19UA, MW-20UA, AND MW-21UA

HARGIS + ASSOCIATES, INC.

APPENDIX I

PUMPING RATE GRAPH FOR GROUNDWATER REMEDIATION SYSTEM WELLS

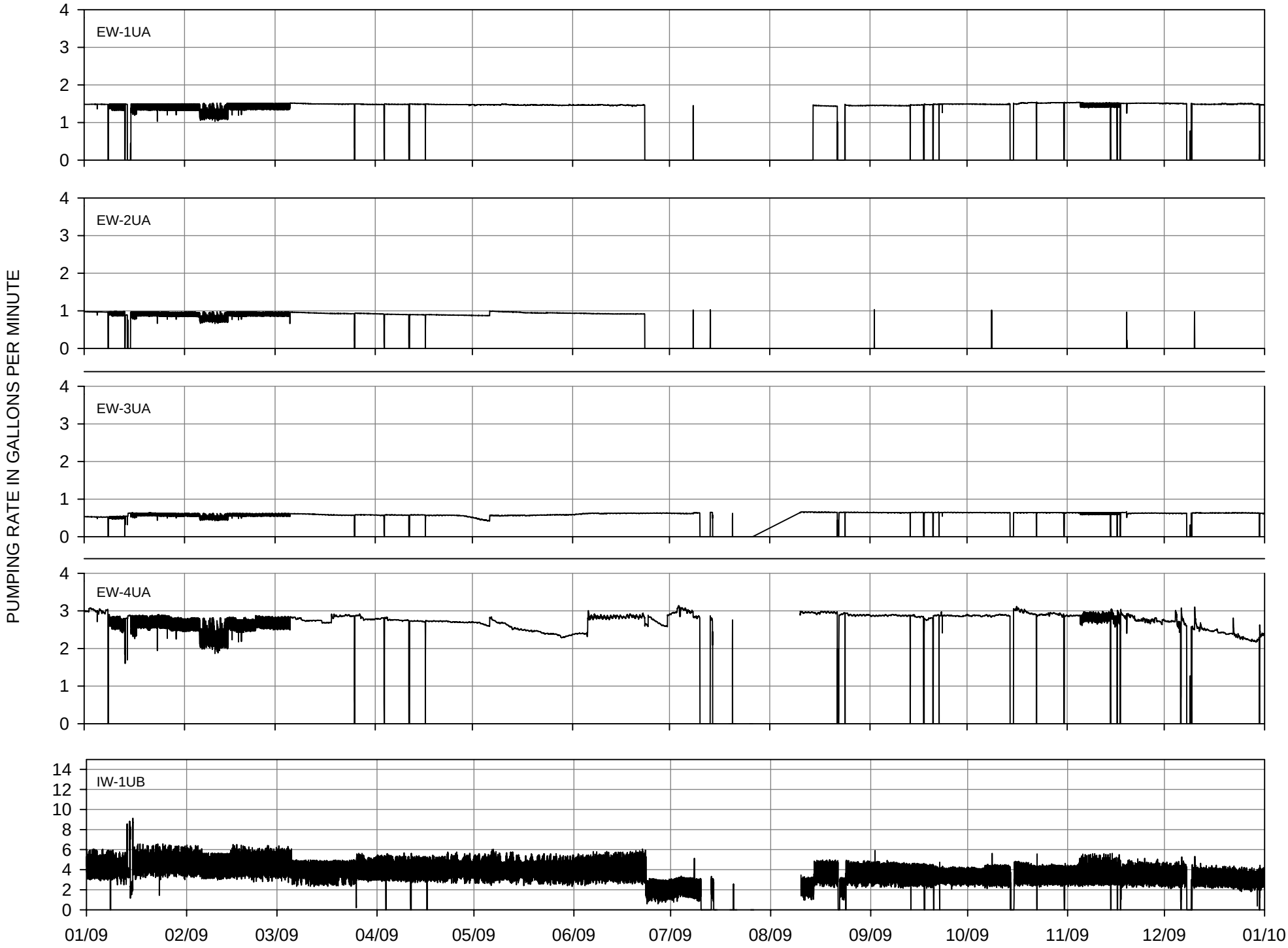


FIGURE I -1. ANNUAL PUMPING RATE FOR EXTRACTION WELLS EW-1UA, EW-2UA, EW-3UA, AND EW-4UA, AND IW-1B

HARGIS + ASSOCIATES, INC.

APPENDIX J

SOIL VAPOR EXTRACTION DATA

In an effort to conserve paper and energy, EPA/ADEQ agreed to have its hard copies of the 2009 Annual Report for the Hassayampa Site printed without a hard copy of this appendix section J-4. The complete content of this appendix can be found on the attached CD.

APPENDIX J

SOIL VAPOR EXTRACTION SYSTEM DATA

APPENDIX J-1

GEO SYSTEM MONITORING DATA

2009
GEO SYSTEM MONITORING DATA
HASSAYAMPA LANDFILL SUPERFUND SITE
MARICOPA COUNTY, ARIZONA

Date	Hours run	System In (psi)	System Mid (psi)	System Out (psi)	Refrig (psi)	Well Vac ("H20 @ KO)	Chem (in)	Flow (scfm)
1/1/2009	24	136	151	152	9	44	18.4	175
1/2/2009	0	-	-	-	-	-	-	-
1/3/2009	0	-	-	-	-	-	-	-
1/4/2009	0	-	-	-	-	-	-	-
1/5/2009	0	-	-	-	-	-	-	-
1/6/2009	0	-	-	-	-	-	-	-
1/7/2009	0	-	-	-	-	-	-	-
1/8/2009	0	-	-	-	-	-	-	-
1/9/2009	0	-	-	-	-	-	-	-
1/10/2009	0	-	-	-	-	-	-	-
1/11/2009	0	-	-	-	-	-	-	-
1/12/2009	0	-	-	-	-	-	-	-
1/13/2009	0	-	-	-	-	-	-	-
1/14/2009	0	-	-	-	-	-	-	-
1/15/2009	0	-	-	-	-	-	-	-
1/16/2009	0	-	-	-	-	-	-	-
1/17/2009	0	-	-	-	-	-	-	-
1/18/2009	0	-	-	-	-	-	-	-
1/19/2009	18	134	152	142	13	63	18.4	172
1/20/2009	24	142	149	144	8	71	-	171
1/21/2009	24	139	151	143	9	55	-	172
1/22/2009	24	144	149	143	9	55	-	172
1/23/2009	24	140	152	155	9	59	-	173
1/24/2009	24	144	152	139	8	58	-	172
1/25/2009	24	145	152	144	10	55	-	175
1/26/2009	22	143	153	153	11	53	20.1	174
1/27/2009	24	144	154	153	15	55	-	173
1/28/2009	24	146	155	151	15	59	-	175
1/29/2009	24	143	151	155	12	58	-	173
1/30/2009	24	140	145	149	13	54	-	173
1/31/2009	24	141	150	147	15	63	-	175
2/1/2009	24	141	149	144	13	60	-	172
2/2/2009	18	144	155	143	11	57	3	175
2/3/2009	24	143	155	134	10	62	-	174
2/4/2009	24	134	152	142	11	58	-	174
2/5/2009	22	142	149	139	12	69	-	175
2/6/2009	24	139	151	144	8	68	-	173
2/7/2009	24	144	149	136	9	66	-	175
2/8/2009	24	136	151	142	9	44	-	172
2/9/2009	24	142	148	144	9	54	-	171
2/10/2009	24	144	152	143	8	53	3.5	172
2/11/2009	24	143	150	143	10	55	-	172
2/12/2009	24	143	150	155	11	44	-	173
2/13/2009	24	142	148	152	15	49	-	172
2/14/2009	24	145	149	149	15	66	4	175
2/15/2009	24	144	155	151	12	69	-	174
2/16/2009	24	137	147	149	13	49	-	173
2/17/2009	24	136	151	152	15	55	5.5	179
2/18/2009	24	142	148	152	14	59	-	175
2/19/2009	24	144	152	152	14	58	-	175
2/20/2009	24	143	150	153	11	55	-	175
2/21/2009	24	143	150	154	12	53	6.5	175
2/22/2009	24	142	148	148	13	55	-	177
2/23/2009	24	145	149	149	15	59	-	175

2009
GEO SYSTEM MONITORING DATA
HASSAYAMPA LANDFILL SUPERFUND SITE
MARICOPA COUNTY, ARIZONA

Date	Hours run	System In (psi)	System Mid (psi)	System Out (psi)	Refrig (psi)	Well Vac ("H20 @ KO)	Chem (in)	Flow (scfm)
2/24/2009	23	139	145	152	14	58	-	174
2/25/2009	24	137	149	155	14	54	8.5	175
2/26/2009	24	140	151	139	11	63	-	174
2/27/2009	24	142	155	138	12	71	-	169
2/28/2009	24	143	153	149	13	55	10.1	171
3/1/2009	24	136	151	152	7	69	10.2	175
3/2/2009	24	142	148	149	14	68	-	172
3/3/2009	24	144	152	151	13	66	-	175
3/4/2009	24	143	150	134	11	44	-	173
3/5/2009	24	143	150	142	10	54	-	179
3/6/2009	24	142	148	139	11	53	-	175
3/7/2009	24	145	149	144	12	55	-	175
3/8/2009	24	139	145	136	8	44	-	175
3/9/2009	24	137	149	142	9	49	12.6	175
3/10/2009	19	140	151	144	9	66	-	177
3/11/2009	24	142	155	143	9	49	-	175
3/12/2009	24	143	153	143	8	66	-	174
3/13/2009	24	145	154	155	10	69	-	175
3/14/2009	24	146	156	152	11	49	-	174
3/15/2009	24	138	149	149	15	55	-	174
3/16/2009	24	141	149	139	15	59	-	175
3/17/2009	24	144	155	144	12	58	16.5	173
3/18/2009	24	143	155	147	13	55	-	175
3/19/2009	24	134	152	151	15	53	-	172
3/20/2009	24	142	149	144	14	55	-	171
3/21/2009	24	139	151	143	14	59	-	172
3/22/2009	24	144	149	134	11	58	-	172
3/23/2009	24	140	152	142	12	54	-	173
3/24/2009	24	144	152	139	13	63	-	172
3/25/2009	22	145	152	144	15	59	16.9	175
3/26/2009	24	143	153	136	14	63	-	174
3/27/2009	24	144	154	142	13	55	-	173
3/28/2009	24	151	148	144	12	61	-	175
3/29/2009	24	153	149	143	13	66	-	173
3/30/2009	24	149	152	143	14	59	-	173
3/31/2009	24	154	155	155	12	56	18.9	175
4/1/2009	24	154	143	143	13	57	18.6	150
4/2/2009	24	156	143	143	14	59	18.5	160
4/3/2009	17	146	135	135	16	62	18.5	166
4/4/2009	13	128	116	117	26	50	18.8	146
4/5/2009	24	159	145	146	12	63	19.2	176
4/6/2009	24	158	145	145	14	61	19.4	188
4/7/2009	24	157	145	145	14	62	19.3	187
4/8/2009	24	156	145	145	13	59	18.9	176
4/9/2009	24	156	144	143	13	54	18.9	168
4/10/2009	22	156	143	144	12	57	19.3	167
4/11/2009	20	137	127	127	18	51	19.8	113
4/12/2009	24	158	145	145	13	58	19.8	154
4/13/2009	24	157	145	145	14	53	19.9	158
4/14/2009	24	156	144	144	14	54	19.9	155
4/15/2009	24	114	104	105	8	50	19.9	115
4/16/2009	21	52	37	27	34	59	19.8	161
4/17/2009	17	130	119	118	33	57	20.1	186
4/18/2009	24	169	154	153	17	65	20.2	169

2009
GEO SYSTEM MONITORING DATA
HASSAYAMPA LANDFILL SUPERFUND SITE
MARICOPA COUNTY, ARIZONA

Date	Hours run	System In (psi)	System Mid (psi)	System Out (psi)	Refrig (psi)	Well Vac ("H20 @ KO)	Chem (in)	Flow (scfm)
4/19/2009	24	168	154	152	20	59	20.4	171
4/20/2009	22	165	151	150	20	58	20.8	164
4/21/2009	24	151	137	138	43	59	20.7	146
4/22/2009	22	156	144	145	61	58	20.9	165
4/23/2009	16	153	141	141	18	57	21.8	143
4/24/2009	24	154	143	143	16	58	22.0	157
4/25/2009	24	156	145	145	15	55	21.9	133
4/26/2009	24	154	143	143	15	58	21.8	170
4/27/2009	24	153	142	142	15	56	21.9	176
4/28/2009	23	153	142	141	16	54	21.9	169
4/29/2009	24	153	143	142	16	54	22.9	155
4/30/2009	24	158	143	141	15	50	19.8	160
5/1/2009	24	153	143	142	17	58	23	185
5/2/2009	24	130	125	124	12	59	23	117
5/3/2009	21	117	106	113	10	62	23	121
5/4/2009	15	119	92	114	9	53	23	111
5/5/2009	0	-	-	-	-	-	-	-
5/6/2009	16	157	148	147	64	58	23	179
5/7/2009	11	158	144	150	23	58	-	174
5/8/2009	0	-	-	-	-	-	-	-
5/9/2009	17	155	144	143	65	54	23	180
5/10/2009	21	159	147	147	31	54	23	176
5/11/2009	23	158	145	146	15	58	11	175
5/12/2009	23	158	145	145	16	58	5	175
5/13/2009	23	156	144	144	16	53	5	175
5/14/2009	24	158	145	145	16	54	5	175
5/15/2009	23	157	144	145	17	58	5	175
5/16/2009	24	154	141	141	17	59	5	165
5/17/2009	23	129	123	124	12	61	5	172
5/18/2009	22	137	132	133	12	65	5	172
5/19/2009	19	132	131	131	61	59	6	172
5/20/2009	20	132	131	131	86	58	6	172
5/21/2009	13	131	130	130	86	59	6	172
5/22/2009	22	131	130	130	86	59	6	172
5/23/2009	20	131	130	130	86	59	6	172
5/24/2009	0	-	-	-	-	-	-	-
5/25/2009	0	-	-	-	-	-	-	-
5/26/2009	0	-	-	-	-	-	-	-
5/27/2009	14	144	133	133	18	56	6	154
5/28/2009	24	151	138	137	17	52	6	165
5/29/2009	23	151	138	138	17	54	6	168
5/30/2009	21	151	136	138	16	53	7	167
5/31/2009	24	-	-	-	-	-	-	-
6/1/2009	24	157	147	143	16	58	7	168
6/2/2009	24	154	145	147	17	53	7	169
6/3/2009	23	129	145	146	17	54	8	170
6/4/2009	24	137	144	145	17	50	8	182
6/5/2009	23	144	145	144	22	59	8	175
6/6/2009	18	151	144	145	11	57	8	132
6/7/2009	23	151	141	145	12	65	8	161
6/8/2009	22	151	123	141	16	59	9	160
6/9/2009	23	155	131	124	15	58	9	145
6/10/2009	24	159	130	133	11	59	9	116
6/11/2009	24	158	133	131	11	58	9	115

