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Report
Assessment of VOCs in the Unsaturated Zone
Aerojet Azusa/Irwindale Study Area
San Gabriel Basin, California

Engineering and Environmental Services

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Report
Assessment of VOCs in the Unsaturated Zone
Aerojet Azusa/Irwindale Study Area
San Gabriel Basin, California

Prepared for

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1.0 INTRODUCTION

This report presents the results of soil vapor and groundwater sampling performed at the Aerojet Azusa/ Irwindale Study Area, San Gabriel Basin, California. This study was conducted pursuant to the California Regional Water Quality Control Board, Los Angeles Region (RWQCB), Cleanup and Abatement Order (CAO) No.99-073, dated November 24, 1999. This study was also conducted in accordance with HLA's letter to the RWQCB dated December 16, 1999.

This report is submitted as a follow-up to a previous data report that was submitted to the RWQCB on April 5, 2000. This report presents the background and purpose to this study, methods used for data collection, and evaluation of the data, and conclusions.

1.1 Site Description

Aerojet owns and operates a manufacturing and research/development facility within the cities of Azusa and Irwindale, in the north-central portion of the San Gabriel Basin, Los Angeles County, California. The facility is located within the Azusa/Irwindale Study Area (AISA), an approximately 125-acre area along the foothills of the San Gabriel Mountains near the mouth of Fish Canyon. The AISA is approximately 1.5 miles east of the San Gabriel River/Santa Fe Flood Control Basin, immediately east of Irwindale Avenue, and just south of Interstate Highway 210 (Figure 1). Throughout most of its history, the Aerojet Azusa facility has been used as a high technology research, design, and production center serving markets in aerospace and defense industry. Operations at the site have included, among others: torpedo research, rocket motor manufacturing and propellant research, manufacture of pressure vessels, development and testing of electro-optical sensing devices and generator simulation systems, and semiconductor research and development.

The AISA encompasses properties currently or formerly held by Aerojet. However, it should be noted that at various times in the past other potentially responsible parties (PRPs) have occupied portions of the site. Among these other potentially responsible parties, several are known or suspected to have handled chemicals identified in the CAO. These other potentially responsible parties include Optical Radiation Corporation (ORC), Day and Night Corporation, Reichold Chemical, and Oil Solvent Recycling Company (OSCO).

1.2 Previous Environmental Investigations

A considerable amount of environmental investigation has taken place at the AISA and at many of the other industrial facilities in the surrounding area. Prior investigations have generally been performed as part of RWQCB's Well Investigation Program. In 1992-1994, Aerojet undertook and completed a comprehensive site assessment program of the AISA to investigate all potential source areas on Aerojet and surrounding properties. This site assessment consisted of the collection and testing of 823 shallow soil-vapor samples; 276 soil matrix samples; the installation and sampling of 34 fixed soil-vapor monitoring wells; and the installation and sampling of five groundwater monitoring wells. Results of this site assessment were submitted to the RWQCB in HLA's report entitled: *Comprehensive Site Assessment Report, Azusa/Irwindale Study Area Site Assessment, San Gabriel Valley, California, Volumes I through III*, dated September 2, 1994.

As presented in that report, key findings of this prior investigation included the following:

- Soil-vapor concentrations of the compounds 1,1,1-TCA, CFC-113, and TCE were observed at concentrations greater than 100 micrograms per liter (µg/l) at depths of less than 50 feet, at three specific locations within the AISA. Accordingly, these three locations were suggested as possible residual sources of VOCs to the unsaturated zone. One possible residual source of 1,1,1-TCA and CFC-113 was located near the center of the AISA on the adjacent Optical Radiation Corporation (ORC) property. A second possible residual source of 1,1,1-TCA and CFC-113 was located near Building 57 and the 210 Freeway, on the northeast portion of the AISA. The third possible residual source, for the compound TCE, was near the southern portion of a historic Aerojet feature identified as 'Ponded Liquid Area 5' (hereafter referred to as PL-5).

- Soil-vapor concentrations for TCE, PCE, carbon tetrachloride (CCL_4), and CFC-11 were observed to increase with depth. In almost all cases, the highest VOC concentrations were detected in samples obtained from the deepest soil-vapor monitoring wells close to the underlying water table. In fact, for the compounds TCE, PCE, CCL_4, and CFC-11, the highest concentrations detected were from depths greater 150 to 200 feet. The highest VOC concentrations in soil-vapor samples collected directly above the water table ranged from 20 µg/l for CCL_4 to 730 µg/l for TCE.

- The observed concentration trend with depth indicated that chemical vapors present in the soil were migrating primarily in an upward manner through the soil column, away from the underlying groundwater table. This was attributed to offgassing of VOCs from the underlying groundwater, with subsequent upward diffusion through the soil column. Conversely, in areas where residual VOCs were detected in the shallow soils, though in much less significant concentrations, VOC migration was expected to be primarily downward, driven both by gas-diffusion and percolation of infiltrating surface water. Due to the distance from the water table and the smaller concentrations, these locations were determined to not pose a threat relative to the degradation of underlying groundwater.

The AISA is situated in the Baldwin Park Operable Unit (BPOU) of the San Gabriel Valley Groundwater Basin Superfund Site. Therefore, in addition to the investigation of individual industrial facilities, the EPA has been conducted a broader groundwater investigation in the area.

1.3 Purpose and Scope

Pursuant to the RWQCB Board Order, this investigation was conducted to update the prior assessment of residual VOCs in the unsaturated zone, in order to assess the degree to which the VOCs are naturally attenuating in the subsurface environment. Accordingly, the results from this and the previous investigations are intended to form the basis for determining the need for corrective remedial actions addressing the residual VOCs underlying the site. The RWQCB Board Order called for this assessment to be conducted by means of a re-sampling of the numerous fixed-point vapor monitoring wells that were installed at the AISA. However, in light of the need to assess the relationship between vadose zone VOC data and the concentration of VOCs in the underlying groundwater, Aerojet undertook sampling and analysis of the on-site groundwater wells (MW-1 through MW-5) in addition to the sampling required by the RWQCB. These groundwater VOC data were collected to allow for comparison to vadose zone VOC concentrations.

This investigation included two separate field sampling events. The first sampling event occurred in December 1999. The second event took place in February 2000. The December 1999 event of investigation involved a more limited scope of sampling than did the February 2000 event. In accordance with HLA's December 16, 1999 letter to the RWQCB, only certain of the previously installed fixed vapor monitoring wells and groundwater wells were sampled and tested in December 1999. In the second event of the investigation (February 2000), all of the accessible on-site vapor monitoring wells and all five of the groundwater monitoring

wells were sampled and tested. In addition, the analytical testing program was expanded for groundwater samples in the second phase to include analysis not only for VOCs, but also the three 'emerging chemicals' NDMA, 1,4-dioxane, and perchlorate.

Eight of the off-site vapor monitoring wells could not be accessed in time for this investigation due to the need for property access coordination with off-site property owners. The process of gaining the appropriate access to these locations remains on-going as of the date of this report. The locations of all the soil-vapor monitoring wells at the AISA are shown on Figure 1. This figure also indicates which wells could not be sampled as part of this investigation.

2.0 FIELD INVESTIGATION PROGRAM

2.1 Soil-Vapor Sampling Methods

Field methods for soil-vapor sampling and lab testing were conducted in accordance with requirements of the Los Angeles RWQCB's Well Investigation Program (WIP). In-situ soil vapor was withdrawn from each of the fixed soil-vapor wells tubing using either a small volume (<100 cc) syringe connected via an on-off valve, or a small electric purge pump. Enough vapor was purged to flush 4 to 8 dead volumes of the probe and fill it with in-situ soil vapor. The next 20 cc of gas were withdrawn in the sample syringe, plugged, and immediately transferred to the mobile lab for analysis. The equipment used to test the collected soil-vapor samples included the following:

Test Method: Halogenated, Aromatic & Total Hydrocarbons by EPA 8260

Instrument:	Hewlett-Packard 6890/5973 or 5890/5972 GCMS
Column:	60 meter HP-624, 0.32mm x 1.8u.
Carrier flow:	Helium at 15 ml/min.
Detectors:	Quadrupole MS, full scan mode.
Column oven:	20°C for 1 min, 35°C to 230°C at 8°C/min.

The following describes the general procedures followed in the field to test samples collected from the soil-vapor monitoring probes:

Standard Preparation - **Primary (stock) standards** are purchased from certified, traceable suppliers. **Secondary (Working) Standards** are made monthly by diluting primary standard. **Neat (Pure) Standards** of many compounds are carried in the laboratory to enable on-site preparation of compound-specific standards as appropriate. **Laboratory Control Standard (QC Check)** is prepared at the midpoint concentration from a standard purchased from a source different than the primary standards. Lot numbers and preparations of all standards are recorded on a log sheet in kept in the mobile laboratory.

Instrument Initial Multipoint Calibration - Three point calibration curves for each target component are prepared by analyzing low, mid, & high calibration standards covering the expected range of values, typically from 1 ug/l to 40 ug/l-vapor. The low concentration standard will be no more than 5 times the reported MDL.

Daily Continuing Calibration - Continuing Calibration is performed at the start of each day by injecting a mid-range calibration standard. Acceptable continuing calibration agreement: +/- 15% to the calibration curve/20% for gases.

Laboratory Control Standard (QC Check Samples) - A QC check sample, prepared from an independent source, is analyzed at the end of each day. Acceptable agreement is +/-20% to the calibration curve.

Injection of Soil Vapor Samples - Vapor samples are withdrawn from the sampling syringe with a 5 cc syringe and injected directly into a sampling port on the gas chromatograph. The injection syringe is flushed 2 times with the sample prior to injection. Injection syringes are cleaned between injections and discarded if values greater than 100 ppmv of any compound are measured.

Compound Confirmation - Compound identification by mass spectral pattern is unequivocal, no second column required.

Quantification - Samples are quantified by comparing the sample response to the average response factors for each compound from the existing calibration curve. For samples exceeding the highest calibration standard by 50%, the sample is rerun either after dilution or by injecting a smaller volume.

Surrogates - Four surrogate compounds are added to each sample and standard and the recovery measured. If the recoveries exceed +/- 25%, samples will be reanalyzed.

Blanks - Blanks are analyzed at the start of each day and more often as appropriate depending upon the measured concentrations. Typically, when values exceeding 100 ppmv are encountered, additional blanks may be analyzed.

Sample Holding Time - Soil vapor samples are not stored, but analyzed immediately upon collection.

2.2 Groundwater Sampling Methods

Groundwater level measurements were obtained prior to purging the wells. An electronic water level meter was used to measure groundwater levels to the nearest 0.01-foot from the previously established measuring point on the top of the well casing. Prior to collecting groundwater samples for laboratory chemical analysis, the existing water in the well and filter pack was purged. Each well was purged a minimum of three to four well volumes of water. During well purging, well discharge measurements and groundwater parameters were monitored and documented. Well discharge rates were monitored to measure flow rates and total quantities of water purged from the monitoring wells, by timing the filling of a calibrated bucket. Field measurements of electrical conductivity, temperature, pH, and turbidity of groundwater were made throughout the purging process using a battery operated YSI® in-line meter. Turbidity measurements were obtained using a battery-operated Nephelometric Turbidity Unit (NTU) meter. All field measurements of purging, water levels, and water quality parameters were recorded on separate field groundwater purging and sampling log forms. These completed forms are included in Appendix A.

Each well was purged by connecting a portable, pneumatic pump head to each of the previously installed dedicated well pumps. The well pumps were powered by a trailer-mounted air compressor. The purge water was discharged into a truck-mounted water tank. After purging was completed, the purge water was discharged to an on-site holding tank for temporary storage.

Groundwater samples were collected for laboratory analysis after well purging had been completed and groundwater parameters had stabilized. At each well, a clean, previously unused piece of Teflon® tubing was connected and secured to the sample port. Prior to sampling, a low flow rate through the sample port and tubing was established to reduce agitation of the sample water. Once the desired flow rate has been established, pumped groundwater was poured into the appropriate containers. After the sample was collected, each container was labeled, placed into a chilled cooler, and delivered to the appropriate analytical laboratory under proper chain-of-custody documentation.

All monitoring equipment was appropriately decontaminated between each use using a phosphate-free detergent wash, followed by potable and DI water rinses, and air-dried, as appropriate. All well purge water, spent

personal protective equipment, and decontamination water was contained on site for appropriate subsequent disposal.

2.3 Analytical Testing Program

Laboratory testing was performed by two different subcontract laboratories. Soil-vapor testing was performed on-site in a mobile laboratory by Mobile One Laboratories, of Solana Beach, California. Groundwater sample analysis was performed off-site by Quanterra Labs, Santa Ana, California. Both of these analytical testing laboratories are properly certified by the State of California for the testing that was performed. The analytical testing program performed for the December 1999 sampling event, included analysis for volatile organic compounds (VOCs) on both the soil-vapor and groundwater samples, by EPA Method 8260. However, for the February 2000 sampling event, the analytical testing program was expanded to also include analysis of the compounds NDMA, 1,4-dioxane, and perchlorate.

3.0 RESULTS

This section presents the results of the sampling activities described in Section 2.0. Laboratory data reports presenting the results of the sample analyses from both phases of this study are included in Appendix B. These data are also summarized on the attached Tables 1 through 4. Based on our review of the chemical data for soil vapor and groundwater, it was determined that trichloroethene (TCE), tetrachloroethene (PCE), and carbon tetrachloride (CCL_4) potentially pose the greatest threat to groundwater quality due to relatively low MCLs for these VOCs in groundwater. Consequently, the evaluation of data from soil vapor and groundwater sampling focuses on these three VOCs. The remainder of this section evaluates the spatial distribution of these VOCs in the vadose zone and groundwater.

3.1 Soil Vapor

The results of the chemical analysis of soil vapor samples collected from vapor monitoring wells for the December 1999 and February 2000 sampling events are presented in Tables 1 and 2, respectively. The distribution of soil vapor concentrations for TCE, PCE, and CCL_4 at various depth intervals are shown on Figures 2 through 22. For the purposes of evaluating the spatial distribution of VOCs with depth, chemical data from the vapor monitoring wells were grouped into seven depth intervals: 5 to 8 feet, 18 to 25 feet, 25 to 50 feet, 82 to 117 feet, 141 to 167 feet, 189 to 265 feet, and 306 to 310 feet for contouring. The highest concentration was used for contouring if the same well cluster had two wells completed in the same depth interval. Three dimensional representations of the distribution of TCE, PCE, and CCL_4 were also developed by superimposing the VOC distribution maps for the various depth intervals. These three-dimensional representations of the VOCs are presented on Figures 23 through 25. Recent groundwater concentrations for TCE and PCE are also shown on Figures 23 and 25 to illustrate the spatial relationships between soil vapor VOC concentrations and groundwater concentrations.

In general, two areas of elevated VOC concentrations were observed at the AISA in the December 1999 and February 2000 sampling events. These areas are described below:

- The first area, located in the northeastern portion of the AISA near Building 57 and the 210 Freeway, contains slightly elevated soil vapor TCE and CCL_4 concentrations (Figures 23 and 25). Maximum TCE

and CCL_4 soil vapor concentrations in this area in the December 1999 and February 2000 sampling events were 520 and 40 ug/l, respectively. Maximum concentrations of TCE were observed directly above the water table in Well IDVMW-02. Maximum CCL_4 concentrations were also observed in Well IDVMW-02 at a depth of 213 feet below ground surface. A similar CCL_4 concentration of 39 ug/l was observed in Well MW-3 at a depth of 141 feet below ground surface.

- The second area, located near the southern portion of potential source area PL-5, contains TCE concentrations as high as 116 ug/l at a depth of 5 feet in Well SVMW-30. Elevated TCE concentrations in this area are very localized decreasing to less than 10 ug/l at a depth of 39 feet. As indicated in the Comprehensive Site Assessment Report (HLA, 1994), elevated TCE concentrations also appear to be localized laterally as evidenced by shallow soil gas concentrations of less than 10 ug/l within a radius of 100 feet of Well SVMW-30. This is further confirmed by maximum TCE concentrations of less than 10 ug/l in Well SVMW-29, located approximately 150 feet from Well SVMW-30, during the February 2000 sampling event and CCL_4 are also shown on these three-dimensional representations to illustrate the relationship between soil vapor and groundwater concentrations.

These two areas of elevated VOC concentrations are consistent with two of the three possible residual source areas defined in the Comprehensive Site Assessment Report (HLA, 1994) and summarized in Section 1.2 of this report. Elevated concentrations of VOCs were not observed in the third possible residual source area on ORC property because site access constraints prohibited sampling of vapor monitoring wells in this area. However, previous sampling efforts in this area identified only 1,1,1-TCA and CFC-113 at elevated concentrations at relatively shallow depths in the vadose zone. Consequently, resampling of soil vapor monitoring wells in this area are not expected to produce results that would suggest a potential threat to groundwater quality beneath the site.

The distribution of VOCs in vadose zone vapor was further evaluated using the analytical results from the nested shallow, intermediate, and deep zone vapor monitoring wells. Six intermediate and deep zone vapor monitoring well clusters are currently installed at the AISA: DVMW-02 through DVMW-05 and SVMW-06/IDVMW-01 and SVMW-02/IDVMW-02. These well clusters provide continuous vadose zone vapor chemistry profiles from near ground surface to the water table and allow evaluation of vertical vapor concentration gradients from near surface to the water table. As shown on profiles of vapor concentration

versus depth for TCE, PCE, and CCL_4 (Figures 26, 27, and 28, respectively) vapor-phase concentrations increase with depth, indicating upward vapor concentration gradients. In almost all cases, the highest vapor-phase VOC concentrations were measured in the deepest vapor monitoring well. Soil vapor chemistry profiles based on data collected during 1994 soil vapor sampling events are also shown on Figures 26, 27, and 28. Comparison of soil vapor concentrations in 1994 with current 1999 and 2000 concentrations indicate that soil vapor concentrations of TCE, PCE, and CCL_4 have decreased with the exception of CCL_4 in Wells MW-03 and IDVMW-02, located in the northeastern portion of the site. In this area, maximum CCL_4 concentrations have increased only slightly from a maximum of about 32 ug/l in 1994 to a maximum of 40 ug/l in 1999/2000.

3.2 Groundwater

The analytical results for groundwater sampling of the five monitoring wells at the AISA for the December 1999 and February 2000 sampling events are presented in Tables 3 and 4, respectively. Graphs of groundwater concentration versus time for TCE, PCE, and CCL_4 are shown on Figures 29, 30, and 31, respectively. The distribution of TCE, PCE, and CCL_4 concentrations in groundwater in February 2000 are shown on Figures 32, 33, and 34, respectively. Groundwater samples from Wells MW-1 and MW-5 generally have not consistently contained VOC concentrations since the wells were installed in September 1992 and July 1994, respectively. Groundwater concentrations of TCE have been decreasing in Wells MW-2, MW-3, and MW-4 since 1993 (Figure 32). Groundwater concentrations of PCE and CCL_4 have generally been stable or decreasing slightly (Figures 33 and 34). Short-term fluctuations in groundwater concentrations are attributed to extreme changes in groundwater levels and resultant groundwater flow directions in the vicinity of the AISA. These fluctuations are caused by localized groundwater recharge and pumping which introduces or extracts large quantities of groundwater into the aquifer underlying the AISA.

4.0 EVALUATION OF VADOSE ZONE TRANSPORT PROCESSES

This section describes the processes that affect the fate and transport of chemicals at the AISA, summarizes the conceptual model for subsurface VOC fate and transport at the AISA, and evaluates the potential effects of VOCs in soil vapor on groundwater quality.

4.1 Overview of VOC Fate and Transport Processes

A number of mechanisms and processes control the fate and transport of VOCs in the subsurface. These processes result in a complex multiphase flow and transport system. These major mechanisms and processes are summarized below:

- Concentration-Driven Gas Diffusion - Concentration-driven gas diffusion occurs as the result of concentration gradients in the vadose zone. VOCs can be transported rapidly by gas diffusion from areas of higher concentration to areas of lower concentration. The movement of chemical mass via gas diffusion is greatest when large differences in gas concentration exist. As concentrations reach equilibrium and concentration gradients decrease, gas diffusion slows.

- Vapor (Gas-Phase) Advection - Gas-phase advection in the vadose zone occurs via vapor pressure and temperature gradients resulting from vapor density differences, barometric pressure changes, and vadose zone pumping caused by changes in the water table.

- Water (Liquid-Phase) Advection - Liquid-phase advection of porewater in the vadose zone occurs via capillary pressure (i.e., matric potential) gradients. The downward advective movement of water often occurs as the result of infiltrating precipitation that creates downward matric potential gradients. During dry weather periods, these matric potential gradients are often reversed by evaporation and plant transpiration, resulting in the upward advective movement of vadose zone porewater.

- Chemical Partitioning - In the vadose zone, air-water, water-solid, and to a lesser extent air-solid partitioning of VOCs occurs within soil pores. At the water table, either volatilization from the water phase (i.e., offgassing) to vadose zone gases or dissolution from the vapor phase into

groundwater can occur, depending on the air-water partitioning coefficient and the VOC concentrations in each phase relative to the equilibrium concentrations.

As a result of the above processes, vadose zone advection and dispersion/diffusion results in the transport of vapor, water, and nonaqueous-phase liquid (NAPL) phases. Once in the saturated zone, advection, dispersion, and dilution further affect VOC fate and transport. Migration of VOCs via each of these transport mechanisms is dependent on the spatial and phase distributions of VOCs in the vadose and saturated zones and the relative states of equilibrium between the phases.

4.2 Conceptual Model of Subsurface VOC Fate and Transport

This section describes the conceptual model of subsurface VOC fate and transport for the AISA. This conceptual model was developed on the basis of the evaluation of site assessment data and a detailed review of literature on vadose zone chemical fate and transport as presented in the Comprehensive Site Assessment Report (HLA, 1994). The VOC chemical transport processes utilized in the AISA conceptual model are supported by observed concentration trends and gradients and are well documented in the scientific literature. For example, theoretical analyses and experimental laboratory and field studies have confirmed that a singular groundwater source will result in upward vapor-phase concentration gradients, similar to those observed at the AISA (Swallow and Gschwend, 1983). A 1993 study conducted by McCarthy and Johnson indicated that TCE concentrations decreased by more than 3 orders of magnitude across the capillary fringe and soil gas concentrations remained low relative to underlying groundwater. However, data collected during a water table drop experiment indicated that TCE concentrations rose markedly and quickly approached the concentration equilibrium in soil gas after a water table drop of less than 1 foot. After the water table was returned to its original position, TCE concentrations returned to pretest values. This experiment is important relative to the conceptual model of VOC transport in the vadose zone at the AISA because groundwater levels within the AISA fluctuate seasonally by as much as 50 feet. Consequently, water table fluctuations have the potential to introduce significant chemical mass to the vadose zone at the AISA. More recent studies at the Picatinny Arsenal in New Jersey have documented the upward flux of TCE through the unsaturated zone above a contaminated water table aquifer. In this case, the measured total flux of TCE from the subsurface to the atmosphere is approximately 50 kilograms per year and is comparable in magnitude to the removal rate of TCE from the aquifer by an existing pump-and-treat system and by discharge into a nearby stream (Smith, et.al., 1996).

In summary, the conceptual model of subsurface VOC fate and transport at the AISA is based on five primary transport pathways as follows:

- Downward concentration-driven gas diffusion from possible shallow sources,
- Groundwater transport of VOCs onto the AISA from upgradient sources,
- VOC offgassing from groundwater,
- Upward concentration-driven gas diffusion, and
- Lateral concentration-driven gas diffusion from areas of higher vapor concentration to areas of lower concentration.

These five primary transport pathways are illustrated on Figure 35. These groundwater concentrations act as a significant source of VOCs that are offgassing to the vadose zone. The resultant VOCs in soil vapor provide a driving force for upward and lateral concentration-driven gas diffusion to areas of lower concentration.

4.3 Evaluation of Potential Effects on Groundwater Quality

This section presents an evaluation of the potential effects of VOCs in soil vapor on groundwater quality. This evaluation focuses primarily on those VOCs that have been observed in the two areas of elevated VOC concentrations discussed in Section 3.1. The observed vertical concentration gradients for these VOCs (TCE and CCL_4) are assumed to represent a driving force for downward concentration-driven gas diffusion and a potential mass transfer pathway from the vadose zone to groundwater. The potential effects of VOCs in soil vapor on groundwater quality were evaluated using a methodology similar to the method described in the Interim Site Assessment and Cleanup Guidebook (1996).

The methodology described in the Interim Site Assessment and Cleanup Guidebook utilizes an attenuation factor method to develop soil cleanup criteria for VOCs that are protective of groundwater. However, as stated in the Interim Site Assessment and Cleanup Guidebook, the attenuation factor methodology is not appropriate for site conditions where VOC gas transport is considered to be a major mechanism of VOC transport. This includes sites, like the AISA where limited potential for rainwater infiltration occurs due to surface paving. Consequently, an alternative methodology was utilized to evaluate potential effects on groundwater quality. This methodology was described in concept in a work plan submitted to the RWQCB in 1995 (HLA, 1995) and involves the use of a one-dimensional finite-difference vadose zone model,

VLEACH (EPA, 1994) coupled with an analytical groundwater transport model, AT123D. VLEACH simulates transport of contaminants within and between three phases (solute dissolved in water, vadose air, and adsorbed to the solid phase) in the vadose zone whereas the AT123D model simulates chemical fate and transport in groundwater.

The relationship between the VLEACH and AT123D model domains and initial chemical concentrations are shown on Figure 36. The VLEACH model extends from ground surface to a depth of 300 feet which is intended to represent the approximate depth to groundwater at the AISA. Initial concentrations were assigned in the VLEACH model as total soil concentrations as shown on Figure 36. This required the conversion of measured soil vapor concentrations to total soil concentrations using Henry's Law Constants and distribution coefficients. Three polygons were utilized in the VLEACH model to represent areas of various initial concentrations of TCE. Polygons 1 and 2 represent the area near Building 57 and the 210 Freeway in the northeastern portion of the site and Polygon 3 represents the area near PL-5, near Well SVMW-30. Similarly, two polygons were utilized in the VLEACH model to represent areas of various initial concentrations of CCL_4. Both Polygons 1 and 2 represent the area near Building 57 and the 210 Freeway. The VLEACH model assumes no infiltration of precipitation given that the areas of interest simulated are primarily paved by asphalt or concrete. The AT123D model represents the saturated groundwater aquifer beneath the AISA and extends downgradient from the location where the VLEACH model discharges to groundwater. For the AT123D model, it was assumed that no groundwater contamination currently exists beneath the AISA. This allows for the direct evaluation of the effects of vadose zone discharges to groundwater and ignores the contribution of chemical mass from groundwater to the vadose zone via offgassing and volatilization.

Compound-specific model input parameter values, including Henry's Law constants, organic carbon partition coefficients, and chemical solubilities, were obtained from published values and are presented in Table 5. Air diffusion coefficients for VOC vapors in air can be determined experimentally or through the use of empirical equations and are functions of air temperature and pressure, and to a lesser extent, the chemical's molecular weight. Diffusion coefficients for the halogenated indicator VOCs are similar because of their similar molecular weights (Mendoza and Frind, 1990; Gierke et al., 1990). As a result, an air diffusion coefficient of 0.86 m^2/day, which is representative of the halogenated VOCs at standard temperature and pressure, was used in all simulations (Weeks et al., 1982). Site-specific input parameter values included TOC content, soil bulk density, and chemical concentration.

VLEACH and AT123D model simulations were conducted to evaluate the potential effects of VOCs in the vadose zone on underlying groundwater. Simulations accounted for the horizontal and vertical distribution of TCE and CCL_4 observed in the two areas described in Section 3.1 and illustrated on Figure 36. Groundwater concentrations were estimated at the downgradient site boundary at the water table surface to conservatively estimate the maximum concentration in downgradient groundwater. Simulated groundwater TCE concentrations resulting from simulated vadose zone chemical flux from the area near Building 57 and the 210 Freeway and the area near potential source area, PL-5, are shown on Figure 37. Simulated groundwater CCL_4 concentrations resulting from simulated vadose zone chemical flux in the area near Building 57 and the 210 Freeway are also shown on Figure 37. Maximum TCE and CCL_4 in groundwater at the downgradient site boundary were approximately 0.061 and 0.065 ug/l, respectively. These maximum simulated concentrations were observed during the fourth year of the simulations and are below the respective MCLs for TCE and CCL_4 of 5 and 0.5 ug/l, respectively. Consequently, the presence of TCE and CCL_4 in the vadose zone at the AISA is not believed to adversely affect groundwater quality relative to state and federal MCLs.

5.0 CONCLUSIONS

The following conclusions were developed from the evaluation of VOC data collected to date at the AISA.

- In general, two areas of elevated VOC concentrations were observed at the AISA in the December 1999 and February 2000 sampling events. These areas are: 1) the northeastern portion of the AISA near Building 57 and the 210 Freeway which contains slightly elevated soil vapor TCE and CCL_4 concentrations, and 2) the southern portion of potential source area PL-5 which contains TCE concentrations that are very localized in horizontal and vertical extent.

- Comparison of soil vapor concentrations in 1994 with current 1999 and 2000 concentrations indicate that soil vapor concentrations of TCE, PCE, and CCL_4 have decreased with the exception of CCL_4 in Wells MW-03 and IDVMW-02, located in the northeastern portion of the site. In this area, maximum CCL_4 concentrations have increased only slightly from a maximum of about 32 ug/l in 1994 to a maximum of 40 ug/l in 1999/2000.

- Groundwater concentrations of TCE have been decreasing in Wells MW-2, MW-3, and MW-4 since 1993 whereas groundwater concentrations of PCE and CCL_4 have generally been stable or decreasing slightly.

- VOCs in groundwater act as a significant source of VOCs to the vadose zone at the AISA. As described in scientific literature, water table fluctuations have the potential to introduce significant chemical mass to the vadose zone. This is important relative to the conceptual model of VOC transport in the vadose zone at the AISA because groundwater levels within the AISA fluctuate seasonally by as much as 50 feet. As a result, VOCs are introduced into the lower portions of the vadose zone at the AISA by fluctuating groundwater levels. These VOCs volatilize and partition to soil vapor providing a driving force for upward and lateral concentration-driven gas diffusion to areas of lower concentration.

- The methodology for developing soil cleanup criteria for VOCs that are protective of groundwater described in the Interim Site Assessment and Cleanup Guidebook utilizes an attenuation factor method. However, as stated in the Interim Site Assessment and Cleanup Guidebook, the attenuation factor methodology is not appropriate for site conditions where VOC gas transport is considered to be a major

mechanism of VOC transport. Given that VOC gas transport is considered to be the dominant transport mechanism at the AISA, an alternative methodology was utilized to evaluate potential effects on groundwater quality.

- VLEACH and AT123D model simulations were conducted to evaluate the potential effects of VOCs in the vadose zone on underlying groundwater. Maximum simulated concentrations were observed during the fourth year of the simulations and are below the respective MCLs for TCE and CCL_4 of 5 and 0.5 ug/l, respectively. Consequently, the presence of TCE and CCL_4 in the vadose zone at the AISA is not believed to adversely affect groundwater quality relative to state and federal MCLs.

8.0 REFERENCES

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TABLES

TABLE 1
SOIL-VAPOR SAMPLING RESULTS (ug/L)
DECEMBER 1999
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	IDVMW-02		IDVMW-02		IDVMW-02		IDVMW-02		IDVMW-02		IDVMW-02	
	Sample ID:	IDVM-02-110'		IDVM-02-153'		IDVM-02-213'		IDVM-02-265'		IDVM-02-310'		IDVMW-02-310'(d)	
	Sample Date:	12/17/99		12/17/99		12/17/99		12/17/99		12/17/99		12/17/99	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	1,1-Dichloroethene	3.10	1.00	7.40	1.00	9.30	5.00	6.30	5.00	7.30	5.00	7.10	5.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	Benzene	ND	1.00	ND	1.00	5.10	5.00	5.00	5.00	ND	5.00	ND	5.00
8260B	Carbon tetrachloride	11.00	1.00	28.00	1.00	39.00	5.00	26.00	5.00	28.00	5.00	24.00	5.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	Chloroform	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	Methyl tert-butyl ether	1.20 B	1.00	1.30 B	1.00	7.20 B	5.00	9.40 B	5.00	6.10 B	5.00	11.00 B	5.00
8260B	Tetrachloroethene	1.10	1.00	2.50	1.00	5.00	5.00	7.00	5.00	11.00	5.00	6.00	5.00
8260B	Toluene	1.30 B	1.00	1.70 B	1.00	10.00 B	5.00	11.00 B	5.00	7.70 B	5.00	3.70 B	5.00
8260B	Trichloroethene	82.00	1.00	310.00	1.00	520.00	5.00	370.00	5.00	500.00	5.00	370.00	5.00
8260B	Trichlorofluoromethane	3.20	1.00	4.70	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	cis-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	m,p-Xylene	ND	1.00	1.50	1.00	8.30	5.00	11.00	5.00	6.90	5.00	7.70	5.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00	ND	5.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting Limit
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or greater than RL
B - Analyte found in the associated blank
D - Concentration reported from secondary dilution

TABLE 1
SOIL-VAPOR SAMPLING RESULTS (ug/L)
DECEMBER 1999
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	SVMW-02		SVMW-02		SVMW-02		IDVMW-01		IDVMW-01		IDVMW-01	
	Sample ID:	SVMW-02-5'		SVMW-02-20'		SVMW-02-39'		IDVMW-01-93'		IDVMW-01-163'		IDVMW-01-201.5'	
	Sample Date:	12/17/99		12/17/99		12/17/99		12/20/99		12/20/99		12/20/99	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	1,1-Dichloroethene	ND	1.00	ND	1.00	1.80	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	Benzene	1.00	1.00	1.30	1.00	1.50	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	Carbon tetrachloride	2.90	1.00	5.30	1.00	8.10	1.00	6.90	5.00	ND	5.00	ND	5.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	Chloroform	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	Methyl tert-butyl ether	2.10 B	1.00	2.20 B	1.00	2.30 B	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	Tetrachloroethene	ND	1.00	ND	1.00	1.20	1.00	10.00	5.00	10.00	5.00	12.00	5.00
8260B	Toluene	2.00 B	1.00	4.00 B	1.00	2.90 B	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	Trichloroethene	29.00	1.00	46.00	1.00	75.00	1.00	140.00	5.00	98.00	5.00	150.00	5.00
8260B	Trichlorofluoromethane	ND	1.00	1.70	1.00	2.50	1.00	7.00	5.00	ND	5.00	ND	5.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	cis-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	m,p-Xylene	1.80	1.00	2.30	1.00	2.50	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	5.00	ND	5.00	ND	5.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reportin
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to
B - Analyte found in the associated blank
D - Concentration reported from secondary dil

TABLE 1
SOIL-VAPOR SAMPLING RESULTS (ug/L)
DECEMBER 1999
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	IDVMW-01		IDVMW-01		SVMW-06		SVMW-06		SVMW-06		MW-03	
	Sample ID:	IDVMW-01-256'		IDVMW-01-306'		SVMW-06-05'		SVMW-06-20'		SVMW-06-34'		MW-03-37'	
	Sample Date:	12/20/99		12/20/99		12/20/99		12/20/99		12/20/99		12/20/99	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	1.80	1.00
8260B	1,2-Dichloroethane	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Benzene	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	6.50	5.00	8.00	5.00	ND	1.00	ND	1.00	ND	1.00	4.20	1.00
8260B	Chloroethane	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Dichlorodifluoromethane	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methylene chloride	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	13.00	5.00	17.00	5.00	ND	1.00	ND	1.00	1.60	1.00	4.90	1.00
8260B	Toluene	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	150.00	5.00	170.00	5.00	6.40	1.00	9.60	1.00	18.00	1.00	6.40	1.00
8260B	Trichlorofluoromethane	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	2.40	1.00
8260B	Vinyl chloride	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	m,p-Xylene	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	5.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00

NOTES
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B - Analyte found in the associated blank
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TABLE 1
SOIL-VAPOR SAMPLING RESULTS (ug/L)
DECEMBER 1999
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	MW-03		MW-03		MW-03		MW-04		MW-04		MW-04	
	Sample ID:	MW-03-93'		MW-03-140.5'		MW-03-193'		MW-04-38'		MW-04-100.5'		MW-04-139.5'	
	Sample Date:	12/20/99		12/20/99		12/20/99		12/20/99		12/20/99		12/20/99	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	8.00	1.00	8.20	1.00	10.00	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	Benzene	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	28.00	1.00	29.00	1.00	36.00	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	Dichlorodifluoromethane	3.70	1.00	3.20	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	23.00	1.00	140.00	1.00	82.00	5.00	1.20	1.00	ND	1.00	ND	1.00
8260B	Toluene	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	49.00	1.00	63.00	1.00	63.00	5.00	8.00	1.00	4.40	1.00	6.70	1.00
8260B	Trichlorofluoromethane	9.80	1.00	10.00	1.00	6.90	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	4.00	1.00	7.20	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	5.00	ND	1.00	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reportin
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to
B - Analyte found in the associated blank
D - Concentration reported from secondary dil

TABLE 1
SOIL-VAPOR SAMPLING RESULTS (ug/L)
DECEMBER 1999
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	MW-04		MW-02		MW-02		MW-02		SVMW-30		SVMW-30	
	Sample ID:	MW-04-225'		MW-04-82'		MW-04-167'		MW-04-239'		SVMW-30-5'		SVMW-30-5'(d)	
	Sample Date:	12/20/99		12/20/99		12/20/99		12/20/99		12/20/99		12/20/99	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,2-Dichloroethane	2.20	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Benzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	ND	1.00	1.20	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	1.60	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	ND	1.00	4.20	1.00	ND	1.00	4.50	1.00	ND	1.00	ND	1.00
8260B	Toluene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	15.00	1.00	2.60	1.00	ND	1.00	4.40	1.00	110.00	1.00	97.00	1.00
8260B	Trichlorofluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	16.00	1.00	15.00	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reportin
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to
B - Analyte found in the associated blank
D - Concentration reported from secondary dil

TABLE 1
SOIL-VAPOR SAMPLING RESULTS (ug/L)
DECEMBER 1999
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	SVMW-30		SVMW-30	
	Sample ID:	SVMW-30-20'		SVMW-30-39'	
	Sample Date:	12/20/99		12/20/99	
METHOD	ANALYTE	CONC	RL	CONC	RL
	VOLATILES				
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	ND	1.00	ND	1.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00
8260B	Benzene	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	ND	1.00	ND	1.00
8260B	Chloroethane	ND	1.00	ND	1.00
8260B	Chloroform	ND	1.00	ND	1.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00
8260B	Tetrachloroethene	ND	1.00	ND	1.00
8260B	Toluene	ND	1.00	ND	1.00
8260B	Trichloroethene	22.00	1.00	1.90	1.00
8260B	Trichlorofluoromethane	ND	1.00	ND	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	1.00	1.00	ND	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reportin
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to
B - Analyte found in the associated blank
D - Concentration reported from secondary dil

TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	MW-03		MW-03		MW-03		MW-03		IDVMW-01		IDVMW-01	
	Sample ID:	MW-03-37'		MW-03-93'		MW-03-140.5'		MW-03-193'		IDVM-01-93'		IDVM-01-163'	
	Sample Date:	02/09/00		02/09/00		02/09/00		02/09/00		02/09/00		02/09/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	1.30	1.00	1.30	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	1.40	1.00	ND	1.00	ND	1.00	10.00	1.00	8.00	1.00	6.80	1.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	1.20	1.00
8260B	1,4-Dioxane	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00
8260B	Benzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	4.60	1.00	29.00	1.00	39.00	1.00	10.00	1.00	17.00	1.00	15.00	1.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Freon-113	20.00*	1.00	48.00*	1.00	55.00*	1.00	55.00*	1.00	18.00*	1.00	17.00*	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	4.90	1.00	19.00	1.00	39.00	1.00	10.00	1.00	18.00	1.00	20.00	1.00
8260B	Toluene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	4.20	1.00	41.00	1.00	47.00	1.00	10.00	1.00	190.00	1.00	190.00	1.00
8260B	Trichlorofluoromethane	1.50	1.00	ND	1.00	ND	1.00	ND	1.00	6.10	1.00	5.30	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting Limit
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or greater than RL
* - Analysis performed before a calibration was run for this compound

TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	IDVMW-01		IDVMW-01		IDVMW-01		IDVMW-01		SVMW-06		SVMW-06	
	Sample ID:	IDVM-01-201.5'		IDVM-01-256'		IDVM-01-256'(d)		IDVM-01-306'		SVMW-06-05'		SVMW-06-20'	
	Sample Date:	02/09/00		02/09/00		02/09/00		02/09/00		02/09/00		02/09/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	1.30	1.00	ND	1.00	ND	1.00	1.30	1.00	ND	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	6.60	1.00	2.70	1.00	2.60	1.00	8.10	1.00	ND	1.00	ND	1.00
8260B	1,2-Dichloroethane	1.00	1.00	ND	1.00	ND	1.00	1.30	1.00	ND	1.00	ND	1.00
8260B	1,4-Dioxane	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00
8260B	Benzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	16.00	1.00	9.10	1.00	8.30	1.00	16.00	1.00	ND	1.00	1.40	1.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	ND	1.00	ND	1.00	ND	1.00	1.10	1.00	ND	1.00	ND	1.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Freon-113	17.00*	1.00	7.70*	1.00	6.50*	1.00	17.00*	1.00	1.50*	1.00	4.10*	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	20.00	1.00	13.00	1.00	12.00	1.00	28.00	1.00	4.20	1.00	8.00	1.00
8260B	Toluene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	180.00	1.00	140.00	1.00	120.00	1.00	230.00	1.00	25.00	1.00	58.00	1.00
8260B	Trichlorofluoromethane	5.40	1.00	2.30	1.00	2.10	1.00	6.10	1.00	ND	1.00	ND	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting L
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or
* - Analysis performed before a calibration was r

TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	SVMW-06		SVMW-08		SVMW-08		SVMW-08		SVMW-10		SVMW-10	
	Sample ID:	SVMW-06-34'		SVMW-08-05'		SVMW-08-20'		SVMW-08-34'		SVMW-10-05'		SVMW-10-20'	
	Sample Date:	02/09/00		02/09/00		02/09/00		02/09/00		02/09/00		02/09/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	No Sample (Valve Plugged)		ND	1.00	No Sample (Valve Plugged)		ND	1.00
8260B	1,1,1-Trichloroethane	ND	1.00	4.90	1.00			8.20	1.00			1.70	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00			1.10	1.00			ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00			1.10	1.00			ND	1.00
8260B	1,1-Dichloroethene	2.00	1.00	7.90	1.00			13.00	1.00			5.70	1.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	1,4-Dioxane	ND	20.00	ND	20.00			ND	20.00			ND	20.00
8260B	Benzene	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	Carbon tetrachloride	4.00	1.00	11.00	1.00			21.00	1.00			18.00	1.00
8260B	Chloroethane	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	Chloroform	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	Freon-113	8.80*	1.00	46.00*	1.00			62.00*	1.00			38.00*	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	Tetrachloroethene	14.00	1.00	16.00	1.00			46.00	1.00			17.00	1.00
8260B	Toluene	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	Trichloroethene	110.00	1.00	44.00	1.00			90.00	1.00			42.00	1.00
8260B	Trichlorofluoromethane	ND	1.00	6.00	1.00			1.50	1.00			2.30	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	cis-1,2-Dichloroethene	ND	1.00	ND	1.00			2.10	1.00			2.30	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00			ND	1.00			ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00			ND	1.00			ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting L
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or
* - Analysis performed before a calibration was r

TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	SVMW-10		SVMW-19		SVMW-19		SVMW-19		IDVMW-02		IVDMW-02	
	Sample ID:	SVMW-10-30'		SVMW-19-05'		SVMW-19-20'		SVMW-19-39.5'		IDVMW-02-110'		IVDMW-02-153'	
	Sample Date:	02/09/00		02/09/00		02/09/00		02/09/00		02/11/00		02/11/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	1.20	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	4.90	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,4-Dioxane	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00
8260B	Benzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	17.00	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	30.00	1.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	ND	1.00	ND	1.00	ND	1.00	1.00	1.00	ND	1.00	ND	1.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Freon-113	32.00*	1.00	ND *	1.00	ND *	1.00	ND *	1.00	ND	1.00	ND	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	15.00	1.00	ND	1.00	1.20	1.00	1.20	1.00	ND	1.00	ND	1.00
8260B	Toluene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	37.00	1.00	ND	1.00	1.90	1.00	6.30	1.00	33.00	1.00	240.00	1.00
8260B	Trichlorofluoromethane	2.80	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	2.10	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting L
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or
* - Analysis performed before a calibration was n

TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	IDVMW-02		IDVMW-02		IDVMW-02		SVMW-02		SVMW-02		SVMW-02	
	Sample ID:	IDVMW-02-213'		IDVMW-02-265'		IDVMW-02-310'		SVMW-02-05'		SVMW-02-20'		SVMW-02-39'	
	Sample Date:	02/11/00		02/11/00		02/11/00		02/11/00		02/11/00		02/11/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,4-Dioxane	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00
8260B	Benzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	40.00	1.00	10.00	1.00	15.00	1.00	4.40	1.00	6.60	1.00	1.20	1.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	ND	1.00	ND	1.00	ND	1.00	1.00	1.00	1.00	1.00	ND	1.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Freon-113	ND	1.00	ND	1.00	ND	1.00	7.80	1.00	9.80	1.00	ND	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Toluene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	290.00	1.00	10.00	1.00	130.00	1.00	22.00	1.00	40.00	1.00	12.00	1.00
8260B	Trichlorofluoromethane	ND	1.00	ND	1.00	ND	1.00	1.30	1.00	1.70	1.00	ND	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting L
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or
* - Analysis performed before a calibration was n

TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	SVMW-02		SVMW-02		SVMW-11		SVMW-11		SVMW-11		SVMW-13	
	Sample ID:	SVMW-02-39'(d)		SVMW-02-05'(R)		SVMW-11-05'		SVMW-11-20'		SVMW-11-31'		SVMW-13-05'	
	Sample Date:	02/11/00		02/15/00		02/11/00		02/11/00		02/11/00		02/11/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,1-Dichloroethene	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,4-Dioxane	ND	20.00	ND	20.00	ND	40.00	ND	40.00	ND	40.00	ND	40.00
8260B	Benzene	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Carbon tetrachloride	1.00	1.00	4.10	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Chloroform	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Freon-113	ND	1.00	7.90	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Tetrachloroethene	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Toluene	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Trichloroethene	10.00	1.00	25.00	1.00	3.70	2.00	2.90	2.00	6.90	2.00	3.50	2.00
8260B	Trichlorofluoromethane	ND	1.00	1.10	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	cis-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	m,p-Xylene	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting L
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or
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TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	SVMW-13		SVMW-13		SVMW-14		SVMW-14		SVMW-15		SVMW-15	
	Sample ID:	SVMW-13-20'		SVMW-13-33'		SVMW-14-20'		SVMW-14-30'		SVMW-15-05'		SVMW-15-20'	
	Sample Date:	02/11/00		02/11/00		02/11/00		02/11/00		02/11/00		02/11/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,1,1-Trichloroethane	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,1,2,2-Tetrachloroethane	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,1,2-Trichloroethane	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,1-Dichloroethane	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,1-Dichloroethene	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	1,2-Dichloroethane	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND *	2.00	ND	2.00
8260B	1,4-Dioxane	ND	40.00	ND	40.00	ND	40.00	ND	40.00	ND	40.00	ND	40.00
8260B	Benzene	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Carbon tetrachloride	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Chloroethane	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Chloroform	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Dichlorodifluoromethane	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Ethylbenzene	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Freon-113	ND	2.00	ND	2.00	ND	2.00	3.70	2.00	ND	2.00	ND	2.00
8260B	Methylene chloride	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Methyl tert-butyl ether	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Tetrachloroethene	2.00	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Toluene	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Trichloroethene	2.00	2.00	4.30	2.00	12.00	2.00	16.00	2.00	5.80	2.00	23.00	2.00
8260B	Trichlorofluoromethane	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	Vinyl chloride	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	cis-1,2-Dichloroethene	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	m,p-Xylene	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	o-Xylene	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00
8260B	trans-1,2-Dichloroethene	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00	ND	2.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting L
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or
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TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	SVMW-15		SVMW-17		SVMW-17		SVMW-20		SVMW-20		SVMW-21	
	Sample ID:	SVMW-15-30'		SVMW-17-05'		SVMW-17-20'		SVMW-20-05'		SVMW-20-20'		SVMW-21-05'	
	Sample Date:	02/11/00		02/11/00		02/11/00		02/14/00		02/14/00		02/14/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,2-Dichloroethane	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,4-Dioxane	ND	40.00	ND	40.00	ND	40.00	ND	20.00	ND	20.00	ND	20.00
8260B	Benzene	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroethane	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	9.40	1.00
8260B	Dichlorodifluoromethane	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	Freon-113	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methylene chloride	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	Toluene	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	2.00	2.00	2.70	2.00	21.00	2.00	1.30	1.00	3.30	1.00	9.10	1.00
8260B	Trichlorofluoromethane	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	Vinyl chloride	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	m,p-Xylene	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	2.00	ND	2.00	ND	2.00	ND	1.00	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
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(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or
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TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	SVMW-21		SVMW-04		SVMW-04		SVMW-05		SVMW-05		SVMW-05	
	Sample ID:	SVMW-21-20'		SVMW-04-05'		SVMW-04-20'		SVMW-05-05'		SVMW-05-20'		SVMW-05-40'	
	Sample Date:	02/14/00		02/14/00		02/14/00		02/14/00		02/14/00		02/14/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,4-Dioxane	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00
8260B	Benzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	ND	1.00	1.20	1.00	3.30	1.00	ND	1.00	ND	1.00	6.60	1.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	13.00	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Freon-113	ND	1.00	ND	1.00	1.90	1.00	ND	1.00	3.30	1.00	3.10	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	ND	1.00	1.30	1.00	1.30	1.00	ND	1.00	ND	1.00	1.40	1.00
8260B	Toluene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	9.60	1.00	9.30	1.00	26.00	1.00	6.90	1.00	3.30	1.00	34.00	1.00
8260B	Trichlorofluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	1.80	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting L
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or
* - Analysis performed before a calibration was r

TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	SVMW-05		SVMW-22		SVMW-22		SVMW-22		SVMW-24		SVMW-24	
	Sample ID:	SVMW-05-40'(d)		SVMW-22-05'		SVMW-22-18'		SVMW-22-26.5'		SVMW-24-05'		SVMW-24-19'	
	Sample Date:	02/14/00		02/14/00		02/14/00		02/14/00		02/14/00		02/14/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	1.30	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,4-Dioxane	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00
8260B	Benzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	6.10	1.00	ND	1.00	ND	1.00	ND	1.00	18.00	1.00	8.70	1.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	ND	1.00	ND	1.00	ND	1.00	ND	1.00	17.00	1.00	9.90	1.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Freon-113	3.00	1.00	ND	1.00	ND	1.00	1.10	1.00	ND	1.00	1.40	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	1.30	1.00	ND	1.00	ND	1.00	ND	1.00	5.30	1.00	6.70	1.00
8260B	Toluene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	32.00	1.00	2.00	1.00	1.30	1.00	3.60	1.00	15.00	1.00	8.40	1.00
8260B	Trichlorofluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND *	1.00	ND	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting L
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or
* - Analysis performed before a calibration was r

TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	SVMW-26		SVMW-26		SVMW-26		SVMW-28		SVMW-28		SVMW-29	
	Sample ID:	SVMW-26-05'		SVMW-26-23.5'		SVMW-26-23.5'(d)		SVMW-28-05'		SVMW-28-19'		SVMW-29-05'	
	Sample Date:	02/15/00		02/15/00		02/15/00		02/15/00		02/15/00		02/15/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,4-Dioxane	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00
8260B	Benzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Freon-113	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Toluene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	1.20	1.00	1.60	1.00	1.60	1.00	1.80	1.00	2.30	1.00	1.10	1.00
8260B	Trichlorofluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting L
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or
* - Analysis performed before a calibration was r

TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	SVMW-29		SVMW-30		SVMW-30		SVMW-30		SVMW-32		SVMW-32	
	Sample ID:	SVMW-29-23'		SVMW-30-05'		SVMW-30-21'		SVMW-30-39'		SVMW-32-05'		SVMW-32-20'	
	Sample Date:	02/15/00		02/15/00		02/15/00		02/15/00		02/15/00		02/15/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,4-Dioxane	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00
8260B	Benzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND *	1.00	ND	1.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Freon-113	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Toluene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	5.50	1.00	116.00	1.00	15.00	1.00	5.50	1.00	ND	1.00	3.10	1.00
8260B	Trichlorofluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	ND	1.00	18.00	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting L
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or
* - Analysis performed before a calibration was n

TABLE 2
SOIL-VAPOR SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

	Site ID:	SVMW-01		SVMW-01		SVMW-01		SVMW-16		SVMW-16		SVMW-16	
	Sample ID:	SVMW-01-05'		SVMW-01-20'		SVMW-01-40'		SVMW-16-05'		SVMW-16-20'		SVMW-16-40'	
	Sample Date:	02/15/00		02/15/00		02/15/00		02/15/00		02/15/00		02/15/00	
METHOD	ANALYTE	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL	CONC	RL
	VOLATILES												
8260B	1,1,1,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,1-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2,2-Tetrachloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1,2-Trichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,1-Dichloroethene	ND	1.00	1.40	1.00	1.60	1.00	ND	1.00	ND	1.00	1.40	1.00
8260B	1,2-Dichloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	1,4-Dioxane	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00	ND	20.00
8260B	Benzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Carbon tetrachloride	1.60	1.00	2.10	1.00	2.10	1.00	ND	1.00	1.00	1.00	2.20	1.00
8260B	Chloroethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Chloroform	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Dichlorodifluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Ethylbenzene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Freon-113	21.00	1.00	24.00	1.00	22.00	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methylene chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Methyl tert-butyl ether	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Tetrachloroethene	ND	1.00	ND	1.00	1.00	1.00	ND	1.00	ND	1.00	1.10	1.00
8260B	Toluene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Trichloroethene	3.60	1.00	8.90	1.00	7.30	1.00	ND	1.00	19.00	1.00	28.00	1.00
8260B	Trichlorofluoromethane	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	Vinyl chloride	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	cis-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	m,p-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	o-Xylene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00
8260B	trans-1,2-Dichloroethene	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00	ND	1.00

NOTES
CONC - Concentration of analyte (ug/L)
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting L
(d) - Sample Duplicate
Shaded Cell - Detected concentration equal to or
* - Analysis performed before a calibration was r

TABLE 3
GROUNDWATER SAMPLING RESULTS (ug/L)
DECEMBER 1999
Azusa/Irwindale Study Area
San Gabriel Basin, California

			Site ID:	MW-2		MW-3		MW-4		MW-4	
			Sample ID:	MW-2		MW-3		MW-4		MW-6	
			Sample Date:	12/20/99		12/20/99		12/20/99		12/20/99	
METHOD	ANALYTE	MCLs	PRGs	CONC	RL	CONC	RL	CONC	RL	CONC	RL
TILE ORGANICS											
8260B	1,1,1,2-Tetrachloroethane		0.43	ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,1,1-Trichloroethane	200.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,1,2,2-Tetrachloroethane	1.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,1,2-Trichloroethane	5.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,1,2-Trichlorotrifluoroethane	1200.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,1-Dichloroethane	5.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,1-Dichloroethene	6.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,1-Dichloropropene			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,2,3-Trichlorobenzene			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,2,3-Trichloropropane			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,2,4-Trichlorobenzene	70.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,2,4-Trimethylbenzene		12.33	ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,2-Dibromoethane	0.05		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,2-Dichlorobenzene	600.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,2-Dichloroethane	0.05		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,2-Dichloropropane	5.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,3,5-Trimethylbenzene		12.33	ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,3-Dichlorobenzene		16.54	ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,3-Dichloropropane			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,4-Dichlorobenzene	5.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	2,2-Dichloropropane			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	2-Butanone		1904.35	ND	25.00	ND	500.00	ND	60.00	ND	60.00
8260B	2-Chlorotoluene		121.67	ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	2-Hexanone			ND	25.00	ND	500.00	ND	60.00	ND	60.00
8260B	4-Chlorotoluene			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1-Bromo-2-chloroethane			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	1,2-Dibromo-3-chloropropane			ND	10.00	ND	200.00	ND	24.00	ND	24.00
8260B	4-Methyl-2-pentanone			ND	25.00	ND	500.00	ND	60.00	ND	60.00
8260B	Acetone		608.33	ND	50.00	ND	1000.00	ND	120.00	ND	120.00
8260B	Benzene	1.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Bromobenzene			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Bromochloromethane			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Bromodichloromethane	100.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Bromoform	100.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Bromomethane		8.66	ND	10.00	ND	200.00	ND	24.00	ND	24.00
8260B	Carbon disulfide		1042.86	ND	5.00	ND	100.00	67.00	12.00	13.00	12.00
8260B	Carbon tetrachloride	0.50		6.00	5.00	ND	100.00	20.00	12.00	19.00	12.00
8260B	Chlorobenzene	70.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Chloroethane		8588.24	ND	10.00	ND	200.00	ND	24.00	ND	24.00
8260B	Chloroform	100.00		5.80	5.00	ND	100.00	16.00	12.00	16.00	12.00
8260B	Chloromethane		1.50	ND	10.00	ND	200.00	ND	24.00	ND	24.00
8260B	Dibromochloromethane	100.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Dibromomethane			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Dichlorodifluoromethane		394.60	ND	10.00	ND	200.00	ND	24.00	ND	24.00
8260B	Ethylbenzene	700.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Hexachlorobutadiene			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Isopropylbenzene		658.20	ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Methylene chloride	5.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Methyl tert-butyl ether			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Naphthalene		6.20	ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Styrene	100.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Tetrachloroethene	5.00		230.00	5.00	5400.00	100.00	810.00	12.00	830.00	12.00
8260B	Toluene	150.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	Trichloroethene	5.00		290.00	5.00	ND	100.00	960.00	12.00	950.00	12.00
8260B	Trichlorofluoromethane	150.00		ND	10.00	ND	200.00	ND	24.00	ND	24.00
8260B	Vinyl chloride	0.50		ND	10.00	ND	200.00	ND	24.00	ND	24.00
8260B	cis-1,2-Dichloroethene	6.00		16.00	5.00	ND	100.00	45.00	12.00	42.00	12.00
8260B	cis-1,3-Dichloropropene			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	m-Xylene & p-Xylene	1750.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	n-Butylbenzene			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	n-Propylbenzene			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	o-Xylene		1431372.50	ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	p-Isopropyltoluene			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	sec-Butylbenzene			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	tert-Butylbenzene			ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	trans-1,2-Dichloroethene	10.00		ND	5.00	ND	100.00	ND	12.00	ND	12.00
8260B	trans-1,3-Dichloropropene			ND	5.00	ND	100.00	ND	12.00	ND	12.00

Shaded Cell - Detected concentration exceeds corresponding criteria (i.e. MCL or PRG)
MCL - Drinking Water Standards Primary Maximum Contaminate Levels, California Department of Health Services, March 1998. Compared to values that were detected.
PRG - EPA Region IX 1998 Preliminary Remediation Goals for Tap Water. Compared to compounds that were detected for which there is no established MCL.
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting Limit

TABLE 4
GROUNDWATER SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

			Site ID:	MW-01		MW-02		MW-03	
			Sample ID:	MW-01		MW-02		MW-03	
			Sample Date:	02/09/00		02/08/00		02/08/00	
METHOD	ANALYTE	MCLs	PRGs	CONC	RL	CONC	RL	CONC	RL
TILE ORGANICS									
8260B	1,1,1,2-Tetrachloroethane		0.43	ND	1.00	ND	2.50	ND	50.00
8260B	1,1,1-Trichloroethane	200.00		ND	1.00	ND	2.50	ND	50.00
8260B	1,1,2,2-Tetrachloroethane	1.00		ND	1.00	ND	2.50	ND	50.00
8260B	1,1,2-Trichloroethane	5.00		ND	1.00	ND	2.50	ND	50.00
8260B	1,1,2-Trichlorotrifluoroethane	1200.00		ND	1.00	ND	2.50	ND	50.00
8260B	1,1-Dichloroethane	5.00		ND	1.00	ND	2.50	ND	50.00
8260B	1,1-Dichloroethene	6.00		ND	1.00	ND	2.50	ND	50.00
8260B	1,1-Dichloropropene			ND	1.00	ND	2.50	ND	50.00
8260B	1,2,3-Trichlorobenzene			ND	1.00	ND	2.50	ND	50.00
8260B	1,2,3-Trichloropropane			ND	1.00	ND	2.50	ND	50.00
8260B	1,2,4-Trichlorobenzene	70.00		ND	1.00	ND	2.50	ND	50.00
8260B	1,2,4-Trimethylbenzene		12.33	ND	1.00	ND	2.50	ND	50.00
8260B	1,2-Dibromoethane	0.05		ND	1.00	ND	2.50	ND	50.00
8260B	1,2-Dichlorobenzene	600.00		ND	1.00	ND	2.50	ND	50.00
8260B	1,2-Dichloroethane	0.05		ND	1.00	ND	2.50	ND	50.00
8260B	1,2-Dichloropropane	5.00		ND	1.00	ND	2.50	ND	50.00
8260B	1,3,5-Trimethylbenzene		12.33	ND	1.00	ND	2.50	ND	50.00
8260B	1,3-Dichlorobenzene		16.54	ND	1.00	ND	2.50	ND	50.00
8260B	1,3-Dichloropropane			ND	1.00	ND	2.50	ND	50.00
8260B	1,4-Dichlorobenzene	5.00		ND	1.00	ND	2.50	ND	50.00
8260B	2,2-Dichloropropane			ND	1.00	ND	2.50	ND	50.00
8260B	2-Butanone		1904.35	ND	5.00	ND	12.50	ND	250.00
8260B	2-Chlorotoluene		121.67	ND	1.00	ND	2.50	ND	50.00
8260B	2-Hexanone			ND	5.00	ND	12.50	ND	250.00
8260B	4-Chlorotoluene			ND	1.00	ND	2.50	ND	50.00
8260B	1-Bromo-2-chloroethane			ND	1.00	ND	2.50	ND	50.00
8260B	1,2-Dibromo-3-chloropropane			ND	2.00	ND	5.00	ND	100.00
8260B	4-Methyl-2-pentanone			ND	5.00	ND	12.50	ND	250.00
8260B	Acetone		608.33	ND	10.00	ND	25.00	ND	500.00
8260B	Benzene	1.00		ND	1.00	ND	2.50	ND	50.00
8260B	Bromobenzene			ND	1.00	ND	2.50	ND	50.00
8260B	Bromochloromethane			ND	1.00	ND	2.50	ND	50.00
8260B	Bromodichloromethane	100.00		ND	1.00	ND	2.50	ND	50.00
8260B	Bromoform	100.00		ND	1.00	ND	2.50	ND	50.00
8260B	Bromomethane		8.66	ND	2.00	ND	5.00	ND	100.00
8260B	Carbon disulfide		1042.86	ND	1.00	ND	2.50	ND	50.00
8260B	Carbon tetrachloride	0.50		ND	1.00	3.40	2.50	ND	50.00
8260B	Chlorobenzene	70.00		ND	1.00	ND	2.50	ND	50.00
8260B	Chloroethane		8588.24	ND	2.00	ND	5.00	ND	100.00
8260B	Chloroform	100.00		ND	1.00	3.70	2.50	ND	50.00
8260B	Chloromethane		1.50	ND	2.00	ND	5.00	ND	100.00
8260B	Dibromochloromethane	100.00		ND	1.00	ND	2.50	ND	50.00
8260B	Dibromomethane			ND	1.00	ND	2.50	ND	50.00
8260B	Dichlorodifluoromethane		394.60	ND	2.00	ND	5.00	ND	100.00
8260B	Ethylbenzene	700.00		ND	1.00	ND	2.50	ND	50.00
8260B	Hexachlorobutadiene			ND	1.00	ND	2.50	ND	50.00
8260B	Isopropylbenzene		658.20	ND	1.00	ND	2.50	ND	50.00
8260B	Methylene chloride	5.00		ND	1.00	ND	2.50	ND	50.00
8260B	Methyl tert-butyl ether			ND	1.00	ND	2.50	ND	50.00
8260B	Naphthalene		6.20	ND	1.00	ND	2.50	ND	50.00
8260B	Styrene	100.00		ND	1.00	ND	2.50	ND	50.00
8260B	Tetrachloroethene	5.00		ND	1.00	80.00	2.50	4200.00	50.00
8260B	Toluene	150.00		ND	1.00	ND	2.50	ND	50.00
8260B	Trichloroethene	5.00		ND	1.00	140.00	2.50	120.00	50.00
8260B	Trichlorofluoromethane	150.00		ND	2.00	ND	5.00	ND	100.00
8260B	Vinyl chloride	0.50		ND	2.00	ND	5.00	ND	100.00
8260B	cis-1,2-Dichloroethene	6.00		ND	1.00	7.40	2.50	ND	50.00
8260B	cis-1,3-Dichloropropene			ND	1.00	ND	2.50	ND	50.00
8260B	m-Xylene & p-Xylene	1750.00		ND	1.00	ND	2.50	ND	50.00
8260B	n-Butylbenzene			ND	1.00	ND	2.50	ND	50.00
8260B	n-Propylbenzene			ND	1.00	ND	2.50	ND	50.00
8260B	o-Xylene		1431372.50	ND	1.00	ND	2.50	ND	50.00
8260B	p-Isopropyltoluene			ND	1.00	ND	2.50	ND	50.00
8260B	sec-Butylbenzene			ND	1.00	ND	2.50	ND	50.00
8260B	tert-Butylbenzene			ND	1.00	ND	2.50	ND	50.00
8260B	trans-1,2-Dichloroethene	10.00		ND	1.00	ND	2.50	ND	50.00
8260B	trans-1,3-Dichloropropene			ND	1.00	ND	2.50	ND	50.00

Shaded Cell - Detected concentration exceeds corresponding criteria (i.e. MCL or PRG)

MCL - Drinking Water Standards Primary Maximum Contaminate Levels, California Department of Health Services, March 1998.

PRG - EPA Region IX 1998 Preliminary Remediation Goals for Tap Water. Compared to compounds that were detected for which there is no established MCL.

RL - Laboratory Reporting Limit

ND - Not Detected Above Laboratory Reporting Limit

TABLE 4
GROUNDWATER SAMPLING RESULTS (ug/L)
FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

			Site ID:	MW-04		MW-05		MW-4	
			Sample ID:	MW-04		MW-05		MW-06	
			Sample Date:	02/08/00		02/08/00		02/08/00	
METHOD	ANALYTE	MCLs	PRGs	CONC	RL	CONC	RL	CONC	RL
TILE ORGANICS									
8260B	1,1,1,2-Tetrachloroethane		0.43	ND	25.00	ND	1.00	ND	25.00
8260B	1,1,1-Trichloroethane	200.00		ND	25.00	ND	1.00	ND	25.00
8260B	1,1,2,2-Tetrachloroethane	1.00		ND	25.00	ND	1.00	ND	25.00
8260B	1,1,2-Trichloroethane	5.00		ND	25.00	ND	1.00	ND	25.00
8260B	1,1,2-Trichlorotrifluoroethane	1200.00		ND	25.00	ND	1.00	ND	25.00
8260B	1,1-Dichloroethane	5.00		ND	25.00	ND	1.00	ND	25.00
8260B	1,1-Dichloroethene	6.00		ND	25.00	ND	1.00	ND	25.00
8260B	1,1-Dichloropropene			ND	25.00	ND	1.00	ND	25.00
8260B	1,2,3-Trichlorobenzene			ND	25.00	ND	1.00	ND	25.00
8260B	1,2,3-Trichloropropane			ND	25.00	ND	1.00	ND	25.00
8260B	1,2,4-Trichlorobenzene	70.00		ND	25.00	ND	1.00	ND	25.00
8260B	1,2,4-Trimethylbenzene		12.33	ND	25.00	ND	1.00	ND	25.00
8260B	1,2-Dibromoethane	0.05		ND	25.00	ND	1.00	ND	25.00
8260B	1,2-Dichlorobenzene	600.00		ND	25.00	ND	1.00	ND	25.00
8260B	1,2-Dichloroethane	0.05		ND	25.00	ND	1.00	ND	25.00
8260B	1,2-Dichloropropane	5.00		ND	25.00	ND	1.00	ND	25.00
8260B	1,3,5-Trimethylbenzene		12.33	ND	25.00	ND	1.00	ND	25.00
8260B	1,3-Dichlorobenzene		16.54	ND	25.00	ND	1.00	ND	25.00
8260B	1,3-Dichloropropane			ND	25.00	ND	1.00	ND	25.00
8260B	1,4-Dichlorobenzene	5.00		ND	25.00	ND	1.00	ND	25.00
8260B	2,2-Dichloropropane			ND	25.00	ND	1.00	ND	25.00
8260B	2-Butanone		1904.35	ND	125.00	ND	5.00	ND	125.00
8260B	2-Chlorotoluene		121.67	ND	25.00	ND	1.00	ND	25.00
8260B	2-Hexanone			ND	125.00	ND	5.00	ND	125.00
8260B	4-Chlorotoluene			ND	25.00	ND	1.00	ND	25.00
8260B	1-Bromo-2-chloroethane			ND	25.00	ND	1.00	ND	25.00
8260B	1,2-Dibromo-3-chloropropane			ND	50.00	ND	2.00	ND	50.00
8260B	4-Methyl-2-pentanone			ND	125.00	ND	5.00	ND	125.00
8260B	Acetone		608.33	ND	250.00	ND	10.00	ND	250.00
8260B	Benzene	1.00		ND	25.00	ND	1.00	ND	25.00
8260B	Bromobenzene			ND	25.00	ND	1.00	ND	25.00
8260B	Bromochloromethane			ND	25.00	ND	1.00	ND	25.00
8260B	Bromodichloromethane	100.00		ND	25.00	ND	1.00	ND	25.00
8260B	Bromoform	100.00		ND	25.00	ND	1.00	ND	25.00
8260B	Bromomethane		8.66	ND	50.00	ND	2.00	ND	50.00
8260B	Carbon disulfide		1042.86	ND	25.00	ND	1.00	ND	25.00
8260B	Carbon tetrachloride	0.50		39.00	25.00	ND	1.00	39.00	25.00
8260B	Chlorobenzene	70.00		ND	25.00	ND	1.00	ND	25.00
8260B	Chloroethane		8588.24	ND	50.00	ND	2.00	ND	50.00
8260B	Chloroform	100.00		ND	25.00	ND	1.00	ND	25.00
8260B	Chloromethane		1.50	ND	50.00	ND	2.00	ND	50.00
8260B	Dibromochloromethane	100.00		ND	25.00	ND	1.00	ND	25.00
8260B	Dibromomethane			ND	25.00	ND	1.00	ND	25.00
8260B	Dichlorodifluoromethane		394.60	ND	50.00	ND	2.00	ND	50.00
8260B	Ethylbenzene	700.00		ND	25.00	ND	1.00	ND	25.00
8260B	Hexachlorobutadiene			ND	25.00	ND	1.00	ND	25.00
8260B	Isopropylbenzene		658.20	ND	25.00	ND	1.00	ND	25.00
8260B	Methylene chloride	5.00		ND	25.00	ND	1.00	ND	25.00
8260B	Methyl tert-butyl ether			ND	25.00	ND	1.00	ND	25.00
8260B	Naphthalene		6.20	ND	25.00	ND	1.00	ND	25.00
8260B	Styrene	100.00		ND	25.00	ND	1.00	ND	25.00
8260B	Tetrachloroethene	5.00		1800.00	25.00	ND	1.00	1700.00	25.00
8260B	Toluene	150.00		ND	25.00	ND	1.00	ND	25.00
8260B	Trichloroethene	5.00		1400.00	25.00	ND	1.00	1500.00	25.00
8260B	Trichlorofluoromethane	150.00		ND	50.00	ND	2.00	ND	50.00
8260B	Vinyl chloride	0.50		ND	50.00	ND	2.00	ND	50.00
8260B	cis-1,2-Dichloroethene	6.00		66.00	25.00	ND	1.00	69.00	25.00
8260B	cis-1,3-Dichloropropene			ND	25.00	ND	1.00	ND	25.00
8260B	m-Xylene & p-Xylene	1750.00		ND	25.00	ND	1.00	ND	25.00
8260B	n-Butylbenzene			ND	25.00	ND	1.00	ND	25.00
8260B	n-Propylbenzene			ND	25.00	ND	1.00	ND	25.00
8260B	o-Xylene		1431372.50	ND	25.00	ND	1.00	ND	25.00
8260B	p-Isopropyltoluene			ND	25.00	ND	1.00	ND	25.00
8260B	sec-Butylbenzene			ND	25.00	ND	1.00	ND	25.00
8260B	tert-Butylbenzene			ND	25.00	ND	1.00	ND	25.00
8260B	trans-1,2-Dichloroethene	10.00		ND	25.00	ND	1.00	ND	25.00
8260B	trans-1,3-Dichloropropene			ND	25.00	ND	1.00	ND	25.00

Shaded Cell - Detected concentration exceeds corresponding criteria (i.e. MC
MCL - Drinking Water Standards Primary Maximum Contaminate Levels, Ca
Department of Health Services, March 1998.
PRG - EPA Region IX 1998 Preliminary Remediation Goals for Tap Water. (
compounds that were detected for which there is no established MCL.
RL - Laboratory Reporting Limit
ND - Not Detected Above Laboratory Reporting Limit

Table 5. VLEACH and AT123D Model Input Parameters

VLEACH

Constituent	Air Diffusion Coefficient (m^2/day)	Henry's Law Constant (1) (dimensionless)	Organic Carbon Partitioning Coefficient (1) (mL/g)	Solubility (1) (mg/L)	Fraction of Organic Carbon (by weight)
TCE	0.86	0.38	126	1100	0.001
CCl_4	0.86	1	110	757	0.001

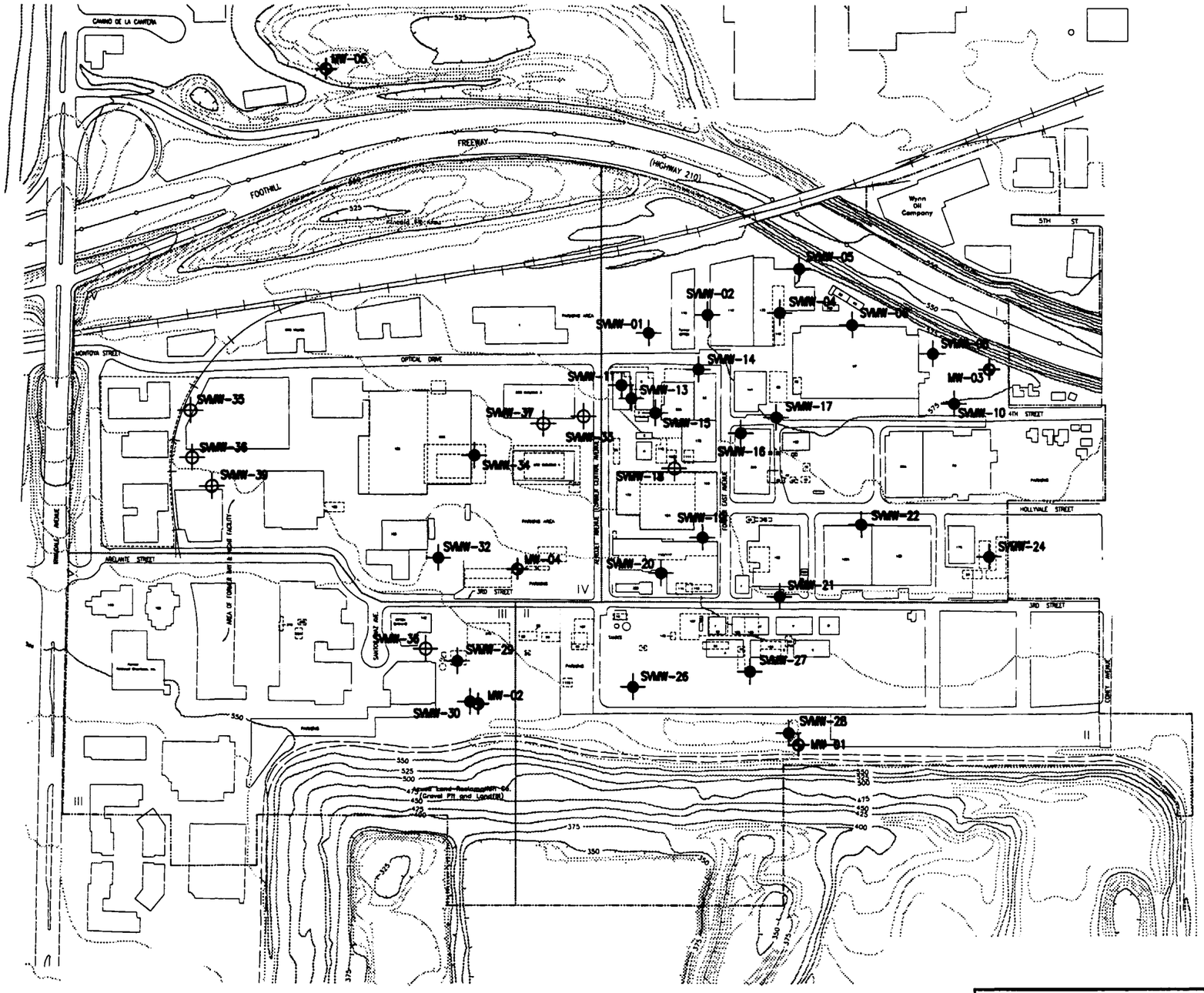
AT123D

Constituent	Bulk Density (kg/m^3)	Effective Porosity (unitless)	Saturated Hydraulic Conductivity (ft/day)	Hydraulic Gradient (ft/ft)	Longitudinal Dispersivity (ft)	Transverse Dispersivity (ft)	Vertical Dispersivity (ft)	Decay Constant (1/yr)
TCE	2.65	0.12	350	0.0015	32.81	3.281	3.281	0.14
CCl_4	2.65	0.12	350	0.0015	32.81	3.281	3.281	0.10

(1) All values cited obtained from USEPA, 1986 (Superfund Public Health Evaluation Manual, EPA/540/1-86-1060).

FIGURES

R14 PLOT 1 = 400 TO 4MV HOT\50505\1-1\600-SVCM



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED)
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)

N

Scale 0 200 400 feet

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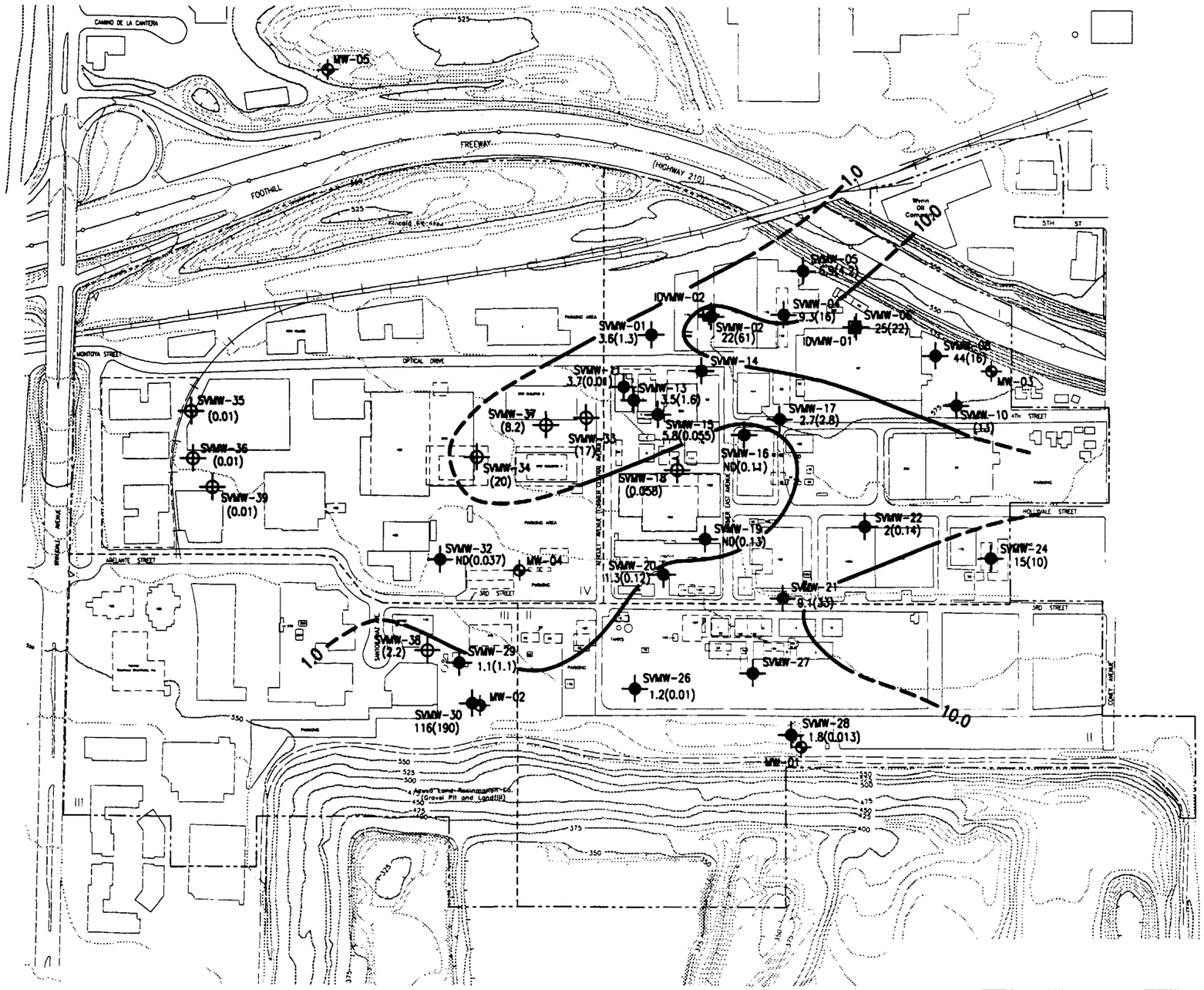
SITE LAYOUT AND LOCATIONS OF SOIL-VAPOR WELLS AND GROUNDWATER MONITORING WELLS
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 1

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		6/00	

R14 PLOT 1 = 400 TO 4MV H07\50505\1-1\TCE005



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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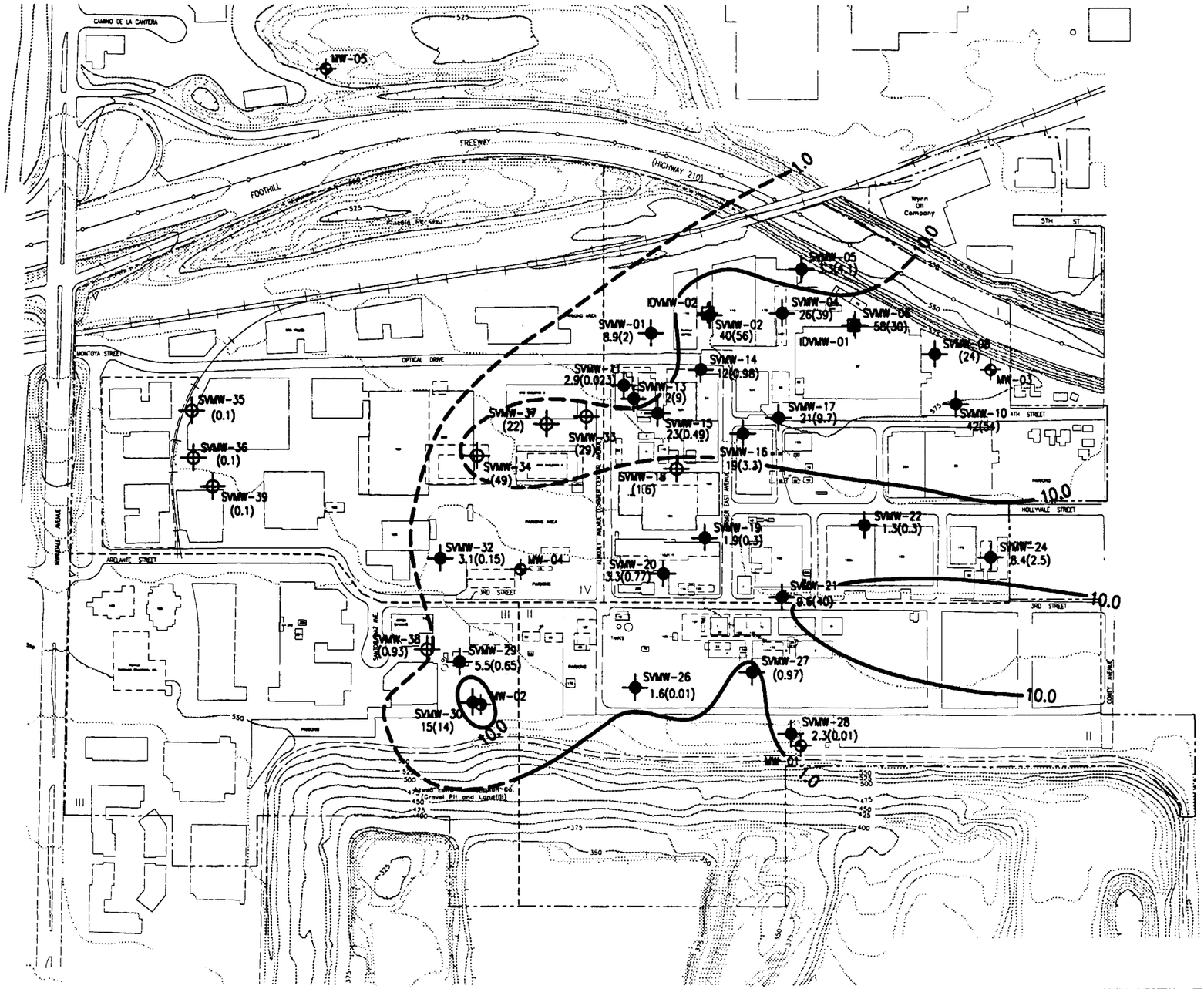
OCCURENCE OF TCE IN SHALLOW VAPOR MONITORING WELLS (ug/L)
5'-6' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 2

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4WV MDT\50505\1-1\TCE018



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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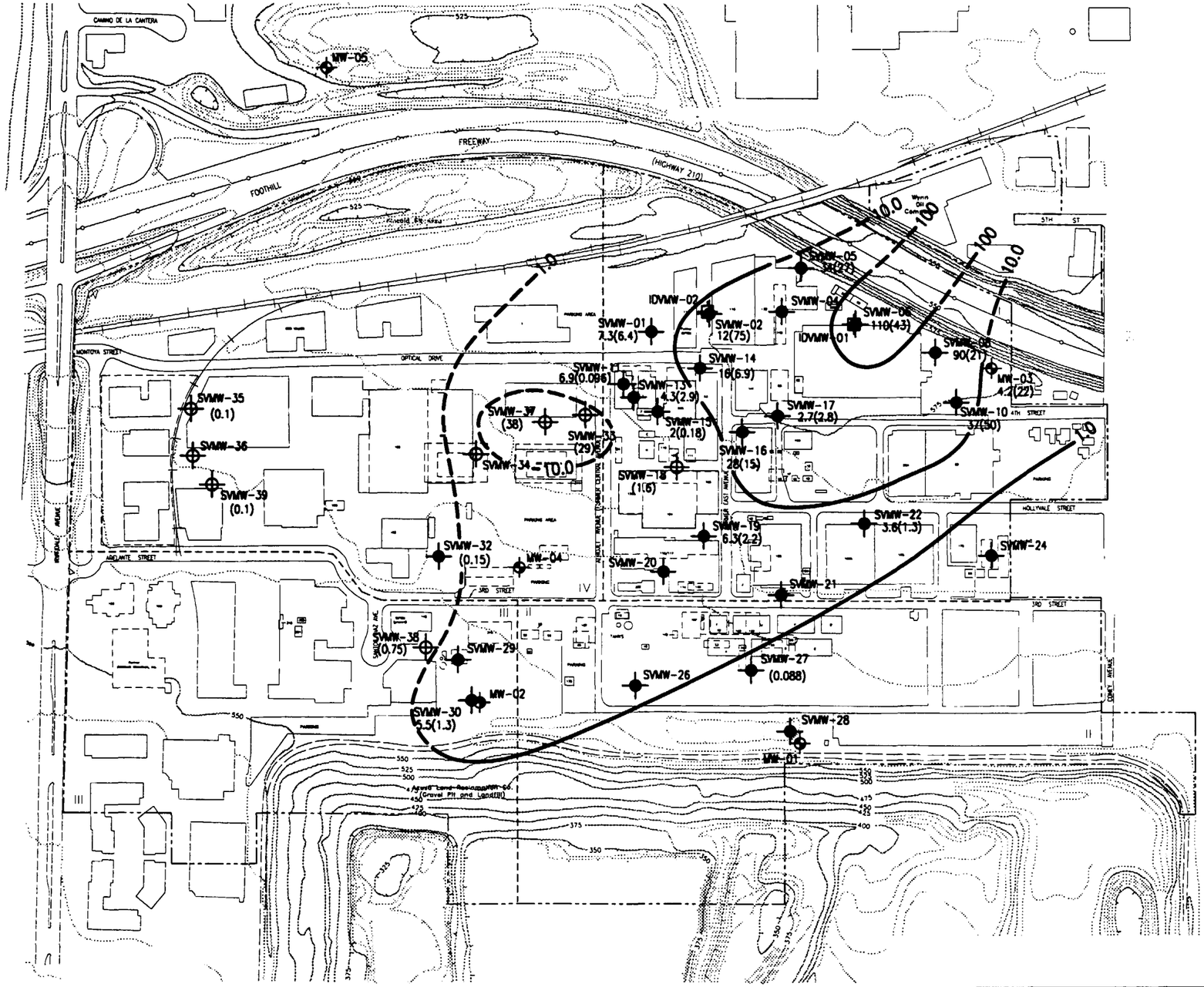
OCCURENCE OF TCE IN SHALLOW VAPOR MONITORING WELLS (ug/L)
18'-26' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 3

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MW HDT\50505\1-1\TCE026



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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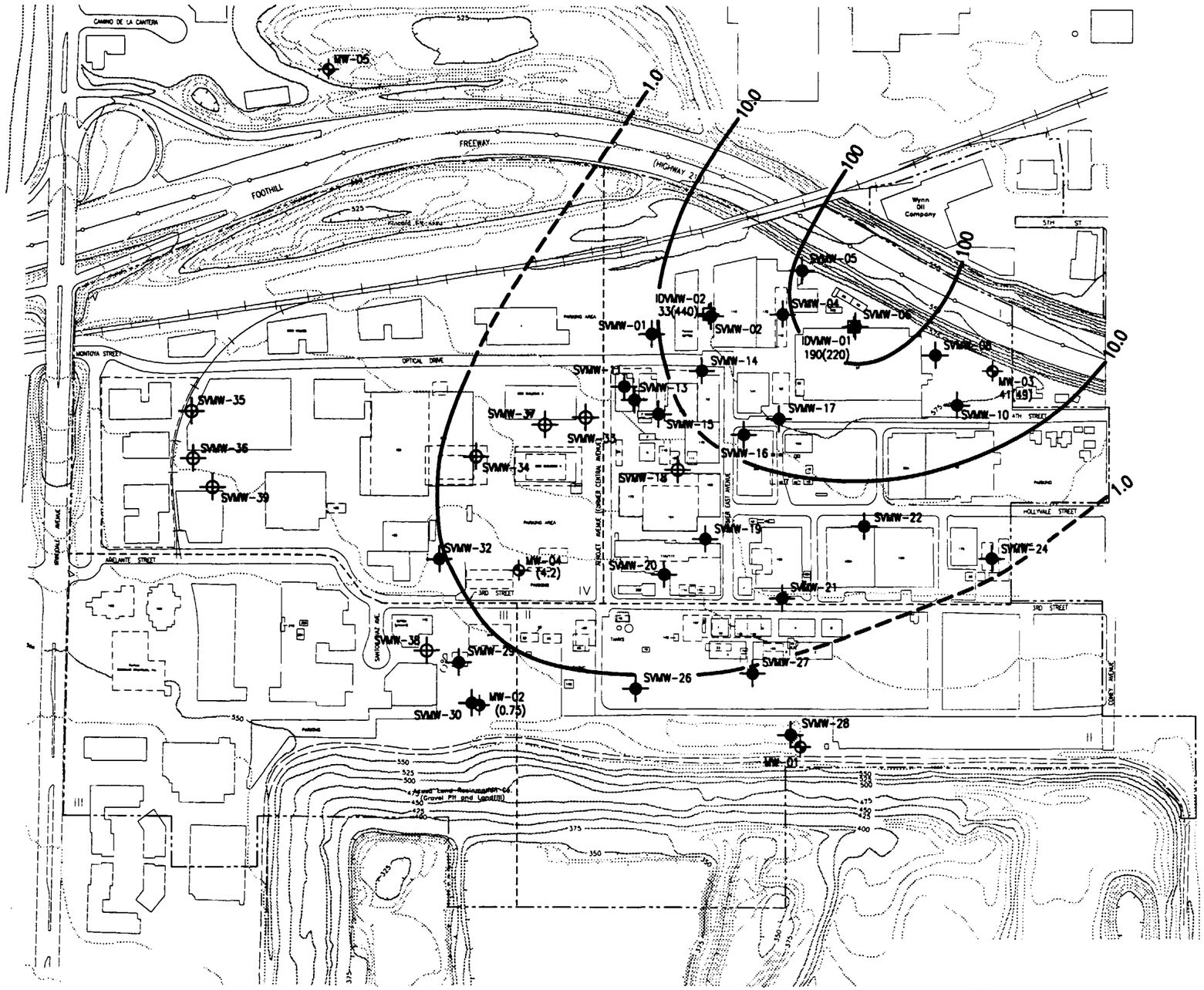
OCCURENCE OF TCE IN SHALLOW VAPOR MONITORING WELLS (ug/L)
20'-60' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURAED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 4

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HOT\50505\1-1\TCE082



EXPLANATION

EXISTING GROUNDWATER MONITORING WELL LOCATION

25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES

EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)

LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)

10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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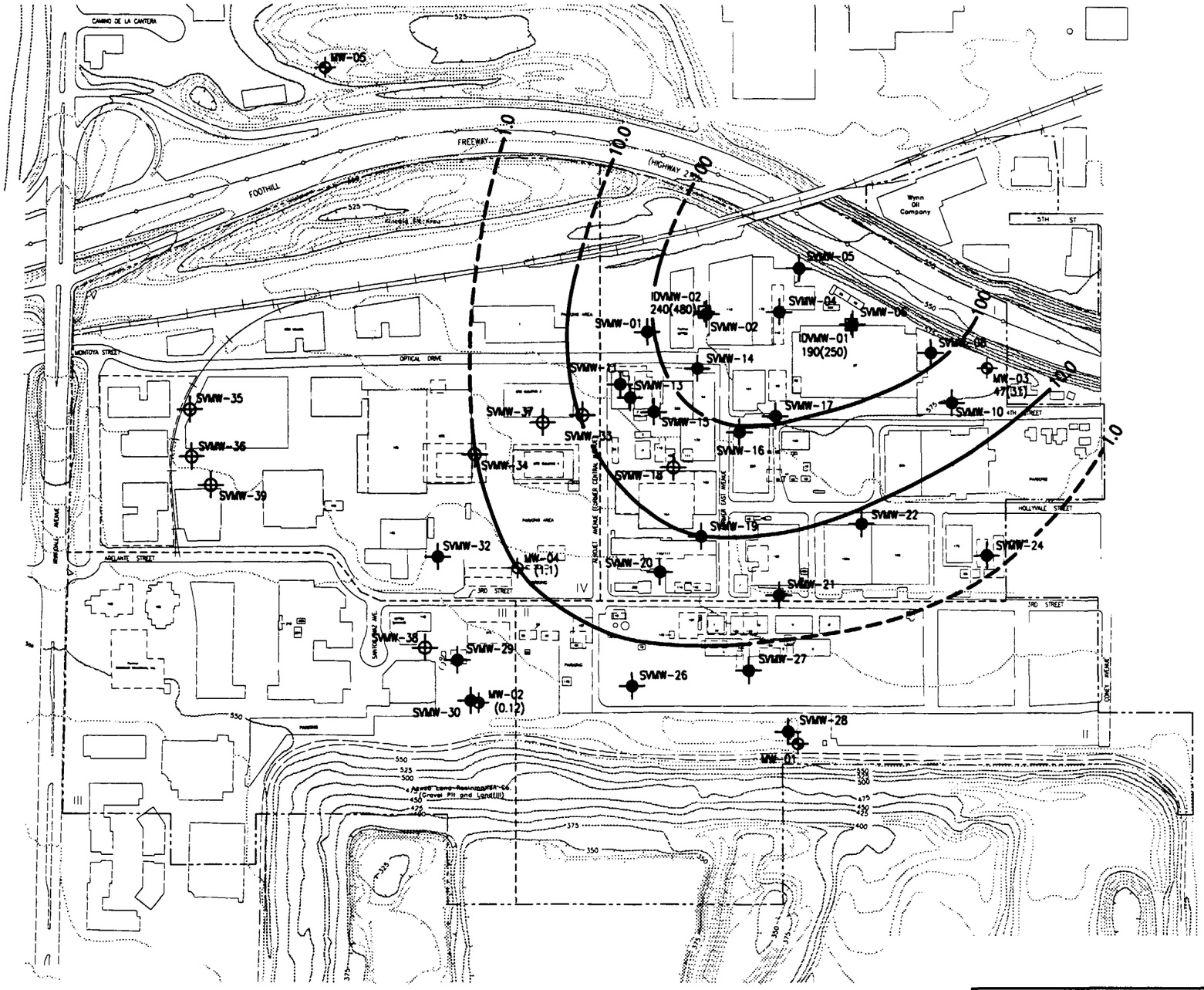
OCCURENCE OF TCE IN INTERMEDIATE-DEEP VAPOR MONITORING WELLS (ug/L)
62'-117' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURAED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 5

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4WV HD7\50505\1-1\TCE141



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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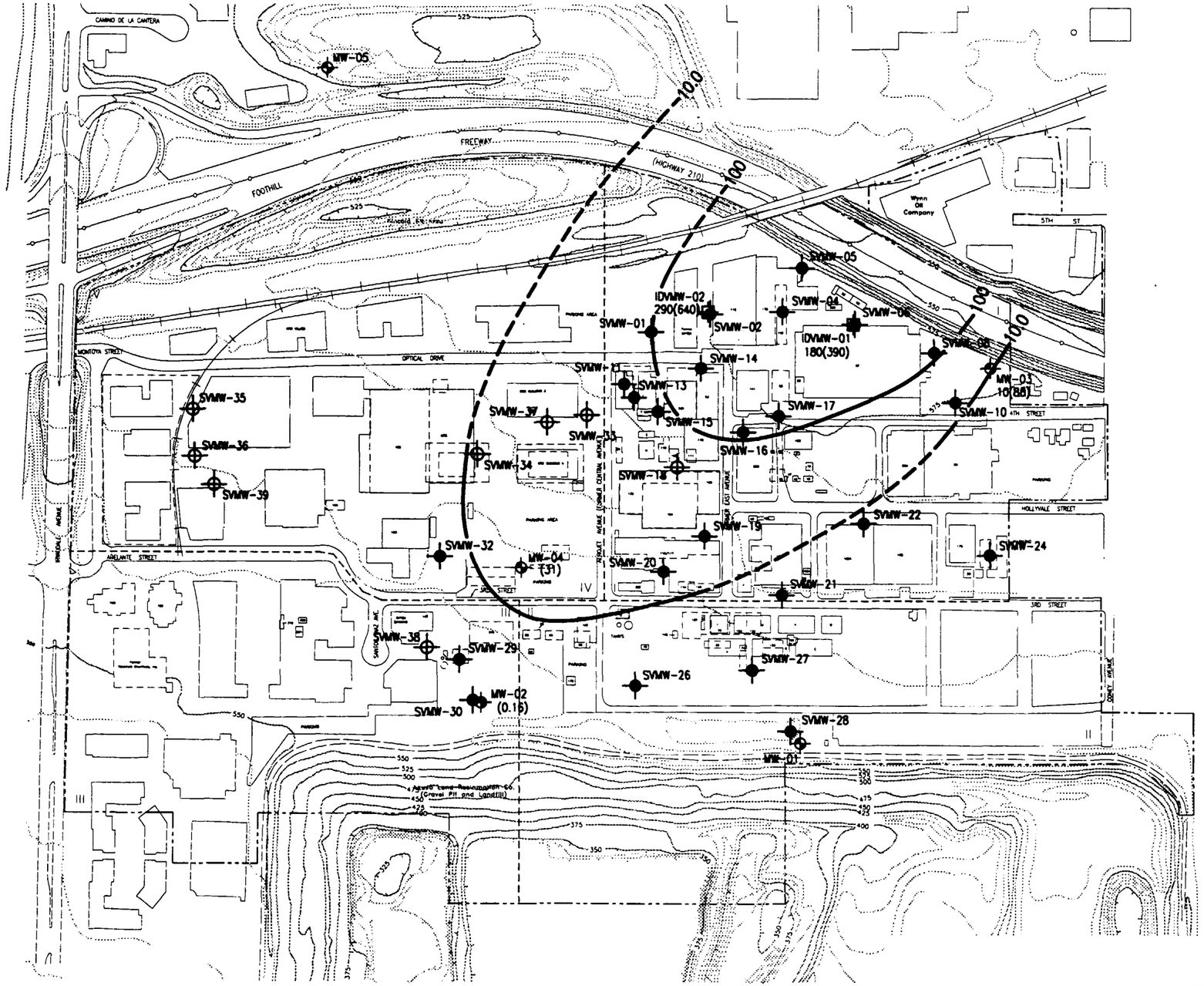
OCCURENCE OF TCE IN INTERMEDIATE-DEEP VAPOR MONITORING WELLS (ug/L)
141'-157' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURAED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE **6**

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4WV HDT\50505\1-1\TCE189



EXPLANATION

EXISTING GROUNDWATER MONITORING WELL LOCATION

25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES

EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)

LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)

10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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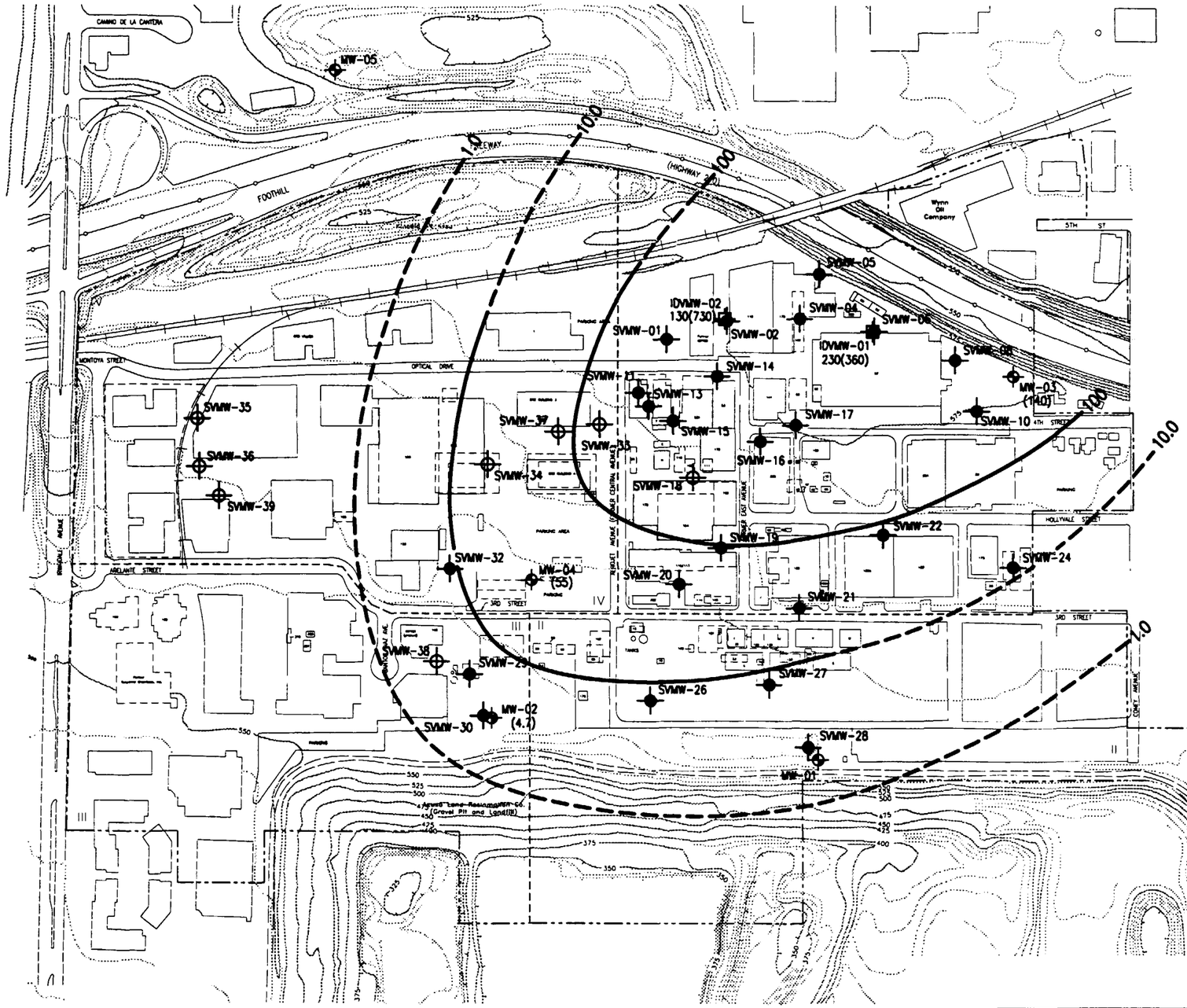
OCCURENCE OF TCE IN INTERMEDIATE-DEEP VAPOR MONITORING WELLS (ug/L)
100'-200' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 7

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HDT\50505\1-1\TCE306



EXPLANATION

EXISTING GROUNDWATER MONITORING WELL LOCATION

25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES

EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)

LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)

10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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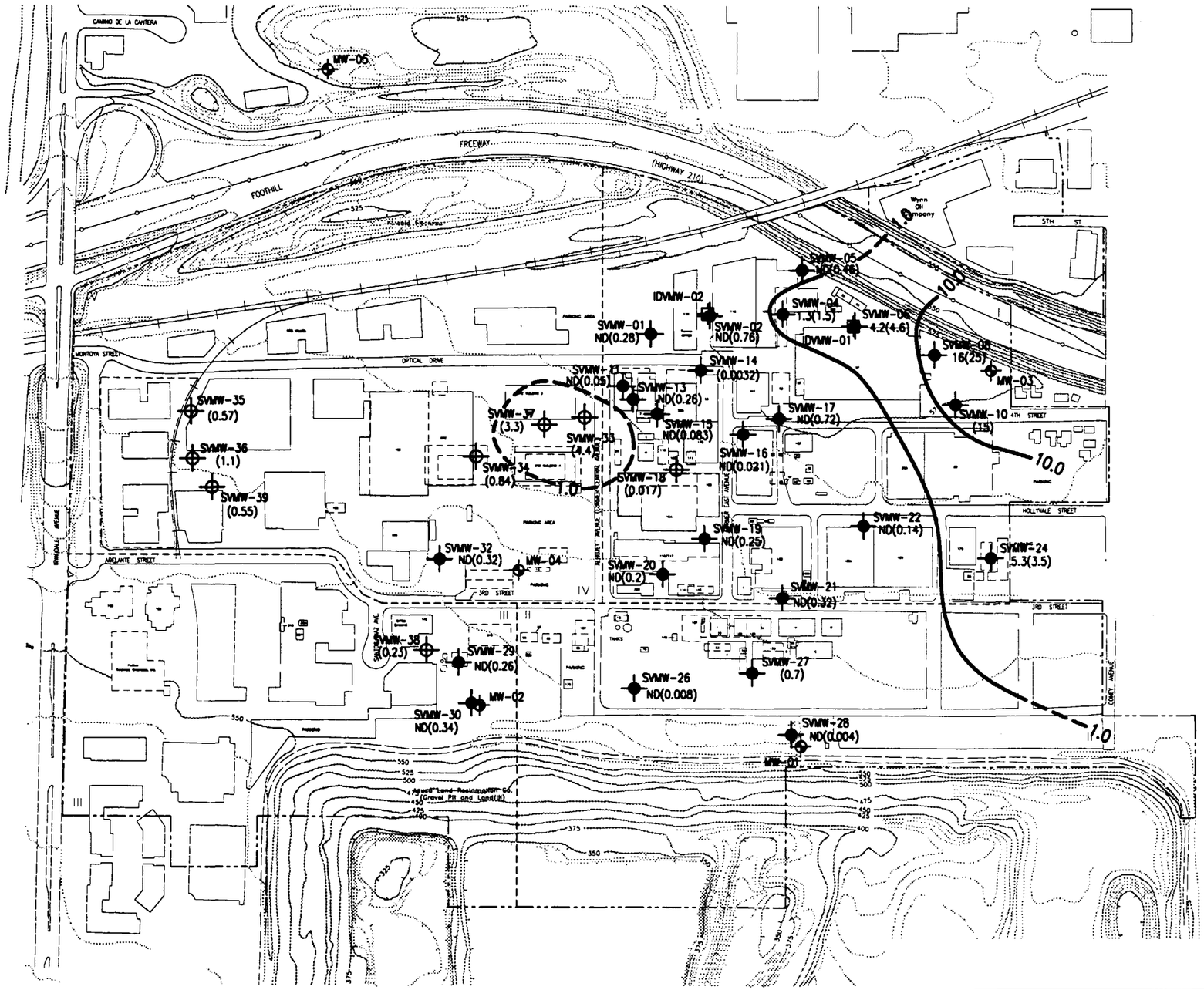
OCCURENCE OF TCE IN INTERMEDIATE-DEEP VAPOR MONITORING WELLS (ug/L)
305'-310' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE **8**

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MW HDT\50505\1-1\PCE005



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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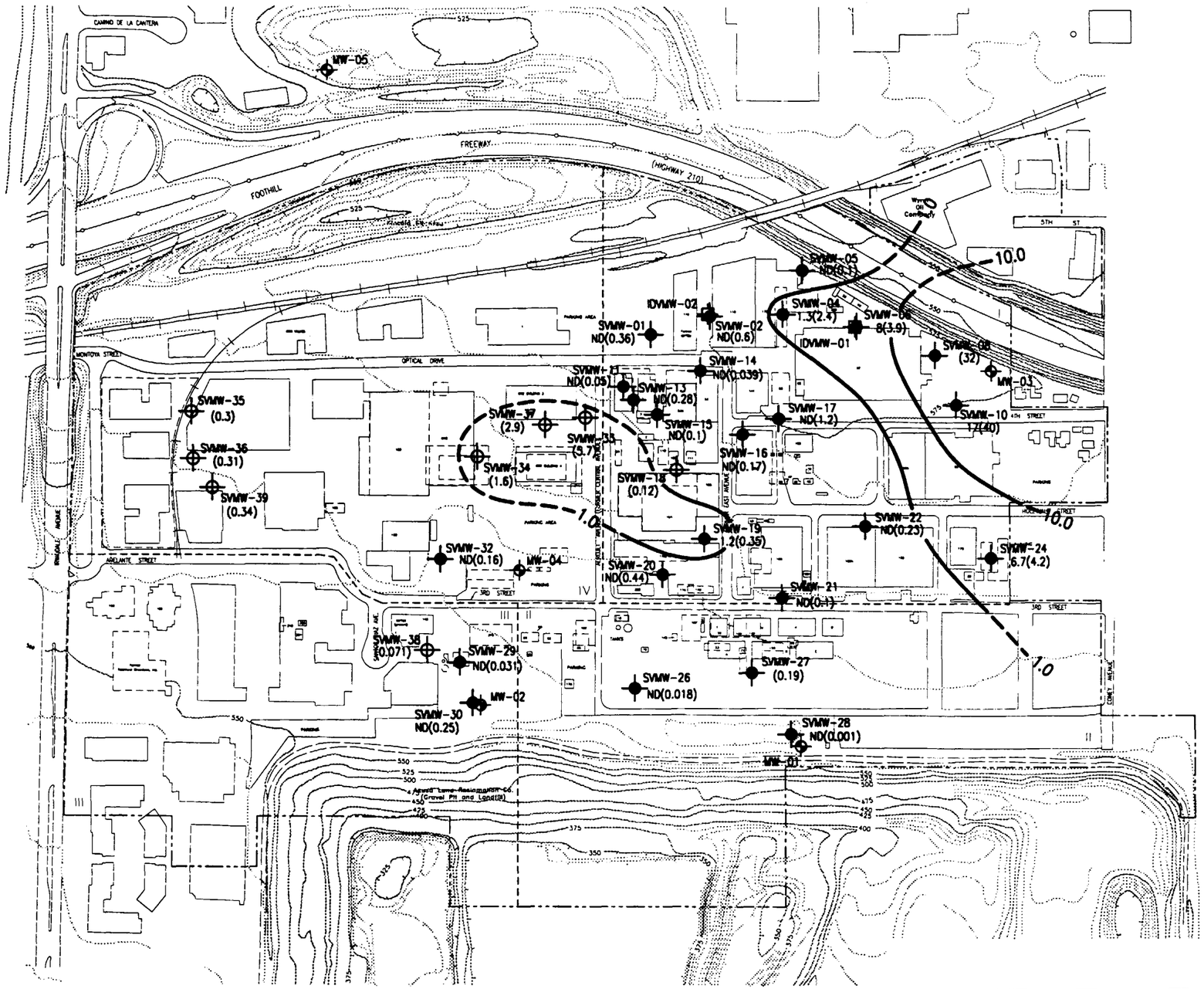
OCCURENCE OF PCE IN SHALLOW VAPOR MONITORING WELLS (ug/L)
5'-8' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURAED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 9

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HDT\50505\1-1\PCE018



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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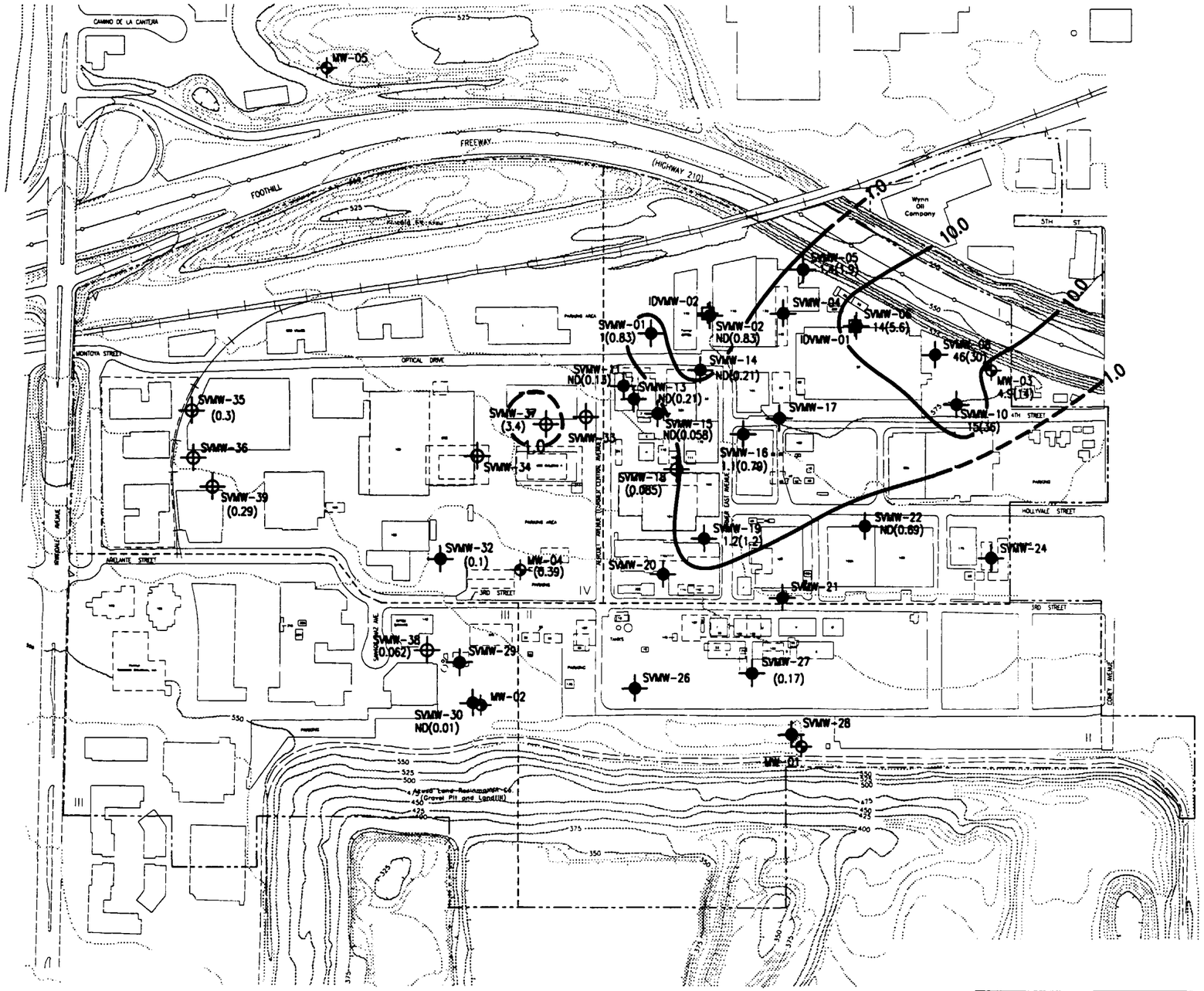
OCCURENCE OF PCE IN SHALLOW VAPOR MONITORING WELLS (ug/L)
18'-28' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURAED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 10