2009
GEO SYSTEM MONITORING DATA
HASSAYAMPA LANDFILL SUPERFUND SITE
MARICOPA COUNTY, ARIZONA

Date	Hours run	System In (psi)	System Mid (psi)	System Out (psi)	Refrig (psi)	Well Vac ("H20 @ KO)	Chem (in)	Flow (scfm)
6/12/2009	24	158	138	131	11	57	9	116
6/13/2009	23	156	138	130	11	58	10	117
6/14/2009	24	158	136	153	12	55	10	118
6/15/2009	24	157	144	152	12	58	10	122
6/16/2009	24	154	147	150	15	56	10	177
6/17/2009	24	158	145	138	16	58	10	177
6/18/2009	21	158	145	145	17	58	11	183
6/19/2009	24	156	144	141	17	53	10	185
6/20/2009	24	158	143	143	15	54	10	185
6/21/2009	24	157	125	145	15	58	11	185
6/22/2009	24	154	106	143	16	59	11	185
6/23/2009	24	129	133	144	17	61	11	185
6/24/2009	24	137	138	145	17	65	11	185
6/25/2009	24	132	138	145	18	59	12	185
6/26/2009	24	132	136	141	16	58	12	177
6/27/2009	24	131	144	124	18	59	12	177
6/28/2009	24	144	147	133	19	53	12	177
6/29/2009	15	151	145	131	19	56	12	177
6/30/2009	0	-	-	-	-	-	-	-
7/1/2009	4	101	117	118	15	-	-	181
7/2/2009	0	-	-	-	-	-	-	-
7/3/2009	0	-	-	-	-	-	-	-
7/4/2009	0	-	-	-	-	-	-	-
7/5/2009	0	-	-	-	-	-	-	-
7/6/2009	0	-	-	-	-	-	-	-
7/7/2009	0	-	-	-	-	-	-	-
7/8/2009	0	-	-	-	-	-	-	-
7/9/2009	0	-	-	-	-	-	-	-
7/10/2009	0	-	-	-	-	-	-	-
7/11/2009	0	-	-	-	-	-	-	-
7/12/2009	17	111	119	109	19	-	-	128
7/13/2009	16	125	128	114	15	-	-	151
7/14/2009	0	-	-	-	-	-	-	-
7/15/2009	0	-	-	-	-	-	-	-
7/16/2009	0	-	-	-	-	-	-	-
7/17/2009	0	-	-	-	-	-	-	-
7/18/2009	9	136	132	120	18	-	-	185
7/19/2009	0	-	-	-	-	-	-	-
7/20/2009	9	141	100	135	18	-	-	150
7/21/2009	3	158	59	152	13	-	-	182
7/22/2009	9	141	135	122	16	-	-	186
7/23/2009	0	-	-	-	-	-	-	-
7/24/2009	0	-	-	-	-	-	-	-
7/25/2009	0	-	-	-	-	-	-	-
7/26/2009	0	-	-	-	-	-	-	-
7/27/2009	12	126	104	121	33	-	-	196
7/28/2009	24	123	143	128	15	-	-	171
7/29/2009	24	112	143	129	17	-	-	158
7/30/2009	24	134	147	132	26	-	-	161
7/31/2009	24	145	134	131	21	-	-	155
8/1/2009	23	129	130	121	17	49	13.36	205
8/2/2009	23	133	133	125	18	51	20.99	202
8/3/2009	13	133	133	124	17	61	29.03	203
8/4/2009	0	-	-	-	-	-	-	-

2009
GEO SYSTEM MONITORING DATA
HASSAYAMPA LANDFILL SUPERFUND SITE
MARICOPA COUNTY, ARIZONA

Date	Hours run	System In (psi)	System Mid (psi)	System Out (psi)	Refrig (psi)	Well Vac ("H20 @ KO)	Chem (in)	Flow (scfm)
8/5/2009	11	137	138	129	20	51	13.48	194
8/6/2009	24	138	139	130	17	52	13.92	195
8/7/2009	24	139	140	131	15	48	14.60	196
8/8/2009	24	143	134	123	14	48	14.23	166
8/9/2009	24	141	132	121	15	42	-	-
8/10/2009	16	136	138	129	18	49	14.29	183
8/11/2009	24	135	137	128	17	44	14.75	182
8/12/2009	24	135	137	127	18	45	15.35	181
8/13/2009	24	136	138	128	16	43	15.13	184
8/14/2009	24	135	137	128	18	48	15.61	184
8/15/2009	24	136	137	129	19	52	16.12	186
8/16/2009	23	133	135	127	18	51	17.27	195
8/17/2009	24	134	134	126	17	51	16.07	198
8/18/2009	24	134	134	127	18	50	16.71	198
8/19/2009	24	133	134	126	19	52	17.08	198
8/20/2009	24	133	134	126	19	52	16.98	197
8/21/2009	21	133	134	125	19	52	16.99	198
8/22/2009	14	134	134	125	19	52	17.00	201
8/23/2009	24	133	134	125	19	50	17.78	200
8/24/2009	24	133	134	125	19	50	18.09	199
8/25/2009	24	133	134	125	19	49	17.62	200
8/26/2009	24	133	134	125	19	48	18.37	199
8/27/2009	24	133	134	125	19	55	12.71	199
8/28/2009	24	133	134	125	20	50	12.33	199
8/29/2009	24	133	134	125	20	50	14.36	198
8/30/2009	24	133	134	125	20	53	19.45	198
8/31/2009	24	135	132	126	15	50	20.73	195
9/1/2009	24	135	127	134	17	49	20.02	183
9/2/2009	24	136	128	137	16	51	13.93	196
9/3/2009	24	136	127	137	17	61	4.99	194
9/4/2009	24	136	127	135	15	-	4.99	198
9/5/2009	24	137	128	137	15	51	4.98	201
9/6/2009	24	137	129	138	17	52	5.09	199
9/7/2009	24	136	127	135	17	48	5.02	200
9/8/2009	24	135	126	134	15	48	5.15	199
9/9/2009	24	135	126	135	15	42	6.43	198
9/10/2009	24	135	126	135	16	49	6.82	197
9/11/2009	23	132	126	129	17	44	7.29	194
9/12/2009	24	131	127	127	17	45	7.42	194
9/13/2009	12	132	130	134	15	43	7.65	190
9/14/2009	0	-	-	-	-	48	-	-
9/15/2009	8	109	98	118	17	52	8.08	185
9/16/2009	20	140	140	131	15	51	8.10	190
9/17/2009	16	142	138	139	16	51	8.07	211
9/18/2009	24	140	133	134	15	50	8.05	191
9/19/2009	24	137	131	131	17	52	8.86	180
9/20/2009	24	137	131	131	17	52	8.94	180
9/21/2009	24	137	131	131	23	52	8.98	180
9/22/2009	22	136	130	131	15	52	9.83	188
9/23/2009	24	136	130	132	15	50	9.84	195
9/24/2009	24	135	130	131	15	50	10.45	193
9/25/2009	24	136	130	131	15	50	10.85	192
9/26/2009	24	135	130	131	15	50	10.75	190
9/27/2009	24	145	129	134	14	52	10.86	190

2009
GEO SYSTEM MONITORING DATA
HASSAYAMPA LANDFILL SUPERFUND SITE
MARICOPA COUNTY, ARIZONA

Date	Hours run	System In (psi)	System Mid (psi)	System Out (psi)	Refrig (psi)	Well Vac ("H20 @ KO)	Chem (in)	Flow (scfm)
9/28/2009	24	140	129	133	14	52	11.04	190
9/29/2009	24	140	129	131	14	52	11.50	190
9/30/2009	24	140	129	131	14	52	12.00	190
10/1/2009	24	132	130	136	14	48	12.60	192
10/2/2009	24	132	131	136	14	42	12.46	195
10/3/2009	24	131	130	136	13	49	12.90	192
10/4/2009	24	132	130	136	14	44	13.47	189
10/5/2009	24	132	130	136	14	45	13.36	190
10/6/2009	24	132	131	137	13	43	14.01	193
10/7/2009	24	131	130	136	13	48	14.20	193
10/8/2009	24	131	130	136	13	50	14.28	193
10/9/2009	24	131	130	136	13	52	15.05	191
10/10/2009	24	131	130	136	13	52	15.08	192
10/11/2009	23	131	130	136	13	52	15.35	190
10/12/2009	24	130	129	136	13	52	16.15	188
10/13/2009	24	131	130	136	13	50	15.96	188
10/14/2009	24	131	130	136	13	50	16.08	188
10/15/2009	24	131	130	136	13	50	17.04	188
10/16/2009	24	131	130	136	13	50	16.96	188
10/17/2009	24	131	130	136	14	52	16.94	187
10/18/2009	24	131	130	136	14	52	17.86	187
10/19/2009	24	132	130	136	14	52	17.90	187
10/20/2009	24	132	130	136	14	52	17.82	189
10/21/2009	23	132	131	137	13	50	18.19	190
10/22/2009	23	132	130	136	13	50	18.85	189
10/23/2009	24	132	130	137	13	50	18.71	189
10/24/2009	24	131	130	137	13	52	19.11	190
10/25/2009	24	131	130	136	13	52	19.74	190
10/26/2009	24	131	130	136	13	52	19.56	189
10/27/2009	24	132	130	137	13	52	19.62	192
10/28/2009	24	131	131	137	13	50	20.20	191
10/29/2009	24	131	131	137	12	52	20.53	194
10/30/2009	24	132	132	138	12	52	20.31	197
10/31/2009	24	133	132	138	13	52	20.46	197
11/1/2009	24	134	134	137	13	48	22	197
11/2/2009	24	133	132	138	13	42	21	192
11/3/2009	24	133	132	138	13	49	22	193
11/4/2009	24	133	132	138	13	44	22	191
11/5/2009	24	134	132	138	13	45	22	192
11/6/2009	24	133	132	138	13	43	22	193
11/7/2009	24	133	132	138	13	48	23	192
11/8/2009	24	133	132	138	13	50	23	191
11/9/2009	24	134	132	139	13	52	23	192
11/10/2009	24	134	132	139	13	52	23	192
11/11/2009	24	134	132	139	13	52	24	191
11/12/2009	24	133	132	138	13	52	24	191
11/13/2009	24	134	132	139	13	50	24	191
11/14/2009	24	134	134	140	12	50	24	192
11/15/2009	24	135	135	141	13	50	25	195
11/16/2009	24	136	135	142	13	50	25	195
11/17/2009	24	136	135	141	13	52	25	194
11/18/2009	24	135	134	141	13	52	25	194
11/19/2009	24	135	135	141	13	52	10	194
11/20/2009	24	135	135	141	13	52	5	196

2009
GEO SYSTEM MONITORING DATA
HASSAYAMPA LANDFILL SUPERFUND SITE
MARICOPA COUNTY, ARIZONA

Date	Hours run	System In (psi)	System Mid (psi)	System Out (psi)	Refrig (psi)	Well Vac ("H20 @ KO)	Chem (in)	Flow (scfm)
11/21/2009	24	135	134	140	13	50	5	194
11/22/2009	24	135	135	141	13	50	5	193
11/23/2009	24	136	135	141	13	50	5	193
11/24/2009	24	135	135	141	13	52	6	194
11/25/2009	24	136	135	141	13	52	6	194
11/26/2009	24	135	134	140	13	52	7	193
11/27/2009	24	135	134	140	13	52	7	191
11/28/2009	24	134	134	140	13	50	8	191
11/29/2009	24	134	134	140	13	52	8	194
11/30/2009	24	134	134	140	13	52	8	193
12/01/09	24	136	135	141	12	50	9	195
12/02/09	24	135	135	141	12	52	9	196
12/03/09	24	136	135	141	12	52	9	195
12/04/09	24	135	135	141	12	52	10	194
12/05/09	24	135	134	140	12	52	10	198
12/06/09	24	134	134	140	12	50	11	190
12/07/09	0	-	-	-	-	-	-	-
12/08/09	0	-	-	-	-	-	-	-
12/09/09	0	-	-	-	-	-	-	-
12/10/09	16	134	134	134	12	50	11	194
12/11/09	24	133	134	137	12	50	11	192
12/12/09	24	133	132	138	12	50	12	196
12/13/09	24	133	132	138	12	52	11	196
12/14/09	24	134	132	138	12	52	12	197
12/15/09	24	133	132	138	12	52	12	196
12/16/09	24	133	132	138	12	52	12	197
12/17/09	24	133	132	138	12	50	13	197
12/18/09	24	134	132	138	12	50	13	197
12/19/09	24	134	132	139	12	50	13	195
12/20/09	24	134	132	139	12	52	14	196
12/21/09	24	133	132	139	12	52	14	196
12/22/09	24	134	132	138	12	52	14	196
12/23/09	24	134	132	139	12	52	15	196
12/24/09	24	135	134	140	12	50	15	196
12/25/09	24	136	135	141	12	52	15	197
12/26/09	24	136	135	142	12	52	16	195
12/27/09	24	135	135	141	12	50	16	176
12/28/09	24	135	134	141	12	50	16	192
12/29/09	24	135	135	141	12	52	17	195
12/30/09	24	135	135	141	12	52	17	195
12/31/09	24	135	134	140	12	52	17	194

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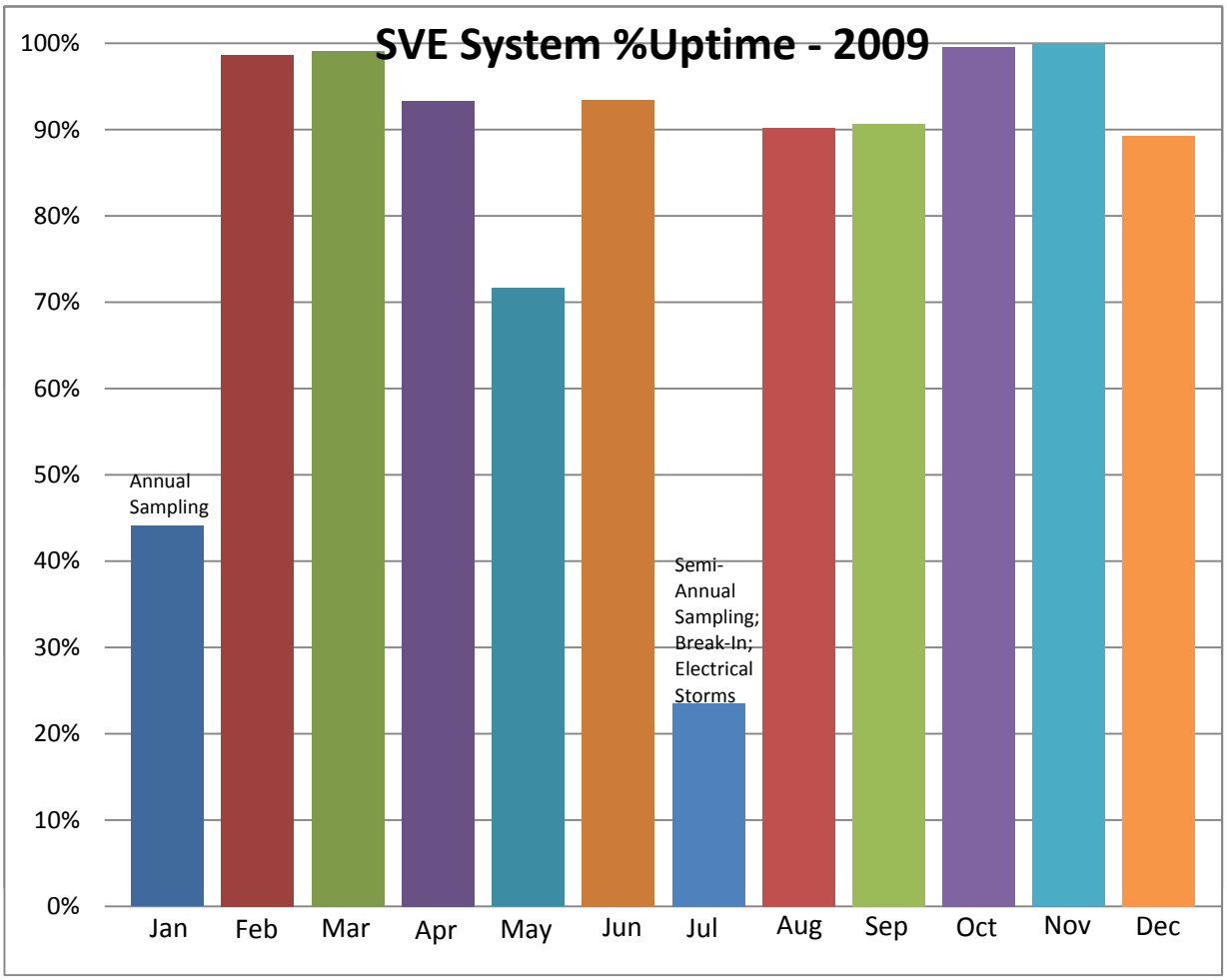
APPENDIX J-2

SVE SYSTEM MONTHLY SUMMARY

Monthly Percent Operation
Soil Vapor Extraction System
Hassayampa Landfill Site

Month	Actual Run Time	Potential Run Time	% Uptime	Comments
January	328	744	44%	Annual Sampling
February	663	672	99%	
March	737	744	99%	
April	672	720	93%	
May	533	744	72%	
June	673	720	93%	
July	175	744	24%	Semi-Annual Sampling; Break-in; Electrical Storms
August	671	744	90%	
September	653	720	91%	
October	741	744	100%	
November	720	720	100%	
December	664	744	89%	



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APPENDIX J-3

SVE SYSTEM MONITORING DATA
EXTRACTION WELLS

SVE System Monitoring Data - Extraction Well NW-2
Hassayampa Landfill Superfund Site
Maricopa County, Arizona

Date	Pitot Differential Pressure	Static Vacuum	Applied Wellhead Vacuum	Temp	Barometric Pressure	PID	Flowrate
	(in. H20)	(in. H20)	(in. H20)	(^oF)	(in Hg)	(ppmv)	(scfm)
1/20/2009	1.82	24.9	42	73.2	30.07	239	16.0
2/5/2009	2.49	33.5	24	76.8	29.91	162.1	18.4

SVE System Monitoring Data - Extraction Well P-01 Fine
Hassayampa Landfill Superfund Site
Maricopa County, Arizona

Date	Pitot Differential Pressure	Static Vacuum	Applied Wellhead Vacuum	Temp	Barometric Pressure	PID	Flowrate
	(in. H20)	(in. H20)	(in. H20)	(^oF)	(in Hg)	(ppmv)	(scfm)
1/20/2009	0.07	24.1	42	73.7	30.07	3581	3.1
2/5/2009	0.01	28.7	24	77.7	29.91	181.6	1.2
2/20/2009	0.11	34.8	52	79.3	29.03	2490	3.8
3/5/2009	0.2	26.7	56.4	79.3	28.9	2552	5.2
3/18/2009	0.37	37.7	65.81	87.2	28.7	9999	6.8
4/2/2009	0.23	36.7	30	81.1	28.85	3190	5.4
4/22/2009	0.15	31.7	42.3	92.6	28.82	316	4.4
5/12/2009	0.04	20.5	22.17	105.4	29.75	2278	2.3
6/5/2009	0.56	50.9	43.82	95.5	29.77	112.8	8.4
6/18/2009	0.14	28.3	43.26	105.4	29.67	3896	4.3
8/10/2009	0.53	56.7	30.01	112.9	30.01	1616	8.0
8/25/2009	0.69	57.2	51.23	89.2	28.73	3355	9.1
9/2/2009	0.65	53.3	55.9	110.6	29.97	1488	8.9
9/23/2009	0.5	46.4	61.22	88.8	29.98	2941	8.0
10/6/2009	1.08	84.4	56.91	61.1	29.84	3582	11.4
10/27/2009	0.46	47.4	56.4	75.2	29.73	1993	7.8
11/5/2009	0.13	43.9	65.17	90.5	29.99	2497	4.1
11/18/2009	0.36	41.9	67.6	80.7	29.92	1499	6.9
12/4/2009	1.21	53.5	64.54	64.2	30.24	1502	12.7
12/22/2009	0.72	45.5	62.48	51.2	21.65	1053	8.3

SVE System Monitoring Data - Extraction Well P-01 Coarse
Hassayampa Landfill Superfund Site
Maricopa County, Arizona

Date	Pitot Differential Pressure	Static Vacuum	Applied Wellhead Vacuum	Temp	Barometric Pressure	PID	Flowrate
	(in. H20)	(in. H20)	(in. H20)	(^oF)	(in Hg)	(ppm)	SCFM
1/20/2009	3.82	18.1	42	80.4	30.07	4844	23.3
2/5/2009	8.22	26.6	24	80.2	29.91	198.8	33.7
2/20/2009	4.79	26.6	52	79.1	29.03	303	25.3
3/5/2009	6.73	28.4	56.4	78.9	28.9	286	29.9
3/18/2009	7.43	32.3	65.81	79.3	28.7	2413	31.1
4/2/2009	4.1	37.9	30	78.8	28.85	562	23.0
4/22/2009	9.77	30.8	42.3	85	28.82	150.9	35.6
5/12/2009	3.88	15.9	22.17	84.2	29.75	259	23.3
6/5/2009	13.79	50.9	43.82	82.9	29.77	108.1	42.0
6/18/2009	9.09	26.6	43.26	86.3	29.67	312	35.1
8/10/2009	12.23	31.5	30.52	86.5	30.01	230.4	40.7
8/25/2009	12.03	50.3	51.23	83.2	28.73	530	38.5
9/2/2009	14.16	35.4	55.99	87.4	29.97	192	43.5
9/23/2009	13.3	32.2	61.22	81.5	29.98	252	42.5
10/6/2009	16.61	52.8	56.91	80.2	29.84	272	46.2
10/27/2009	8.59	31.3	56.4	82	29.73	812	34.1
11/5/2009	15.62	44.8	65.17	84.2	29.99	291	45.2
11/18/2009	20.44	52.4	67.6	80.7	29.92	226	51.3
12/4/2009	15.51	27	64.54	81.6	30.24	115	46.5
12/22/2009	14.29	30.6	62.48	79.1	21.65	158	37.0

SVE System Monitoring Data - Extraction Well SP-01
Hassayampa Landfill Superfund Site
Maricopa County, Arizona

Date	Pitot Differential Pressure	Static Vacuum	Applied Wellhead Vacuum	Temp	Barometric Pressure	PID	Flowrate
	(in. H20)	(in. H20)	(in. H20)	(^oF)	(in Hg)	(ppm)	SCFM
1/20/2009	0.05	14.7	42	65.1	30.07	9999	2.7
2/5/2009	0.44	56.7	24	77.1	29.91	13968	7.5
2/20/2009	0.09	31.1	52	74.1	29.03	2876	3.5
3/5/2009	0.63	53.1	56.4	75.9	28.9	2301	8.9
3/18/2009	21	54.6	65.81	77.1	28.7	9999	50.8
4/2/2009	1.21	42.7	30	76.2	28.85	2490	12.4
4/22/2009	0.98	51.1	42.3	80.2	28.82	4849	11.0
5/12/2009	1.08	48.1	22.17	88.3	29.75	2468	11.7
6/5/2009	0.09	53.8	43.82	85.4	29.77	2882	3.4
6/18/2009	0.52	29.7	43.26	93.9	29.67	2781	8.3
8/10/2009	0.33	25.6	30.52	95.7	30.01	1501	6.7
8/25/2009	1.41	50.7	51.23	82.5	28.73	1734	13.2
9/2/2009	1.82	56.7	55.99	96.3	29.97	1453	15.0
9/23/2009	1.13	49.4	61.22	81.6	29.98	1610	12.1
10/6/2009	1.06	51.2	56.91	73.7	29.84	684	11.8
10/27/2009	2.29	64.1	56.4	77.5	29.73	1608	16.9
11/5/2009	0.83	57.7	65.17	81.1	29.99	1653	10.3
11/18/2009	1.73	48.3	67.6	74.3	29.92	961	15.1
12/4/2009	1.65	55.8	64.54	73.4	30.24	695	14.7
12/22/2009	0.14	55.4	62.48	69.2	21.65	1099	3.5

SVE System Monitoring Data - Extraction Well SP-02
Hassayampa Landfill Superfund Site
Maricopa County, Arizona

Date	Pitot Differential Pressure	Static Vacuum	Applied Wellhead Vacuum	Temp	Barometric Pressure	PID	Flowrate
	(in. H20)	(in. H20)	(in. H20)	(^oF)	(in Hg)	(ppm)	SCFM
1/20/2009	0.03	11.1	42	72.6	30.07	9999	2.1
2/5/2009	0.22	37.6	24	77.1	29.91	166.6	5.4
2/20/2009	0.22	43.8	52	74.1	29.03	757	5.3
3/5/2009	0.72	46.9	56.4	75.2	28.9	712	9.6
3/18/2009	0.51	36.6	65.81	77.7	28.7	9999	8.1
4/2/2009	0.3	33.2	30	76.6	28.85	873	6.3
4/22/2009	0.51	48.7	40.3	79.7	28.82	173.8	8.0
5/12/2009	0.49	35.5	22.17	87.8	29.75	777	8.0
6/5/2009	0.64	45.8	43.82	78.9	29.77	224.8	9.1
6/18/2009	0.31	29	43.26	90.1	29.67	844	6.4
8/10/2009	0.2	25.4	30.52	95.1	30.01	266.6	5.2
8/25/2009	0.88	49.9	51.23	83.4	28.73	659	10.4
9/2/2009	1.39	56.3	55.99	92.1	29.97	536	13.2
9/23/2009	1.02	49.4	61.22	82.9	29.98	644	11.5
10/6/2009	1.13	52.4	56.91	73.2	29.84	497	12.1
10/27/2009	1.6	55.4	56.4	77.1	29.73	474	14.3
11/5/2009	0.49	56.9	65.17	82.4	29.99	136	7.9
11/18/2009	2.21	62.6	67.6	69.8	29.92	277	16.8
12/4/2009	2.18	63.6	64.54	75.9	30.24	163	16.7
12/22/2009	1.89	66.7	62.48	68.3	21.65	400	12.6

SVE System Monitoring Data - Extraction Well V-11
Hassayampa Landfill Superfund Site
Maricopa County, Arizona

Date	Pitot Differential Pressure	Static Vacuum	Applied Wellhead Vacuum	Temp	Barometric Pressure	PID	Flowrate
	(in. H20)	(in. H20)	(in. H20)	(^oF)	(in Hg)	(ppmv)	(scfm)
1/20/2009	0.3	40.2	42	76.1	30.07	1807	6.4
2/5/2009	0.31	35.7	24	78.4	29.91	4362	6.5
2/20/2009	0.09	24.8	52	75.5	29.03	1652	3.5
3/5/2009	0.33	34.9	56.4	76.67	28.9	1754	6.6
3/18/2009	0.47	38.5	65.81	80.7	28.7	2949	7.7
4/2/2009	0.08	21.3	30	79.3	28.85	2260	3.3
4/22/2009	0.28	45.1	42.3	84.9	28.82	4143	5.9
5/12/2009	0.05	20.3	22.17	98.9	29.75	1831	2.6
6/5/2009	0.23	43.6	43.82	84.7	29.77	380.6	5.5
6/18/2009	0.06	28.6	43.26	98.9	29.67	2213	2.8
8/10/2009	0.42	56.3	30.52	101.1	30.01	1222	7.2
8/25/2009	0.56	52.2	51.23	85.4	28.73	1771	8.3
9/2/2009	0.47	52.8	55.99	100.2	29.97	1211	7.6
9/23/2009	0.23	47.6	61.22	85.6	29.98	2216	5.5
10/6/2009	0.72	64.6	56.91	71.4	29.84	2364	9.5
10/27/2009	0.72	56.3	56.4	77.1	29.73	1757	9.6
11/5/2009	0.04	42.7	65.17	84.7	29.99	1632	2.3
11/18/2009	0.3	52.7	67.6	68.7	29.92	1224	6.3
12/4/2009	0.46	41.7	64.54	71.4	30.24	748	7.9
12/22/2009	0.28	39.8	62.48	62.2	21.65	750	5.2

SVE System Monitoring Data - Extraction Well V-12
Hassayampa Landfill Superfund Site
Maricopa County, Arizona

Date	Pitot Differential Pressure	Static Vacuum	Applied Wellhead Vacuum	Temp	Barometric Pressure	PID	Flowrate
	(in. H20)	(in. H20)	(in. H20)	(^oF)	(in Hg)	(ppmv)	(scfm)
1/20/2009	0.24	49.3	42	76.1	30.07	1870	5.6
2/5/2009	0.21	35.5	24	77.1	29.91	188.8	5.3
2/20/2009	0.14	30.1	52	76.1	29.03	263	4.3
3/5/2009	0.19	33.3	56.4	76.1	28.9	245	5.0
3/18/2009	0.15	26.9	65.81	81.5	28.7	347	4.4
4/2/2009	0.25	36.6	30	76.4	28.85	176	5.7
4/22/2009	0.22	34.7	42.3	82.9	28.82	124.3	5.3
5/12/2009	0.26	32.3	22.17	98.4	29.75	58.2	5.8
6/5/2009	0.48	49.6	43.82	87.2	29.77	53.1	7.8
6/18/2009	0.18	39.5	43.26	95.9	29.67	44.4	4.8
8/10/2009	0.45	55.9	30.52	102.3	30.01	165.9	7.4
8/25/2009	0.13	44.4	51.23	87.6	28.73	303	4.0
9/2/2009	0.37	43.1	55.99	100.2	29.97	147	6.9
9/23/2009	0.29	46.8	61.22	85.4	29.98	301	6.1
10/6/2009	0.6	50.9	56.91	71.2	29.84	391	8.9
10/27/2009	0.16	45.7	56.4	75.7	29.73	274	4.6
11/5/2009	0.54	43.3	65.17	86.5	29.99	336	8.4
11/18/2009	0.52	43.4	67.6	67.6	29.92	254	8.4
12/4/2009	0.58	43.8	64.54	71.4	30.24	128	8.9
12/22/2009	0.28	39.8	62.48	63.3	21.65	197	5.2

SVE System Monitoring Data - Extraction Well W-01
Hassayampa Landfill Superfund Site
Maricopa County, Arizona

Date	Pitot Differential Pressure	Static Vacuum	Applied Wellhead Vacuum	Temp	Barometric Pressure	PID	Flowrate
	(in. H20)	(in. H20)	(in. H20)	(^oF)	(in Hg)	(ppmv)	(scfm)
1/20/2009	0.18	15.6	42	71.9	30.07	415	5.1
2/5/2009	0.43	31.8	24	78.9	29.91	54.9	7.7
2/20/2009	3.44	29.2	52	74.8	29.03	263	21.5
3/5/2009	3.37	26.5	56.4	76.4	28.9	134	21.3
3/18/2009	1.85	20.7	65.81	78.8	28.7	177	15.8
4/2/2009	4.1	30.4	30	75.7	28.85	89.4	23.3
4/22/2009	4.33	29.2	42.3	80.4	28.82	67.6	23.9
5/12/2009	4.06	29.6	22.17	87.8	29.75	69.9	23.4
6/5/2009	6.25	40.5	43.82	85.2	29.77	42.7	28.6
6/18/2009	4.11	33.7	43.26	87.9	29.67	114	23.3
8/10/2009	5.33	39.2	30.52	92.1	30.01	85.6	26.4
8/25/2009	5.64	45.7	51.23	85.1	28.73	100	26.5
9/2/2009	5.27	37.7	55.99	90.3	29.97	71.2	26.4
9/23/2009	3.47	46.6	61.22	83.6	29.98	108	21.3
10/6/2009	3.71	44.8	56.91	74.3	29.84	202	22.2
10/27/2009	3.03	34.4	56.4	77.5	29.73	132	20.2
11/5/2009	2.27	42.7	65.17	84.2	29.99	132	17.3
11/18/2009	3.01	36.5	67.6	73.5	29.92	121	20.3
12/4/2009	2.96	33.9	64.54	72.5	30.24	31.2	20.3
12/22/2009	2.59	37.9	62.48	70.3	21.65	83.7	15.7

SVE System Monitoring Data - Extraction Well MW-06UA
Hassayampa Landfill Superfund Site
Maricopa County, Arizona

Date	Pitot Differential Pressure	Static Vacuum	Applied Wellhead Vacuum	Temp	Barometric Pressure	PID	Flowrate
	(in. H20)	(in. H20)	(in. H20)	(^oF)	(in Hg)	(ppmv)	(scfm)
1/20/2009	0.14	18.8	42	69.2	30.07	310	4.5
2/5/2009	0.33	35.6	24	74.6	29.91	170.1	6.7
2/20/2009	0.68	26.1	52	72.1	29.03	326	9.6
3/5/2009	0.61	29.9	56.4	76.1	28.9	358	9.0
3/18/2009	0.62	24.5	65.81	77.9	28.7	631	9.1
4/2/2009	0.42	44.9	30	75.3	28.85	419	7.3
4/22/2009	0.4	36.2	42.3	85.2	28.82	204.7	7.2
5/12/2009	0.33	34.5	22.17	90.1	29.75	448	6.6
6/5/2009	0.24	1.5	43.82	80.4	29.77	99.6	5.9
6/18/2009	0.16	28.2	43.26	93.9	29.67	374	4.6
8/10/2009	0.67	55.2	30.52	95.5	30.01	130.6	9.1
8/25/2009	0.48	47.2	51.23	81.8	28.73	301	7.7
9/2/2009	0.74	53.5	55.99	92.1	29.97	77.3	9.7
9/23/2009	0.55	47.1	61.22	83.8	29.98	290	8.5
10/6/2009	0.13	57.1	56.91	70.8	29.84	329	4.1
10/27/2009	0.82	46.6	56.4	75.3	29.73	404	10.4
11/5/2009	0.72	43.1	65.17	81.3	29.99	577	9.8
11/18/2009	0.92	45.4	67.6	69.2	29.92	401	11.1
12/4/2009	1.59	43.1	64.54	72.1	30.24	51.3	14.7
12/22/2009	0.82	46.7	62.48	61.9	21.65	261	8.7