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HDT\50505\1-1\PCE026



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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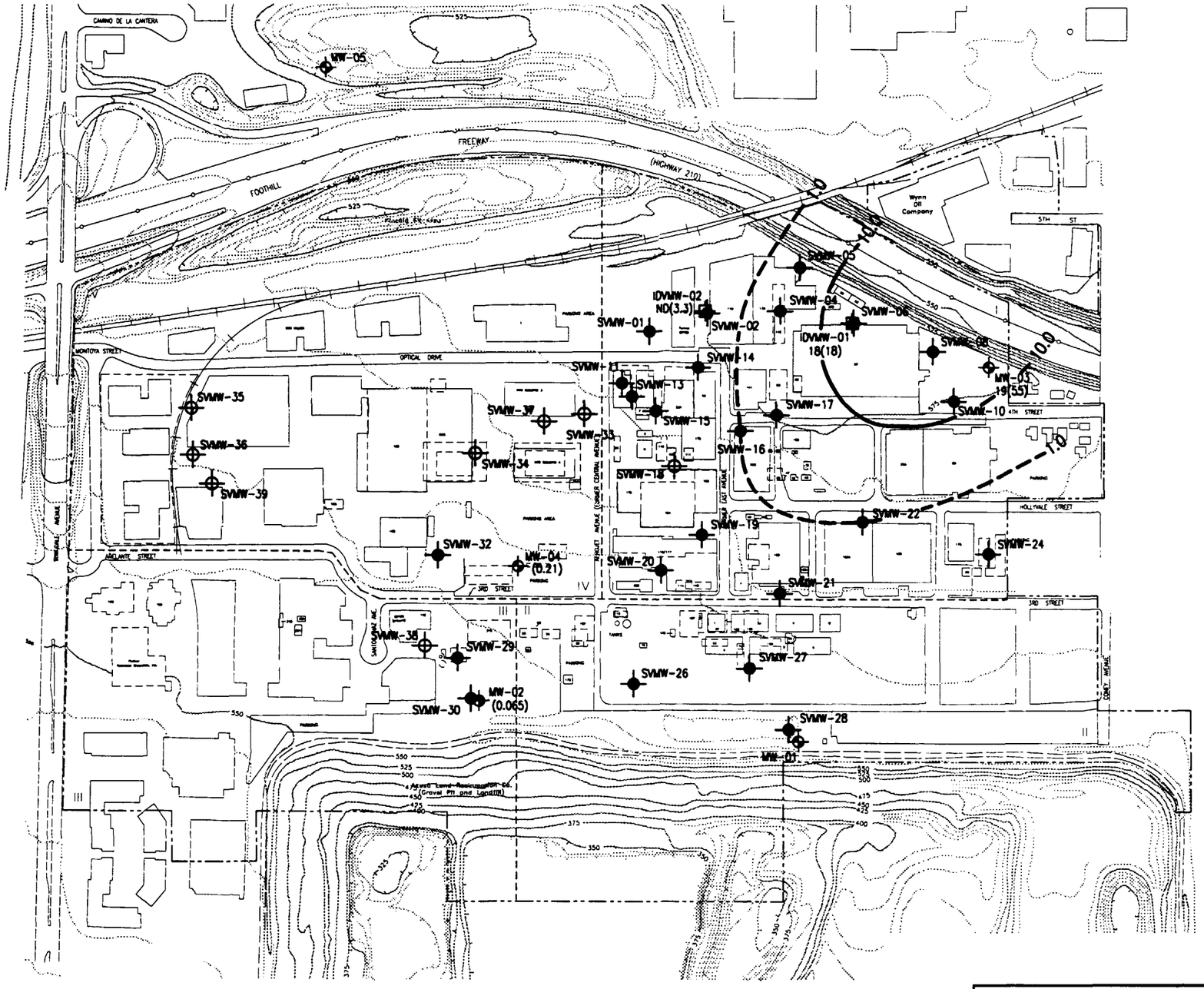
OCCURENCE OF PCE IN SHALLOW VAPOR MONITORING WELLS (ug/L)
20'-60' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 11

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HDT\50505\1-1\PC0082



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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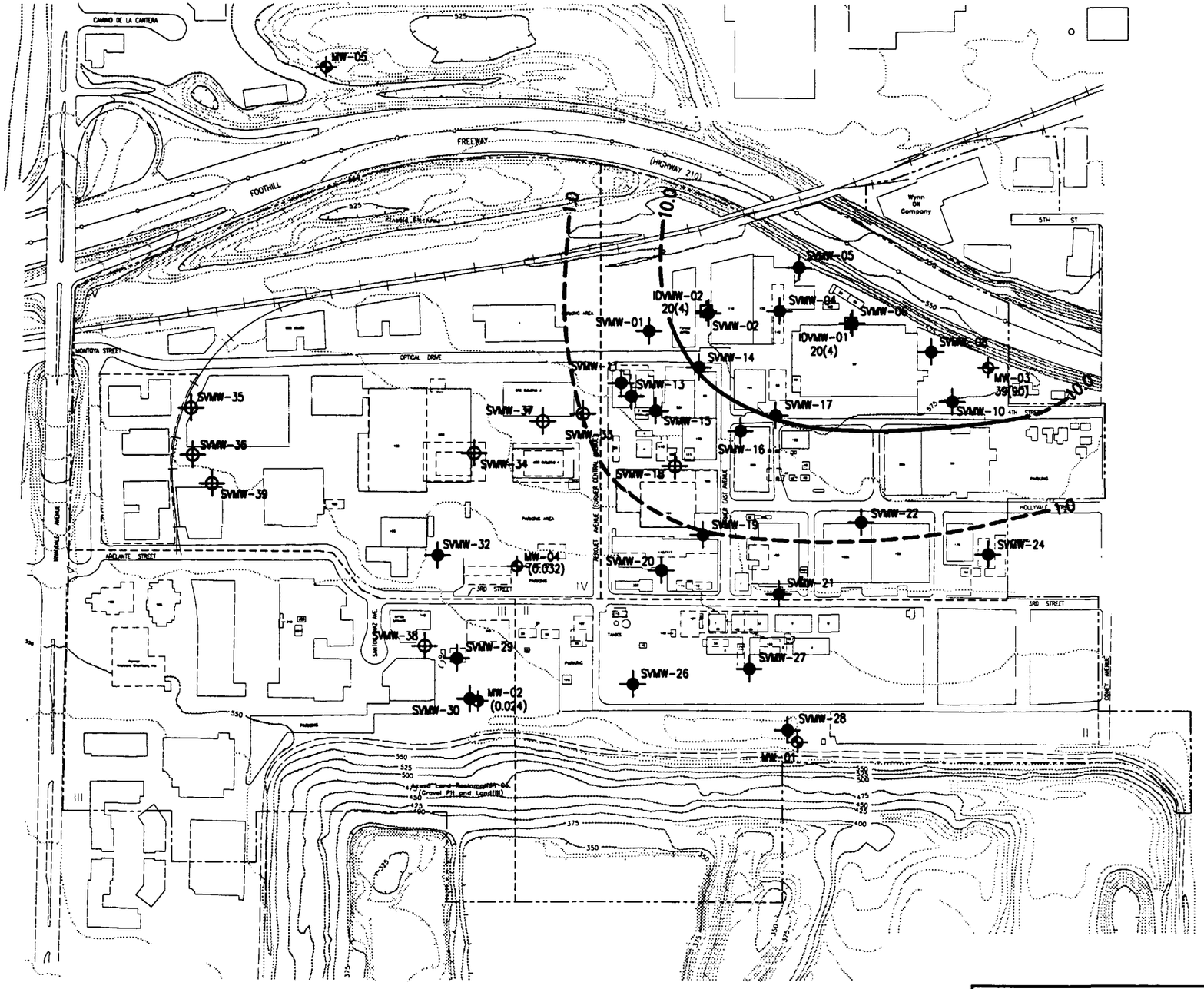
OCCURENCE OF PCE IN INTERMEDIATE-DEEP VAPOR MONITORING WELLS (ug/L)
82'-117' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 12

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HDT\50505\1-1\PCE141



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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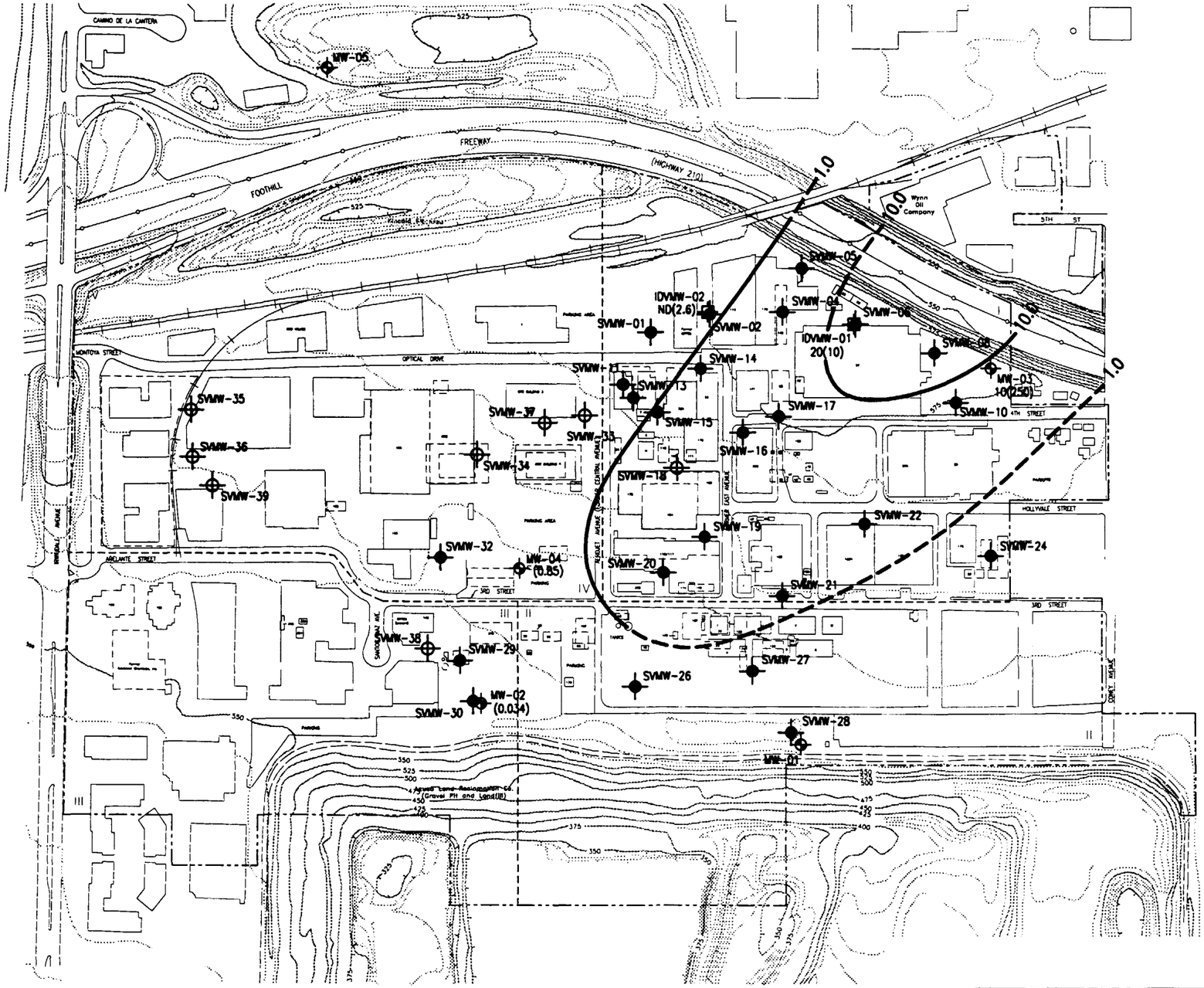
OCCURENCE OF PCE IN INTERMEDIATE-DEEP VAPOR MONITORING WELLS (ug/L)
141-167' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 13

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HDT\50505\1-1\PCE189



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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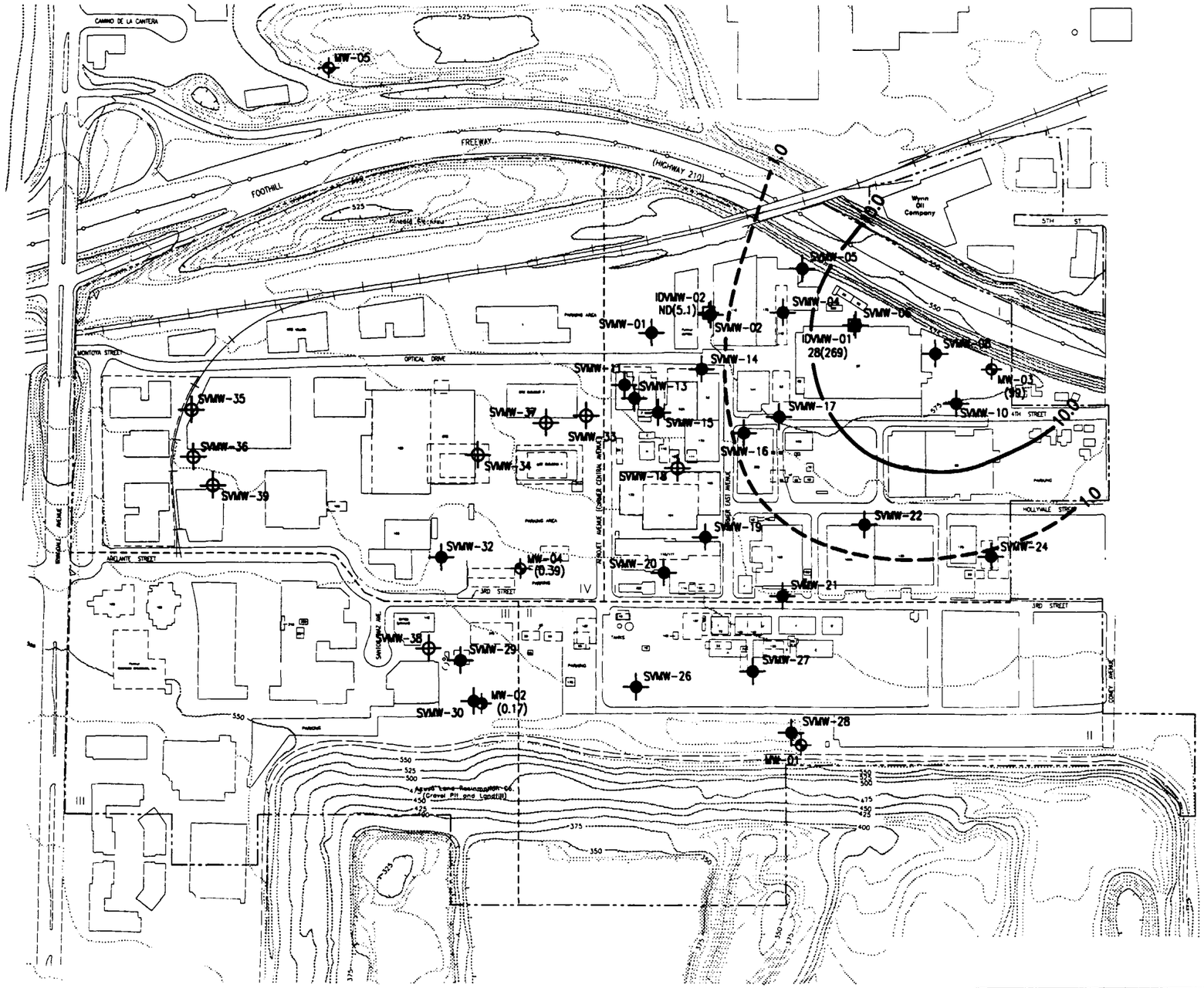
OCCURENCE OF PCE IN INTERMEDIATE-DEEP VAPOR MONITORING WELLS (ug/L)
189'-285' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURAED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 14

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HDT\50505\1-1\PCE306



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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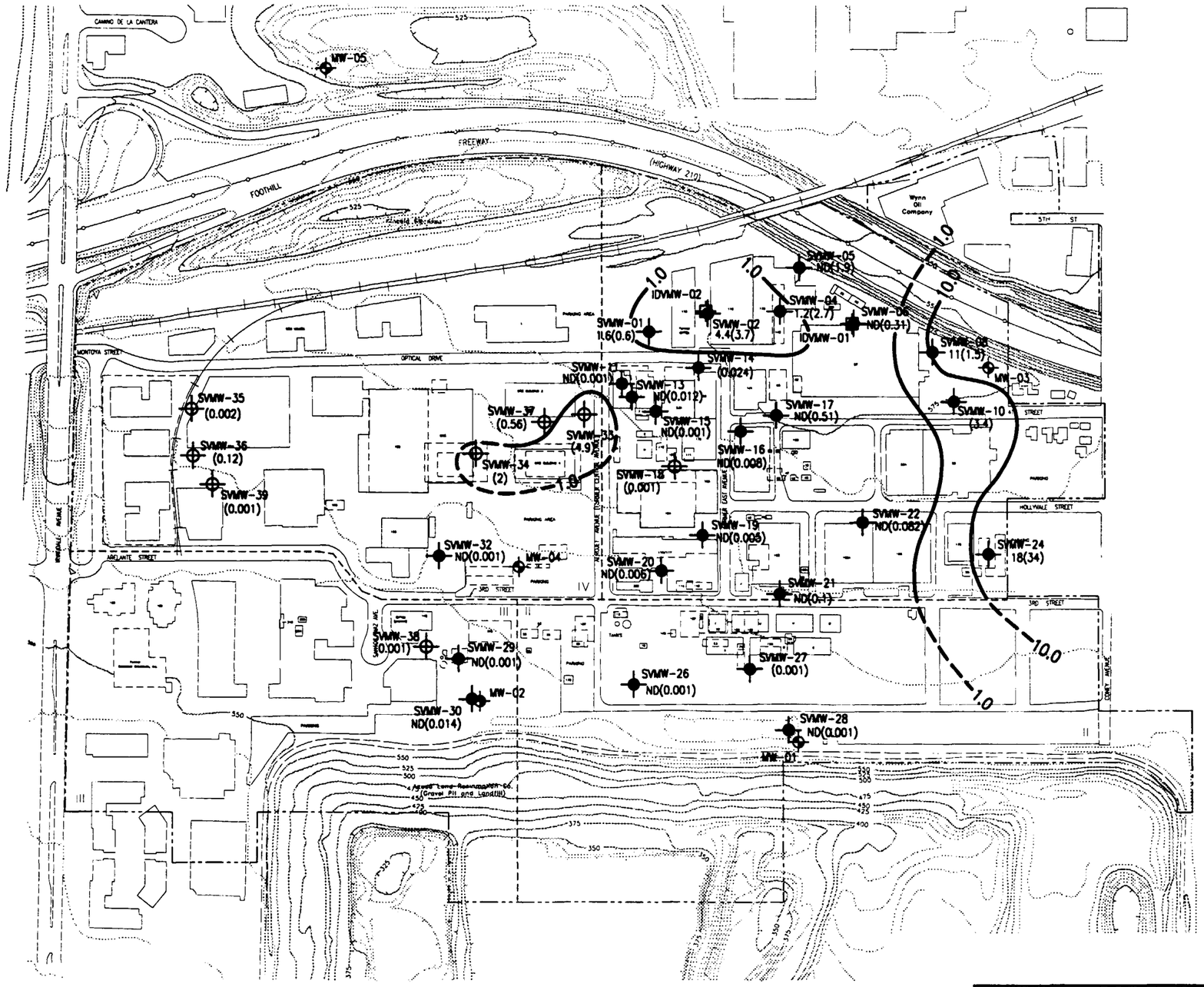
OCCURENCE OF PCE IN INTERMEDIATE-DEEP VAPOR MONITORING WELLS (ug/L)
309'-317' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 15

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HD1\50505\1-1\CCL003



EXPLANATION

EXISTING GROUNDWATER MONITORING WELL LOCATION

25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES

EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)

LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)

10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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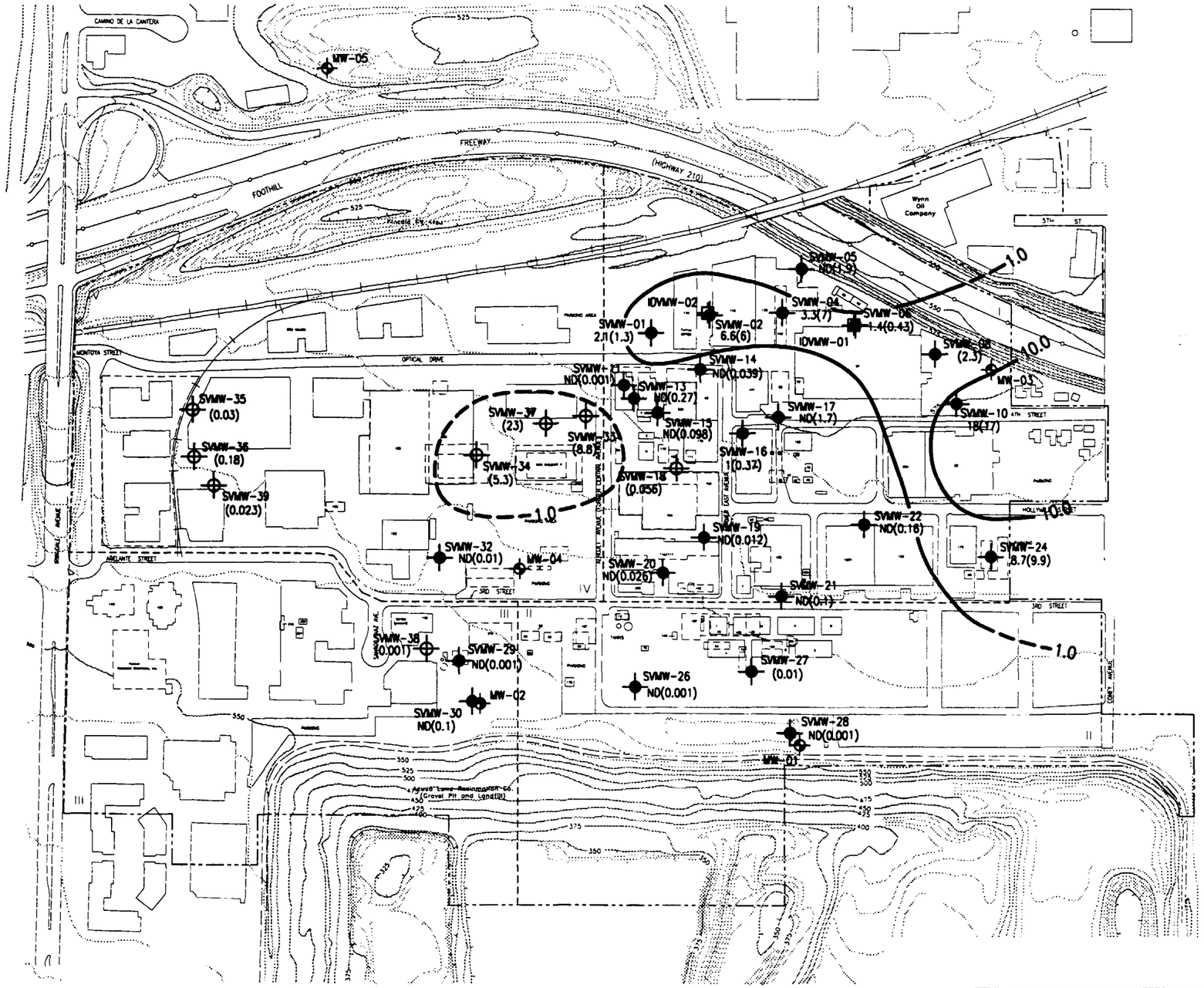
OCCURENCE OF CCM IN SHALLOW VAPOR MONITORING WELLS (ug/L)
5'-8' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURAED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE **16**

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HDT\50505\1-1\CCL018



EXPLANATION

EXISTING GROUNDWATER MONITORING WELL LOCATION

25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES

EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)

LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)

10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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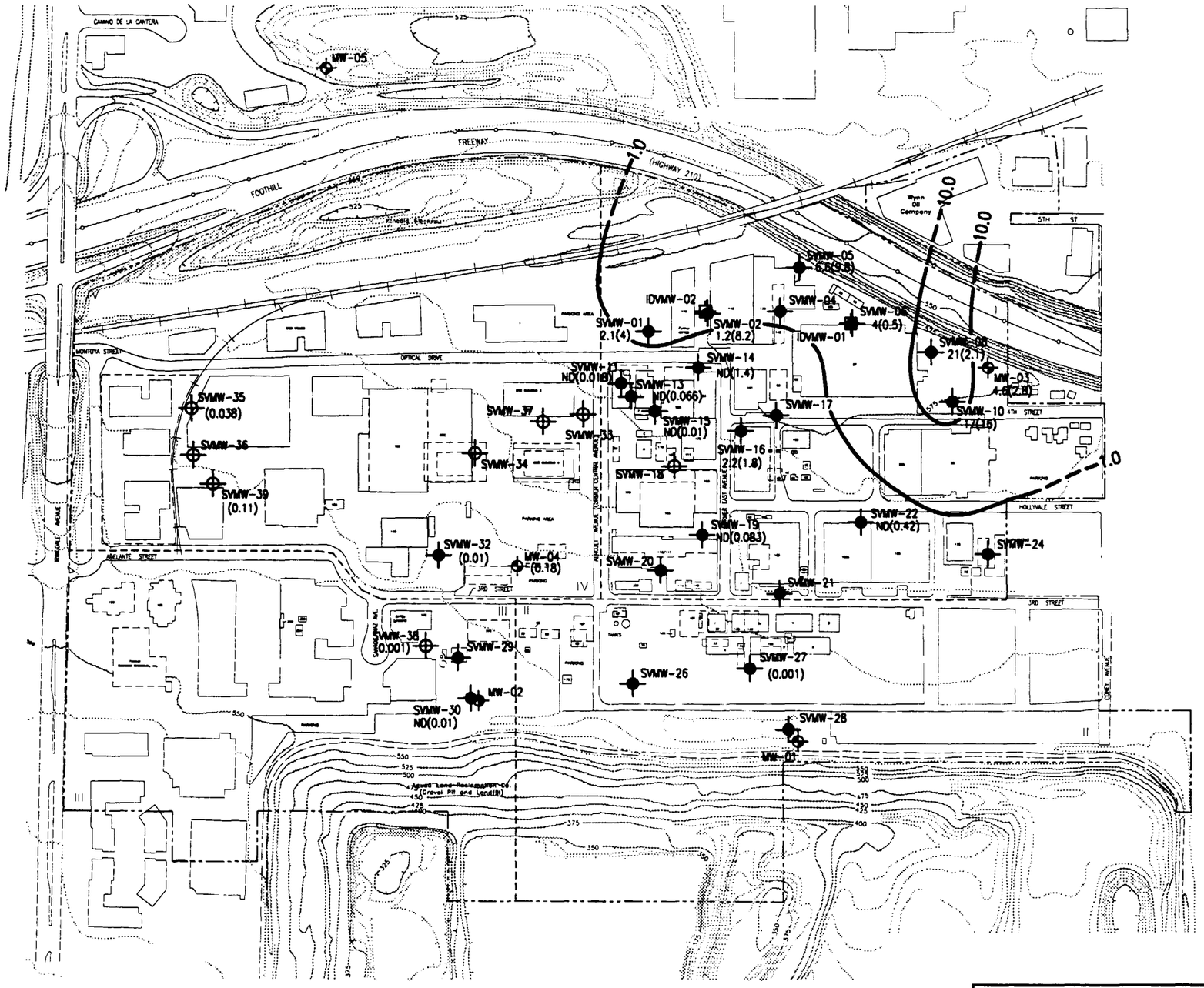
OCCURENCE OF CCl4 IN SHALLOW VAPOR MONITORING WELLS (ug/L)
18'-25' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURAED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE **17**

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HDT\50505\1-1\CCL026



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

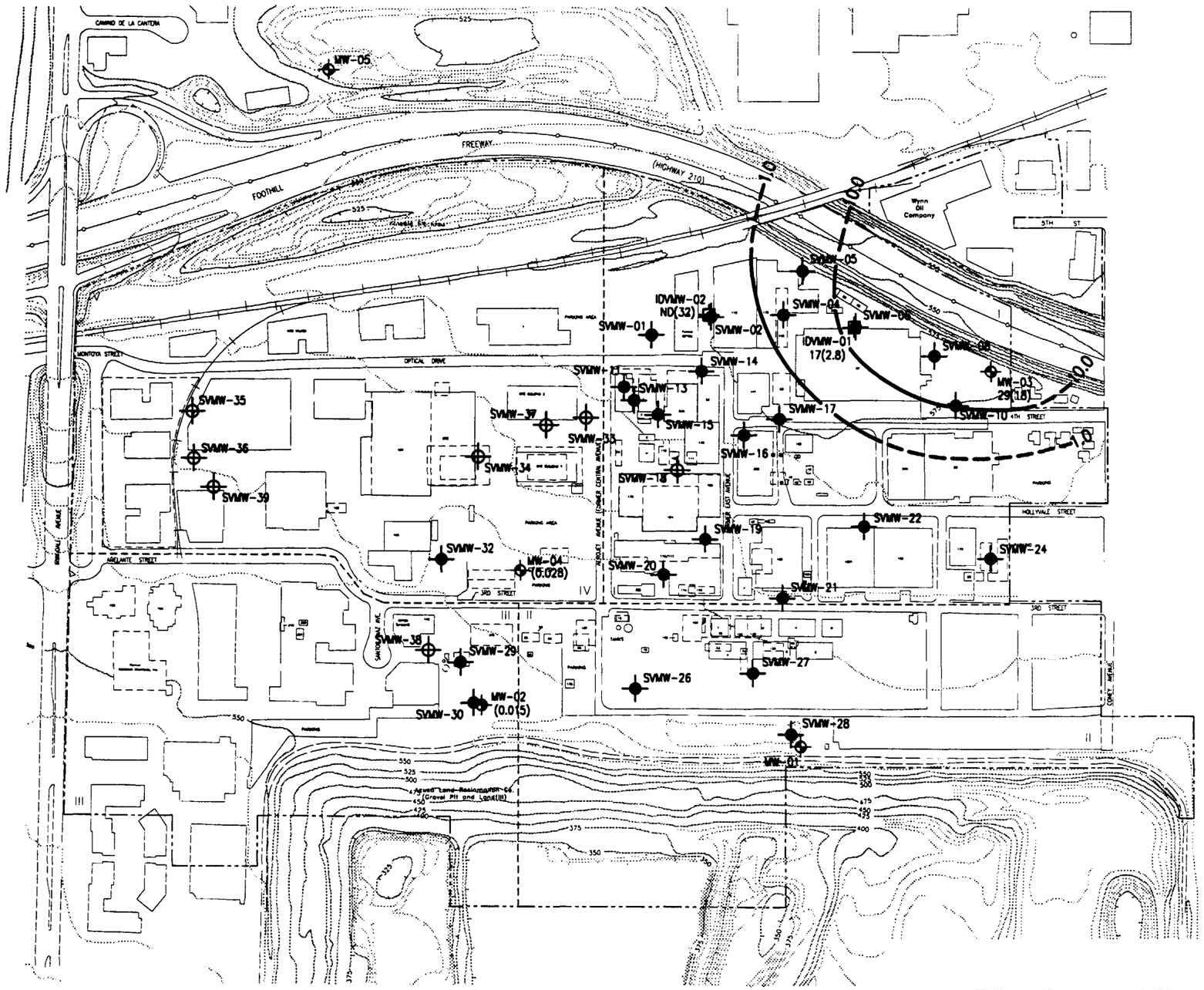
HLA

Harding Lawson Associates
Engineering and Environmental Services

OCCURENCE OF CCl4 IN SHALLOW VAPOR MONITORING WELLS (ug/L)
20'-60' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 18

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

HLA

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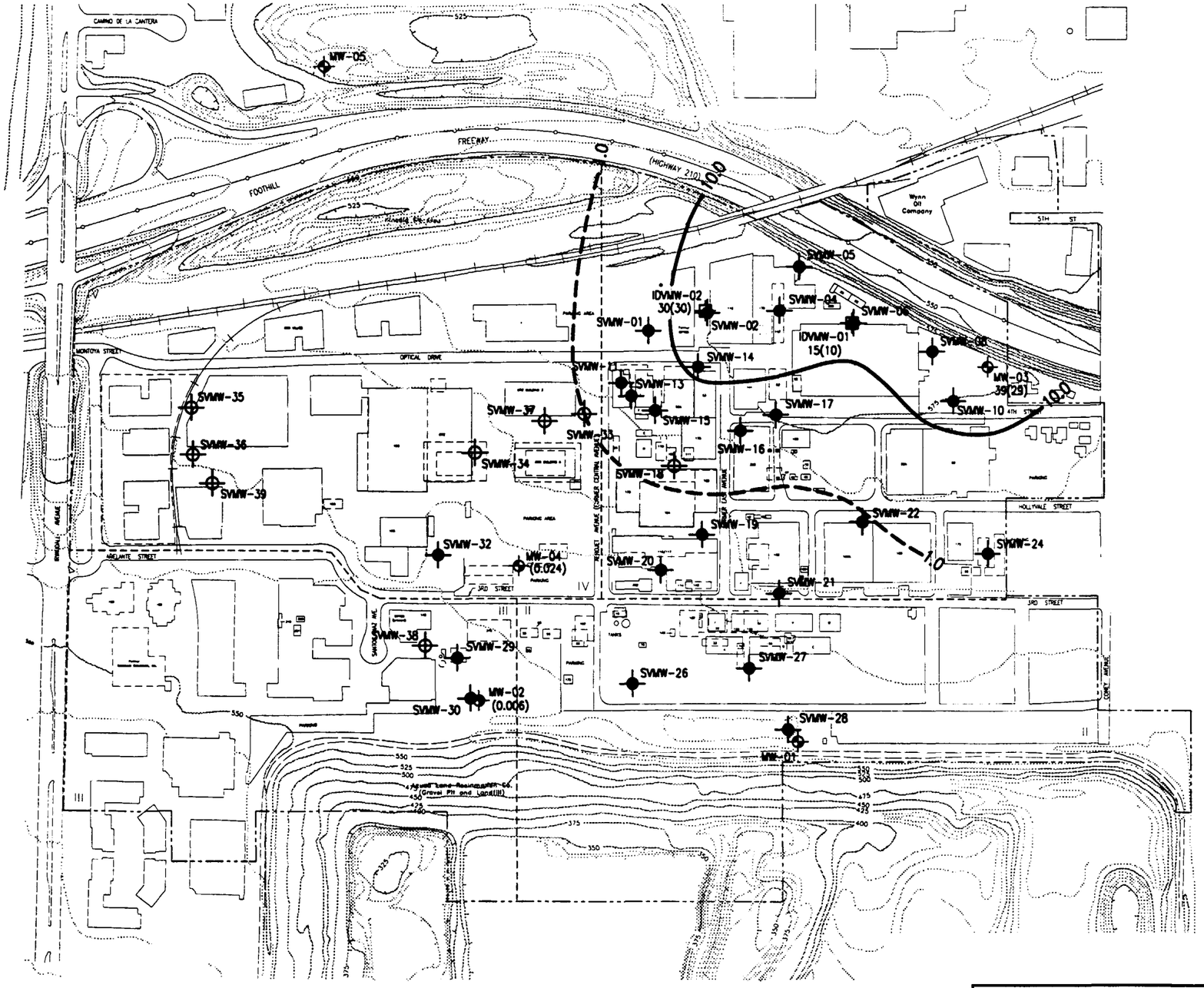
OCCURENCE OF CCl4 IN INTERMEDIATE-DEEP VAPOR MONITORING WELLS (ug/L)
82'-117' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 19

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HDT\50505\1-1\CCL141



EXPLANATION

- EXISTING GROUNDWATER MONITORING WELL LOCATION
- 25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES
- EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)
- LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)
- 10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

HLA

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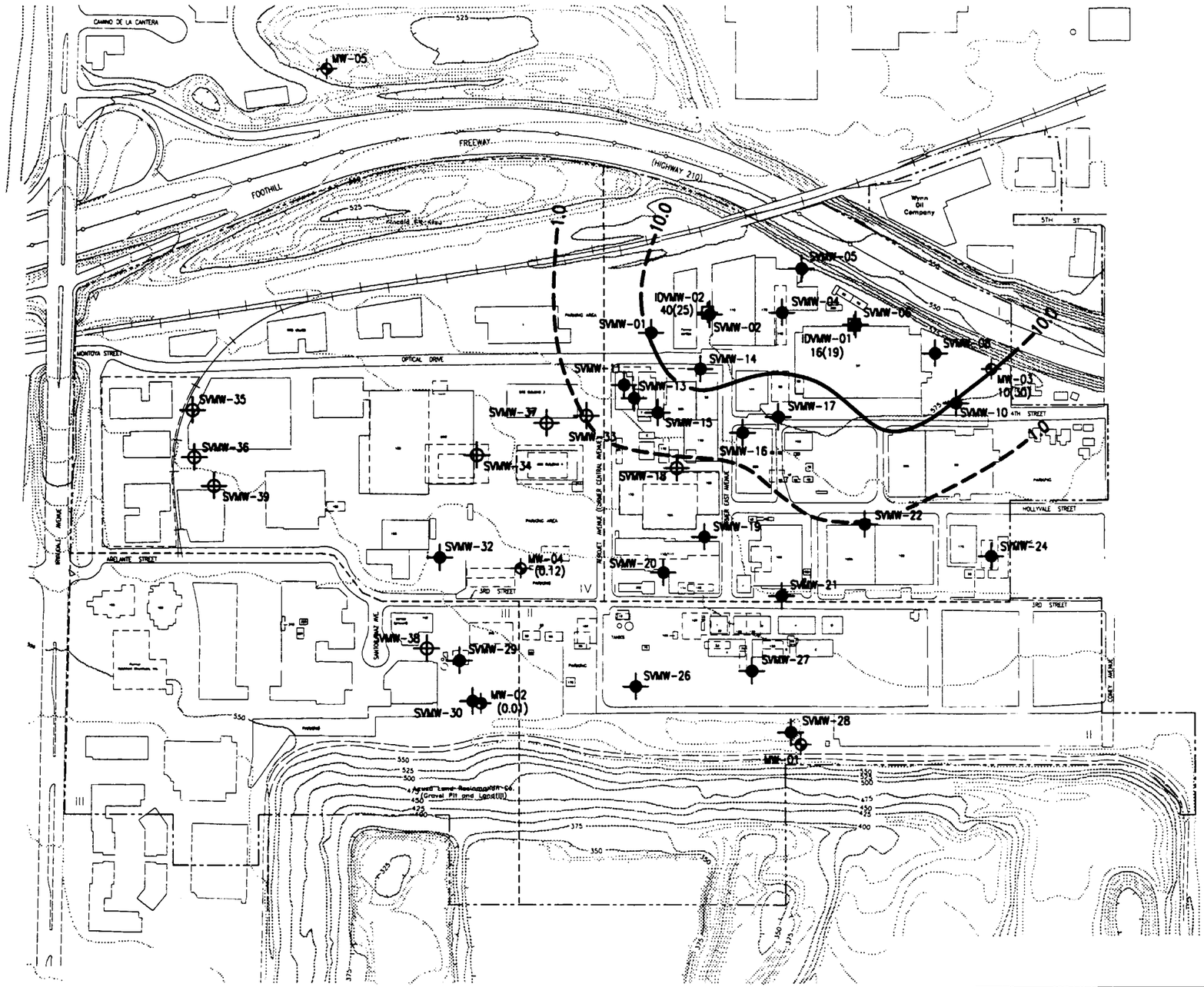
OCCURENCE OF CCl4 IN INTERMEDIATE-DEEP VAPOR MONITORING WELLS (ug/L)
141-167' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE **20**