SVE System Monitoring Data - Extraction Well MW-18UA
Hassayampa Landfill Superfund Site
Maricopa County, Arizona

Date	Pitot Differential Pressure	Static Vacuum	Applied Wellhead Vacuum	Temp	Barometric Pressure	PID	Flowrate
	(in. H20)	(in. H20)	(in. H20)	(^oF)	(in Hg)	(ppmv)	(scfm)
1/20/2009	0.01	43.3	42	76.1	30.07	146.6	1.2
2/5/2009	0.02	34.4	24	79.1	29.91	214.7	1.6
2/20/2009	0.01	38.8	52	73	29.03	1344	1.1
3/5/2009	0.01	34.8	56.4	74.4	28.9	940	1.1
3/18/2009	0.03	30.9	65.81	80.6	28.7	1680	2.0
4/2/2009	0.01	42.3	30	79.1	28.85	1681	1.1
4/22/2009	0.05	10.8	42.3	91	28.82	222.6	2.6
5/12/2009	0.01	26.6	22.17	99.4	29.75	1493	1.2
6/5/2009	0.02	44.4	43.82	90.6	29.77	320.2	1.6
6/18/2009	0.01	37.7	43.26	96.8	29.67	1930	1.1
8/10/2009	0.01	46.2	30.52	104.7	30.01	842.3	1.1
8/25/2009	0.01	45.5	51.23	91	28.73	1422	1.1
9/2/2009	0.01	28.3	55.99	102	29.97	1090	1.2
9/23/2009	0.07	37.7	61.22	88.3	29.98	1646	3.0
10/6/2009	0.24	42.6	56.91	66	29.84	1715	5.7
10/27/2009	0.02	42.2	56.4	70.5	29.73	1571	1.6
11/5/2009	0.06	50.4	65.17	87.8	29.99	1498	2.8
11/18/2009	0.04	67.6	67.6	49.8	29.92	935	2.3
12/4/2009	0.02	41.9	64.54	60.8	30.24	1111	1.7
12/22/2009	0.12	41.9	62.48	50.1	21.65	811	3.4

SVE System Monitoring Data - Extraction Well MW-19UA
Hassayampa Landfill Superfund Site
Maricopa County, Arizona

Date	Pitot Differential Pressure	Static Vacuum	Applied Wellhead Vacuum	Temp	Barometric Pressure	PID	Flowrate
	(in. H20)	(in. H20)	(in. H20)	(^oF)	(in Hg)	(ppmv)	(scfm)
1/20/2009	0.01	19.2	42	67.2	30.07	1348	1.2
2/5/2009	0.01	43.9	24	79.7	29.91	2198	1.1
2/20/2009	0.08	25.4	52	71.1	29.03	1565	3.3
3/5/2009	0.02	25.7	56.4	74.8	28.9	1399	1.6
3/18/2009	0.03	40.2	65.81	80	28.7	7661	2.0
4/2/2009	0.02	35.8	30	75.2	28.85	2143	1.6
4/22/2009	0.02	20.7	42.3	85.4	28.82	279.4	1.6
5/12/2009	0.01	47	22.17	98.2	29.75	2013	1.1
6/5/2009	0	42.4	43.82	82.5	29.77	2333	0.0
6/18/2009	0.01	28	43.26	98.6	29.67	3001	1.1
8/10/2009	0.01	53.8	30.52	104.1	30.01	1256	1.1
8/25/2009	0.01	32	51.23	81.8	28.73	1369	1.1
9/2/2009	0.01	53.8	55.99	102.5	29.97	1452	1.1
9/23/2009	0	48.1	61.22	78.7	29.98	2622	0.0
10/6/2009	0.13	49.7	56.91	55.7	29.84	2165	4.2
10/27/2009	0.02	46.7	56.4	68.5	29.73	2808	1.6

Geosyntec consultants

APPENDIX J-4

SVE SYSTEM INFLUENT SAMPLES LABORATORY ANALYTICAL REPORTS

See Attached CD

APPENDIX K

SOIL VAPOR CHEMICAL CONCENTRATIONS FOR GROUNDWATER AND SOIL VAPOR MONITOR WELLS

HARGIS + ASSOCIATES, INC.

APPENDIX K

SOIL VAPOR CHEMICAL CONCENTRATIONS FOR GROUNDWATER AND SOIL VAPOR MONITOR WELLS

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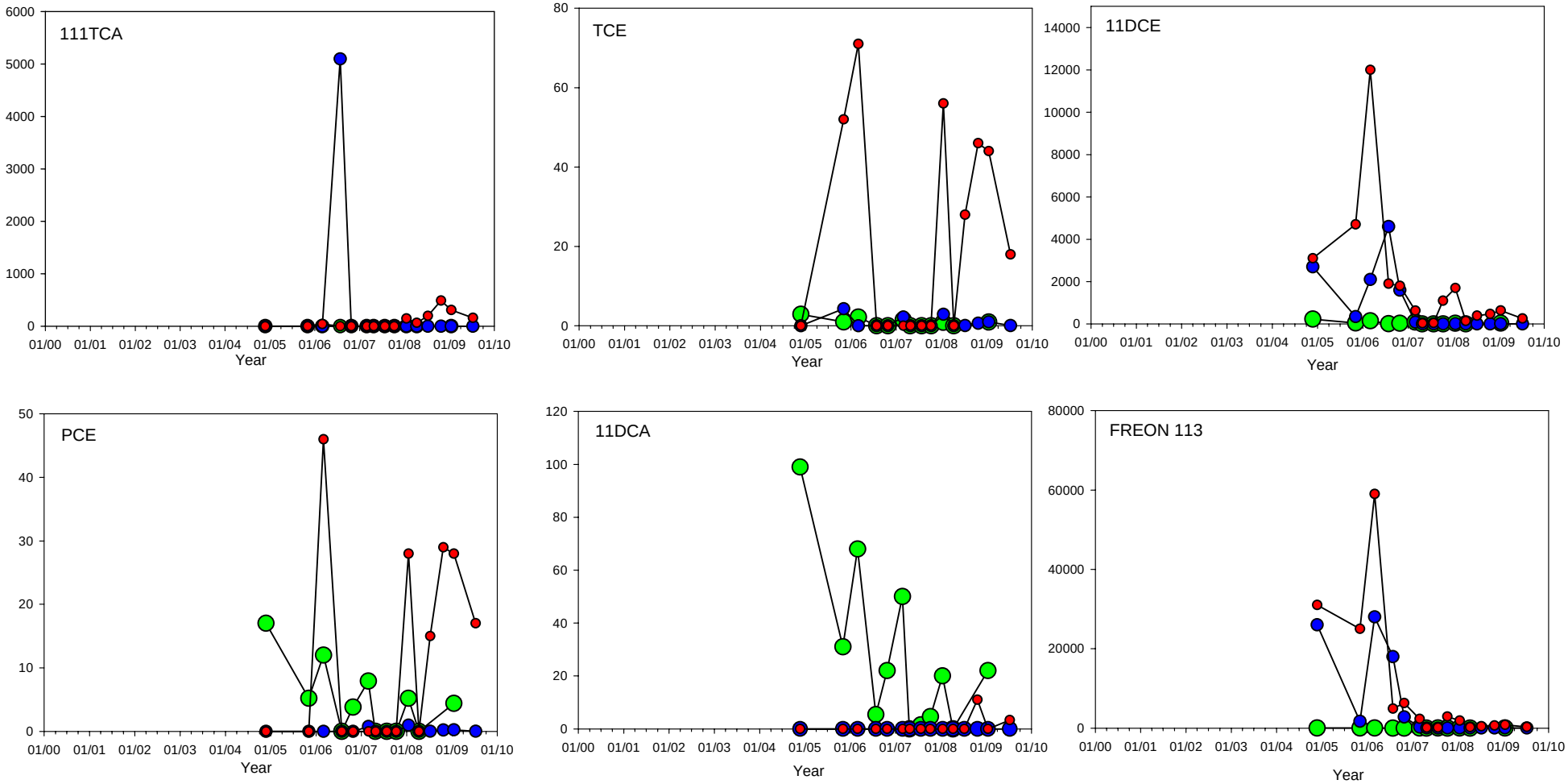


111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

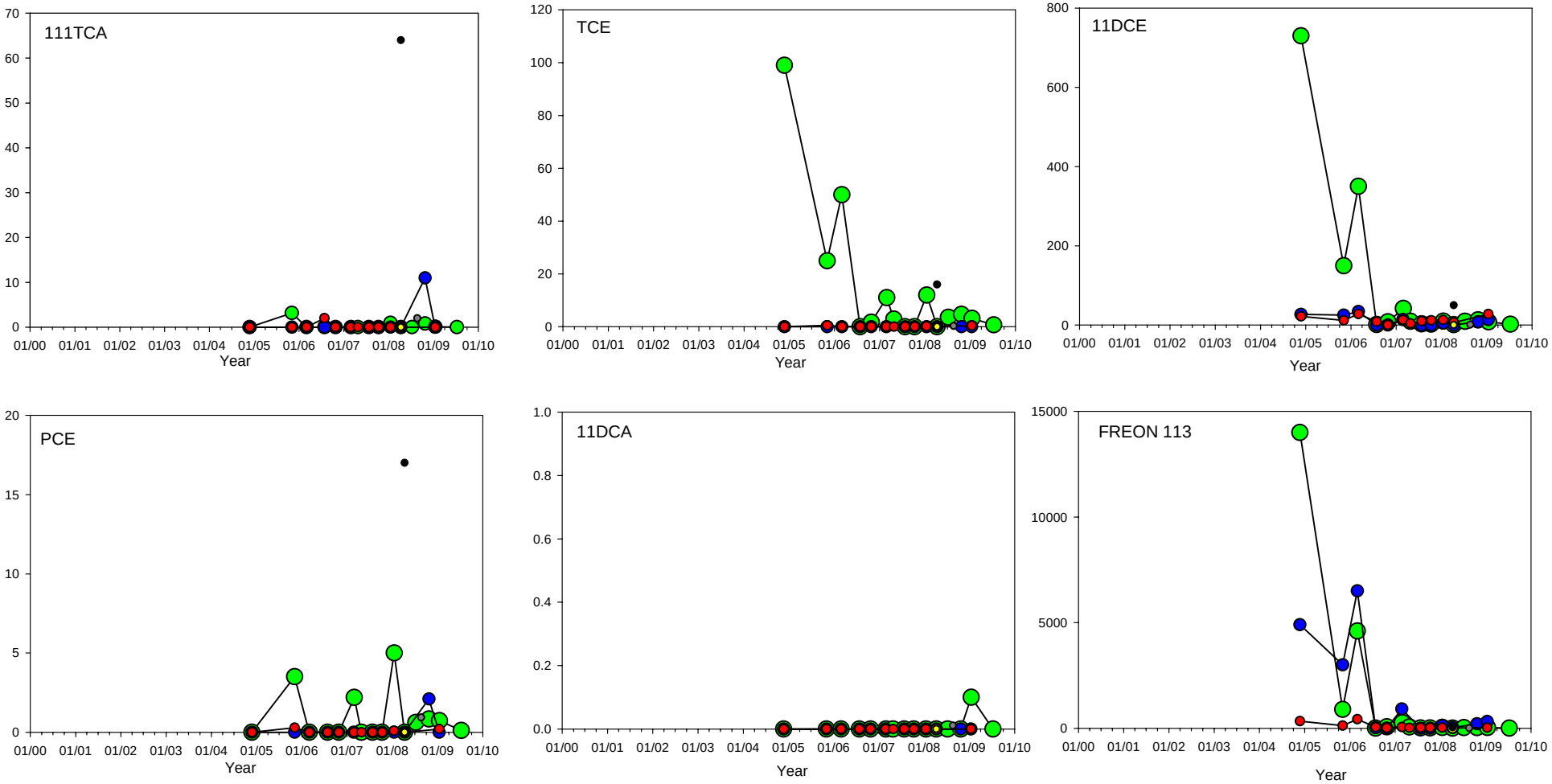
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- MW-01UA
- MW-04UA
- MW-06UA

FIGURE K-1. SOIL VAPOR CHEMICAL CONCENTRATIONS
MW-01UA, MW-04UA, AND MW-06UA



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

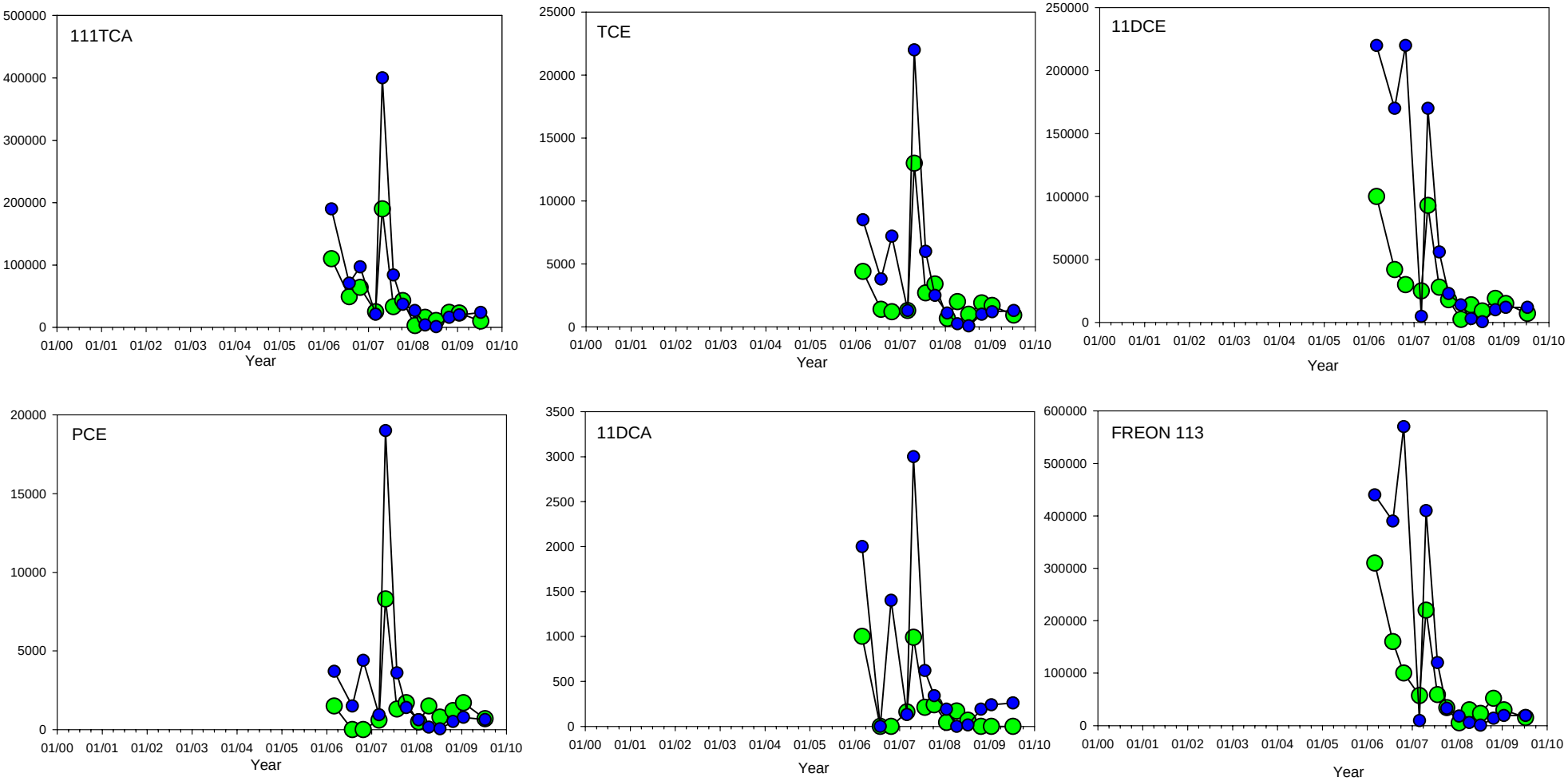
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- MW-07UA
- MW-11UA
- MW-12UA
- MW-03UA
- MW-20UA
- MW-21UA

FIGURE K-2. SOIL VAPOR CHEMICAL CONCENTRATIONS
MW-03UA, MW-07UA, MW-11UA, MW-12UA, MW-20UA, & MW-21UA



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

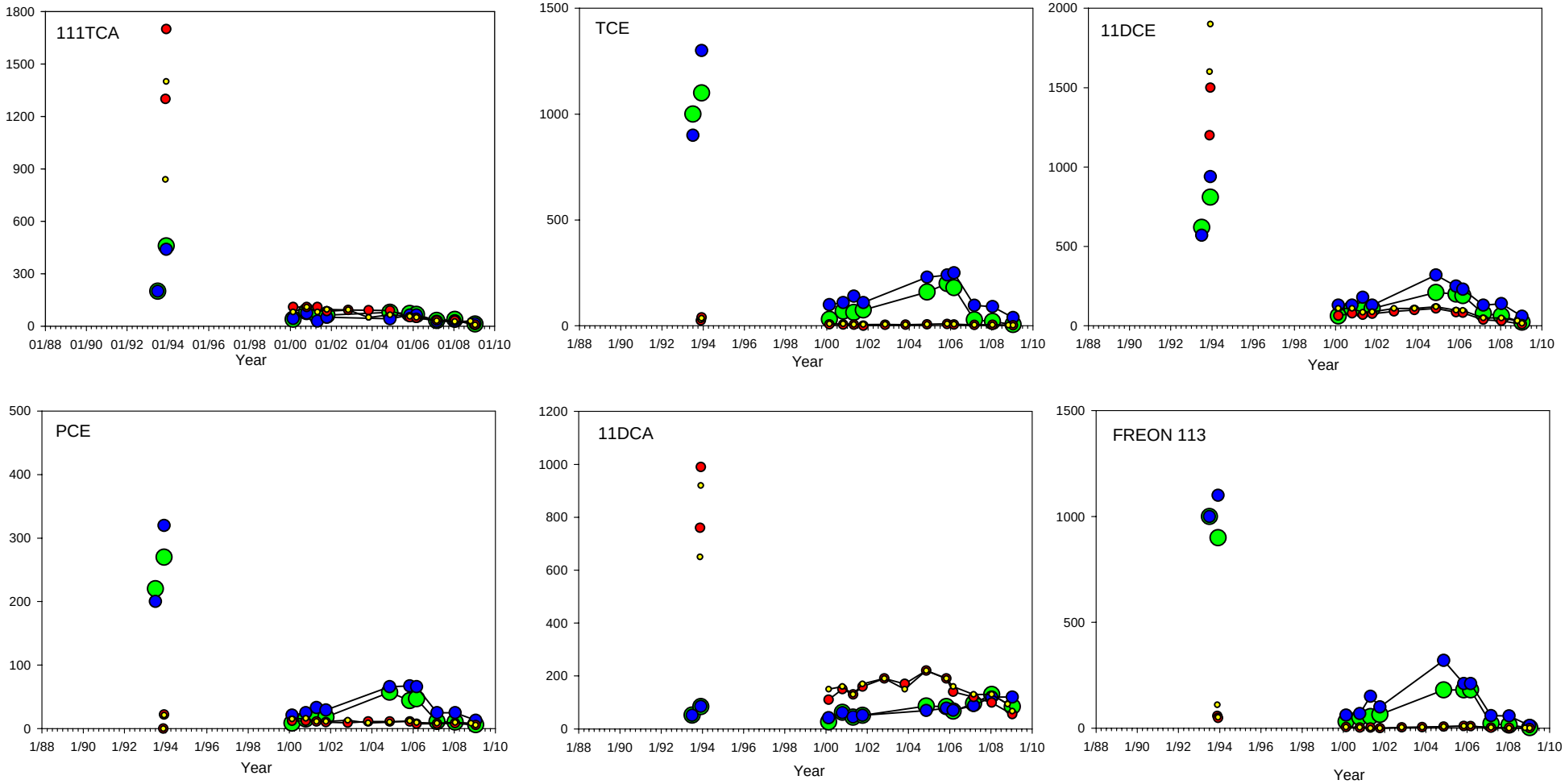
COLOR KEY:

VP-18UA
VP-19UA

Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

FIGURE K-3. SOIL VAPOR CHEMICAL CONCENTRATIONS
VP-18UA & VP-19UA



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

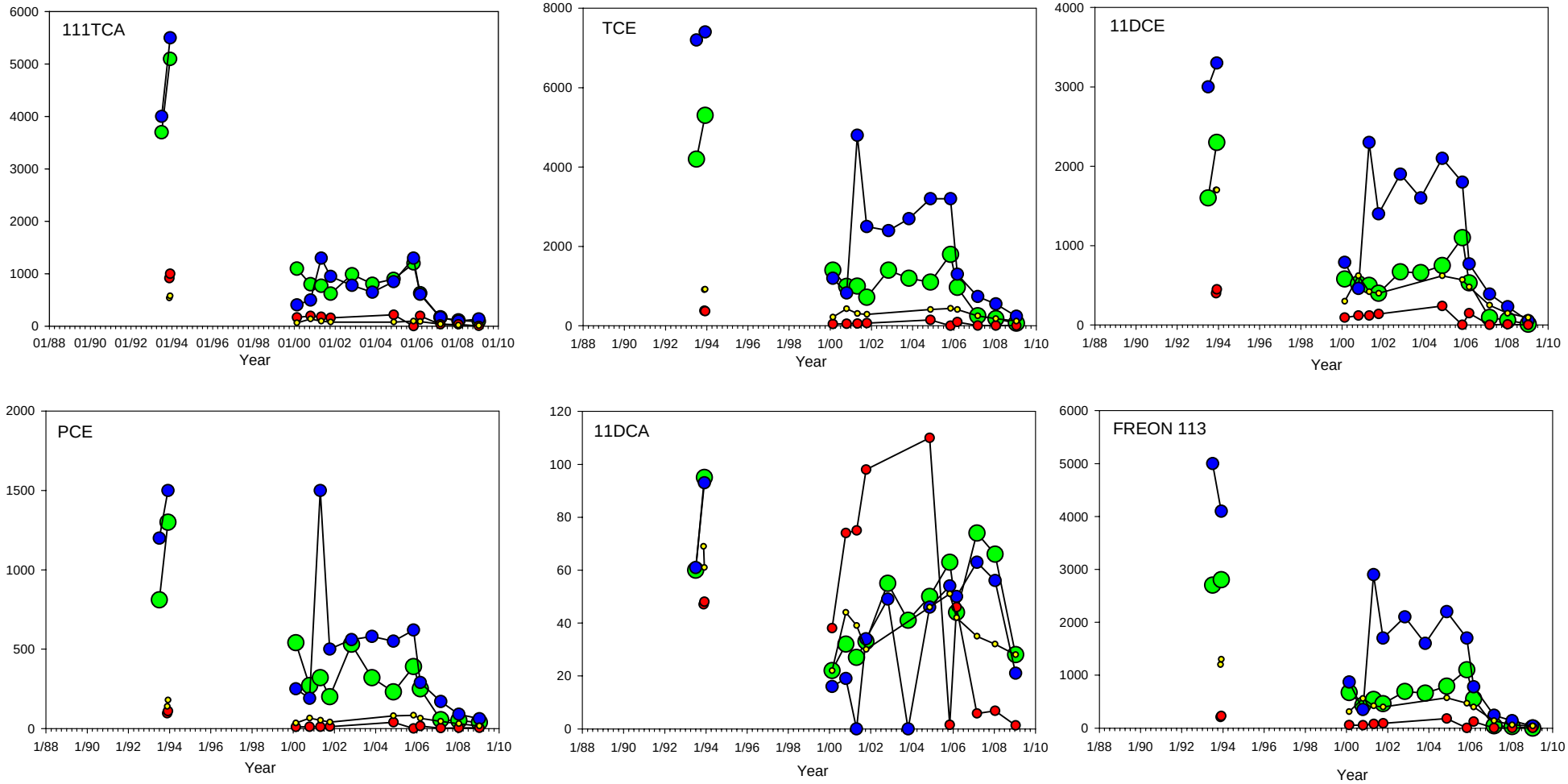
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- SP-03-COARSE
- SP-03-FINE
- SP-06-COARSE
- SP-06-FINE

FIGURE K-4. SOIL VAPOR CHEMICAL CONCENTRATIONS
SP-03 & SP-06



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

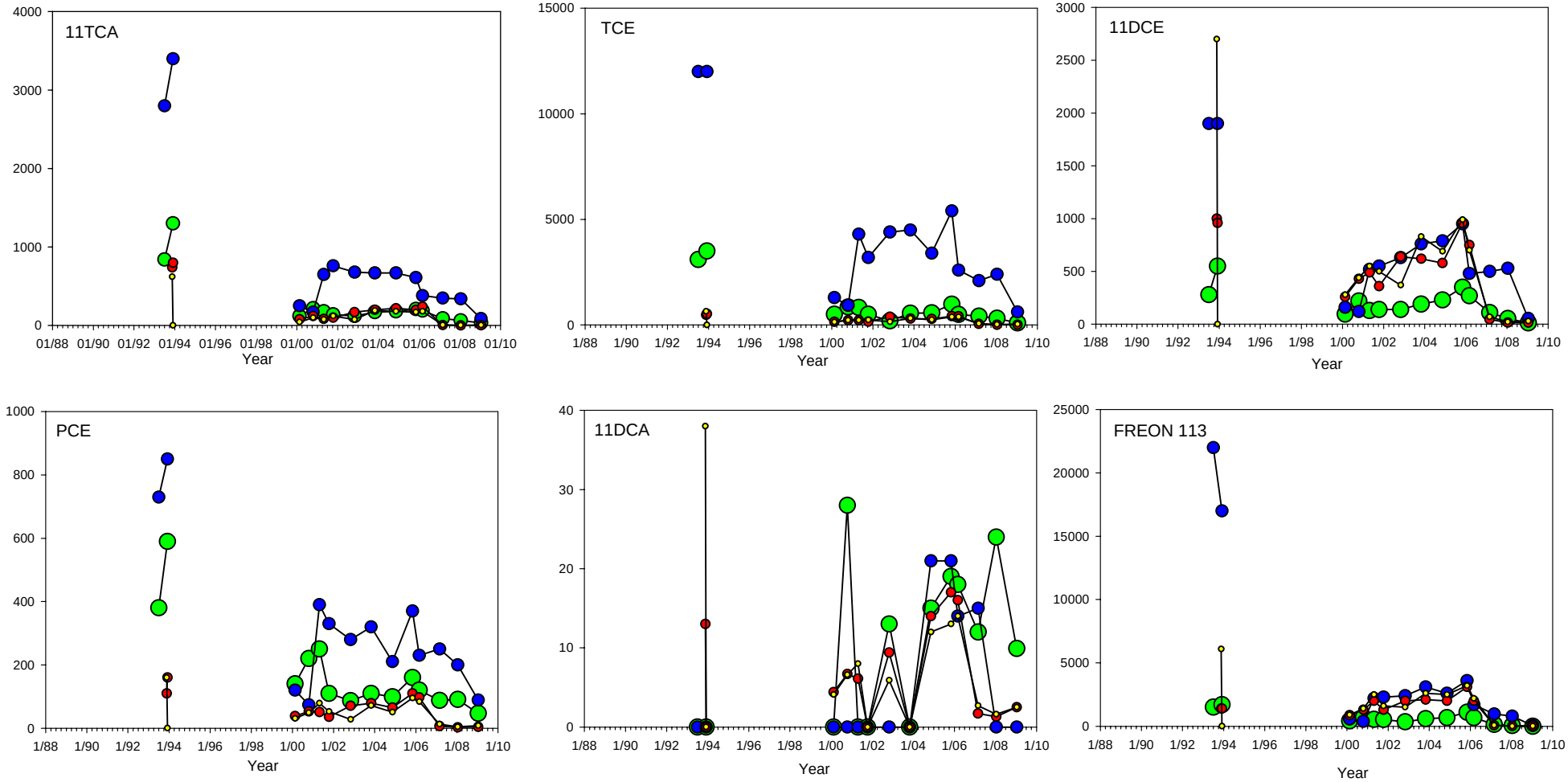
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- SP-02-COARSE
- SP-02-FINE
- SP-05-COARSE
- SP-05-FINE

FIGURE K-5. SOIL VAPOR CHEMICAL CONCENTRATIONS
SP-02 & SP-05



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

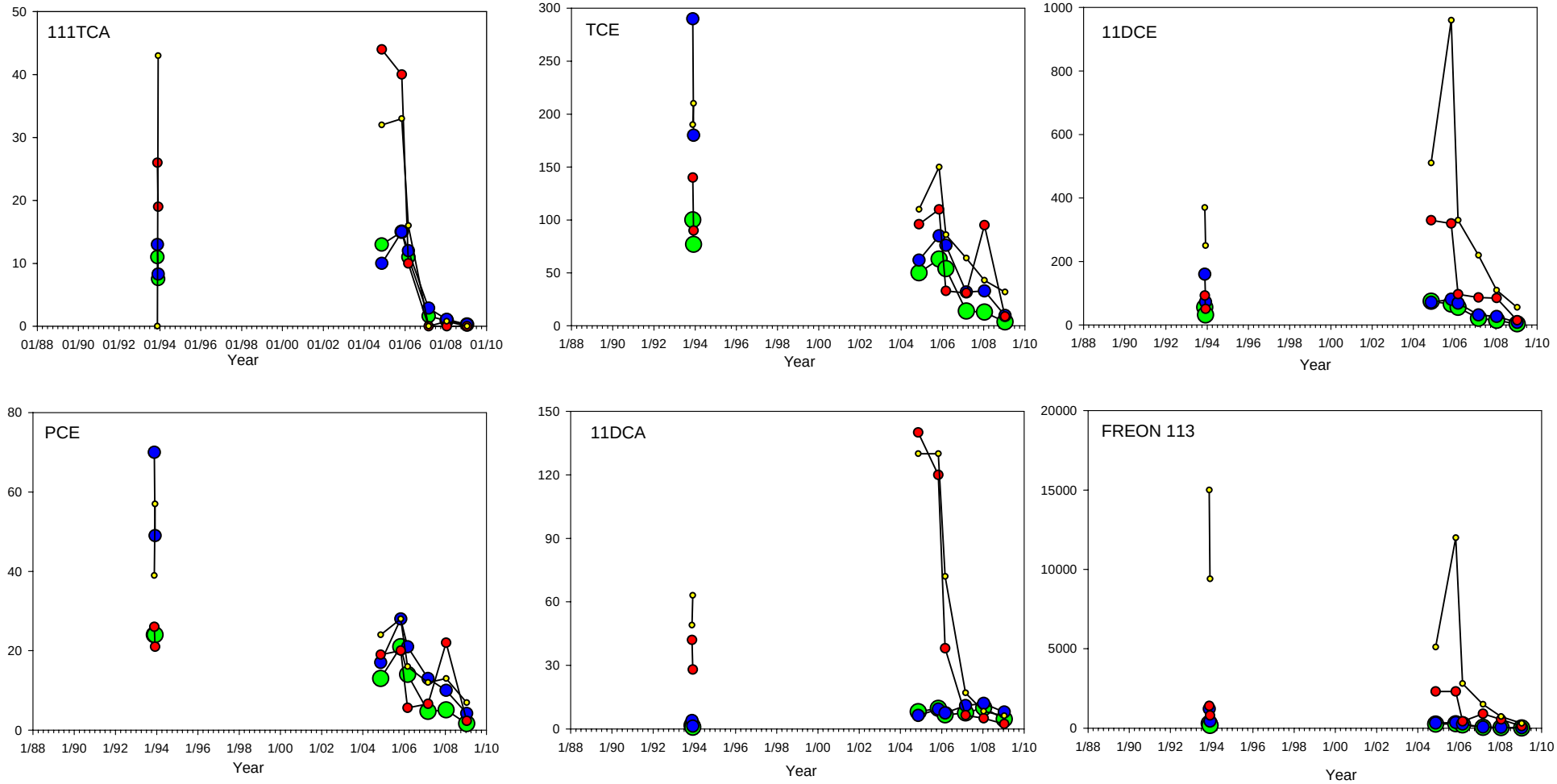
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- SP-01-COARSE
- SP-01-FINE
- SP-04-COARSE
- SP-04-FINE