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HDT\50505\1-1\CCL189



EXPLANATION

EXISTING GROUNDWATER MONITORING WELL LOCATION

25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES

EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)

LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)

10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

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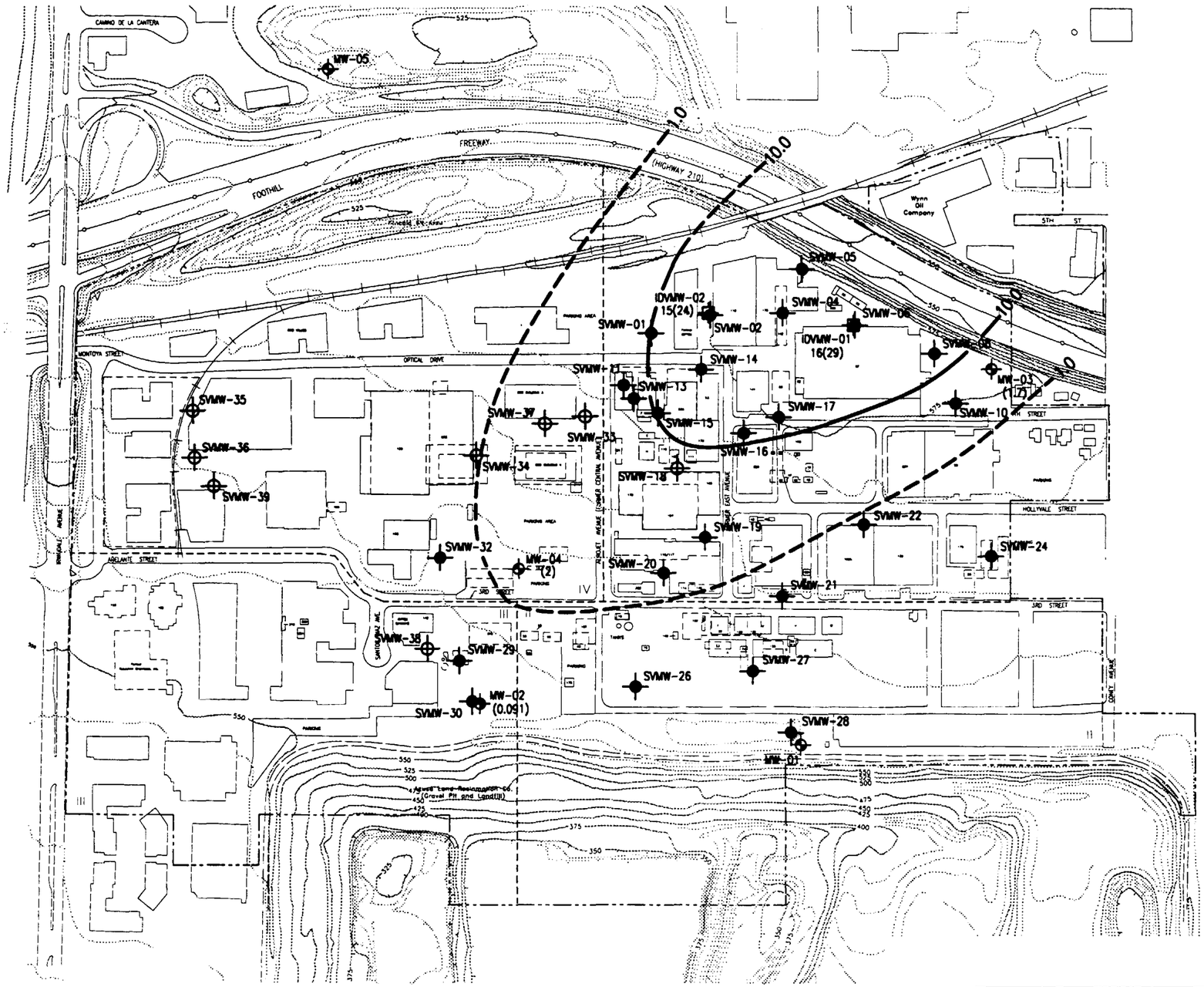
OCCURENCE OF CCl4 IN INTERMEDIATE-DEEP VAPOR MONITORING WELLS (ug/L)
180'-285' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURATED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE **21**

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	



EXPLANATION

EXISTING GROUNDWATER MONITORING WELL LOCATION

25(10) EXISTING SOIL-VAPOR MONITORING PROBE (SAMPLED) SHOWING CURRENT (FEB. 2000) SAMPLING DATA, AND PRIOR (1994) DATA IN PARENTHESES

EXISTING SOIL-VAPOR MONITORING PROBE (NOT SAMPLED DUE TO OFF-SITE ACCESS OR OTHER RESTRICTIONS)

LOCATION OF INTERMEDIATE-DEEP VAPOR MONITORING WELL (IDVMW)

10.0 ISCONCENTRATION CONTOUR LINE (ug/L) (DASHED WHERE APPROXIMATE OR INFERRED)

N

Scale 0 200 400 feet

Harding Lawson Associates
Engineering and Environmental Services

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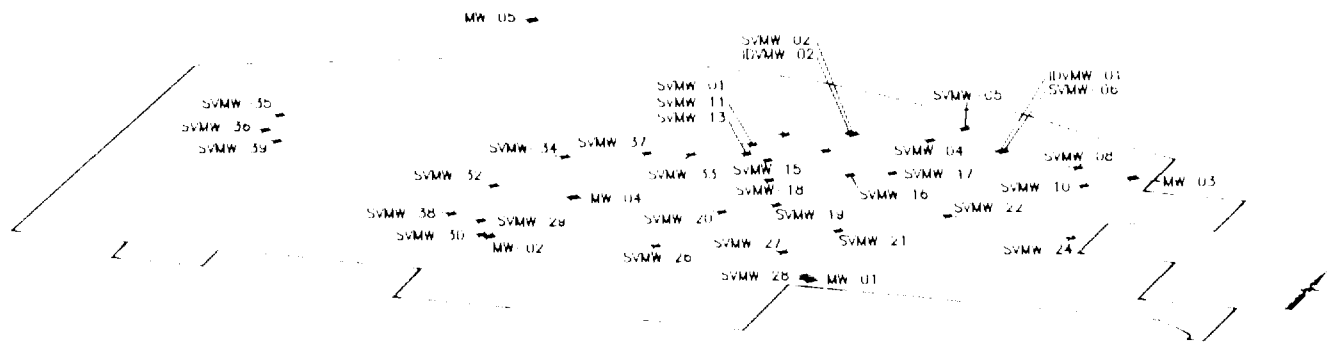
OCCURENCE OF CCl4 IN INTERMEDIATE-DEEP VAPOR MONITORING WELLS (ug/L)
305'-310' DEPTH INTERVAL - FEBRUARY 2000 SAMPLING EVENT
ASSESSMENT OF VOCs IN THE UNSATURAED ZONE
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE 22

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	



5'-8' bgs

18'-25' bgs

26'-50' bgs

82'-117' bgs

141'-167' bgs

189'-265' bgs

306'-310' bgs

SOIL VAPOR
(ug/l)

- 1,000+
- 100 to 1,000
- 10 to 100
- 1 to 10

GROUNDWATER
(ug/l)

- 1,000+
- 100 to 1,000
- 10 to 100
- 1 to 10

- Data sampling point

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Environmental Services

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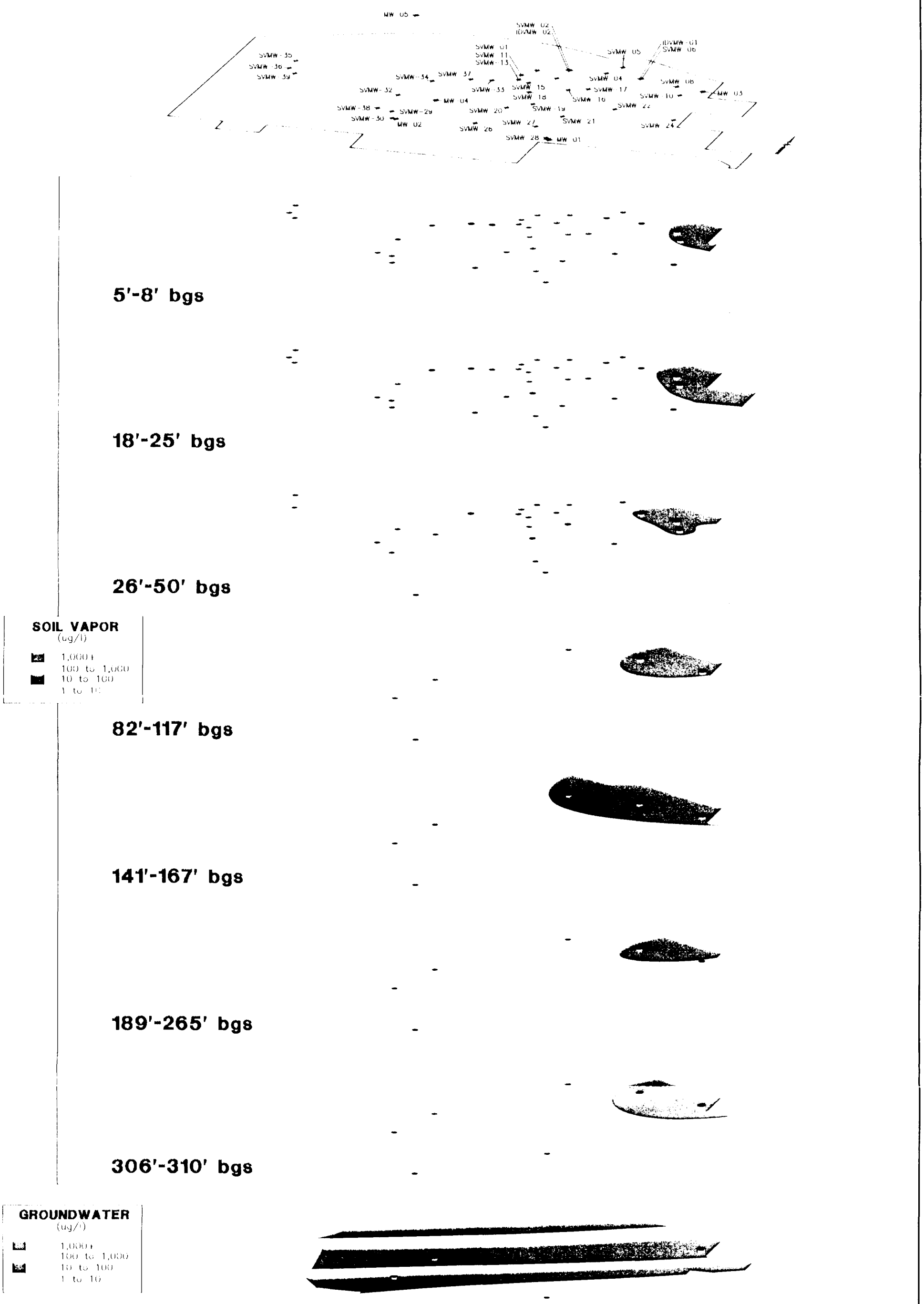
GENERALIZED SPATIAL DISTRIBUTION OF TCE IN SOIL VAPOR AND GROUNDWATER MONITORING WELLS
Azusa/Irwindale Study Area
San Gabriel Valley, California

FIGURE **23**

DRAWN	PROJECT TASK NUMBER	APPROVED	DATE	REVISED DATE
JTE	50505 1 1		/'/00	



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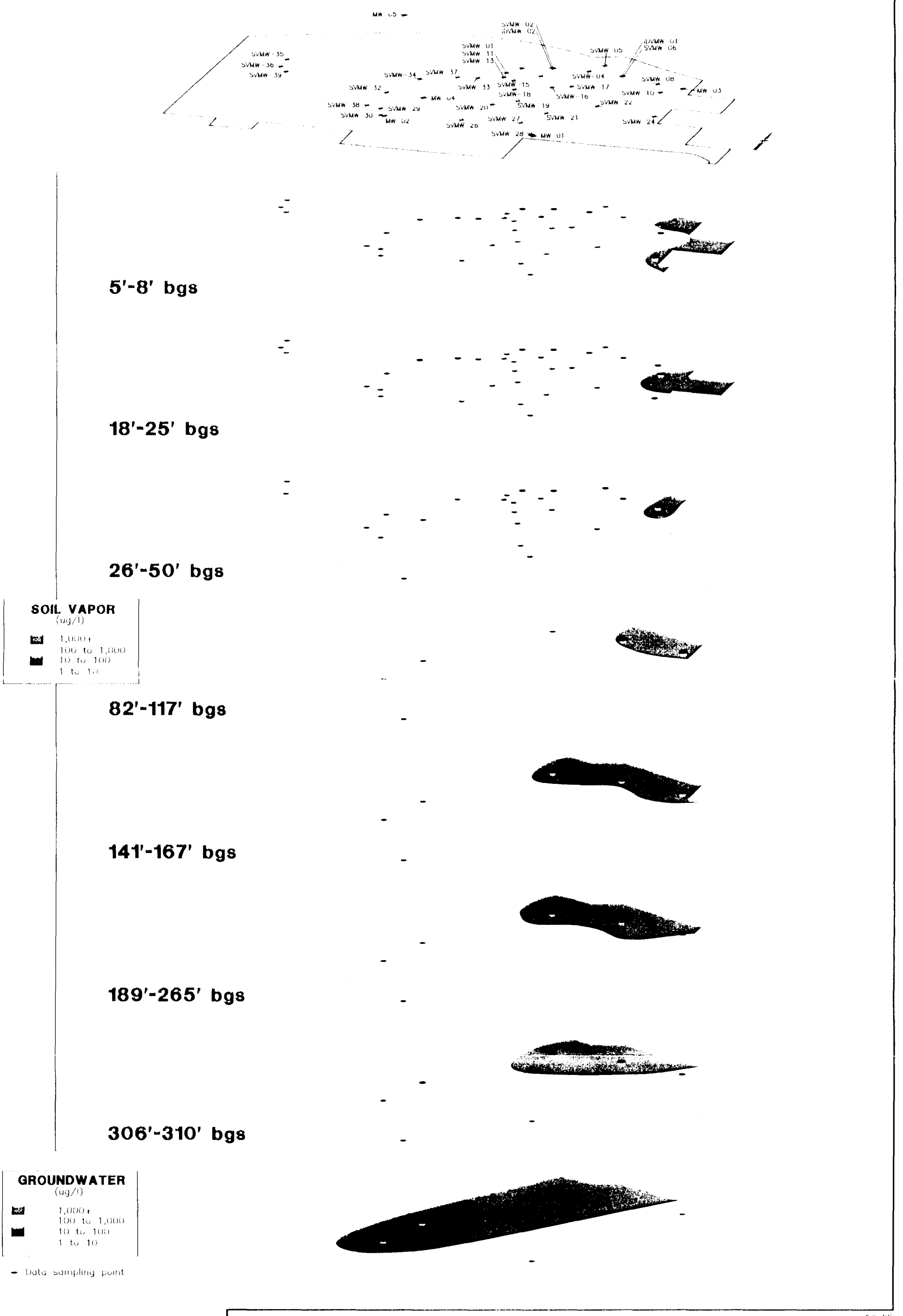
HLA

GENERALIZED SPATIAL DISTRIBUTION OF PCE IN SOIL VAPOR AND GROUNDWATER MONITORING WELLS
Azusa/Irwindale Study Area
San Gabriel Valley, California

FIGURE **24**

DRAWN	PROJECT TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505 1.1		7/00	



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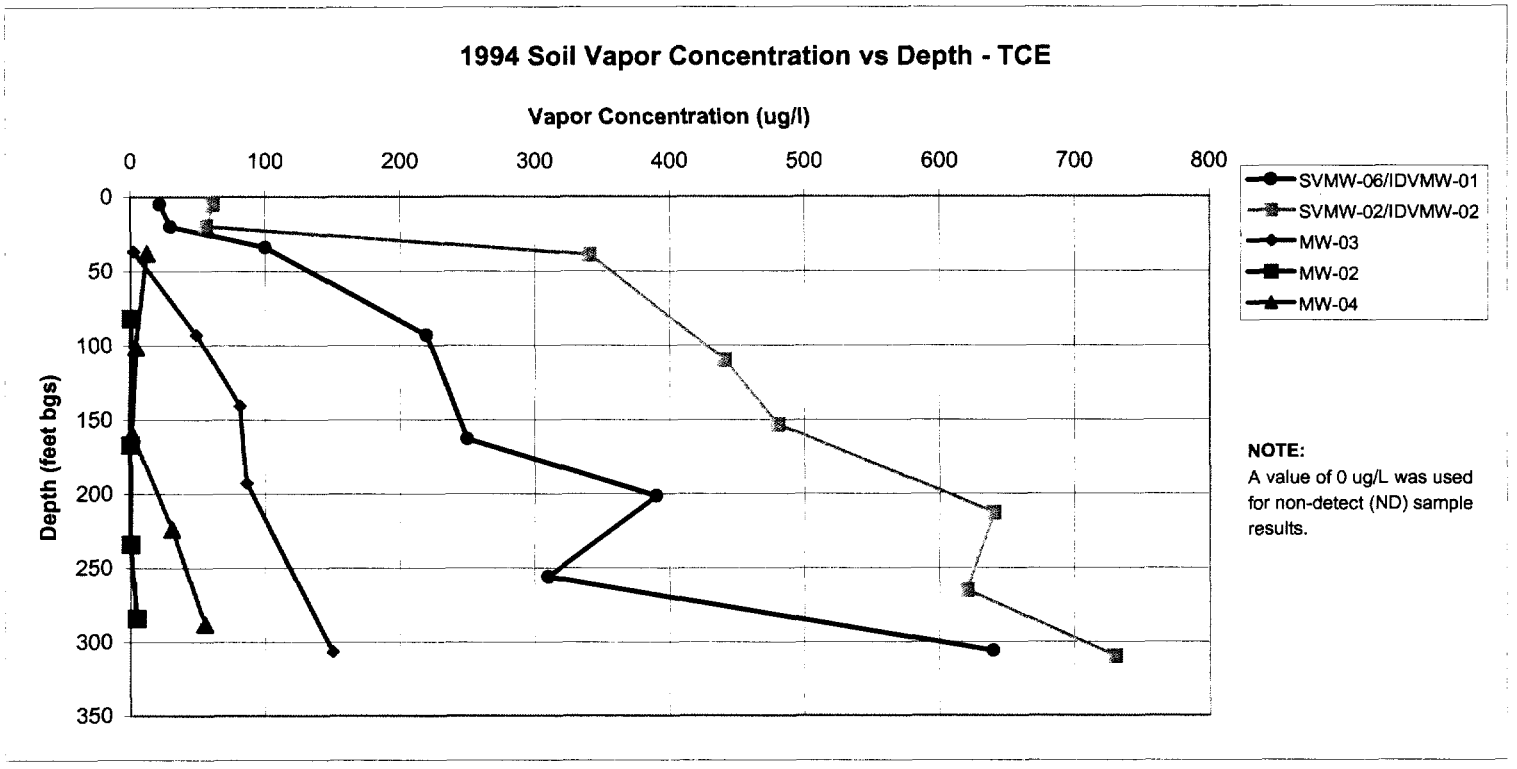
Environmental Services

GENERALIZED SPATIAL DISTRIBUTION OF CCl4 IN SOIL VAPOR AND GROUNDWATER MONITORING WELLS
Azusa/Irwindale Study Area
San Gabriel Valley, California

FIGURE **25**

DRAWN	PROJECT TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505 1.1		7/00	

FIGURE 26
AISA Assessment of VOCs in the Vadose Zone
Comparison of Previously Measured and Recently Measured TCE Vapor Concentrations



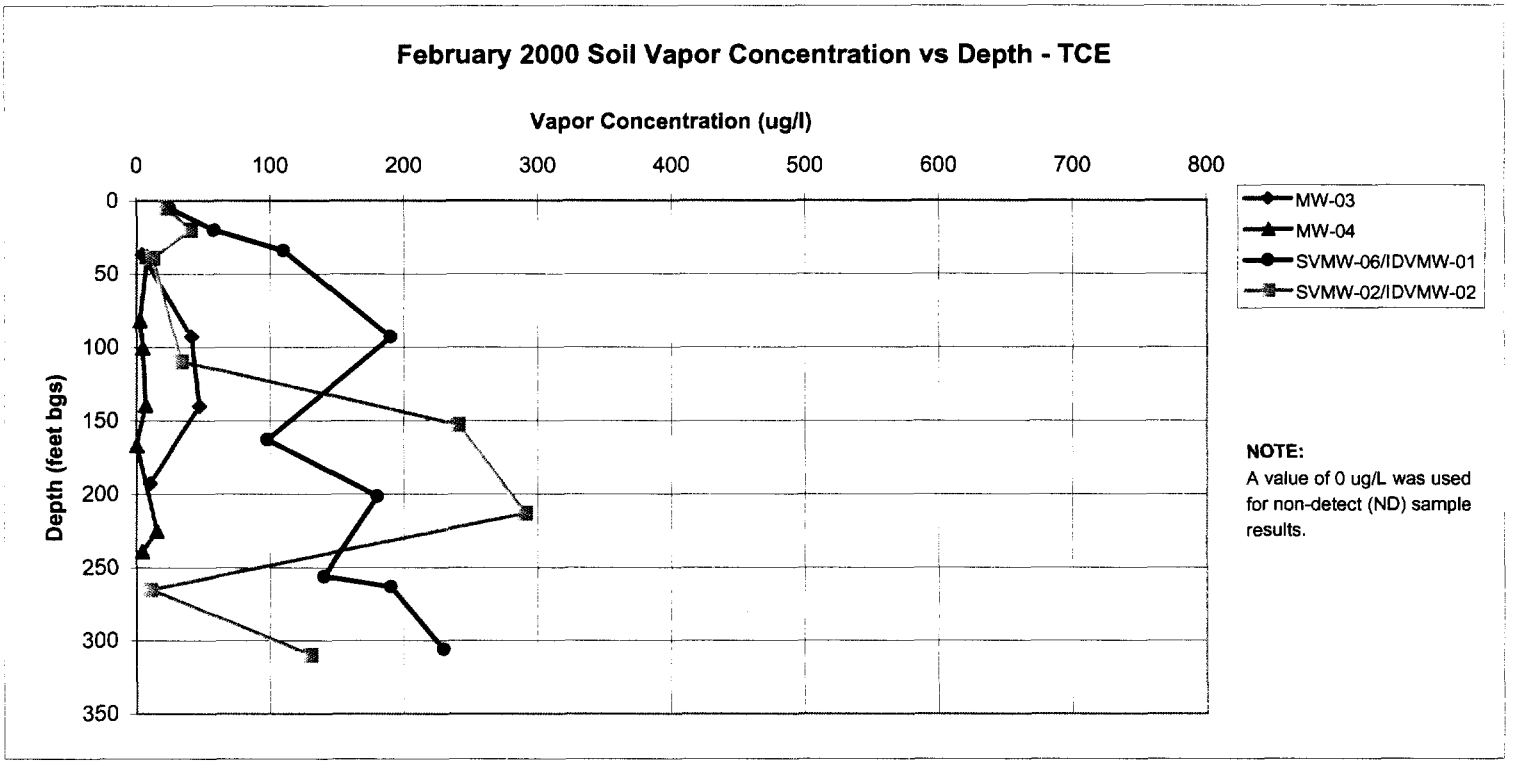
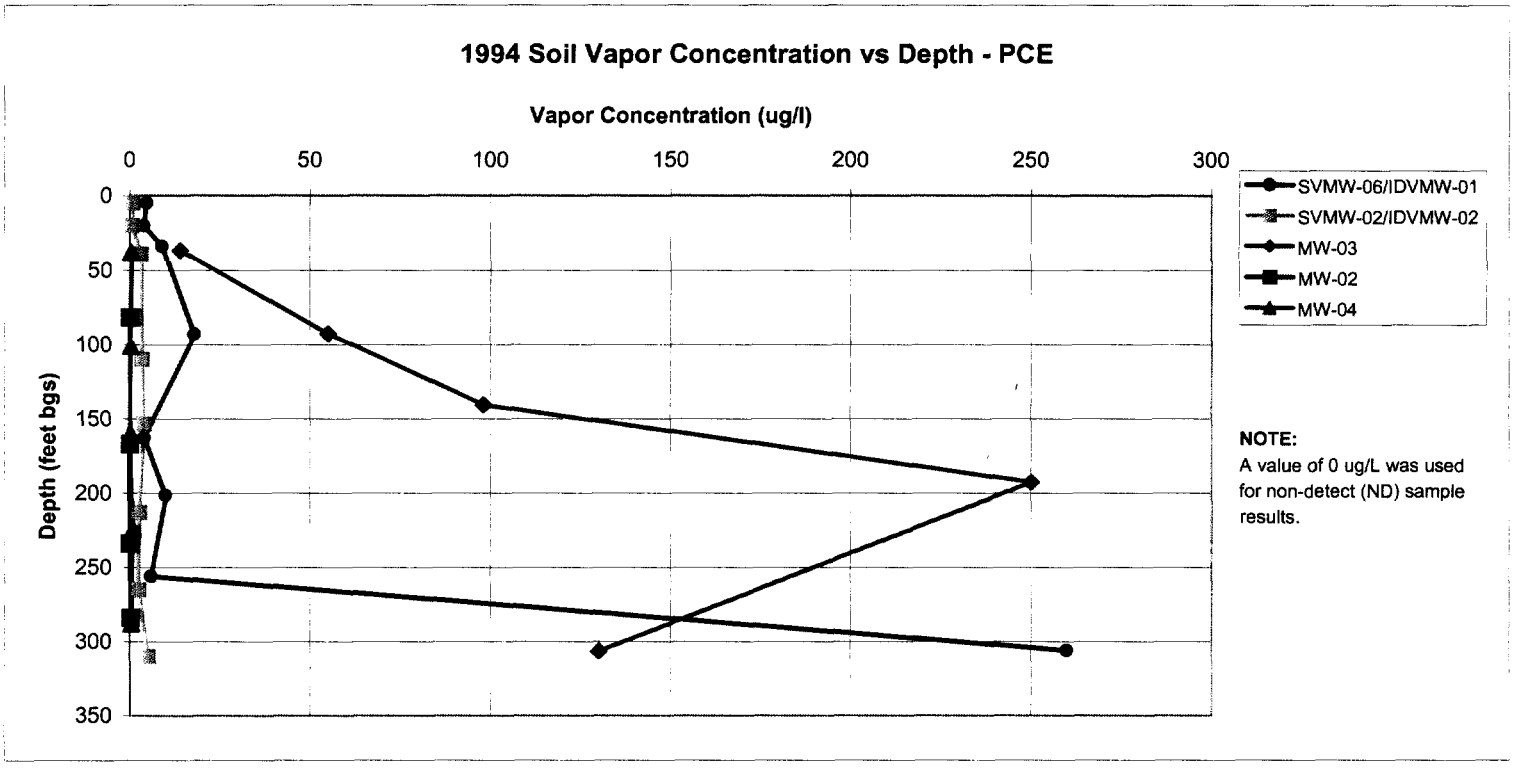


FIGURE 27

AISA Assessment of VOCs in the Vadose Zone

Comparison of Previously Measured and Recently Measured PCE Vapor Concentrations



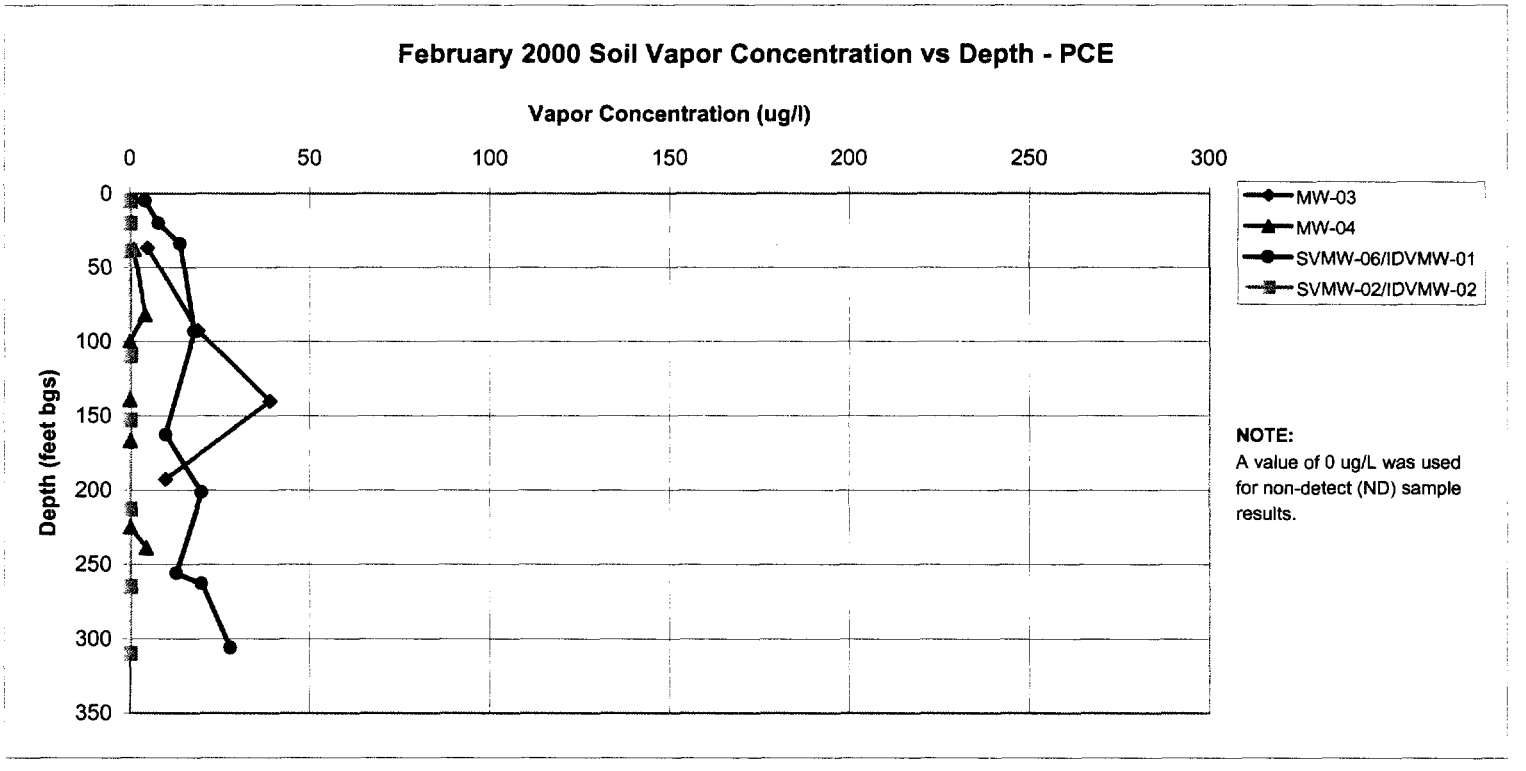
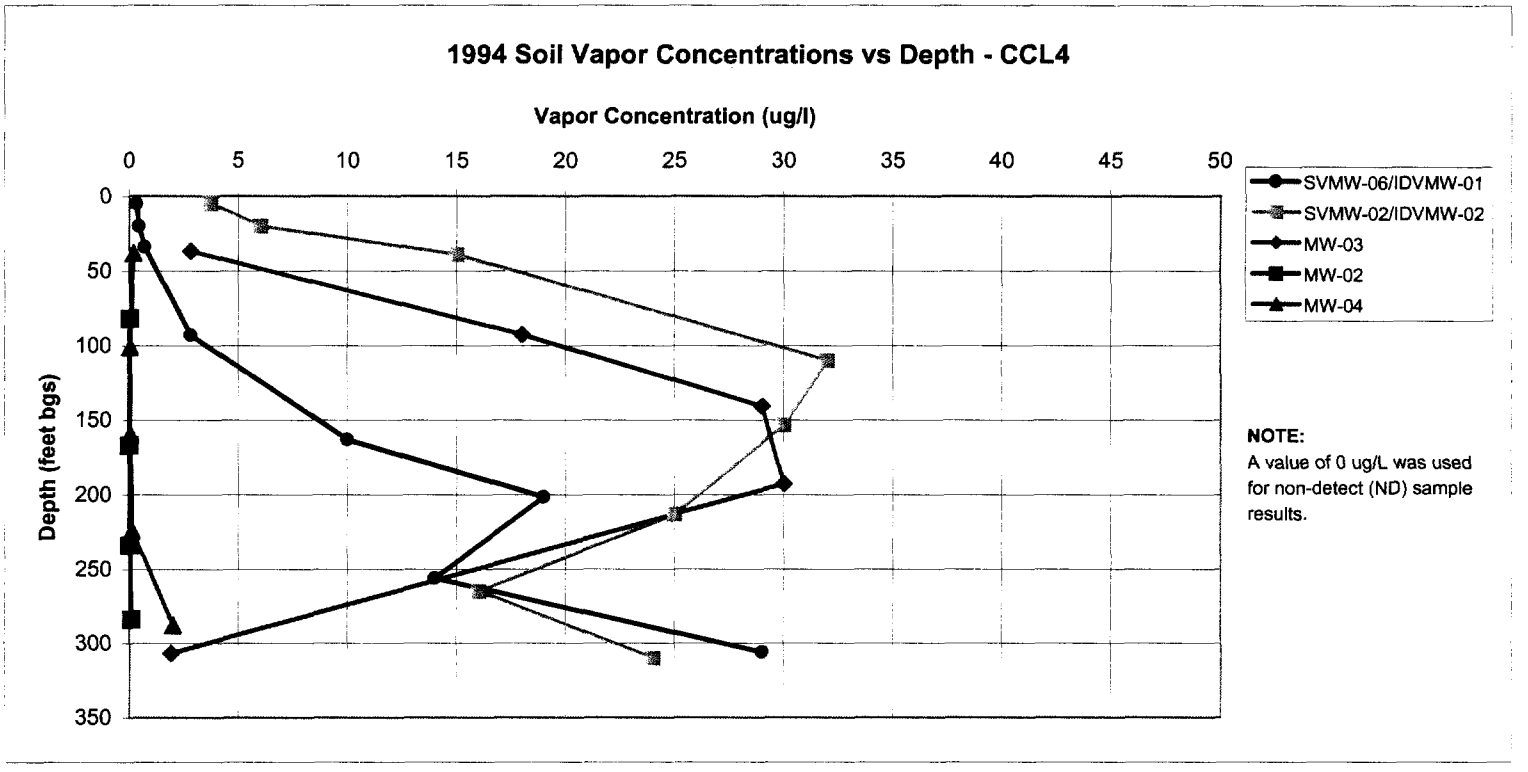
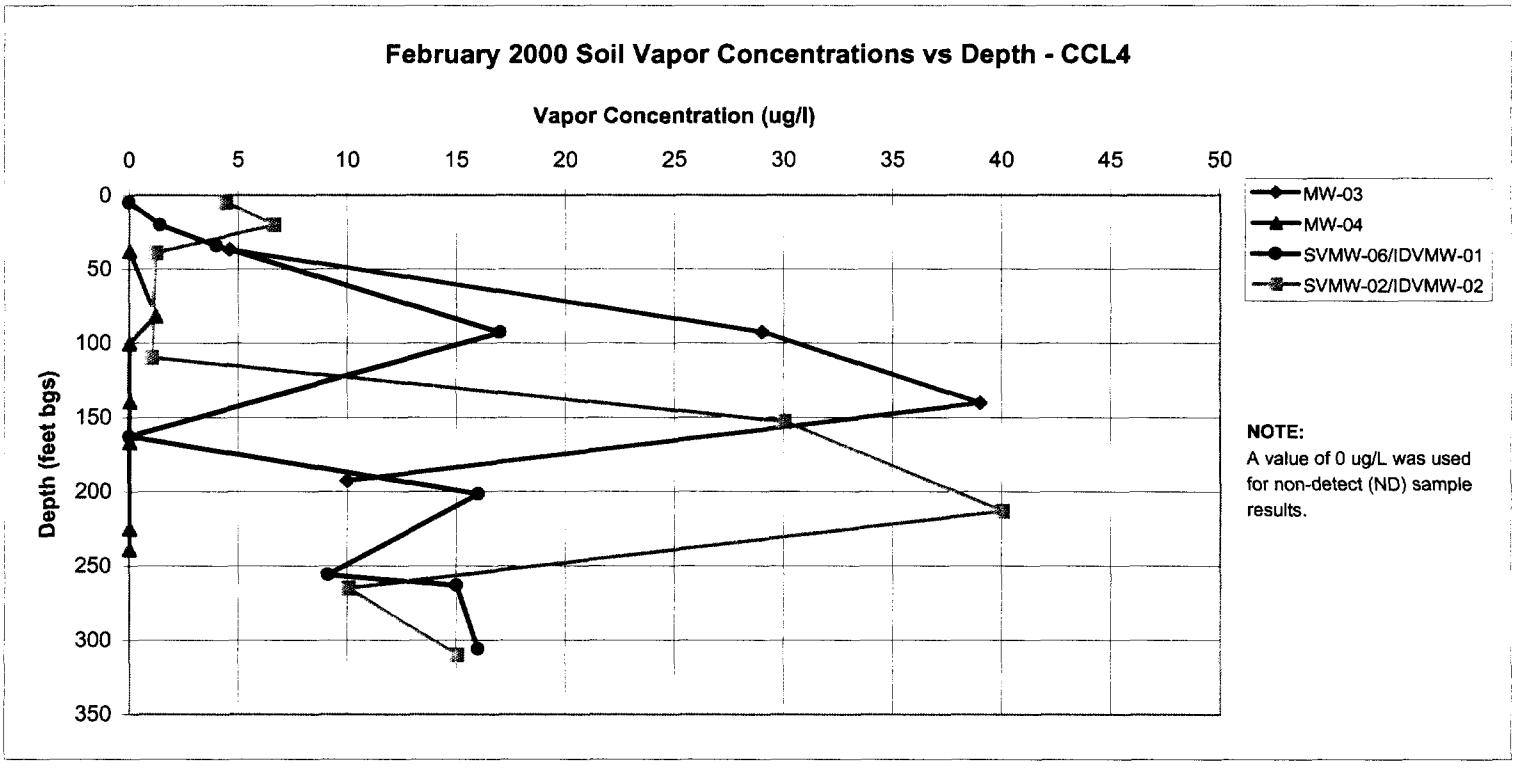
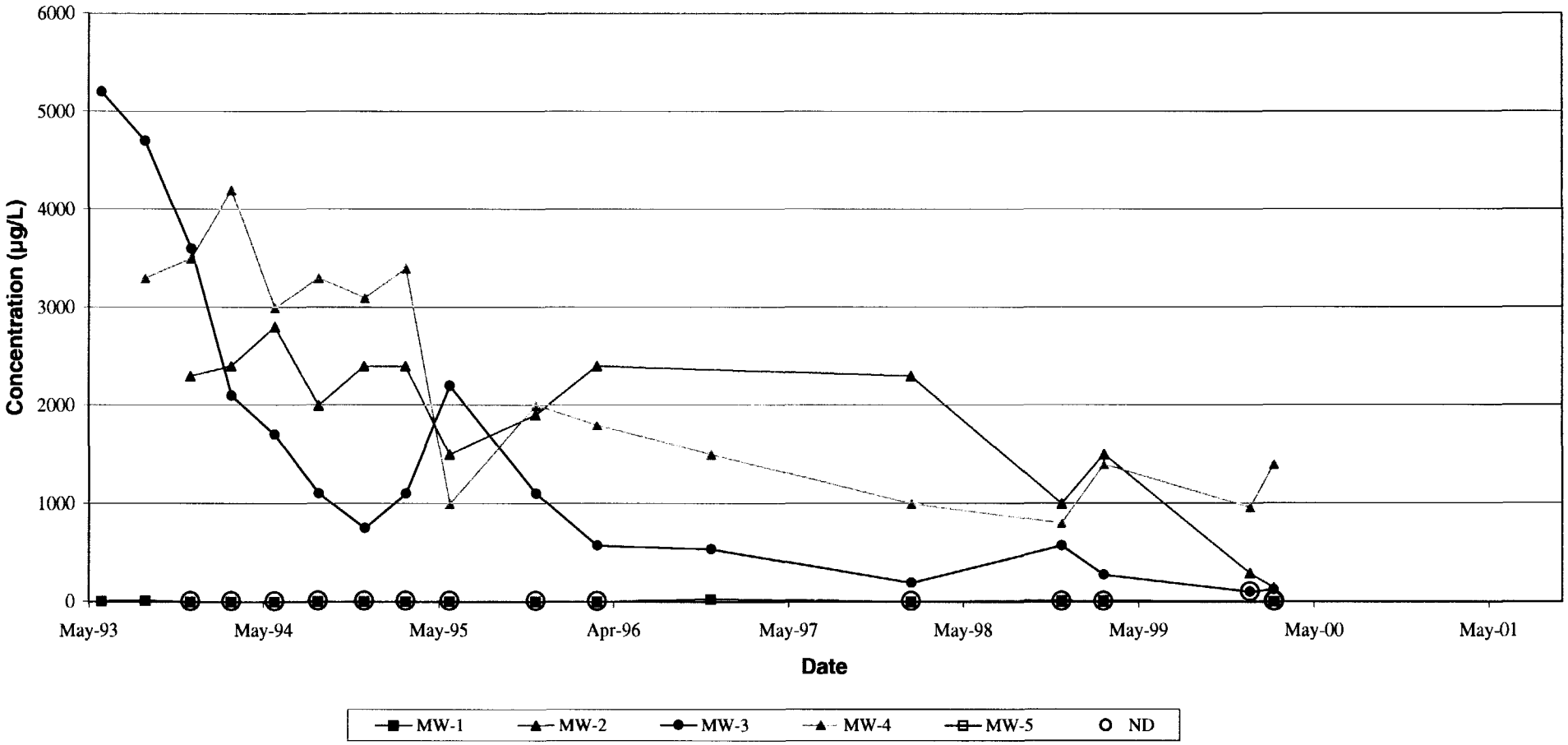