FIGURE K-6. SOIL VAPOR CHEMICAL CONCENTRATIONS
SP-01 & SP-04



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

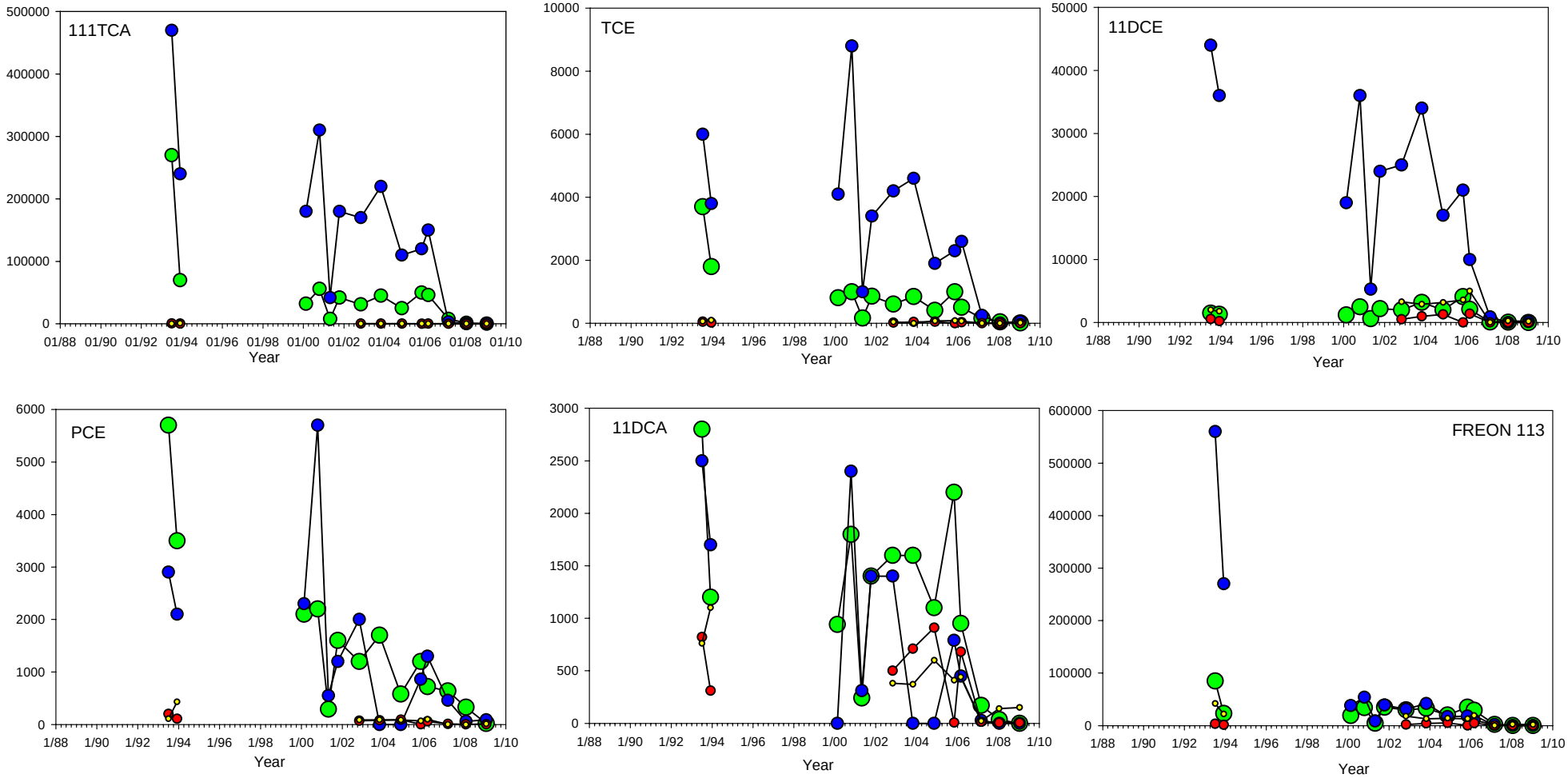
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- SP-07-COARSE
- SP-07-FINE
- SP-08-COARSE
- SP-08-FINE

FIGURE K-7. SOIL VAPOR CHEMICAL CONCENTRATIONS
SP-07 & SP-08



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

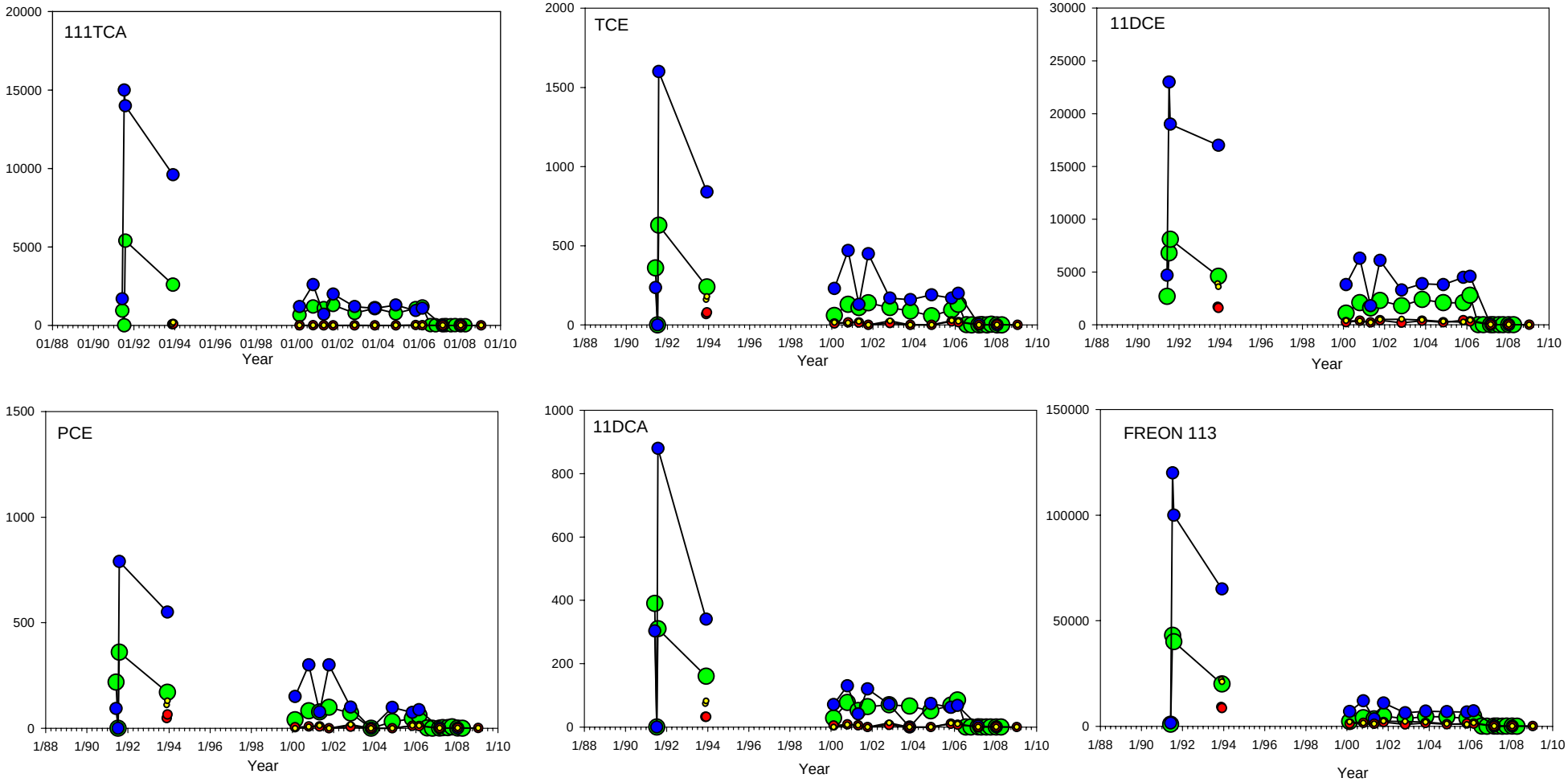
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- P-01-COARSE
- P-01-FINE
- P-03-COARSE
- P-03-FINE

FIGURE K-8. SOIL VAPOR CHEMICAL CONCENTRATIONS
P-01 & P-03



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

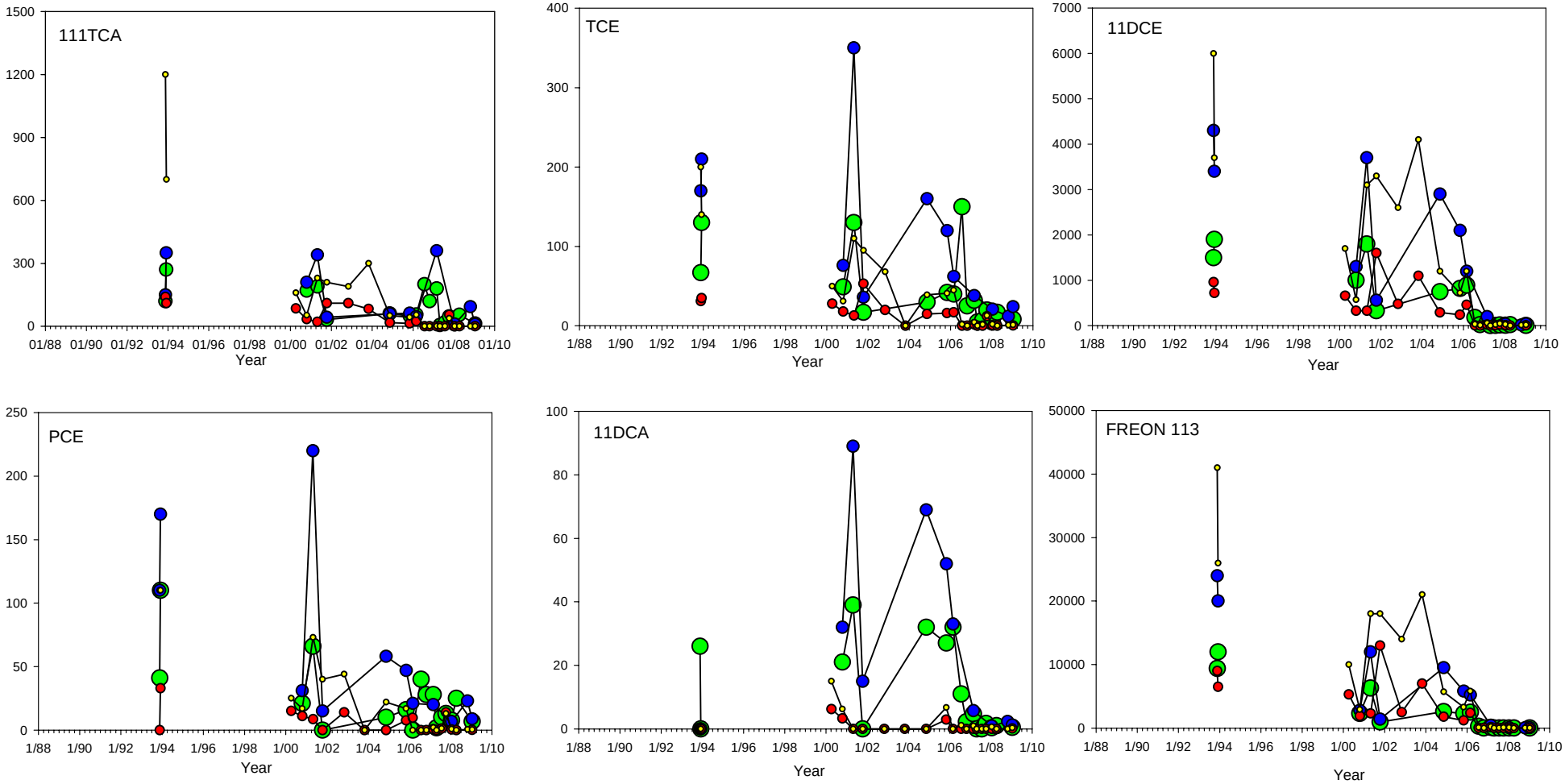
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- VB-02-COARSE
- VB-02-FINE
- SE-01-COARSE
- SE-01-FINE

FIGURE K-9. SOIL VAPOR CHEMICAL CONCENTRATIONS
VB-02 & SE-01



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

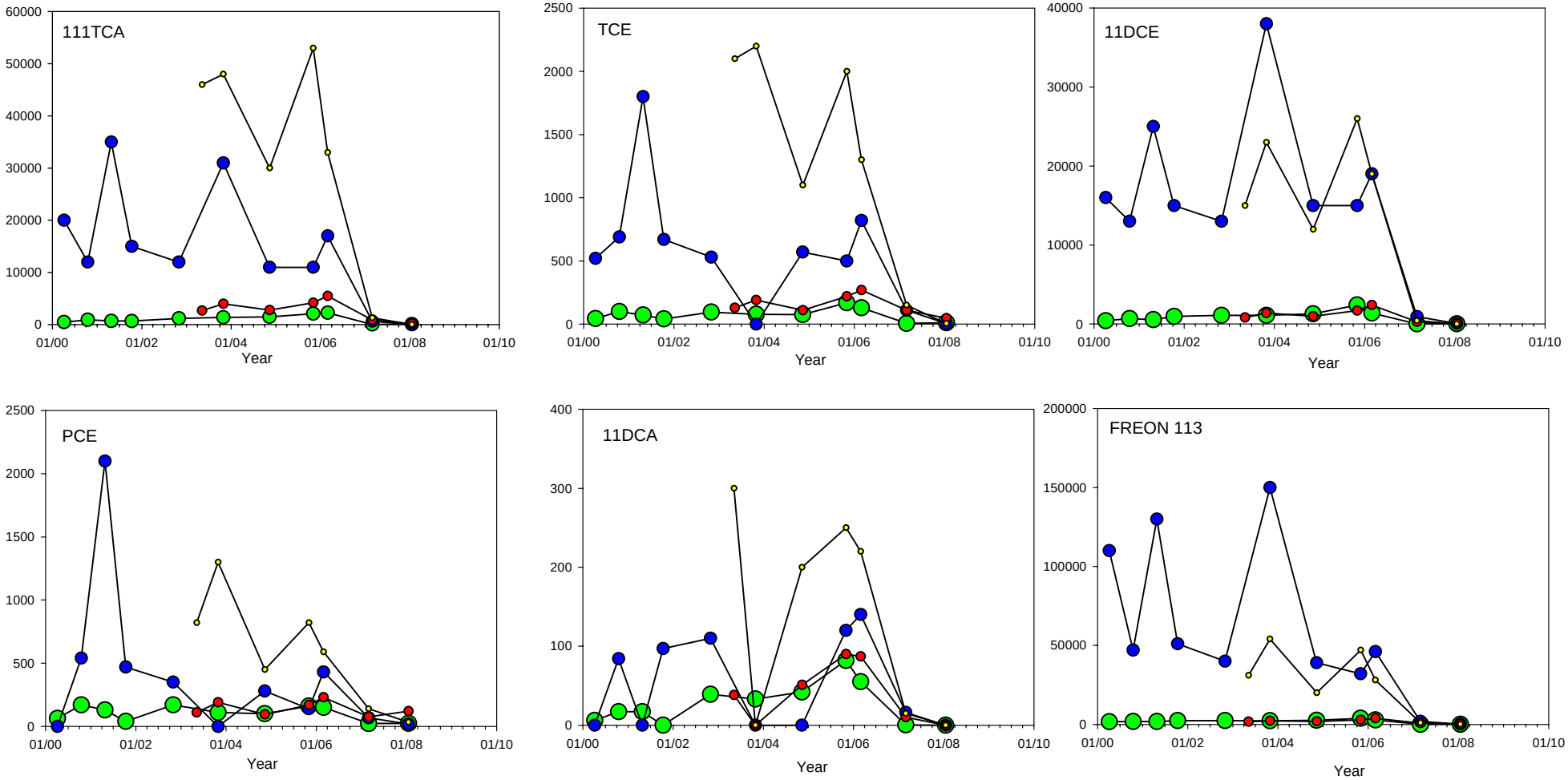
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- W-01-COARSE
- W-01-FINE
- NW-01-COARSE
- NW-01-FINE

FIGURE K-10. SOIL VAPOR CHEMICAL CONCENTRATIONS
W-01 & NW-01



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

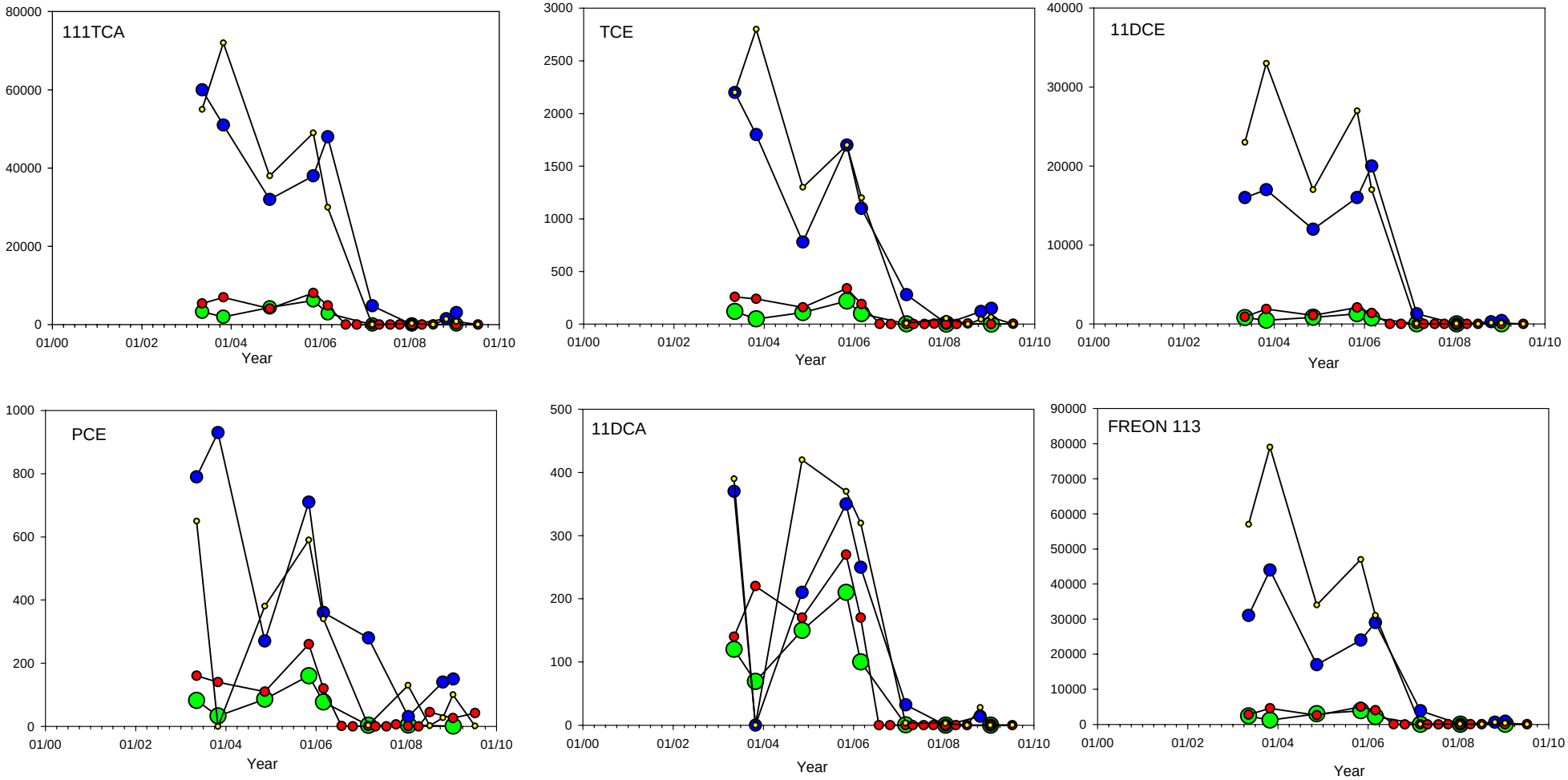
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- V-09-COARSE
- V-09-FINE
- V-10-COARSE
- V-10-FINE

FIGURE K-11. SOIL VAPOR CHEMICAL CONCENTRATIONS
V-09 & V-10



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

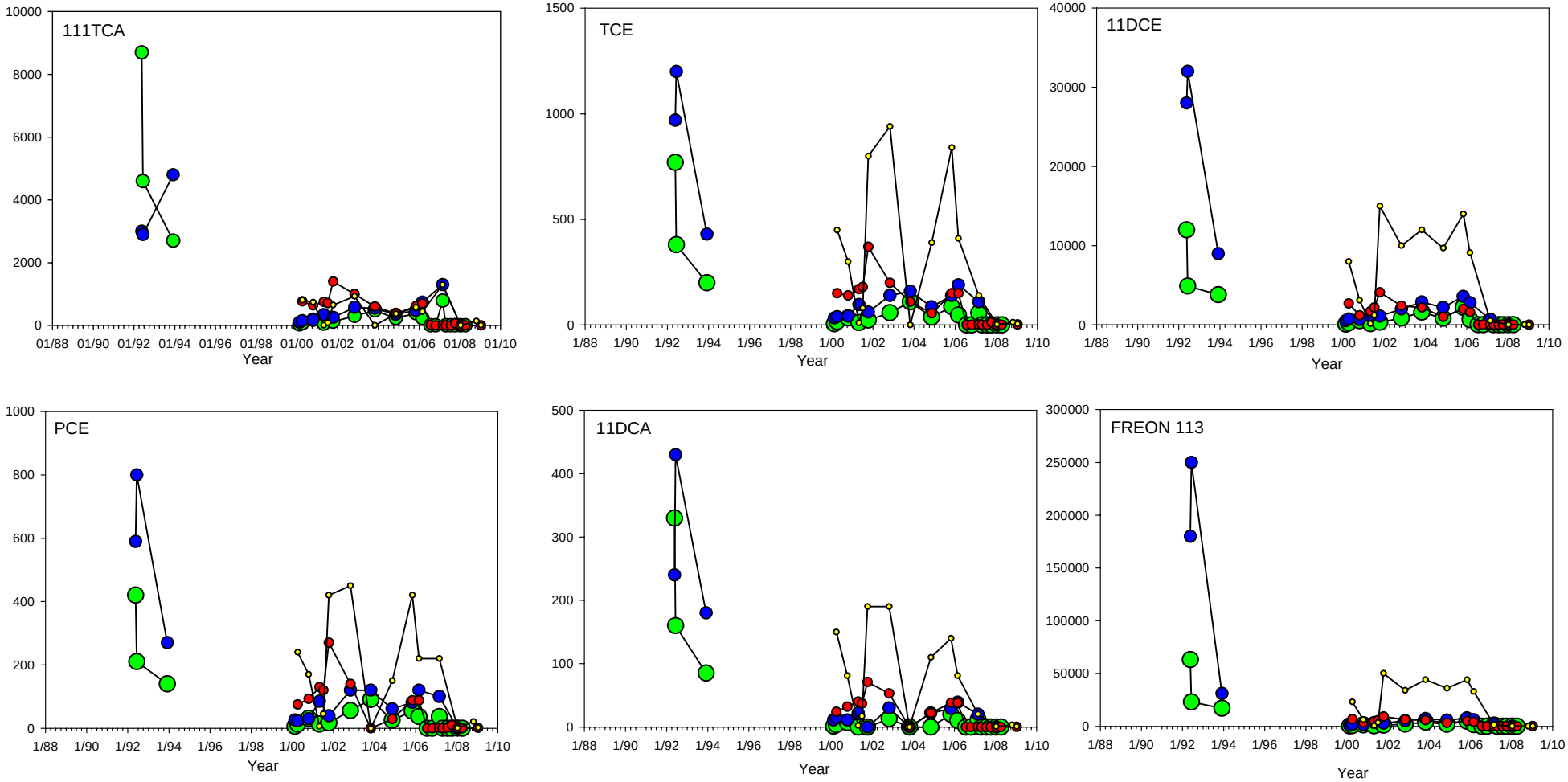
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- V-11-COARSE
- V-11-FINE
- V-12-COARSE
- V-12-FINE

FIGURE K-12. SOIL VAPOR CHEMICAL CONCENTRATIONS
V-11 & V-12



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

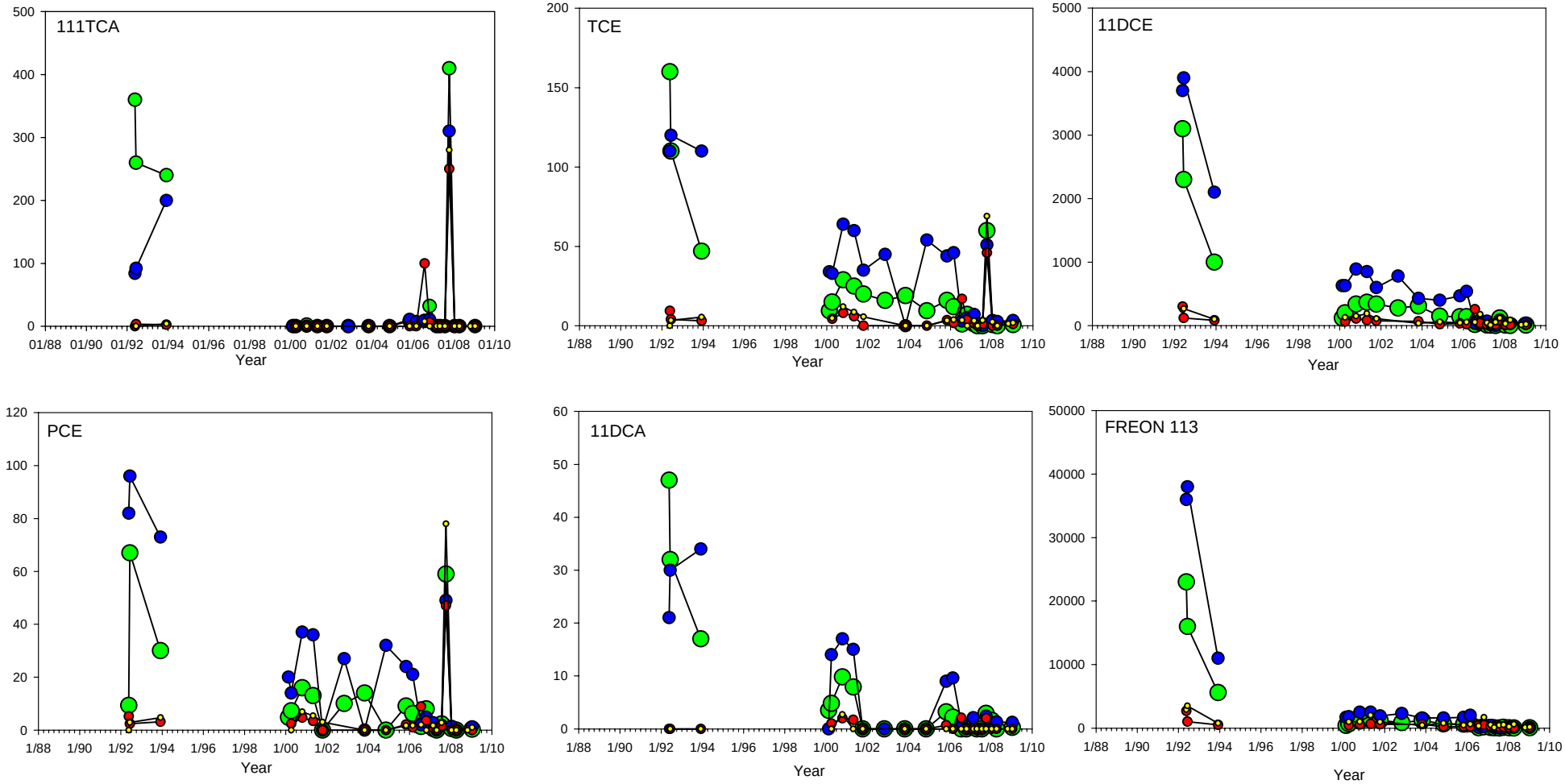
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- N-01-COARSE
- N-01-FINE
- NW-02-COARSE
- NW-02-FINE

FIGURE K-13. SOIL VAPOR CHEMICAL CONCENTRATIONS
N-01 & NW-02



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

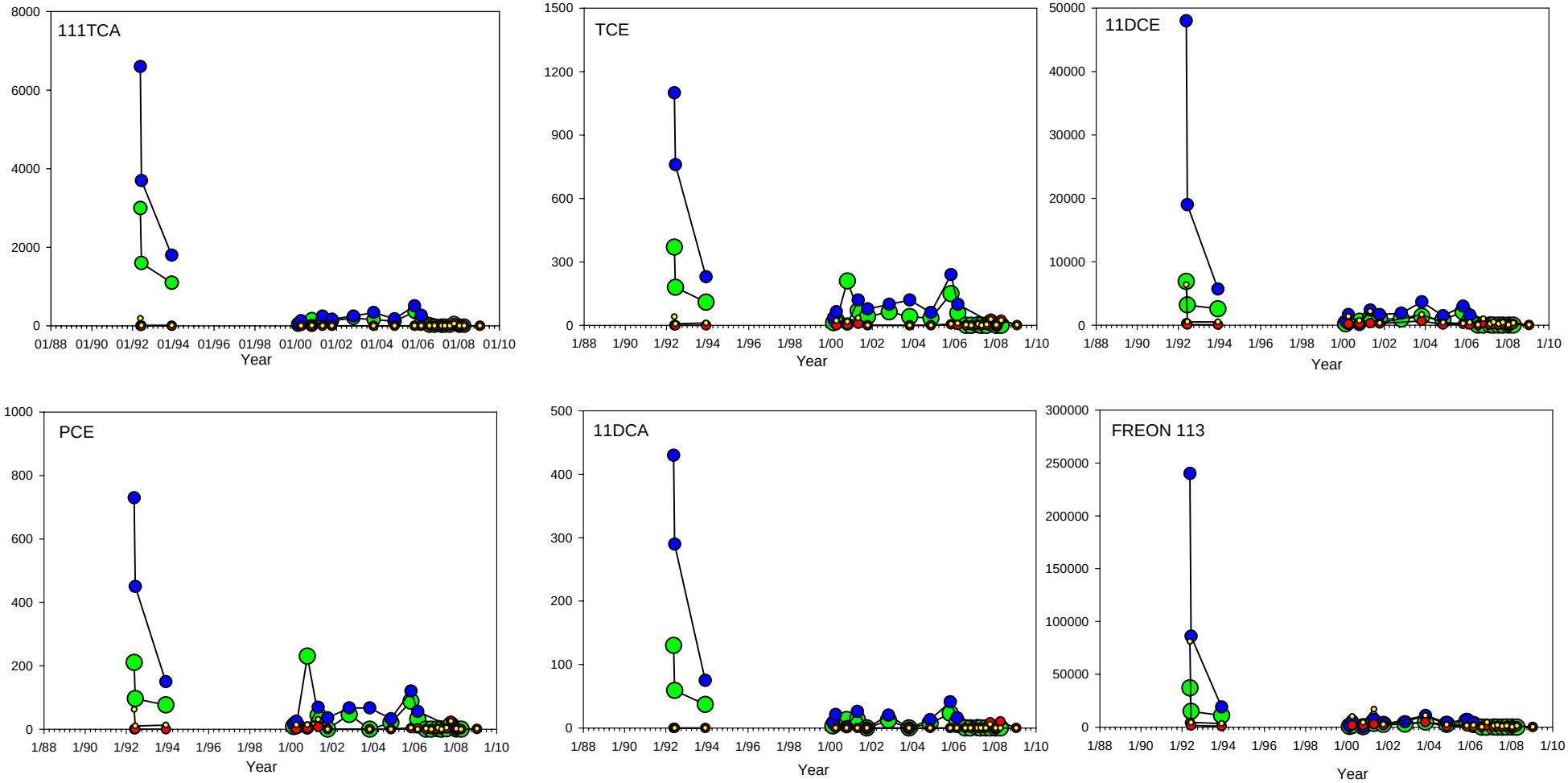
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- N-02-COARSE
- N-02-FINE
- N-03-COARSE
- N-03-FINE