FIGURE 28
AISA Assessment of VOCs in the Vadose Zone
Comparison of Previously Measured and Recently Measured CCl4 Vapor Concentrations







Harding Lawson Associates
Engineering and Environmental Services

TCE CONCENTRATION IN GROUNDWATER vs. TIME

FIGURE
29

Azusa/Irwindale Study Area Site Assessment
San Gabriel Valley, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
AMC	50505 1.1		07/00	

7/13/00, 12:03 PM
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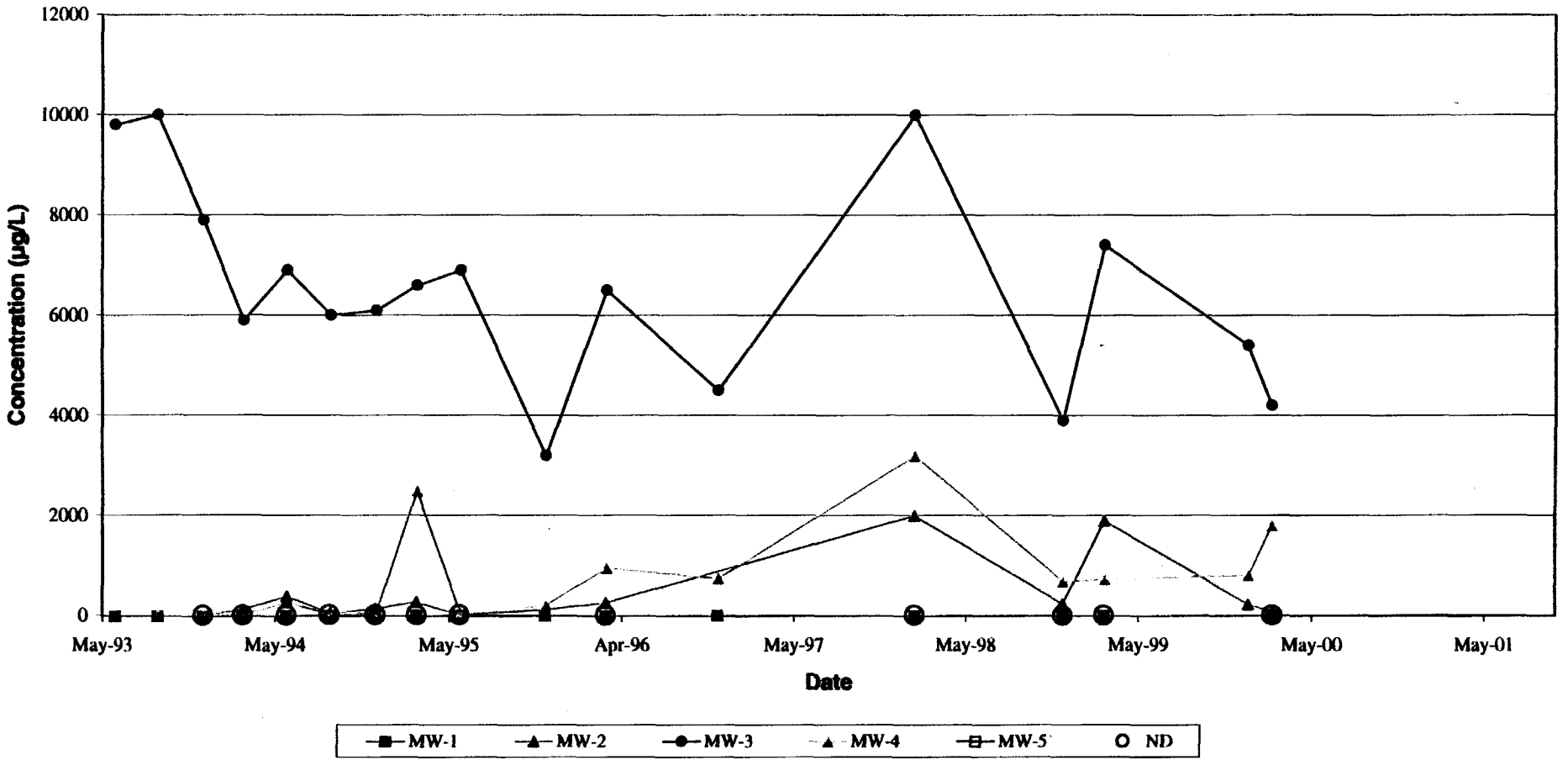

Harding Lawson Associates
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PCE CONCENTRATION IN GROUNDWATER vs. TIME

FIGURE
30

Azusa/Irwindale Study Area Site Assessment
San Gabriel Valley, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
AMC	50505 1.1		07/00	

7/13/00, 12:03 PM
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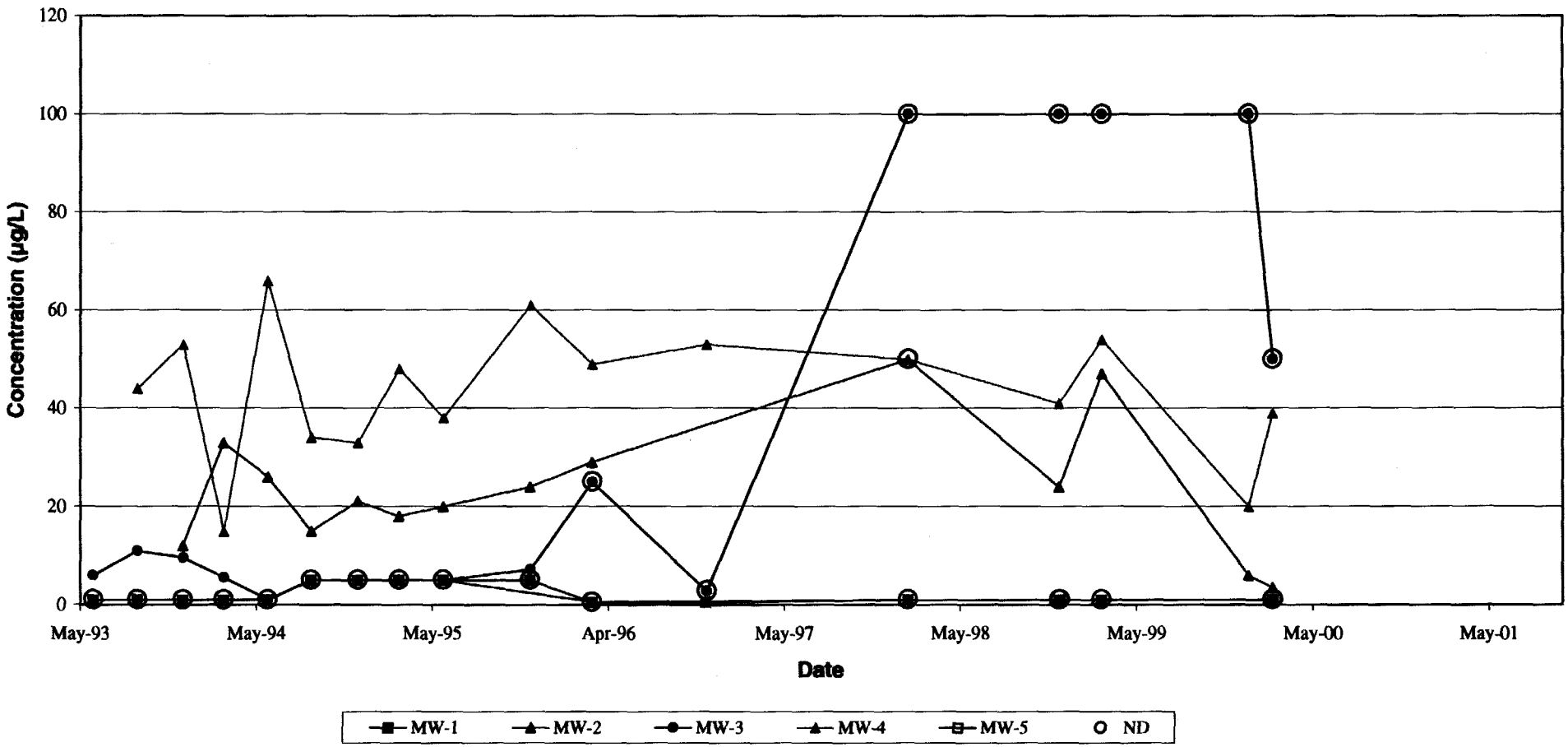

Harding Lawson Associates
Engineering and Environmental Services

CCL4 CONCENTRATION IN GROUNDWATER vs. TIME

FIGURE
31

Azusa/Irwindale Study Area Site Assessment
San Gabriel Valley, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
AMC	50505 1.1		07/00	

7/13/00, 12:03 PM
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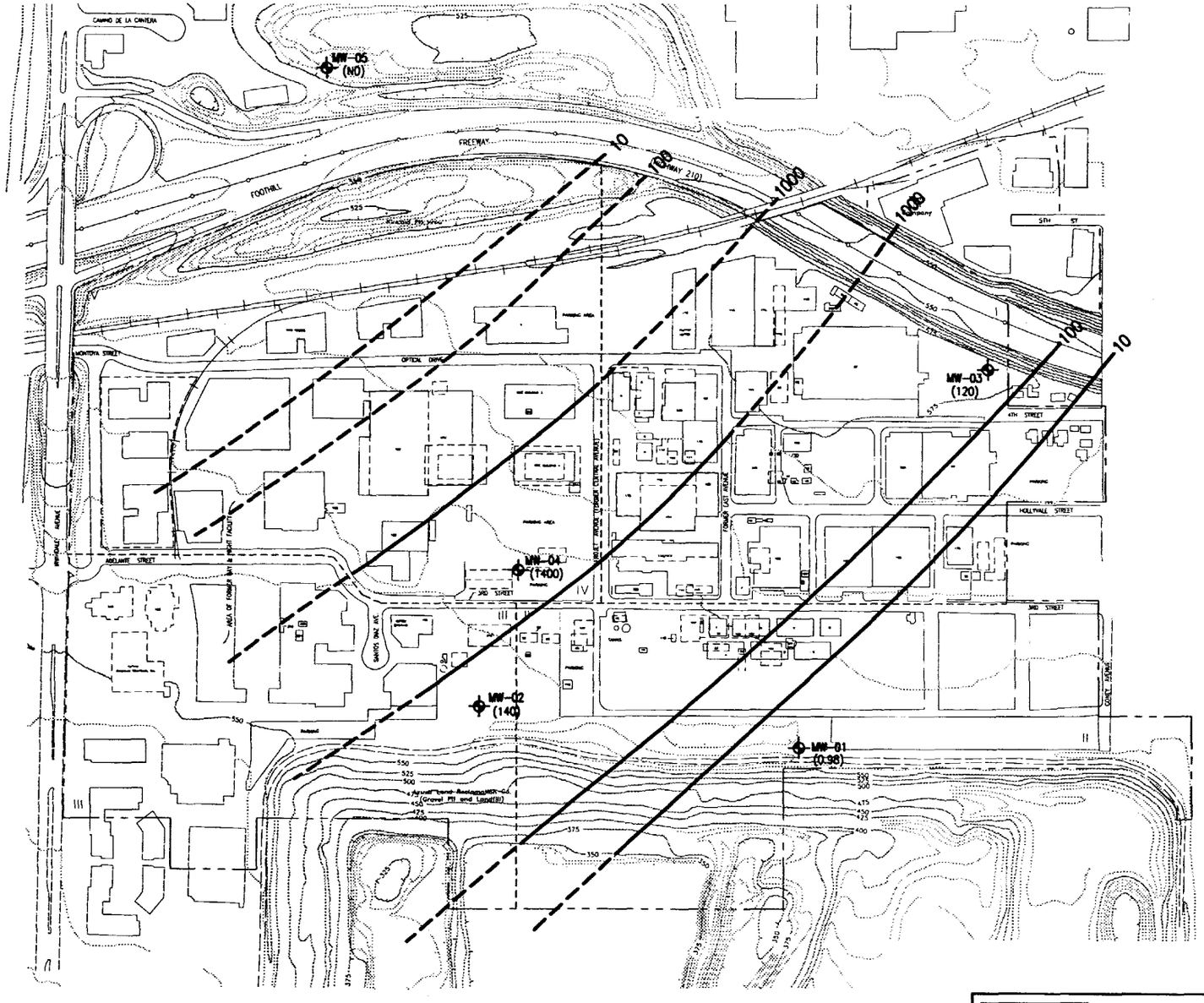


EXPLANATION

EXISTING GROUNDWATER MONITORING WELL LOCATION

—10— GENERALIZED CHEMICAL CONTOUR (MICROGRAMS PER LITER [ug/L]); LOGARITHMIC INTERVALS

(ND) NOT DETECTED AT OR ABOVE ENCLOSED REPORTING LIMIT

N

Scale 0 200 400 feet

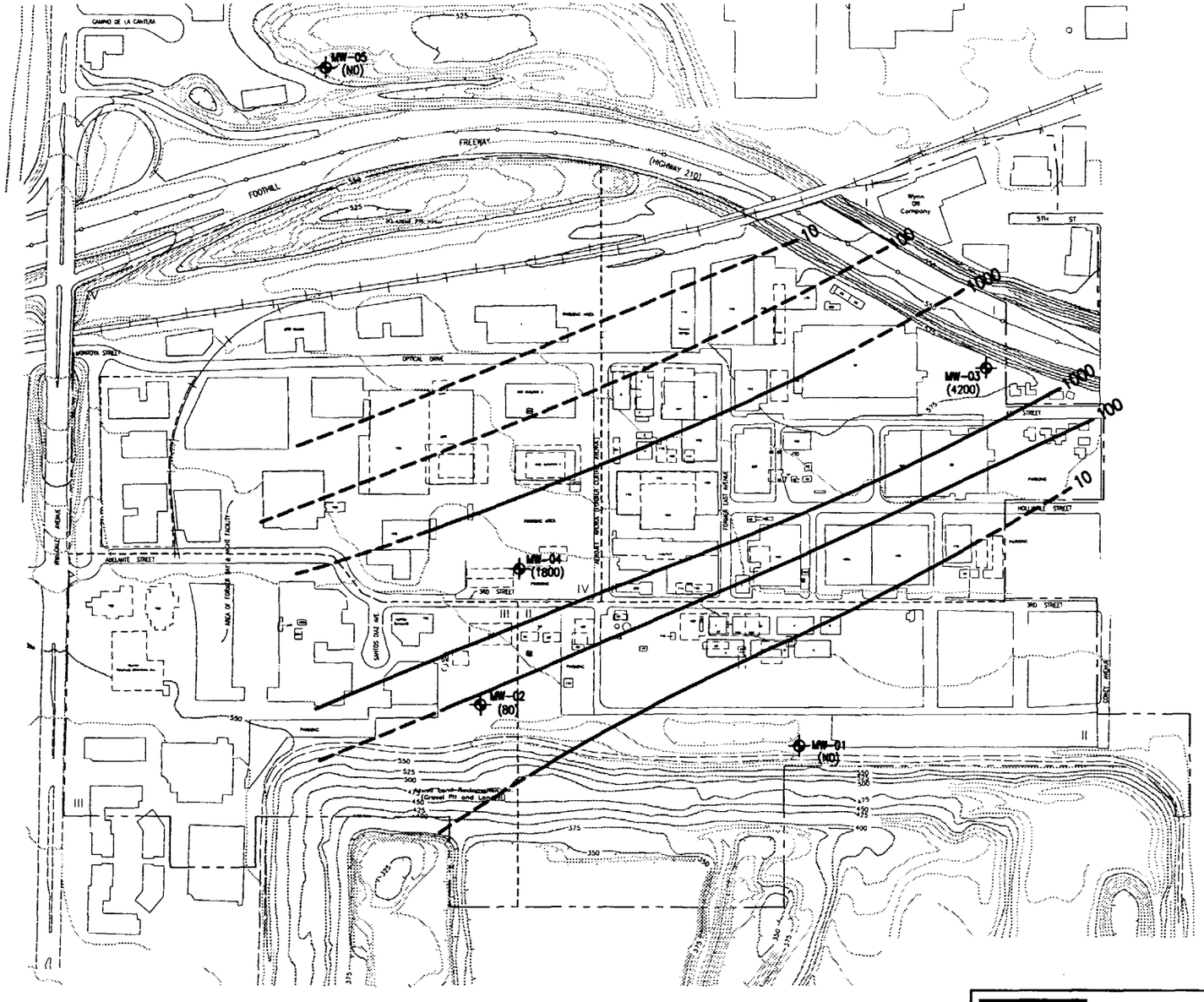
NOTE: DATA FOR FEBRUARY 2000 SAMPLING ROUND.

Harding Lawson Associates
Engineering and Environmental Services

GENERALIZED DISTRIBUTION OF TCE IN GROUNDWATER MONITORING WELLS, FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE **32**

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	



EXPLANATION

⌖ EXISTING GROUNDWATER MONITORING WELL LOCATION

—10— GENERALIZED CHEMICAL CONTOUR (MICROGRAMS PER LITER [ug/L]); LOGARITHMIC INTERVALS

(ND) NOT DETECTED AT OR ABOVE ENCLOSED REPORTING LIMIT

N

Scale 0 200 400 feet

NOTE: DATA FOR FEBRUARY 2000 SAMPLING ROUND.

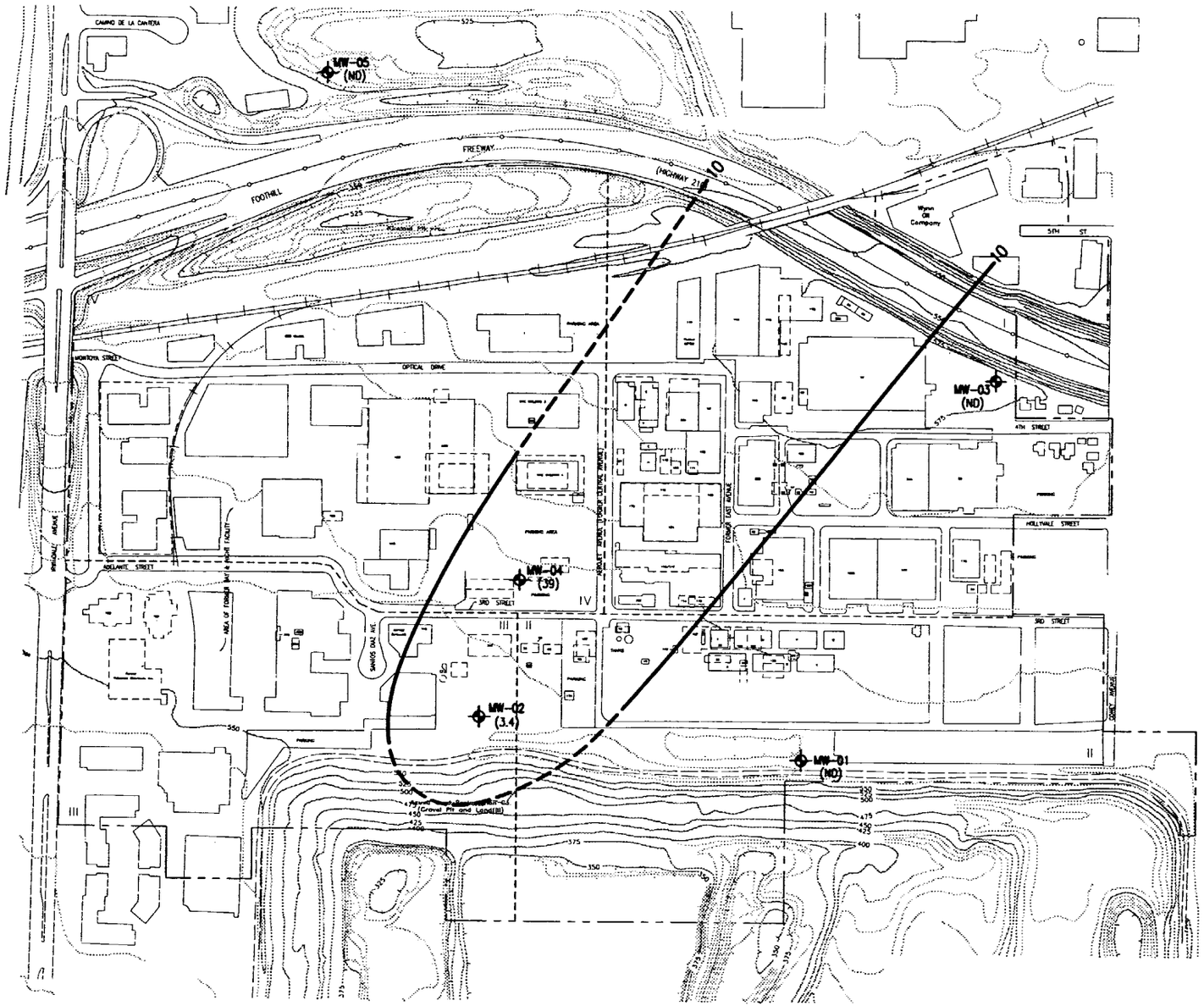
Harding Lawson Associates
Engineering and Environmental Services

GENERALIZED DISTRIBUTION OF PCE IN GROUNDWATER MONITORING WELLS, FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE **33**

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	

R14 PLOT 1 = 400 TO 4MV HOT\50505\1-1\PCE-GW



EXPLANATION

⌖ EXISTING GROUNDWATER MONITORING WELL LOCATION

—10— GENERALIZED CHEMICAL CONTOUR (MICROGRAMS PER LITER [ug/L]); LOGARITHMIC INTERVALS

(ND) NOT DETECTED AT OR ABOVE ENCLOSED REPORTING LIMIT

N

Scale 0 200 400 feet

NOTE: DATA FOR FEBRUARY 2000 SAMPLING ROUND.

Harding Lawson Associates
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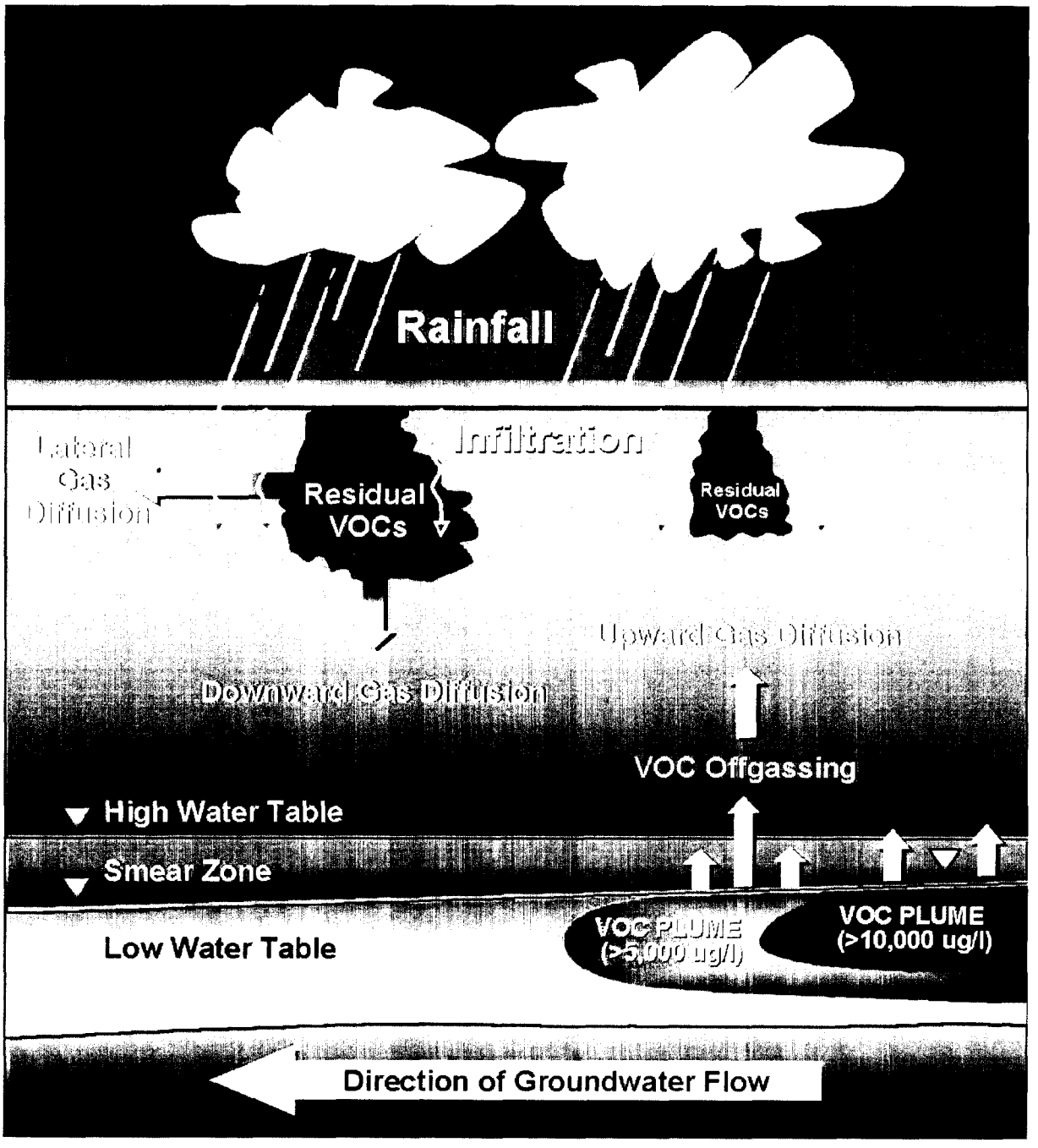
GENERALIZED DISTRIBUTION OF CCl4 IN GROUNDWATER MONITORING WELLS, FEBRUARY 2000
Azusa/Irwindale Study Area
San Gabriel Basin, California

FIGURE **34**

DRAWN	PROJECT-TASK NUMBER	APPROVED	DATE	REVISED DATE
JTL	50505-1.1		7/00	



Aero_4c 7/12/00 NLM

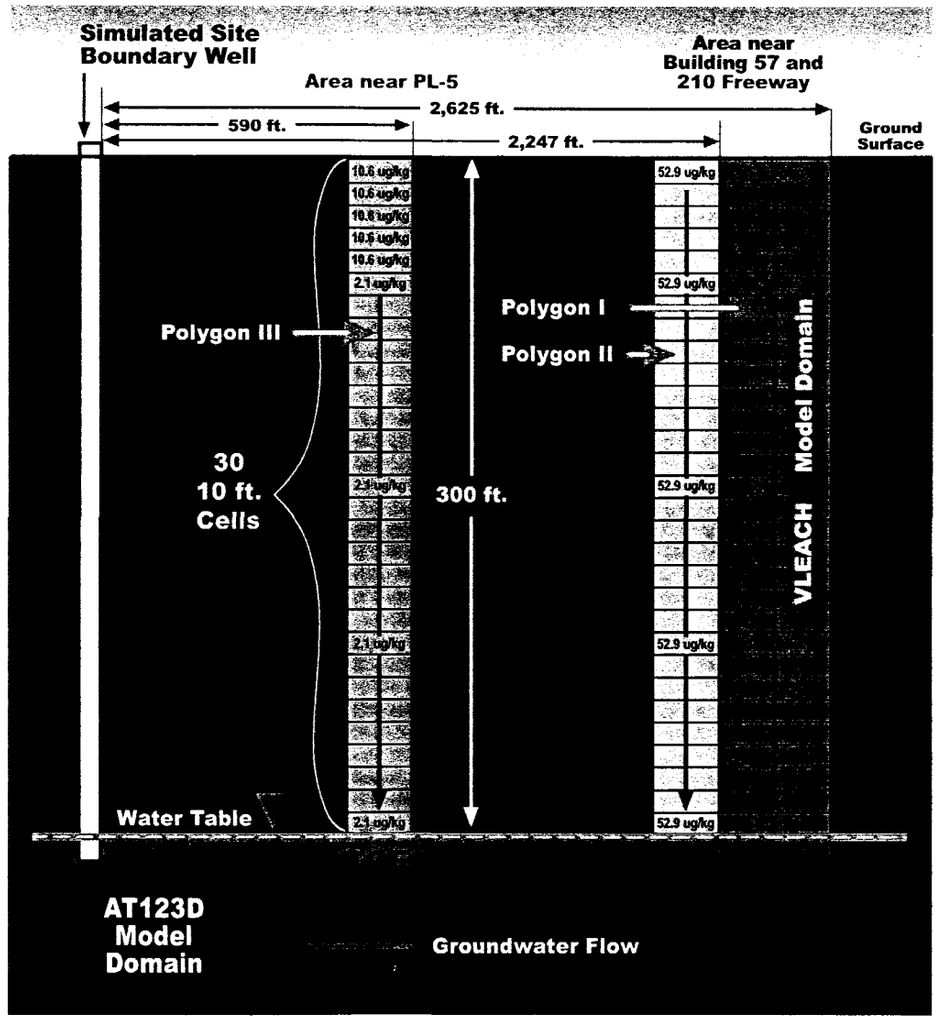
Harding Lawson Associates
Engineering and Environmental Services

Schematic Diagram of Primary Subsurface VOC Transport Patways
Azusa/Irwindale Study Area
San Gabriel Valley California

FIGURE **35**

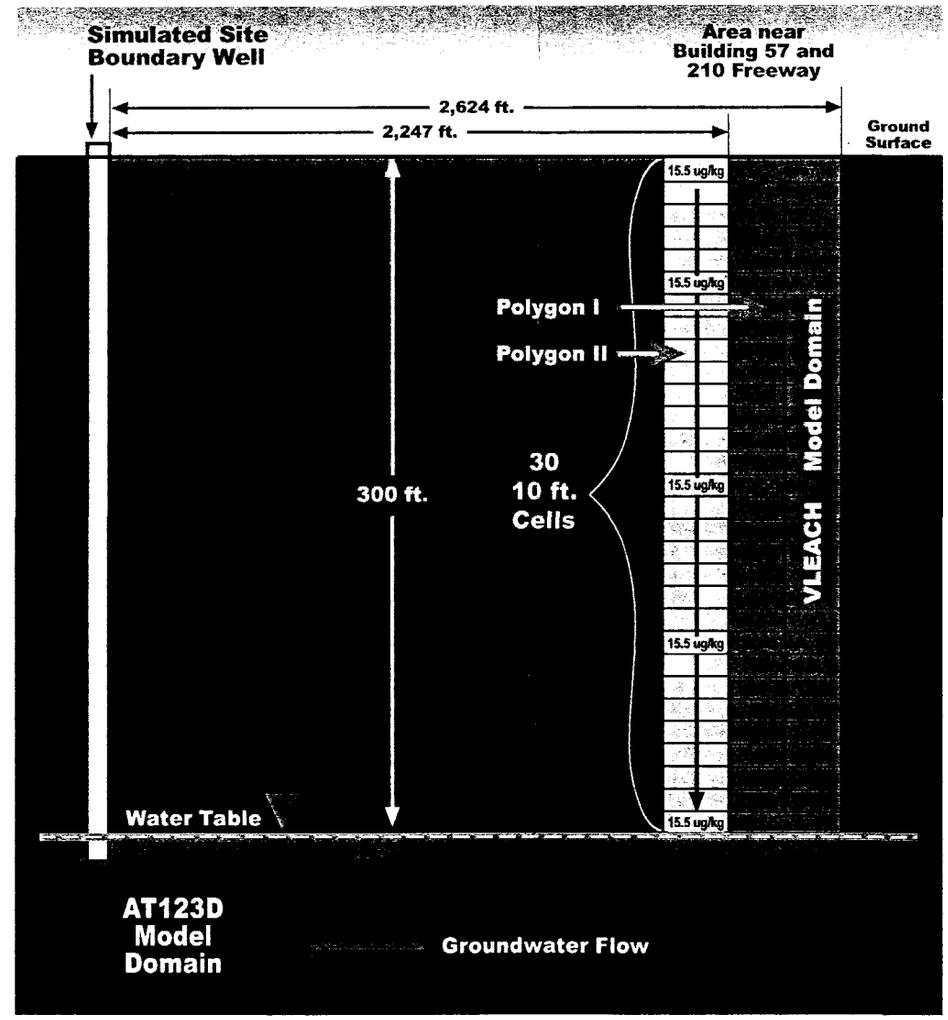
DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NLM	50505,1.1		7/00	

TCE Transport Simulation



Not to Scale

CCL_4 Transport Simulation



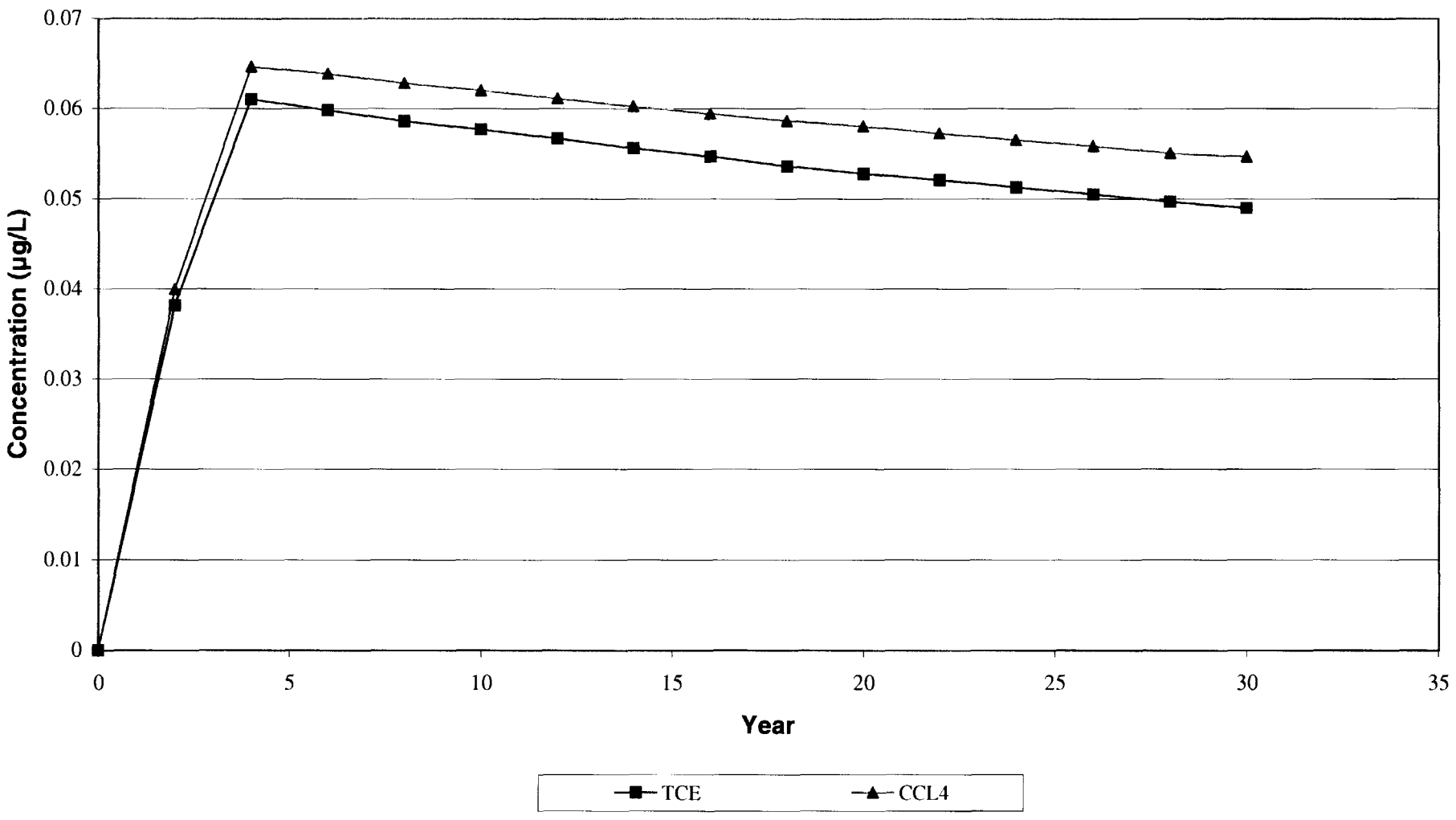
Harding Lawson Associates
Engineering and Environmental Services

VLEACH/AT123D Model Domains and Initial Soil Concentrations
Azusa/Irwindale Study Area
San Gabriel Valley California

FIGURE **36**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
NLM	50505,1.1		7/00	

Aero 4b 7-11-00/N.M



Harding Lawson Associates
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Environmental Services

Simulated TCE and CCL4 Groundwater Concentrations at Site Boundary

Azusa/Irwindale Study Area Site Assessment
San Gabriel Valley, California

FIGURE
37

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
AMC	50505 1.1		07/00	

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APPENDIX A

GROUNDWATER PURGING AND SAMPLING LOGS – FEBRUARY 2000

Harding Lawson Associates
Engineering
and
Environmental Services

SHEET _____ OF _____
JOB NO. _____
DATE _____
COMPUTED BY _____
CHECKED BY _____

PROJECT _____
SUBJECT _____

MW-1

T.D 334.5
DTW 315.69

well Volumes : 4 CASING DIA. 8"
purge volume : 196.46 gal

PUMP RATE 2.5 GPM

Time	GAL	pH	Temp (°C)	Cond umhos/cm	Comments
0740	12.0	THRU HOSE			
0745	12.5	6.66	18.5	484	
0750	25.0	6.94	19.3	494	
0800	50.0	7.02	19.8	496	
0810	75.0	7.03	19.8	493	
0820	100.0	7.00	20.0	497	
0830	125	6.98	20.2	498	
0840	150	6.96	20.2	498	
0850	175	6.98	20.2	498	
0900	200	6.97	20.3	498	
	PUMP OFF				

Sample @ 0930 on 02-09-00
(3) 40 mL VOA

Harding Lawson Associates
Engineering
and
Environmental Services

SHEET _____ OF _____
JOB NO. _____
DATE _____
PROJECT _____ COMPUTED BY _____
SUBJECT _____ CHECKED BY _____

MW-2

TD 335

DTW 310.19

well volumes: 4

Purge volume = 64.78

pump RATE 2.5 GPM

Time	Gal	pH	Temp° (C°)	Cond	Comments
1700	START UP - H2O THRU HOSE				
1702	5.0	7.27	19.7	334	
1705	12.5	7.29	19.1	494	
1710	25.0	7.27	18.6	486	
1715	37.5	7.25	18.6	503	
1720	50.0	7.25	18.5	503	
1725	62.5	7.24	18.5	503	
1730	75.0	7.24	18.5	503	
→ STOP pump 1720					
75.0 gal purged.					
Sample @ 1745 on 02-08-00 MW-02					

GROUNDWATER SAMPLING FORM

Well Number: MW-3

Date: ~~December 20, 1999~~ 2-8-00

Job Name: Aerojet - AISA Groundwater Sampling for VOCs

Job Number: 46716.101

Sampled By: [signature] (Signature/initials)

Well Details

Total Depth of Well: 352 feet

Purge Method: Dedicated Hydrostar

Screened interval ____ to ____ feet

Pump Intake Setting

Casing Diameter (inches): 4"

Pump Rate: 2.5 GPM

Depth to Water: 329.44

Well Volumes to be Purged: 4

Purge Volume = 58.91

Purge Volume Calculation = [TD (feet) - DTW (feet)] * Casing Diameter (inches)² * # of well volumes * 0.0408

Water Parameter Measurements

Time	Gallons	pH	Temp. (°C)	Conductivity (umohs/cm)	Turbidity (NTU)	DTW (feet, BRM)	Comments
1355	START	up -	H2O	THRU	HOSE	—	
1357	5.0	7.06	21.2	618			
1400	12.5	7.15	20.1	612			
1405	25.0	7.20	19.8	602			
1410	37.5	7.22	19.7	596			
1415	50.0	7.22	19.6	596			
1420	62.5	7.23	19.6	594			
				~~578~~			
1421	STOP		PUMP				
	SAMPLE						

Actual Purge Volume: 64 GAL.