FIGURE K-14. SOIL VAPOR CHEMICAL CONCENTRATIONS
N-02 & N-03



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

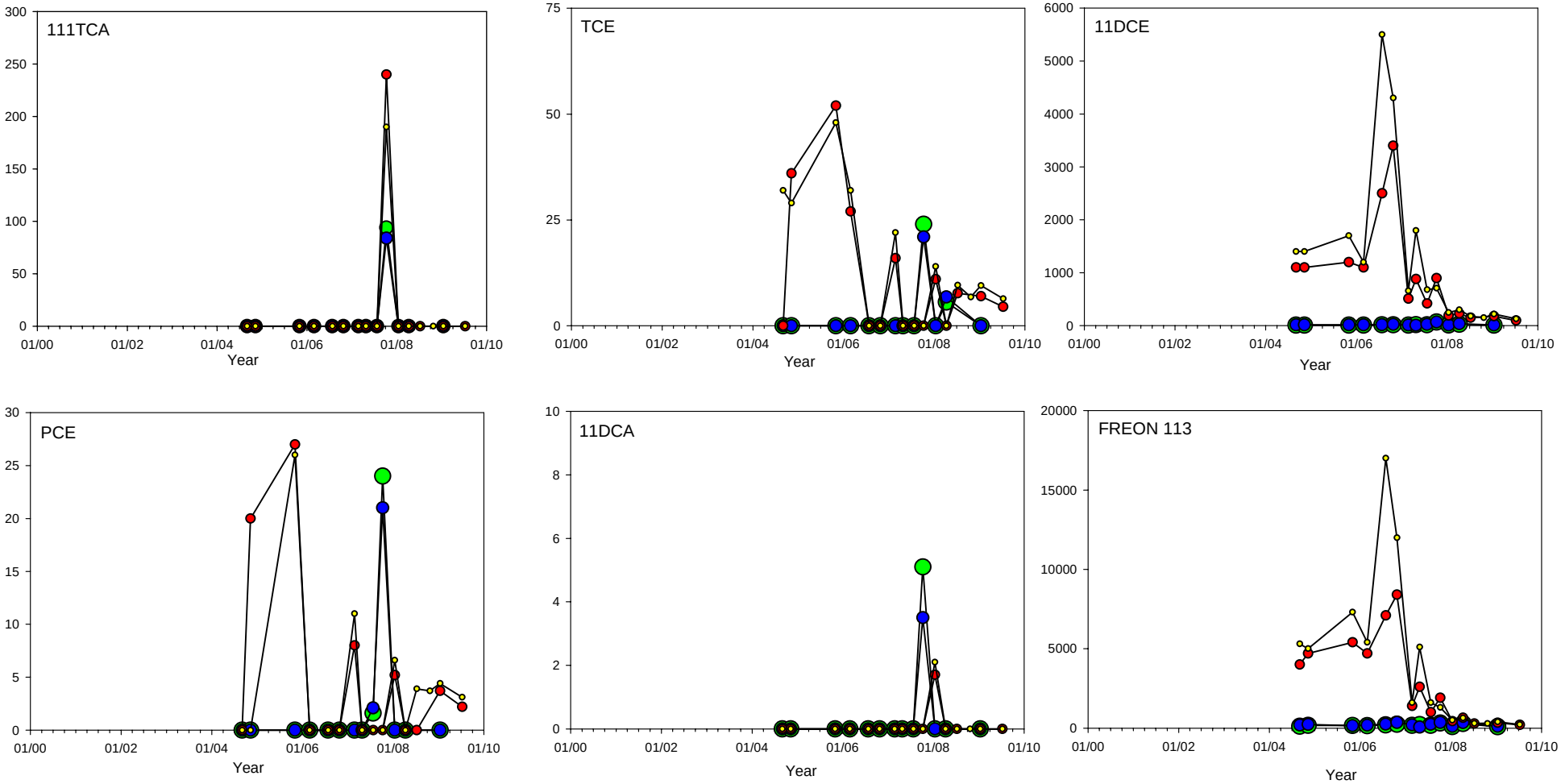
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- NE-01-COARSE
- NE-01-FINE
- NE-03-COARSE
- NE-03-FINE

FIGURE K-15. SOIL VAPOR CHEMICAL CONCENTRATIONS
NE-01 & NE-03



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

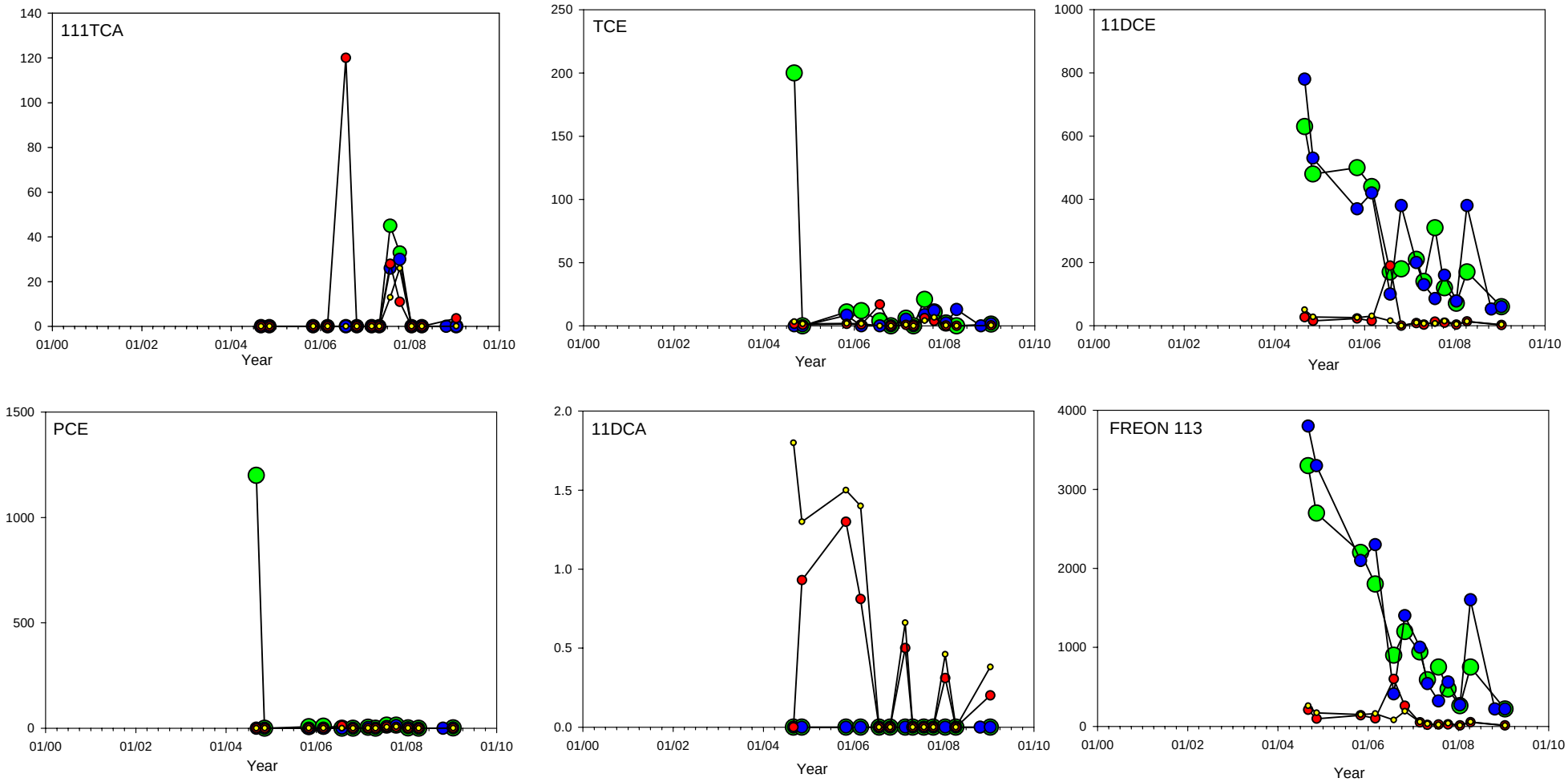
Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- V-13-COARSE
- V-13-FINE
- V-14-COARSE
- V-14-FINE

FIGURE K-16. SOIL VAPOR CHEMICAL CONCENTRATIONS
V-13 & V-14



111TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
11DCE = 1,1-Dichloroethene
PCE = Tetrachloroethane
11DCA = 1,1-Dichloroethane
FREON 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane

Note: Constituents reported as non-detectable are plotted as zero.

All concentrations in micrograms per liter

COLOR KEY:

- V-15-COARSE
- V-15-FINE
- V-16-COARSE
- V-16-FINE

FIGURE K-17. SOIL VAPOR CHEMICAL CONCENTRATIONS
V-15 & V-16

APPENDIX L

MARICOPA COUNTY SOIL VAPOR DATA

HARGIS + ASSOCIATES, INC.

TABLE L-1
CONCENTRATIONS OF METHANE REPORTED BY MARICOPA COUNTY FOR COUNTY METHANE MONITORING WELLS

	Methane Concentration - percent (volume / volume)																	
	Maricopa County - Hassayampa Sanitary Landfill Methane Well Number																	
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
06/06/94	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.20	0.00	0.00
08/01/94	0.10	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.10	0.30	0.00	0.10
12/07/94	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.20	0.00	0.00
03/29/95	0.00	0.10	0.00	0.00	0.00	0.10	0.20	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.10	0.10	0.00	0.00
02/05/96	0.00	0.20	0.20	0.40	0.40	0.50	1.50	0.40	0.50	UTL	0.20	0.50	0.60	0.40	0.20	0.60	0.40	0.20
03/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04/16/96	0.20	0.20	0.40	0.40	0.40	0.60	0.60	0.20	0.40	0.20	0.20	0.20	0.40	0.40	0.20	0.30	0.40	0.20
09/22/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/11/96	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.60	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00
06/18/97	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09/24/97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/10/97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08/22/98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	3.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03/25/99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	3.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06/18/99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08/15/99	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.20	0.30	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
11/16/99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	UTL	0.00	0.00
04/16/00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	UTL	0.00	---
07/09/00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	UTL	0.00	0.00
12/20/00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	0.00	0.00
02/05/01	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.40	1.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
05/15/01	---	---	---	---	---	---	0.20	---	0.50	1.40	---	---	---	---	---	0.50	---	---
07/19/01	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.40	1.10	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
09/13/01	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.30	1.20	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00
01/02/02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.30	0.20	0.00	0.00	0.00	0.20	---	0.00	0.00
04/18/02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	---	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07/15/02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	---	0.00	0.00

TABLE L-1
CONCENTRATIONS OF METHANE REPORTED BY MARICOPA COUNTY FOR COUNTY METHANE MONITORING WELLS

	Methane Concentration - percent (volume / volume)																	
	Maricopa County - Hassayampa Sanitary Landfill Methane Well Number																	
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
01/22/03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	UTL	UTL	0.00	0.00
03/06/03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	UTL	UTL	0.00	0.00
07/11/03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	UTL	0.00	0.00	0.00
10/07/03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.10	0.00	0.00	0.00	UTL	0.00	0.00	0.00
01/20/04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	UTL	0.00	0.00
04/25/04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	UTL	0.00	0.00
06/22/04	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	0.00	0.00
09/22/04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	0.00	0.00	0.00
01/27/05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	UTL	0.00	0.00	0.00
04/22/05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	UTL	0.00	0.00	0.00
10/12/05	18.10	18.50	18.60	18.00	UTL	18.30	18.20	18.50	18.50	17.50	18.20	18.60	18.40	19.10	UTL	UTL	18.60	18.40
01/11/06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	UTL	0.00	0.00
04/14/06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	0.00	0.00	0.00
07/12/06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	UTL	0.00	0.00
03/22/07	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	UTL	0.00	0.00
08/30/07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	0.00	0.00	0.00
12/20/07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	UTL	0.00	0.00
04/22/08	0.00	0.00	0.00	0.00	UTL	0.00	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	UTL	UTL	0.00	0.00
08/22/08	0.00	0.00	0.00	0.00	UTL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	UTL	0.00	0.00
12/09/08	0.00	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	0.00	0.00
03/10/09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	UTL	0.00	0.00
07/16/09	0.00	0.00	0.00	0.00	UTL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	UTL	0.00	0.00
11/12/09	0.00	0.00	0.00	0.00	UTL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	UTL	UTL	0.00	0.00

Notes:
UTL = Unable to locate well
--- = Not reported

Hassayampa Landfill Methane Gas

QUARTER

Name: John Miller

Date: 3-10-09

Start Time: 12:30

Instrument: lms gas data

Weather: Clear + Sunny

Well Number	% By Volume (max = 5%)	% LEL (max = 100%)
P1	0	
P2	0	
P3	0	
P4	0	
P5	0 - Full of Water	- Almost Covered in Dirt
P6	0	
P7	0	
P8	0	
P9	0	
P10	0	
P11	0	Lids Need Repair
P12	0 - Bee's	
P13	0	
P14	0	
P15	—	
P16	—	
P17	0	
P18	0	
Scalehouse	0.00%	

Comments: Need To clear Vegetation Away From Wells - Lots of Critters

hass gas prb blk

Hassaympa Landfill Methane Gas

QUARTER

Name: BRAD

Date: 7.16.09

Start Time: 1:45

Instrument: LMS GAS DATA

Weather: HOT

Well Number	% By Volume (max = 5%)	% LEL (max = 100%)
P1	0	
P2	0	
P3	0	
P4	0	
P5	CANT FIND	
P6	0	
P7	0	
P8	0	
P9	0	
P10	0	
P11	0	
P12	0	
P13	0	
P14	0	
P15	CANT FIND	
P16	CANT FIND	
P17	0	
P18	0	
Scalehouse	GONE	

Comments:

hasgas 1stQ2001

Hassayampa Landfill Methane Gas

QUARTER

Name: John

Date: 11-12-09

Start Time: 8:00

Instrument: Ims gas data

Weather: Sunny + Cool

Well Number	% By Volume (max = 5%)	% LEL (max = 100%)
P1	0 %	
P2	0 %	
P3	0 %	
P4	0 %	
P5	Can't Find	
P6	0 %	
P7	0 %	
P8	0 %	
P9	0 %	
P10	0 %	
P11	0 %	
P12	0 %	
P13	0 %	
P14	0 %	
P15	Can't Find	
P16	Can't Find	
P17	0 %	
P18	0 %	
Scalehouse	~~0.00%~~ Gone	

Comments:

HARGIS + ASSOCIATES, INC.

APPENDIX M

ANNUAL AIR STRIPPER MAINTENANCE

Air stripper unit prior to cleaning

Top of upper tray prior to removal

Bottom side of upper tray

Sump port in upper tray prior to cleaning

Lower tray before removal

Top of lower tray prior to cleaning

Bottom of lower tray. Fouling evident but most holes still open

Close-up of bottom-side of lower tray

Lower tray fouling removed using a scraper

Trays set in acid bath after scraping

Interior of stripper with trays removed

Interior close-up with trays removed

Vacuum used to clean interior after scraping

Cleaned interior of stripper

Air stripper after vacuum

Power washing trays after acid bath

Upper tray seal pot and downchute after cleaning

Bottom of lower tray after cleaning

Top of lower tray after cleaning

Lower tray chute interior after cleaning

Bottom of lower tray seal pot after cleaning

Top of lower tray seal pot after cleaning

Bottom of Upper tray after cleaning

Top of Upper tray after cleaning

Upper tray seal pot and downchute after cleaning

Top of upper tray seal pot after cleaning

DATA DOCTORS Data Recovery

Data Doctors Data Recovery, Inc.
2082 E. University Dr.
Tempe, AZ 85281

www.datadoctors.com Voice: 866.LOST.DATA Fax: 480.921.0623

Customer Invoice	
Case:	3730
Inquiry:	21662
Date:	10-23-2009
Service:	PS
N/A:	

Customer

Hargis Associates, Inc.
Erin Leonhart
1640 S. Stapley Drive Suite 124
Mesa, AZ 85204
Mobile:
Office: (480) 345-0888 x266
Home:
Fax:
E-mail: eleonhart@hargis.com

Location

Data Doctors #101
2082 E. University Dr.
Tempe, AZ 85281
Phone: (480) 921-2444
Fax: (480) 921-0623

Media Information

Patient Type:	Card
Patient Manufacturer:	Other
Patient Model Number:	
Patient Part Number:	
Patient Serial Number:	sandiskmicrosd
Included Hardware:	none
Included Software:	
Target Source:	Customer Supplied
Target Description:	Staples Relay 2GB flash

Recovery Information

Customer Notes
Critical Data
Graphics

Critical Data Details
SD card from blackberry that kept crashing and causing system to crash when attached. unsure if pics were saved to phone or card. 30 pictures

Engineer Notes
No recovery possible. The card has had a low level format performed which has written generic values (or empty space) to every sector of the media overwriting all previous data.

Quotations *[For Diagnose & Quote Cases Only!]*

Standard:	$ - $	(2 Week Turnaround Time)
Expedited:	$ - $	(1 Week Turnaround Time)
Priority:	$ - $	(3 Day Turnaround Time)
Emergency:	$ - $	(24 Hour Turnaround Time)