Sampling Method: Hydrostar - low flow rate

Discharge Waste Disposal: Stored in onsite 3,500 gallon double-contained storage tank for future disposal.

Analysis/Sample Container: EPA Test Method 8260 - VOCs

Time/Date Sample Collected: 1430 on 2-8-00

Depth to Water at Time of Sample: ____

80% Recharge Confirmed: YES / NO N/A

Duplicate Sample Number: ____

Harding Lawson Associates
Engineering
and
Environmental Services

SHEET _____ OF _____
JOB NO. _____
DATE _____
COMPUTED BY _____
CHECKED BY _____

PROJECT _____
SUBJECT _____

Well No. MW-4
DATE : 2-8-00

Well Details
T.D. 348'

Casing Diameter (inches) 4" pump rate 2.5 GPM
Depth to H_2O 314.45

4 well volumes purged: 4
Purge Volume = 87.61 GAL.

Time	GAL	pH	Temp °C (°C)	Cond (µmoh/cm)	Comments
1530	START-up		H_2O	THRU	HOSE
1532	5.0	7.70	22.7	624	
1535	12.5	7.37	20.6	570	
1540	25.0	7.25	19.3	581	
1545	37.5	7.23	19.0	578	
1550	50.0	7.23	19.0	578	
1555	62.5	7.22	19.0	577	
1600	75.0	7.21	19.0	580	
1605	87.5	7.22	19.0	581	
1606	pump	off			

89 GAL - purged volume

Sample @ 1615 on 2-8-00
Duplicate 1330 on 2-8-00 (MW-06)

GROUNDWATER SAMPLING FORM

Well Number: MW-5

Date: ~~December 20, 1999~~ 2-8-00

Job Name: Aerojet - AISA Groundwater Sampling for VOC's

Job Number: 46716.101

Sampled By: [illegible] (Signature/initials)

Well Details

Total Depth of Well: 322 feet

Purge Method: Dedicated Hydrostar

Screened Interval: to feet

Pump Intake Setting:

Casing Diameter (inches): 4"

Pump Rate: 2.5 gal @ start-up.

Depth to Water: 296.31

Well Volumes to be Purged: 4

Purge Volume: 67.08 gal

Purge Volume Calculation = [TD (feet) - DTW (feet)] * Casing Diameter (inches)^2 * # of well volumes * 0.0408

Water Parameter Measurements

Time	Gallons	pH	Temp (°C)	Conductivity (umohs/cm)	Turbidity (NTU)	DTW (feet, BRM)	Comments
1128		6.29	18.8		START-UP -		
1130	5	6.29	18.8				
1135	17.5	6.54	18.4	402			
1140	30.0	6.20	18.4	307			
1145	42.5	6.23	18.4	309			
1150	55.0	6.24	18.4	310			
1155	67.5	6.38	18.4	310			
1156	pump	OFF					
	SAMPLE						

Actual Purge Volume: 70 gal.

Sampling Method: Hydrostar – low flow rate

Discharge Waste Disposal: Stored in onsite 3,500 gallon double-contained storage tank for future disposal.

Analysis/Sample Container: EPA Test Method 8260 - VOCs

Time/Date Sample Collected: 1200 on 02-08-00

Depth to Water at Time of Sample:

80% Recharge Confirmed: YES / NO N/A

Duplicate Sample Number:

APPENDIX B

ANALYTICAL LABORATORY DATA REPORTS

MOBILE/ONE LABORATORIES INC.

1/6/00

Harding Lawson Associates
330 North D Street, Suite 310
San Bernardino, CA 92401

Project Name: AeroJet
Project No.:

Attention: Mr. Dave Johnson

Mobile One Laboratories received and analyzed the following sample(s):

Date Received	Quantity	Matrix	Date Received	Quantity	Matrix
12/17/99	10	vapor			
12/20/99	22	vapor			

The samples were analyzed by one or more of the EPA methodologies or equivalent methods as specified below.

TPH -- CA DHS "Total Petroleum Hydrocarbons"
BTEX -- EPA Method 8020
TRPH -- EPA Method 418.1, modified for soils
VOCs -- EPA Method 8260

The results are included with a summary of the quality control procedures. Please note that the symbol "nd" indicates a value below the reporting limit for the particular compound in the sample. Flags qualifying the data are explained in footnotes on the same report page as they occur.

Please feel free to call us to discuss any part of this report or to schedule future projects.

Sincerely,

Rebecca L. Johnson
President

James E. Picker, Ph.D
Lab Director

Mobile One Laboratories is certified by the California Department of Health Services (certificate #s: 1194,1561,1921,2088,2278), and the Arizona Department of Health Services (certificate #: AZM466).

MOL Project # HL121799

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Report Summary

EPA Method 8260 (5030 Prep.)

MOBILE ONE LABORATORIES INC.

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		PURGE X2 IVDMW-02-110'	PURGE X3 IVDMW-02-110'	IVDMW-02-153'	IVDMW-02-213'	IVDMW-02-265'	IVDMW-02-310'
Analysis Date		17 Dec 1999	17 Dec 1999	17 Dec 1999	17 Dec 1999	17 Dec 1999	17 Dec 1999
Analysis Time		10:49 am	11:19 am	12:04 pm	1:20 pm	1:50 pm	2:24 pm
Dilution Factor:	0.2	0.2	0.2	0.2	1	1	1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
Vinyl Chloride	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
Chloroethane	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	1	1.4	3.2	4.7	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	1	1.3	3.1	7.4	9.3	6.3	7.3
Methylene Chloride	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
Methyl-t-butylether	1	nd	1.2 B	1.3 B	7.2 B	9.4 B	6.1 B
trans-1,2-Dichloroethene	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethene	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
Chloroform	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
Carbon Tetrachloride	1	6.9	11	28	39	26	28
1,2-Dichloroethane	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
Benzene	1	nd	nd	nd	5.1	5.0	< 5.0
Trichloroethene	1	54	82	310 D	520	370	500
Toluene	1	nd	1.3 B	1.7 B	10 B	11 B	7.7 B
1,1,2-Trichloroethane	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
Tetrachloroethene	1	nd	1.1	2.5	5.0	7.0	11
Ethylbenzene	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
m,p-Xylene	1	nd	nd	1.5	8.3	11	6.9
o-Xylene	1	nd	nd	nd	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	< 5.0	< 5.0	< 5.0

Surrogates	Spiked	QC Limits(% Rec.)	Percent Recovery					
DBFM	50 ng	75-125	90	91	91	90	91	89
1,2-DCA-d4	50 ng	75-125	68 *	68 *	69 *	68 *	70 *	69 *
Toluene - d8	50 ng	75-125	96	95	94	95	96	94
1,4-BFB	50 ng	75-125	90	90	88	92	93	89

E.Q.L = Estimated Quantitation Limit
nd = not detected above the E.Q.L.

B = Analyte found in the associated blank blank.
D = Concentration reported from secondary dilution. EQLs adjusted accordingly.
* = Surrogate percent recovery is outside QC limits; no corrrective action taken.

HL121799

Analyses performed by: M. Burke

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260 (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:			IVDMW 02 310'dup	SVMW-02-5'	SVMW-02-20'	SVMW-02-39'	Vapor Blank
Analysis Date			17 Dec 1999	17 Dec 1999	17 Dec 1999	17 Dec 1999	17 Dec 1999
Analysis Time			2:48 pm	3:11 pm	3:37 pm	4:03 pm	10:27 am
Dilution Factor:	0.2		1	0.2	0.2	0.2	0.2
Compound	E.Q.L		Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	<	5.0	nd	nd	nd	nd
Vinyl Chloride	1	<	5.0	nd	nd	nd	nd
Chloroethane	1	<	5.0	nd	nd	nd	nd
Trichlorofluoromethane	1	<	5.0	nd	1.7	2.5	nd
1,1-Dichloroethene	1		7.1	nd	nd	1.8	nd
Methylene Chloride	1	<	5.0	nd	nd	nd	nd
Methyl-t-butylether	1		11 B	2.1 B	2.2 B	2.3 B	1.3
trans-1,2-Dichloroethene	1	<	5.0	nd	nd	nd	nd
1,1-Dichloroethane	1	<	5.0	nd	nd	nd	nd
cis-1,2-Dichloroethene	1	<	5.0	nd	nd	nd	nd
Chloroform	1	<	5.0	nd	nd	nd	nd
1,1,1-Trichloroethane	1	<	5.0	nd	nd	nd	nd
Carbon Tetrachloride	1		24	2.9	5.3	8.1	nd
1,2-Dichloroethane	1	<	5.0	nd	nd	nd	nd
Benzene	1	<	5.0	1.0	1.3	1.5	nd
Trichloroethene	1		370	29	46	75	nd
Toluene	1		6.7 B	2.0 B	4.0 B	2.9 B	1.0
1,1,2-Trichloroethane	1	<	5.0	nd	nd	nd	nd
Tetrachloroethene	1		6.0	nd	nd	1.2	nd
Ethylbenzene	1	<	5.0	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	<	5.0	nd	nd	nd	nd
m,p-Xylene	1		7.7	1.8	2.3	2.5	nd
o-Xylene	1	<	5.0	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	<	5.0	nd	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)	Percent Recovery				
DBFM	50 ng	75-125	92	92	92	90	90
1,2-DCA-d4	50 ng	75-125	66 *	70 *	69 *	69 *	67 *
Toluene - d8	50 ng	75-125	94	95	94	96	95
1,4-BFB	50 ng	75-125	90	91	92	91	89

E.Q.L = Estimated Quantitation Limit
nd = not detected above the E.Q.L.

B = Analyte found in the associated blank blank.
* = Surrogate percent recovery is outside QC limits; no corrrective action taken.

Analyses performed by: M. Burke

Report Summary

EPA Method 8260 (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		Vapor Blank	IVDMW-01-93'	IVDMW-01-163'	IVDMW-01-201.5'	IVDMW-01-256'	IVDMW-01-306'
Analysis Date		20 Dec 1999	20 Dec 1999	20 Dec 1999	20 Dec 1999	20 Dec 1999	20 Dec 1999
Analysis Time		10:02 am	10:24 am	10:46 am	11:07 am	11:29 am	11:51 am
Dilution Factor:	0.2	1	1	1	1	1	1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	1	< 5.0	7.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methylene Chloride	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-t-butylether	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
trans-1,2-Dichloroethene	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethene	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon Tetrachloride	1	< 5.0	6.9	< 5.0	< 5.0	6.5	8.0
1,2-Dichloroethane	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene	1	< 5.0	140	98	150	150	170
Toluene	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethene	1	< 5.0	10	10	12	13	17
Ethylbenzene	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
m,p-Xylene	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery		
DBFM	50 ng	75-125	101	101	100	101	100	102
1,2-DCA-d4	50 ng	75-125	94	96	93	95	94	92
Toluene - d8	50 ng	75-125	100	99	98	100	98	101
1,4-BFB	50 ng	75-125	96	100	100	97	101	100

E.Q.L = Estimated Quantitation Limit
nd = not detected above the E.Q.L.

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MOBILE ONE LABORATORIES INC.

Analyses performed by: T. Davis

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260 (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVDMW-06-5'	SVDMW 06-20'	SVDMW-06-34'
Analysis Date		20 Dec 1999	20 Dec 1999	20 Dec 1999
Analysis Time		12:13 pm	12:35 pm	12:57 pm
Dilution Factor:	0.2	0.2	0.2	0.2
Compound	E.Q.L	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd
Chloroethane	1	nd	nd	nd
Trichlorofluoromethane	1	nd	nd	nd
1,1-Dichloroethene	1	nd	nd	nd
Methylene Chloride	1	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	nd
Chloroform	1	nd	nd	nd
1,1,1-Trichloroethane	1	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd
1,2-Dichloroethane	1	nd	nd	nd
Benzene	1	nd	nd	nd
Trichloroethene	1	6.4	9.6	18
Toluene	1	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd
Tetrachloroethene	1	nd	nd	1.6
Ethylbenzene	1	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd
m,p-Xylene	1	nd	nd	nd
o-Xylene	1	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery
DBFM	50 ng	75-125	100	101	99
1,2-DCA-d4	50 ng	75-125	92	97	93
Toluene - d8	50 ng	75-125	100	98	96
1,4-BFB	50 ng	75-125	97	101	96

E.Q.L = Estimated Quantitation Limit
nd = not detected above the E.Q.L.

Analyses performed by: T. Davis

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260 (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		MW-03-37'	MW-03-93'	MW-03-140.5'	MW-03-193'
Analysis Date		20 Dec 1999	20 Dec 1999	20 Dec 1999	20 Dec 1999
Analysis Time		1:41 pm	2:03 pm	2:25 pm	2:47 pm
Dilution Factor:	0.2	0.2	0.2	0.2	1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	3.7	3.2	< 5.0
Vinyl Chloride	1	nd	nd	nd	< 5.0
Chloroethane	1	nd	nd	nd	< 5.0
Trichlorofluoromethane	1	2.4	9.8	10	6.9
1,1-Dichloroethene	1	1.8	8.0	8.2	10
Methylene Chloride	1	nd	nd	nd	< 5.0
Methyl-t-butylether	1	nd	nd	nd	< 5.0
trans-1,2-Dichloroethene	1	nd	nd	nd	< 5.0
1,1-Dichloroethane	1	nd	nd	nd	< 5.0
cis-1,2-Dichloroethene	1	nd	4.0	7.2	< 5.0
Chloroform	1	nd	nd	nd	< 5.0
1,1,1-Trichloroethane	1	nd	nd	nd	< 5.0
Carbon Tetrachloride	1	4.2	28	29	36
1,2-Dichloroethane	1	nd	nd	nd	< 5.0
Benzene	1	nd	nd	nd	< 5.0
Trichloroethene	1	6.4	49	63	63
Toluene	1	nd	nd	nd	< 5.0
1,1,2-Trichloroethane	1	nd	nd	nd	< 5.0
Tetrachloroethene	1	4.9	23	140	82
Ethylbenzene	1	nd	nd	nd	< 5.0
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	< 5.0
m,p-Xylene	1	nd	nd	nd	< 5.0
o-Xylene	1	nd	nd	nd	< 5.0
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	< 5.0

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery	
DBFM	50 ng	75-125	100	99	101	101
1,2-DCA-d4	50 ng	75-125	98	96	94	96
Toluene - d8	50 ng	75-125	100	101	100	100
1,4-BFB	50 ng	75-125	103	98	99	98

E.Q.L = Estimated Quantitation Limit
nd = not detected above the E.Q.L.

Analyses performed by: T. Davis

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260 (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		MW-04-38'	MW-04-100.5'	MW-04-139.5'	MW-04-225'
Analysis Date		20 Dec 1999	20 Dec 1999	20 Dec 1999	20 Dec 1999
Analysis Time		5:53 pm	3:31 pm	3:53 pm	4:15 pm
Dilution Factor:	0.2	0.2	0.2	0.2	0.2
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd	nd
Chloroethane	1	nd	nd	nd	nd
Trichlorofluoromethane	1	nd	nd	nd	nd
1,1-Dichloroethene	1	nd	nd	nd	nd
Methylene Chloride	1	nd	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	1.6
1,1,1-Trichloroethane	1	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd
1,2-Dichloroethane	1	nd	nd	nd	2.2
Benzene	1	nd	nd	nd	nd
Trichloroethene	1	8.0	4.4	6.7	15
Toluene	1	nd	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd	nd
Tetrachloroethene	1	1.2	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	nd
m,p-Xylene	1	nd	nd	nd	nd
o-Xylene	1	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery	
DBFM	50 ng	75-125	99	100	101	99
1,2-DCA-d4	50 ng	75-125	93	93	94	92
Toluene - d8	50 ng	75-125	99	100	100	100
1,4-BFB	50 ng	75-125	92	99	96	96

E.Q.L = Estimated Quantitation Limit
nd = not detected above the E.Q.L.

Analyses performed by: T. Davis

Report Summary

EPA Method 8260 (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		MW-02-82'	MW-02-167'	MW-02-239'
Analysis Date		20 Dec 1999	20 Dec 1999	20 Dec 1999
Analysis Time		4:38 pm	5:02 pm	5:26 pm
Dilution Factor:	0.2	0.2	0.2	0.2

Compound	E.Q.L	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd
Chloroethane	1	nd	nd	nd
Trichlorofluoromethane	1	nd	nd	nd
1,1-Dichloroethene	1	nd	nd	nd
Methylene Chloride	1	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	nd
Chloroform	1	nd	nd	nd
1,1,1-Trichloroethane	1	nd	nd	nd
Carbon Tetrachloride	1	1.2	nd	nd
1,2-Dichloroethane	1	nd	nd	nd
Benzene	1	nd	nd	nd
Trichloroethene	1	2.6	nd	4.4
Toluene	1	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd
Tetrachloroethene	1	4.2	nd	4.5
Ethylbenzene	1	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd
m,p-Xylene	1	nd	nd	nd
o-Xylene	1	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery
DBFM	50 ng	75-125	96	101	98
1,2-DCA-d4	50 ng	75-125	92	93	92
Toluene - d8	50 ng	75-125	99	98	98
1,4-BFB	50 ng	75-125	96	97	98

E.Q.L = Estimated Quantitation Limit
nd = not detected above the E.Q.L.

Analyses performed by: T. Davis

148 SO. VINEWOOD STREET • ESCONDIDO, CA 92029-1921 • PHONE (760) 735-3208 • FAX (760) 735-2469

MOBILE ONE LABORATORIES INC.

148 SO. VINEWOOD STREET • ESCONDIDO, CA 92029 • PHONE (760) 735-3208 • FAX (760) 735-2469

MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260 (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-30-5'	SVMW-30-5'dup	SVMW-30-20'	SVMW-30-39'
Analysis Date		20 Dec 1999	20 Dec 1999	20 Dec 1999	20 Dec 1999
Analysis Time		6:44 pm	9:20 pm	7:29 pm	8:58 pm
Dilution Factor:	0.2	0.2	1	0.2	0.2
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	< 5.0	nd	nd
Vinyl Chloride	1	nd	< 5.0	nd	nd
Chloroethane	1	nd	< 5.0	nd	nd
Trichlorofluoromethane	1	nd	< 5.0	nd	nd
1,1-Dichloroethene	1	nd	< 5.0	nd	nd
Methylene Chloride	1	nd	< 5.0	nd	nd
Methyl-t-butylether	1	nd	< 5.0	nd	nd
trans-1,2-Dichloroethene	1	nd	< 5.0	nd	nd
1,1-Dichloroethane	1	nd	< 5.0	nd	nd
cis-1,2-Dichloroethene	1	16	15	1.0	nd
Chloroform	1	nd	< 5.0	nd	nd
1,1,1-Trichloroethane	1	nd	< 5.0	nd	nd
Carbon Tetrachloride	1	nd	< 5.0	nd	nd
1,2-Dichloroethane	1	nd	< 5.0	nd	nd
Benzene	1	nd	< 5.0	nd	nd
Trichloroethene	1	110	97	22	1.9
Toluene	1	nd	< 5.0	nd	nd
1,1,2-Trichloroethane	1	nd	< 5.0	nd	nd
Tetrachloroethene	1	nd	< 5.0	nd	nd
Ethylbenzene	1	nd	< 5.0	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	< 5.0	nd	nd
m,p-Xylene	1	nd	< 5.0	nd	nd
o-Xylene	1	nd	< 5.0	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	< 5.0	nd	nd
Surrogates	Spiked	QC Limits(% Rec.)		Percent Recovery	
DBFM	50 ng	75-125	101	102	99	109
1,2-DCA-d4	50 ng	75-125	97	91	90	105
Toluene - d8	50 ng	75-125	99	98	98	98
1,4-BFB	50 ng	75-125	99	95	95	105

E.Q.L = Estimated Quantitation Limit
nd = not detected above the E.Q.L.

Analyses performed by: T. Davis

CHAIN-OF-CUSTODY RECORD

MOBILE/one LABORATORIES INC.

MOL: HL 121799

148 So. Vinewood Street, Escondido, CA 92029-1921 (760) 735-3208 FAX (760) 735-2469

Date: 12-17-99 Page 1 of 1

Client: Harding Lawson Associates

Site Address: Aerojet

Project No.:

Sampler/Project Manager: Dave Johnson / Mark Burke

Turnaround Requested:
- [x] Onsite/24-48 hrs.
- [ ] Offsite
- [ ] Other

Analysis Requested

Sample ID	Date	Time	Location	TPHg+d-8015M	TPHg-8015M (P&T)	BTEX-MTBE by 8020	TPHg/BTEX-8015M/8020	TRPH-418.1	8260 (VOC's)	PNA's by 8270	PCB's by 8270			Matrix: Soil (S), Sludge (SL), Aqueous (W)	Number of containers
IVDMW-02 110'	12-17-99	1026	2122 purge (2x)						X					SV	1
IVDMW-02 110'		1117	3183 " (3x) - higher						X					SV	1
IVDMW-02 153'		1205	4344 " (3x)						X					SV	1
" (resample)		1240	—						X					SV	1
IVDMW-02 213'		1320	6166 "						X					SV	1
" -02 265'		1351	7550 "						X					SV	1
" -02 310'		1422	8970 "						X					SV	1
SVMW-02 5'		1507	145 purge						X					SV	1
" 20'		1536	580 purge						X					SV	1
" 39'		1604 ~~1452~~	1158 "						X					SV	1

Comments:

Sample Receipt

Intact: Yes No

Seal Intact: Yes No N/A

Cold: Yes No N/A (Received on site)

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
For Harding Lawson & Aerojet		12-17-99	17:00
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of conditions on back.

CHAIN-OF-CUSTODY RECORD

MOBILE/ONE LABORATORIES, INC.

MOL: HL121799

148 So. Vinewood Street, Escondido, CA 92029-1921 (760) 735-3208 FAX (760) 735-2469

Date: 12/20/99 Page 1 of 2

Client: Harding Lawson

Site Address: Aerojet

Project No.:

Sampler/Project Manager:

Turnaround Requested:

- [x] Onsite/24-48 hrs.
- [ ] Offsite
- [ ] Other

Analysis Requested

Sample ID	Date	Time	Location	TPHg+d-8015M	TPHg-8015M (P&T)	BTEX-MTBE by 8020	TPHg/BTEX-8015M/8020	TRPH-418.1	8260 (VOC's)	PNA's by 8270	PCB's by 8270			Matrix: Soil (S), Sludge (SL), Aqueous (W)	Number of containers
IVDMW-01 93	12/20	900							X					V	1
IVDMW-01 163'		10:30							X					V	1
IVDMW-01 201.5'		11:00							X					V	1
IVDMW-01 256'		11:15							X					V	1
IVDMW-01 306'		11:30							X					V	1
SVDMW-06 5'		11:45							X					V	1
SVDMW-06 20		11:50							X					V	1
SVDMW-06 34		1205							X					V	1
~~IVD~~MW-03 37		1315							X					V	1
MW-03 93		1345							X					V	1
MW-03 140.5		1350							X					V	1
MW-03 193		1400							X					V	1
MW-04 38		1440							X					V	1
MW-04 100.5		1455							X					V	1
MW-04 139.5		1510							X					V	1

Comments:

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
For, and behalf of HLA, and Aerojet F. [illegible]	Jamara Davis	12/20/99	1645
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of conditions on back.

Sample Receipt

Intact: Yes No

Seal Intact: Yes No N/A

Cold: Yes No

N/A **(Received on site)**

CHAIN-OF-CUSTODY RECORD

MOBILE/ONE LABORATORIES INC.

MOL: HL12799

148 So. Vinewood Street, Escondido, CA 92029-1921 (760) 735-3208 FAX (760) 735-2469

Date: 12/20/99 Page 2 of 2

Client: Harding Lawson

Site Address:

Project No.: Aerojet

Sampler/Project Manager:

Turnaround Requested:

- [x] Onsite/24-48 hrs.
- [ ] Offsite
- [ ] Other

Analysis Requested

Sample ID	Date	Time	Location	TPHg+d-8015M	TPHg-8015M (P&T)	BTEX-MTBE by 8020	TPHg/BTEX-8015M/8020	TRPH-418.1	8260 (VOC's)	PNA's by 8270	PCB's by 8270			Matrix: Soil (S), Sludge (SL), Aqueous (W)	Number of containers
MW-04 225	12/20	1515							X					V	1
MW-02 82		1545							X					V	1
MW-02 167		1600							X					V	1
MW-02 239		1605							X					V	1
SVMW-30 5		1610							X					V	1
SVMW-30 20		1625							X					V	1
SVMW-30 39		1642							X					V	1

Comments:

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
For, and behalf of HLA & Aerojet. F. [illegible]	Jamaica Davis	12/20	1645
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of conditions on back.

Sample Receipt

Intact: Yes No

Seal Intact: Yes No N/A

Cold: Yes No

N/A **(Received on site)**

Précis
A Quanterra Product

Quanterra
1721 South Grand Ave.
Santa Ana, CA 92705

Tel (714) 258-8610
Fax (714) 258-0921

March 3, 2000

QUANTERRA INCORPORATED LOT NUMBER: **E9L210177r**

Dave Johnson
Harding Lawson Associates
330 North D Street
Suite 310
San Bernardino, CA 92401

Dear Mr. Johnson,

This report contains the analytical results for the five samples received under chain of custody by Quanterra Incorporated on December 21, 1999. These samples are associated with your AEROJET project.

This report has been revised to reflect qualifiers per your request. All applicable quality control procedures met method-specified acceptance criteria.

This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions, please feel free to call me at 714-258-8610.

Sincerely,

Diane Suzuki
Project Manager

cc: Project File

Harding Lawson Associates
~~30 Corporate Park, Suite 400~~
~~Irvine, CA 92606~~
~~(949) 260-1800~~ y.m
2171 CAMPUS DR.
IRVINE CA 92612
(949) 224-0050

CHAIN OF CUSTODY FORM

Lab: QUANTERRA

Job Number: 46716-101

Name/Location: AEROJET

Project Manager: D. JOHNSON

Samplers: VIKAS MATHUR
TOM LINDROS

Recorder: Vikas Mathur (Signature Required)

SOURCE CODE	MATRIX: Water	MATRIX: Sediment	MATRIX: Soil	MATRIX: Oil	# CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Day	Time	STATION DESCRIPTION/ NOTES	EPA 418.1 TRPH	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8260	CAM METALS	EPA 8015M	EPA 8015M (GAS)/8021 BTEX	EPA 8081	EPA 8082
23	X							3					99	12	20	1142	MW-2					X					
↓	↓							↓						↓		1325	MW-4					X					
																1345	MW-6					X					
																1400	MW-7					X					
																1515	MW-3					X					

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						STANDARD
						T.A.T.

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Vikas Mathur	12-20-99 20:00	Frankie #1982	12/21 10:00
Frankie #1982	12/21 10:45	[illegible]	12/21 10:45
DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
METHOD OF SHIPMENT			

Laboratory Copy White | Project Office Copy Yellow | Field or Office Copy Pink

Page ____ Of ____

QUANTERRA INC. - SANTA ANA
PROJECT RECEIPT CHECKLIST

Date: 12/21/99

Quantims Lot #: E9L210177
Quote #: 33843
Client Name: HCA
Project: AEROJET
Received by: RMARTIN
Date/Time Received: 12/21 10:45
Delivered by : ☐Client ☐Airborne ☐Fed Ex ☐DHL ☐Ultra-Ex ☐Rey B.
☐UPS ☐ATD ☑Other DES

Initial / Date

Custody Seal Status: ☐Intact ☐Broken ☑None ..... RM 12/21
Custody Seal #(s): ☑No Seal # .....
Sample Container(s): ☑Quanterra ☐Client ☐N/A .....
Temperature(s) (COOLER/BLANK) in °C: 4.0 (CORRECTED TEMP).....
Thermometer Used : ☑IR (Infra-red) ☐Digital (Probe) .....
Samples: ☑Intact ☐Broken ☐Other .....
Anomalies: ☑No ☐Yes (See Clouseau) .....
Labeled by .....
Labeling checked by .....

Short-Hold Notification: ☐Ph ☐Wet Chem ☐Metals (Filter/Pres) ☐Encore ☑N/A ...
Outside Analysis(es) (Test/Lab/Date Sent Out) :

N/A

********** LEAVE NO BLANK SPACES ; USE N/A **********

Fraction	H2O5										PH
VOAh /*	3										N/A

h:HCl s:H2SO4 na:Sodium Hydroxide znna: Sodium Hydroxide + Zinc Acetate n:HNO3 n/f:HNO3 field filtered
* Number VOA's w/ air bubbles present n/f/l:HNO3 Lab filtered

LOGGED BY/DATE: RM 12/21/99 REVIEWED BY/DATE: _____

PRC Ver. 4 021599

DEPENDABLE EXPRESS SERVICE, INC.

17064 Pepper Brook Way
Hacienda Heights, CA 91745
(626) 913-2273

127452

Reg. ☐
Rush ☐
Exp. ☐

MESSENGER	24 HOUR SERVICE	DATE
Frankie		12/21/99

CHARGE TO: Quantera

ADDRESS | SUITE #

AUTHORIZED BY | REF 3410

PICK UP FROM: H.L.A

STREET AND NUMBER: 2171 Campus | SUITE #

CITY: Irvine | ZIP CODE

DELIVER TO: Quantera

STREET AND NUMBER: 1771 S. Grand | SUITE #

CITY: Santa Ana | ZIP CODE

RETURN : ☐ YES ☐ NO

P/U TIME	DEL. TIME	COMMODITY
WAITING TIME MIN.	WEIGHT LBS.	NO. PCS.

SPECIAL INSTRUCTIONS:

FOR OFFICE USE ONLY	
DEL. CHG.	
RETURN	
RUSH	
EXP.	
NIGHT OR HOLIDAY	
WAITING TIME	
EXTRA WEIGHT	
SUB TOTAL	
CASH ADVANCE	
TOTAL	

RECEIVED BY (PLEASE SIGN LEGIBLY)
X F. #1982

RETURN RECEIVED BY (PLEASE SIGN LEGIBLY)
X

Terms and Conditions Upon Which Pick-ups and Deliveries are made

Not responsible for loss or damage (A) Unless same is reported to us in writing within fifteen (15) days. Loss limited to $100.00 per shipment unless a higher value is declared by customer on front of this ticket at time pick-up or delivery is authorized, in which case extra rates may be charged by us for insuring the excess value. Losses adjusted on basis of invoice cost price less reasonable depreciation.

WHITE-OFFICE YELLOW-DRIVER PINK-CUSTOMER

METHODS SUMMARY

E9L210177

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

E9L210177

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D6N8V	001	MW-2	12/20/99	11:42
D6N92	002	MW-4	12/20/99	13:25
D6N93	003	MW-6	12/20/99	13:45
D6N96	004	MW-7	12/20/99	14:00
D6N97	005	MW-3	12/20/99	15:15

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-2

GC/MS Volatiles

Lot-Sample #...: E9L210177-001 **Work Order #...:** D6N8V101 **Matrix.....:** WATER
Date Sampled...: 12/20/99 11:42 **Date Received..:** 12/21/99 10:45 **MS Run #.....:** 9356070
Prep Date.....: 12/21/99 **Analysis Date..:** 12/21/99
Prep Batch #...: 9356198 **Analysis Time..:** 18:20
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	10	ug/L	2.0
Chloromethane	ND	10	ug/L	1.5
Vinyl chloride	ND	10	ug/L	1.5
Chloroethane	ND	10	ug/L	1.5
Bromomethane	ND	10	ug/L	2.5
Trichlorofluoromethane	ND	10	ug/L	1.0
1,1,2-Trichlorotrifluoro-ethane	ND	5.0	ug/L	1.0
1,1-Dichloroethene	ND	5.0	ug/L	1.0
Methylene chloride	**2.9 J**	**5.0**	**ug/L**	**1.0**
Methyl tert-butyl ether	ND	5.0	ug/L	2.5
Carbon disulfide	ND	5.0	ug/L	1.5
Acetone	ND	50	ug/L	10
trans-1,2-Dichloroethene	ND	5.0	ug/L	1.0
1,1-Dichloroethane	ND	5.0	ug/L	1.0
2,2-Dichloropropane	ND	5.0	ug/L	1.5
cis-1,2-Dichloroethene	**16**	**5.0**	**ug/L**	**1.5**
Chloroform	**5.8**	**5.0**	**ug/L**	**1.0**
Bromochloromethane	ND	5.0	ug/L	1.5
1,1,1-Trichloroethane	ND	5.0	ug/L	1.0
2-Butanone	ND	25	ug/L	15
1,1-Dichloropropene	ND	5.0	ug/L	1.5
Carbon tetrachloride	**6.0**	**5.0**	**ug/L**	**1.5**
1,2-Dibromoethane	ND	5.0	ug/L	1.0
Benzene	ND	5.0	ug/L	1.5
Trichloroethene	**290**	**5.0**	**ug/L**	**1.0**
1,2-Dichloropropane	ND	5.0	ug/L	1.0
Bromodichloromethane	ND	5.0	ug/L	1.0
Dibromomethane	ND	5.0	ug/L	1.0
1-Bromo-2-chloroethane	ND	5.0	ug/L	2.5
cis-1,3-Dichloropropene	ND	5.0	ug/L	1.0
4-Methyl-2-pentanone	ND	25	ug/L	10
Toluene	ND	5.0	ug/L	1.0
1,1,2-Trichloroethane	ND	5.0	ug/L	1.0
1,2-Dichloroethane	ND	5.0	ug/L	1.0
1,3-Dichloropropane	ND	5.0	ug/L	1.0
Tetrachloroethene	**230**	**5.0**	**ug/L**	**1.0**
2-Hexanone	ND	25	ug/L	10
Dibromochloromethane	ND	5.0	ug/L	1.0

(Continued on next page)

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-2

GC/MS Volatiles

Lot-Sample #...: E9L210177-001 **Work Order #...:** D6N8V101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	5.0	ug/L	1.5
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L	1.0
Ethylbenzene	ND	5.0	ug/L	1.0
m-Xylene & p-Xylene	ND	5.0	ug/L	2.5
o-Xylene	ND	5.0	ug/L	1.0
trans-1,3-Dichloropropene	ND	5.0	ug/L	2.5
Styrene	ND	5.0	ug/L	1.0
Bromoform	ND	5.0	ug/L	1.5
Isopropylbenzene	ND	5.0	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	1.5
1,2,3-Trichloropropane	ND	5.0	ug/L	1.5
n-Propylbenzene	ND	5.0	ug/L	2.0
Bromobenzene	ND	5.0	ug/L	1.5
1,3,5-Trimethylbenzene	ND	5.0	ug/L	1.0
2-Chlorotoluene	ND	5.0	ug/L	1.5
4-Chlorotoluene	ND	5.0	ug/L	1.5
tert-Butylbenzene	ND	5.0	ug/L	1.0
1,2,4-Trimethylbenzene	ND	5.0	ug/L	1.0
sec-Butylbenzene	ND	5.0	ug/L	1.5
p-Isopropyltoluene	ND	5.0	ug/L	1.0
1,3-Dichlorobenzene	ND	5.0	ug/L	1.0
1,4-Dichlorobenzene	ND	5.0	ug/L	1.5
n-Butylbenzene	ND	5.0	ug/L	1.5
1,2-Dichlorobenzene	ND	5.0	ug/L	1.0
1,2-Dibromo-3-chloro-propane	ND	10	ug/L	3.0
1,2,4-Trichlorobenzene	ND	5.0	ug/L	1.5
Hexachlorobutadiene	ND	5.0	ug/L	1.5
Naphthalene	ND	5.0	ug/L	2.0
1,2,3-Trichlorobenzene	ND	5.0	ug/L	2.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(70 - 130)
1,2-Dichloroethane-d4	96	(60 - 140)
Toluene-d8	96	(70 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-4

GC/MS Volatiles

Lot-Sample #...: E9L210177-002 **Work Order #...:** D6N92101 **Matrix.....:** WATER
Date Sampled...: 12/20/99 13:25 **Date Received..:** 12/21/99 10:45 **MS Run #.....:** 9356070
Prep Date.....: 12/21/99 **Analysis Date..:** 12/21/99
Prep Batch #...: 9356198 **Analysis Time..:** 18:51
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	25	ug/L	5.0
Chloromethane	ND	25	ug/L	3.8
Vinyl chloride	ND	25	ug/L	3.8
Chloroethane	ND	25	ug/L	3.8
Bromomethane	ND	25	ug/L	6.2
Trichlorofluoromethane	ND	25	ug/L	2.5
1,1,2-Trichlorotrifluoro-ethane	ND	12	ug/L	2.5
1,1-Dichloroethene	**5.5 J**	**12**	**ug/L**	**2.5**
Methylene chloride	**8.2 J**	**12**	**ug/L**	**2.5**
Methyl tert-butyl ether	ND	12	ug/L	6.2
Carbon disulfide	**67**	**12**	**ug/L**	**3.8**
Acetone	ND	120	ug/L	25
trans-1,2-Dichloroethene	ND	12	ug/L	2.5
1,1-Dichloroethane	ND	12	ug/L	2.5
2,2-Dichloropropane	ND	12	ug/L	3.8
cis-1,2-Dichloroethene	**45**	**12**	**ug/L**	**3.8**
Chloroform	**16**	**12**	**ug/L**	**2.5**
Bromochloromethane	ND	12	ug/L	3.8
1,1,1-Trichloroethane	ND	12	ug/L	2.5
2-Butanone	ND	62	ug/L	38
1,1-Dichloropropene	ND	12	ug/L	3.8
Carbon tetrachloride	**20**	**12**	**ug/L**	**3.8**
1,2-Dibromoethane	ND	12	ug/L	2.5
Benzene	ND	12	ug/L	3.8
Trichloroethene	**960**	**12**	**ug/L**	**2.5**
1,2-Dichloropropane	ND	12	ug/L	2.5
Bromodichloromethane	ND	12	ug/L	2.5
Dibromomethane	ND	12	ug/L	2.5
1-Bromo-2-chloroethane	ND	12	ug/L	6.2
cis-1,3-Dichloropropene	ND	12	ug/L	2.5
4-Methyl-2-pentanone	ND	62	ug/L	25
Toluene	ND	12	ug/L	2.5
1,1,2-Trichloroethane	ND	12	ug/L	2.5
1,2-Dichloroethane	ND	12	ug/L	2.5
1,3-Dichloropropane	ND	12	ug/L	2.5
Tetrachloroethene	**810**	**12**	**ug/L**	**2.5**
2-Hexanone	ND	62	ug/L	25
Dibromochloromethane	ND	12	ug/L	2.5

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HARDING LAWSON ASSOCIATES

Client Sample ID: MW-4

GC/MS Volatiles

Lot-Sample #...: E9L210177-002 **Work Order #...:** D6N92101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	12	ug/L	3.8
1,1,1,2-Tetrachloroethane	ND	12	ug/L	2.5
Ethylbenzene	ND	12	ug/L	2.5
m-Xylene & p-Xylene	ND	12	ug/L	6.2
o-Xylene	ND	12	ug/L	2.5
trans-1,3-Dichloropropene	ND	12	ug/L	6.2
Styrene	ND	12	ug/L	2.5
Bromoform	ND	12	ug/L	3.8
Isopropylbenzene	ND	12	ug/L	2.5
1,1,2,2-Tetrachloroethane	ND	12	ug/L	3.8
1,2,3-Trichloropropane	ND	12	ug/L	3.8
n-Propylbenzene	ND	12	ug/L	5.0
Bromobenzene	ND	12	ug/L	3.8
1,3,5-Trimethylbenzene	ND	12	ug/L	2.5
2-Chlorotoluene	ND	12	ug/L	3.8
4-Chlorotoluene	ND	12	ug/L	3.8
tert-Butylbenzene	ND	12	ug/L	2.5
1,2,4-Trimethylbenzene	ND	12	ug/L	2.5
sec-Butylbenzene	ND	12	ug/L	3.8
p-Isopropyltoluene	ND	12	ug/L	2.5
1,3-Dichlorobenzene	ND	12	ug/L	2.5
1,4-Dichlorobenzene	ND	12	ug/L	3.8
n-Butylbenzene	ND	12	ug/L	3.8
1,2-Dichlorobenzene	ND	12	ug/L	2.5
1,2-Dibromo-3-chloro-propane	ND	25	ug/L	7.5
1,2,4-Trichlorobenzene	ND	12	ug/L	3.8
Hexachlorobutadiene	ND	12	ug/L	3.8
Naphthalene	ND	12	ug/L	5.0
1,2,3-Trichlorobenzene	ND	12	ug/L	5.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	92	(70 - 130)
1,2-Dichloroethane-d4	100	(60 - 140)
Toluene-d8	87	(70 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-6

GC/MS Volatiles

Lot-Sample #...: E9L210177-003 **Work Order #...:** D6N93101 **Matrix.....:** WATER
Date Sampled...: 12/20/99 13:45 **Date Received..:** 12/21/99 10:45 **MS Run #.....:** 9356070
Prep Date.....: 12/21/99 **Analysis Date..:** 12/21/99
Prep Batch #...: 9356198 **Analysis Time..:** 19:22
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	25	ug/L	5.0
Chloromethane	ND	25	ug/L	3.8
Vinyl chloride	ND	25	ug/L	3.8
Chloroethane	ND	25	ug/L	3.8
Bromomethane	ND	25	ug/L	6.2
Trichlorofluoromethane	ND	25	ug/L	2.5
1,1,2-Trichlorotrifluoro-ethane	ND	12	ug/L	2.5
1,1-Dichloroethene	**3.2 J**	**12**	**ug/L**	**2.5**
Methylene chloride	**8.5 J**	**12**	**ug/L**	**2.5**
Methyl tert-butyl ether	ND	12	ug/L	6.2
Carbon disulfide	**13**	**12**	**ug/L**	**3.8**
Acetone	ND	120	ug/L	25
trans-1,2-Dichloroethene	ND	12	ug/L	2.5
1,1-Dichloroethane	ND	12	ug/L	2.5
2,2-Dichloropropane	ND	12	ug/L	3.8
cis-1,2-Dichloroethene	**42**	**12**	**ug/L**	**3.8**
Chloroform	**16**	**12**	**ug/L**	**2.5**
Bromochloromethane	ND	12	ug/L	3.8
1,1,1-Trichloroethane	ND	12	ug/L	2.5
2-Butanone	ND	62	ug/L	38
1,1-Dichloropropene	ND	12	ug/L	3.8
Carbon tetrachloride	**19**	**12**	**ug/L**	**3.8**
1,2-Dibromoethane	ND	12	ug/L	2.5
Benzene	ND	12	ug/L	3.8
Trichloroethene	**950**	**12**	**ug/L**	**2.5**
1,2-Dichloropropane	ND	12	ug/L	2.5
Bromodichloromethane	ND	12	ug/L	2.5
Dibromomethane	ND	12	ug/L	2.5
1-Bromo-2-chloroethane	ND	12	ug/L	6.2
cis-1,3-Dichloropropene	ND	12	ug/L	2.5
4-Methyl-2-pentanone	ND	62	ug/L	25
Toluene	ND	12	ug/L	2.5
1,1,2-Trichloroethane	ND	12	ug/L	2.5
1,2-Dichloroethane	ND	12	ug/L	2.5
1,3-Dichloropropane	ND	12	ug/L	2.5
Tetrachloroethene	**830**	**12**	**ug/L**	**2.5**
2-Hexanone	ND	62	ug/L	25
Dibromochloromethane	ND	12	ug/L	2.5

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HARDING LAWSON ASSOCIATES

Client Sample ID: MW-6

GC/MS Volatiles

Lot-Sample #...: E9L210177-003 **Work Order #...:** D6N93101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	12	ug/L	3.8
1,1,1,2-Tetrachloroethane	ND	12	ug/L	2.5
Ethylbenzene	ND	12	ug/L	2.5
m-Xylene & p-Xylene	ND	12	ug/L	6.2
o-Xylene	ND	12	ug/L	2.5
trans-1,3-Dichloropropene	ND	12	ug/L	6.2
Styrene	ND	12	ug/L	2.5
Bromoform	ND	12	ug/L	3.8
Isopropylbenzene	ND	12	ug/L	2.5
1,1,2,2-Tetrachloroethane	ND	12	ug/L	3.8
1,2,3-Trichloropropane	ND	12	ug/L	3.8
n-Propylbenzene	ND	12	ug/L	5.0
Bromobenzene	ND	12	ug/L	3.8
1,3,5-Trimethylbenzene	ND	12	ug/L	2.5
2-Chlorotoluene	ND	12	ug/L	3.8
4-Chlorotoluene	ND	12	ug/L	3.8
tert-Butylbenzene	ND	12	ug/L	2.5
1,2,4-Trimethylbenzene	ND	12	ug/L	2.5
sec-Butylbenzene	ND	12	ug/L	3.8
p-Isopropyltoluene	ND	12	ug/L	2.5
1,3-Dichlorobenzene	ND	12	ug/L	2.5
1,4-Dichlorobenzene	ND	12	ug/L	3.8
n-Butylbenzene	ND	12	ug/L	3.8
1,2-Dichlorobenzene	ND	12	ug/L	2.5
1,2-Dibromo-3-chloro-propane	ND	25	ug/L	7.5
1,2,4-Trichlorobenzene	ND	12	ug/L	3.8
Hexachlorobutadiene	ND	12	ug/L	3.8
Naphthalene	ND	12	ug/L	5.0
1,2,3-Trichlorobenzene	ND	12	ug/L	5.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(70 - 130)
1,2-Dichloroethane-d4	99	(60 - 140)
Toluene-d8	98	(70 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-7

GC/MS Volatiles

Lot-Sample #...: E9L210177-004 **Work Order #...:** D6N96101 **Matrix.....:** WATER
Date Sampled...: 12/20/99 14:00 **Date Received..:** 12/21/99 10:45 **MS Run #.....:** 9356070
Prep Date.....: 12/21/99 **Analysis Date..:** 12/21/99
Prep Batch #...: 9356198 **Analysis Time..:** 17:49
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	2.0	ug/L	0.40
Chloromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
Chloroethane	ND	2.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	0.50
Trichlorofluoromethane	ND	2.0	ug/L	0.20
1,1,2-Trichlorotrifluoro-ethane	ND	1.0	ug/L	0.20
1,1-Dichloroethene	ND	1.0	ug/L	0.20
Methylene chloride	**0.37 J**	**1.0**	**ug/L**	**0.20**
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
Carbon disulfide	ND	1.0	ug/L	0.30
Acetone	ND	10	ug/L	2.0
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.20
1,1-Dichloroethane	ND	1.0	ug/L	0.20
2,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
Chloroform	ND	1.0	ug/L	0.20
Bromochloromethane	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
2-Butanone	ND	5.0	ug/L	3.0
1,1-Dichloropropene	ND	1.0	ug/L	0.30
Carbon tetrachloride	ND	1.0	ug/L	0.30
1,2-Dibromoethane	ND	1.0	ug/L	0.20
Benzene	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.20
1,2-Dichloropropane	ND	1.0	ug/L	0.20
Bromodichloromethane	ND	1.0	ug/L	0.20
Dibromomethane	ND	1.0	ug/L	0.20
1-Bromo-2-chloroethane	ND	1.0	ug/L	0.50
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.20
4-Methyl-2-pentanone	ND	5.0	ug/L	2.0
Toluene	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.20
1,3-Dichloropropane	ND	1.0	ug/L	0.20
Tetrachloroethene	ND	1.0	ug/L	0.20
2-Hexanone	ND	5.0	ug/L	2.0
Dibromochloromethane	ND	1.0	ug/L	0.20

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HARDING LAWSON ASSOCIATES

Client Sample ID: MW-7

GC/MS Volatiles

Lot-Sample #...: E9L210177-004 **Work Order #...:** D6N96101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	1.0	ug/L	0.30
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.20
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Styrene	ND	1.0	ug/L	0.20
Bromoform	ND	1.0	ug/L	0.30
Isopropylbenzene	ND	1.0	ug/L	0.20
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.30
1,2,3-Trichloropropane	ND	1.0	ug/L	0.30
n-Propylbenzene	ND	1.0	ug/L	0.40
Bromobenzene	ND	1.0	ug/L	0.30
1,3,5-Trimethylbenzene	ND	1.0	ug/L	0.20
2-Chlorotoluene	ND	1.0	ug/L	0.30
4-Chlorotoluene	ND	1.0	ug/L	0.30
tert-Butylbenzene	ND	1.0	ug/L	0.20
1,2,4-Trimethylbenzene	ND	1.0	ug/L	0.20
sec-Butylbenzene	ND	1.0	ug/L	0.30
p-Isopropyltoluene	ND	1.0	ug/L	0.20
1,3-Dichlorobenzene	ND	1.0	ug/L	0.20
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
n-Butylbenzene	ND	1.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.20
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	0.60
1,2,4-Trichlorobenzene	ND	1.0	ug/L	0.30
Hexachlorobutadiene	ND	1.0	ug/L	0.30
Naphthalene	ND	1.0	ug/L	0.40
1,2,3-Trichlorobenzene	ND	1.0	ug/L	0.40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	98	(70 - 130)
1,2-Dichloroethane-d4	96	(60 - 140)
Toluene-d8	98	(70 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-3

GC/MS Volatiles

Lot-Sample #...: E9L210177-005 **Work Order #...:** D6N97101 **Matrix.....:** WATER
Date Sampled...: 12/20/99 15:15 **Date Received..:** 12/21/99 10:45 **MS Run #.....:** 9356070
Prep Date.....: 12/21/99 **Analysis Date..:** 12/21/99
Prep Batch #...: 9356198 **Analysis Time..:** 19:52
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	200	ug/L	40
Chloromethane	ND	200	ug/L	30
Vinyl chloride	ND	200	ug/L	30
Chloroethane	ND	200	ug/L	30
Bromomethane	ND	200	ug/L	50
Trichlorofluoromethane	ND	200	ug/L	20
1,1,2-Trichlorotrifluoro-ethane	ND	100	ug/L	20
1,1-Dichloroethene	ND	100	ug/L	20
Methylene chloride	**74 J**	**100**	**ug/L**	**20**
Methyl tert-butyl ether	ND	100	ug/L	50
Carbon disulfide	ND	100	ug/L	30
Acetone	ND	1000	ug/L	200
trans-1,2-Dichloroethene	ND	100	ug/L	20
1,1-Dichloroethane	ND	100	ug/L	20
2,2-Dichloropropane	ND	100	ug/L	30
cis-1,2-Dichloroethene	ND	100	ug/L	30
Chloroform	ND	100	ug/L	20
Bromochloromethane	ND	100	ug/L	30
1,1,1-Trichloroethane	ND	100	ug/L	20
2-Butanone	ND	500	ug/L	300
1,1-Dichloropropene	ND	100	ug/L	30
Carbon tetrachloride	ND	100	ug/L	30
1,2-Dibromoethane	ND	100	ug/L	20
Benzene	ND	100	ug/L	30
Trichloroethene	**70 J**	**100**	**ug/L**	**20**
1,2-Dichloropropane	ND	100	ug/L	20
Bromodichloromethane	ND	100	ug/L	20
Dibromomethane	ND	100	ug/L	20
1-Bromo-2-chloroethane	ND	100	ug/L	50
cis-1,3-Dichloropropene	ND	100	ug/L	20
4-Methyl-2-pentanone	ND	500	ug/L	200
Toluene	ND	100	ug/L	20
1,1,2-Trichloroethane	ND	100	ug/L	20
1,2-Dichloroethane	ND	100	ug/L	20
1,3-Dichloropropane	ND	100	ug/L	20
Tetrachloroethene	**5400**	**100**	**ug/L**	**20**
2-Hexanone	ND	500	ug/L	200
Dibromochloromethane	ND	100	ug/L	20

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HARDING LAWSON ASSOCIATES

Client Sample ID: MW-3

GC/MS Volatiles

Lot-Sample #...: E9L210177-005 **Work Order #...:** D6N97101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	100	ug/L	30
1,1,1,2-Tetrachloroethane	ND	100	ug/L	20
Ethylbenzene	ND	100	ug/L	20
m-Xylene & p-Xylene	ND	100	ug/L	50
o-Xylene	ND	100	ug/L	20
trans-1,3-Dichloropropene	ND	100	ug/L	50
Styrene	ND	100	ug/L	20
Bromoform	ND	100	ug/L	30
Isopropylbenzene	ND	100	ug/L	20
1,1,2,2-Tetrachloroethane	ND	100	ug/L	30
1,2,3-Trichloropropane	ND	100	ug/L	30
n-Propylbenzene	ND	100	ug/L	40
Bromobenzene	ND	100	ug/L	30
1,3,5-Trimethylbenzene	ND	100	ug/L	20
2-Chlorotoluene	ND	100	ug/L	30
4-Chlorotoluene	ND	100	ug/L	30
tert-Butylbenzene	ND	100	ug/L	20
1,2,4-Trimethylbenzene	ND	100	ug/L	20
sec-Butylbenzene	ND	100	ug/L	30
p-Isopropyltoluene	ND	100	ug/L	20
1,3-Dichlorobenzene	ND	100	ug/L	20
1,4-Dichlorobenzene	ND	100	ug/L	30
n-Butylbenzene	ND	100	ug/L	30
1,2-Dichlorobenzene	ND	100	ug/L	20
1,2-Dibromo-3-chloro-propane	ND	200	ug/L	60
1,2,4-Trichlorobenzene	ND	100	ug/L	30
Hexachlorobutadiene	ND	100	ug/L	30
Naphthalene	ND	100	ug/L	40
1,2,3-Trichlorobenzene	ND	100	ug/L	40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(70 - 130)
1,2-Dichloroethane-d4	100	(60 - 140)
Toluene-d8	100	(70 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

E9L210177

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8260B		9356198	9356070
002	WATER	SW846 8260B		9356198	9356070
003	WATER	SW846 8260B		9356198	9356070
004	WATER	SW846 8260B		9356198	9356070
005	WATER	SW846 8260B		9356198	9356070

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E9L210177 **Work Order #...:** D6PHA101 **Matrix.....:** WATER
MB Lot-Sample #: E9L220000-198

Prep Date.....: 12/21/99 **Analysis Time..:** 09:38
Analysis Date..: 12/21/99 **Prep Batch #...:** 9356198

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260B
Chloromethane	ND	2.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	2.0	ug/L	SW846 8260B
1,1,2-Trichlorotrifluoro-ethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260B
Acetone	ND	10	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Bromochloromethane	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
1,2-Dibromoethane	ND	1.0	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
Dibromomethane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260B
o-Xylene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Styrene	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E9L210177 **Work Order #...:** D6PHA101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Isopropylbenzene	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260B
n-Propylbenzene	ND	1.0	ug/L	SW846 8260B
Bromobenzene	ND	1.0	ug/L	SW846 8260B
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260B
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260B
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260B
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260B
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260B
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260B
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260B
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
n-Butylbenzene	ND	1.0	ug/L	SW846 8260B
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260B
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260B
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260B
Naphthalene	ND	1.0	ug/L	SW846 8260B
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	98	(70 - 130)
1,2-Dichloroethane-d4	95	(60 - 140)
Toluene-d8	102	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E9L210177 **Work Order #...:** D6PHA102 **Matrix.....:** WATER
LCS Lot-Sample#: E9L220000-198
Prep Date.....: 12/21/99 **Analysis Date..:** 12/21/99
Prep Batch #...: 9356198 **Analysis Time..:** 09:08

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
1,1-Dichloroethene	**10.0**	**9.76**	**ug/L**	**98**	**SW846 8260B**
Benzene	**10.0**	**9.70**	**ug/L**	**97**	**SW846 8260B**
Trichloroethene	**10.0**	**9.76**	**ug/L**	**98**	**SW846 8260B**
Toluene	**10.0**	**9.66**	**ug/L**	**97**	**SW846 8260B**
Chlorobenzene	**10.0**	**9.76**	**ug/L**	**98**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	96	(70 - 130)
1,2-Dichloroethane-d4	89	(60 - 140)
Toluene-d8	100	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E9L210177 **Work Order #...:** D6GLL108-MS **Matrix.....:** WATER
MS Lot-Sample #: E9L170122-017 D6GLL109-MSD
Date Sampled...: 12/16/99 16:00 **Date Received..:** 12/16/99 19:00 **MS Run #.....:** 9356070
Prep Date.....: 12/21/99 **Analysis Date..:** 12/21/99
Prep Batch #...: 9356198 **Analysis Time..:** 13:16

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene		**10.0**	**10.0**	**ug/L**	**100**		**SW846 8260B**
		10.0	**9.77**	**ug/L**	**98**	**2.4**	**SW846 8260B**
Benzene	**7.1**	**10.0**	**16.5**	**ug/L**	**95**		**SW846 8260B**
	7.1	**10.0**	**16.1**	**ug/L**	**90**	**2.6**	**SW846 8260B**
Trichloroethene	**ND**	**10.0**	**10.0**	**ug/L**	**100**		**SW846 8260B**
	ND	**10.0**	**9.90**	**ug/L**	**99**	**1.3**	**SW846 8260B**
Toluene	**ND**	**10.0**	**9.90**	**ug/L**	**99**		**SW846 8260B**
	ND	**10.0**	**9.73**	**ug/L**	**97**	**1.7**	**SW846 8260B**
Chlorobenzene		**10.0**	**10.2**	**ug/L**	**102**		**SW846 8260B**
		10.0	**9.76**	**ug/L**	**98**	**4.0**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	101	(70 - 130)
	101	(70 - 130)
1,2-Dichloroethane-d4	97	(60 - 140)
	98	(60 - 140)
Toluene-d8	102	(70 - 130)
	101	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MOBILE/ONE LABORATORIES INC.

3/2/00

Harding Lawson Associates
330 North D Street, Suite #310
San Bernadino, CA 92401

Project Name: Aerojet
Project No.:

Attention: Mr. Dave Johnson

Mobile One Laboratories received and analyzed the following sample(s):

Date Received	Quantity	Matrix	Date Received	Quantity	Matrix
2/9/00	19	vapor			
2/11/00	24	vapor			
2/14/00	14	vapor			
2/15/00	14	vapor			

The samples were analyzed by one or more of the EPA methodologies or equivalent methods as specified below.

TPH -- CA DHS "Total Petroleum Hydrocarbons"
BTEX -- EPA Method 8020
TRPH -- EPA Method 418.1, modified for soils
VOCs -- EPA Method 8260

The results are included with a summary of the quality control procedures. Please note that the symbol "nd" indicates a value below the reporting limit for the particular compound in the sample. Flags qualifying the data are explained in footnotes on the same report page as they occur.

Please feel free to call us to discuss any part of this report or to schedule future projects.

Sincerely,

Rebecca L. Johnson
President

James E. Picker, Ph.D
Lab Director

Mobile One Laboratories is certified by the California Department of Health Services (certificate #s: 1194,1561,1921,2088,2278), and the Arizona Department of Health Services (certificate #: AZM466).

MOL Project # HL020900

MOBILE/ONE LABORATORIES INC.

Narrative

Client: Harding Lawson Associates
Project Name: Aerojet

Item 1 Freon 113 was quantitated as a TIC (Tentatively Identified Compound) by method 8260B on February 9 and as a target compound on subsequent days.

Item 2 Samples SVMW-02-5, SVMW-16-5, SVMW-16-20, SVMW-16-40 and SVMW-22-5 were resampled and reanalyzed because of rain.

Item 3 Samples SVMW-21-5 and SVMW-21-20 were analyzed on February 14, however, they were not listed on the chain of custody.

HL020900

148 SO. VINEWOOD STREET • ESCONDIDO, CA 92029 • PHONE (760) 735-3208 • FAX (760) 735-2469

Report Summary

EPA Method 8260B (5030 Prep. water/5035 soil)

Client: Harding Lawson Associates
Project: Aerojet

Continuing Calibration Verification

Matrix: vapor
Units: ug/L

Sample Name: **ICV**
Analysis Date 9 Feb 2000
Analysis Time 9:29am
Dilution Factor: 1

Compound	Amount Found	Percent Difference	QC Criteria (-15 to +15%) Pass	EPA 8260 (-25 to +25%) Pass
Trichlorofluoromethane	53	7	yes	yes
Freon-113				
1,1-Dichloroethene	46	-9	yes	
trans-1,2-Dichloroethene	50	0	yes	
1,1-Dichloroethane	52	3	yes	
cis-1,2-Dichloroethene	50	-1	yes	
1,1,1-Trichloroethane	55	10	yes	
Carbon Tetrachloride	55	11	yes	
1,2-Dichloroethane	56	13	yes	
Benzene	50	1	yes	
Trichloroethene	52	3	yes	
Toluene	55	10	yes	
1,1,2-Trichloroethane	51	1	yes	
Tetrachloroethene	50	1	yes	
m,p-Xylene	101	1	yes	
o-Xylene	54	7	yes	

Surrogates	Spiked	QC Limits(% Rec.)	
DBFM	50 ng	80-120	104
Toluene - d8	50 ng	80-120	100
1,4-BFB	50 ng	65-135	106

Analyses performed by: T. Davis

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MOBILE ONE LABORATORIES INC.

HL020900

Report Summary

EPA Method 8260B (5030 Prep. water/5035 soil)

Client: Harding Lawson Associates
Project: Aerojet

Continuing Calibration Verification

Matrix: vapor
Units: ug/L

Sample Name: ICV
Analysis Date 11 Feb 2000
Analysis Time 10:08am
Dilution Factor: 1

Compound	Amount Found	Percent Diff	QC Criteria (-15 to +15%) Pass	EPA 8260 (-25 to +25%) Pass
Trichlorofluoromethane	57	13	yes	yes
Freon-113	51	2	yes	yes
1,1-Dichloroethene	48	-4	yes	
trans-1,2-Dichloroethene	49	-3	yes	
1,1-Dichloroethane	53	6	yes	
cis-1,2-Dichloroethene	47	-5	yes	
1,1,1-Trichloroethane	59	18	no	
Carbon Tetrachloride	58	17	no	
1,2-Dichloroethane	62	23	no	
Benzene	48	-5	yes	
Trichloroethene	52	4	yes	
Toluene	48	-5	yes	
1,1,2-Trichloroethane	49	-3	yes	
Tetrachloroethene	54	9	yes	
m,p-Xylene	96	-4	yes	
o-Xylene	48	-4	yes	

Surrogates	Spiked	QC Limits(% Rec.)	
DBFM	50 ng	80-120	106
Toluene - d8	50 ng	80-120	96
1,4-BFB	50 ng	65-135	101

Analyses performed by: T. Davis

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep. water/5035 soil)

Client: Harding Lawson Associates
Project: Aerojet

Continuing Calibration Verification

Matrix: vapor
Units: ug/L

Sample Name: **ICV**
Analysis Date 14 Feb 2000
Analysis Time 12:16 pm
Dilution Factor: 1

Compound	Amount Found	Percent Diff	QC Criteria (-15 to +15%) Pass	EPA 8260 (-25 to +25%) Pass
Trichlorofluoromethane	43	-13	yes	yes
Freon-113	44	-12	yes	yes
1,1-Dichloroethene	54	8	yes	
trans-1,2-Dichloroethene	53	6	yes	
1,1-Dichloroethane	50	0	yes	
cis-1,2-Dichloroethene	52	4	yes	
1,1,1-Trichloroethane	49	-2	yes	
Carbon Tetrachloride	49	-2	yes	
1,2-Dichloroethane	47	-6	yes	
Benzene	52	4	yes	
Trichloroethene	52	4	yes	
Toluene	51	2	yes	
1,1,2-Trichloroethane	49	-1	yes	
Tetrachloroethene	55	11	yes	
m,p-Xylene	113	13	yes	
o-Xylene	53	6	yes	

Surrogates	Spiked	QC Limits(% Rec.)	
DBFM	50 ng	80-120	101
Toluene - d8	50 ng	80-120	102
1,4-BFB	50 ng	65-135	93

Analyses performed by: T. Davis

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MOBILE ONE LABORATORIES INC.

HL020900

Report Summary

EPA Method 8260B (5030 Prep. water/5035 soil)

Client: Harding Lawson Associates
Project: Aerojet

Continuing Calibration Verification

Matrix: vapor
Units: ug/L

Sample Name: ICV
Analysis Date 15 Feb 2000
Analysis Time 8:51am
Dilution Factor: 1

Compound	Amount Found	Percent Diff	QC Criteria (-15 to +15%) Pass	EPA 8260 (-25 to +25%) Pass
Trichlorofluoromethane	62	23	no	yes
Freon-113	52	4	yes	yes
1,1-Dichloroethene	45	-9	yes	
trans-1,2-Dichloroethene	48	-3	yes	
1,1-Dichloroethane	48	-3	yes	
cis-1,2-Dichloroethene	44	-12	yes	
1,1,1-Trichloroethane	51	1	yes	
Carbon Tetrachloride	51	3	yes	
1,2-Dichloroethane	50	0	yes	
Benzene	49	-3	yes	
Trichloroethene	47	-6	yes	
Toluene	48	-3	yes	
1,1,2-Trichloroethane	50	0	yes	
Tetrachloroethene	49	-2	yes	
m,p-Xylene	104	4	yes	
o-Xylene	52	4	yes	

Surrogates	Spiked	QC Limits(% Rec.)	
DBFM	50 ng	80-120	116
Toluene - d8	50 ng	80-120	104
1,4-BFB	50 ng	65-135	104

Analyses performed by: T. Davis

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Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		vapor blank	MW-3-37	MW-3-93	MW-3-140.5	MW-3-193
Analysis Date		9 Feb 2000	9 Feb 2000	9 Feb 2000	9 Feb 2000	9 Feb 2000
Analysis Time		8:22 am	10:43 am	10:22 am	11:05 am	11:27 am
Dilution Factor:	0.1	0.1	0.1	1	1	1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	< 10	< 10	< 10
Vinyl Chloride	1	nd	nd	< 10	< 10	< 10
Chloroethane	1	nd	nd	< 10	< 10	< 10
Trichlorofluoromethane	1	nd	1.5	< 10	< 10	< 10
Freon-113	1	nd	20	48	55	55
1,1-Dichloroethene	1	nd	1.4	< 10	< 10	11
Methylene Chloride	1	nd	nd	< 10	< 10	< 10
Methyl-t-butylether	1	nd	nd	< 10	< 10	< 10
trans-1,2-Dichloroethene	1	nd	nd	< 10	< 10	< 10
1,1-Dichloroethane	1	nd	nd	< 10	< 10	< 10
cis-1,2-Dichloroethene	1	nd	nd	< 10	< 10	< 10
Chloroform	1	nd	nd	< 10	< 10	< 10
1,1,1-Trichloroethane	1	nd	nd	< 10	< 10	< 10
Carbon Tetrachloride	1	nd	4.6	29	39	49
1,2-Dichloroethane	1	nd	nd	< 10	< 10	< 10
Benzene	1	nd	nd	< 10	< 10	< 10
1,4-Dioxane	20	nd	nd	< 200	< 200	< 200
Trichloroethene	1	nd	4.2	41	47	74
Toluene	1	nd	nd	< 10	< 10	< 10
1,1,2-Trichloroethane	1	nd	nd	< 10	< 10	< 10
Tetrachloroethene	1	nd	4.9	19	39	92
Ethylbenzene	1	nd	nd	< 10	< 10	< 10
1,1,1,2-Tetrachloroethane	1	nd	nd	< 10	< 10	< 10
m,p-Xylene	1	nd	nd	< 10	< 10	< 10
o-Xylene	1	nd	nd	< 10	< 10	< 10
1,1,2,2-Tetrachloroethane	1	nd	nd	< 10	< 10	< 10

Surrogates	Spiked	QC Limits(% Rec.)		Percent Recovery			
DBFM	50 ng	75-125	100	111	101	107	103
Toluene - d8	50 ng	75-125	100	101	100	101	101
1,4-BFB	50 ng	75-125	90	97	90	93	94

Analyses performed by: T. Davis

HL020900

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		IVDMW-01-93	IVDMW-01-201.5	IVDMW-01-256	IVDMW-01-256Dup.	IVDMW-01-263	IVDMW-01-306
Analysis Date		9 Feb 2000	9 Feb 2000	9 Feb 2000	9 Feb 2000	9 Feb 2000	9 Feb 2000
Analysis Time		11:50 am	12:12 pm	1:17 pm	1:39 pm	12:33 pm	12:55 pm
Dilution Factor:	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd	nd	nd	nd
Chloroethane	1	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	1	6.1	5.4	2.3	2.1	5.3	6.1
Freon-113	1	18	17	7.7	6.5	17	17
1,1-Dichloroethene	1	8.0	6.6	2.7	2.6	6.8	8.1
Methylene Chloride	1	nd	nd	nd	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd	nd	1.1
1,1,1-Trichloroethane	1	1.3	1.3	nd	nd	1.3	1.3
Carbon Tetrachloride	1	17	16	9.1	8.3	15	16
1,2-Dichloroethane	1	nd	1.0	nd	nd	1.1	1.3
Benzene	1	nd	nd	nd	nd	nd	nd
1,4-Dioxane	20	nd	nd	nd	nd	nd	nd
Trichloroethene	1	190	180	140	120	190	230
Toluene	1	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1	18	20	13	12	20	28
Ethylbenzene	1	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	nd	nd	nd
m,p-Xylene	1	nd	nd	nd	nd	nd	nd
o-Xylene	1	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery			
DBFM	50 ng	75-125	106	110	124	114	109	111
Toluene - d8	50 ng	75-125	102	104	100	100	102	103
1,4-BFB	50 ng	75-125	97	95	100	95	94	95

Analyses performed by: T. Davis

HL020900

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-06-5	SVMW-06-20	SVMW-06-34
Analysis Date		9 Feb 2000	9 Feb 2000	9 Feb 2000
Analysis Time		2:01 pm	2:22 pm	2:44 pm
Dilution Factor:	0.1	0.1	0.1	0.1

Compound	E.Q.L	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd
Chloroethane	1	nd	nd	nd
Trichlorofluoromethane	1	nd	nd	nd
Freon-113	1	1.5	4.1	8.8
1,1-Dichloroethene	1	nd	nd	2.0
Methylene Chloride	1	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	nd
Chloroform	1	nd	nd	nd
1,1,1-Trichloroethane	1	nd	nd	nd
Carbon Tetrachloride	1	nd	1.4	4.0
1,2-Dichloroethane	1	nd	nd	nd
Benzene	1	nd	nd	nd
1,4-Dioxane	20	nd	nd	nd
Trichloroethene	1	25	58	110
Toluene	1	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd
Tetrachloroethene	1	4.2	8.0	14
Ethylbenzene	1	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd
m,p-Xylene	1	nd	nd	nd
o-Xylene	1	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery
DBFM	50 ng	75-125	115	111	119
Toluene - d8	50 ng	75-125	101	102	102
1,4-BFB	50 ng	75-125	92	92	95

Analyses performed by: T. Davis

HL020900

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-08-5	SVMW-08-20	SVMW-08-34
Analysis Date		9 Feb 2000	no sample	9 Feb 2000
Analysis Time		3:07 pm	well plugged	3:28 pm
Dilution Factor:	0.1	0.1		0.1

Compound	E.Q.L	Amount Found		Amount Found
Dichlorodifluoromethane	1	nd		nd
Vinyl Chloride	1	nd		nd
Chloroethane	1	nd		nd
Trichlorofluoromethane	1	6.0		1.5
Freon-113	1	46		62
1,1-Dichloroethene	1	7.3		13
Methylene Chloride	1	nd		nd
Methyl-t-butylether	1	nd		nd
trans-1,2-Dichloroethene	1	nd		nd
1,1-Dichloroethane	1	nd		1.1
cis-1,2-Dichloroethene	1	nd		2.1
Chloroform	1	nd		nd
1,1,1-Trichloroethane	1	4.9		8.2
Carbon Tetrachloride	1	11		21
1,2-Dichloroethane	1	nd		nd
Benzene	1	nd		nd
1,4-Dioxane	20	nd		nd
Trichloroethene	1	44		90
Toluene	1	nd		nd
1,1,2-Trichloroethane	1	nd		nd
Tetrachloroethene	1	16		46
Ethylbenzene	1	nd		nd
1,1,1,2-Tetrachloroethane	1	nd		nd
m,p-Xylene	1	nd		nd
o-Xylene	1	nd		nd
1,1,2,2-Tetrachloroethane	1	nd		nd

Surrogates	Spiked	QC Limits(% Rec.)		Percent Recovery
DBFM	50 ng	75-125	124	111
Toluene - d8	50 ng	75-125	104	100
1,4-BFB	50 ng	75-125	104	87

Analyses performed by: T. Davis

HL020900

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MOBILE ONE LABORATORIES INC.

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Report Summary

EPA Method 8260B (5030 Prep.)

MOBILE ONE LABORATORIES INC.

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-10-5	SVMW-10-20	SVMW-10-30
Analysis Date		no sample	9 Feb 2000	9 Feb 2000
Analysis Time		well plugged	3:50 pm	4:12 pm
Dilution Factor:	0.1		0.1	0.1
Compound	E.Q.L		Amount Found	Amount Found
Dichlorodifluoromethane	1		nd	nd
Vinyl Chloride	1		nd	nd
Chloroethane	1		nd	nd
Trichlorofluoromethane	1		2.3	2.8
Freon-113	1		38	32
1,1-Dichloroethene	1		5.7	4.9
Methylene Chloride	1		nd	nd
Methyl-t-butylether	1		nd	nd
trans-1,2-Dichloroethene	1		nd	nd
1,1-Dichloroethane	1		nd	nd
cis-1,2-Dichloroethene	1		2.3	2.1
Chloroform	1		nd	nd
1,1,1-Trichloroethane	1		1.7	1.2
Carbon Tetrachloride	1		18	17
1,2-Dichloroethane	1		nd	nd
Benzene	1		nd	nd
1,4-Dioxane	20		nd	nd
Trichloroethene	1		42	37
Toluene	1		nd	nd
1,1,2-Trichloroethane	1		nd	nd
Tetrachloroethene	1		17	15
Ethylbenzene	1		nd	nd
1,1,1,2-Tetrachloroethane	1		nd	nd
m,p-Xylene	1		nd	nd
o-Xylene	1		nd	nd
1,1,2,2-Tetrachloroethane	1		nd	nd
Surrogates	Spiked	QC Limits(% Rec.)		Percent Recovery
DBFM	50 ng	75-125	120	114
Toluene - d8	50 ng	75-125	101	103
1,4-BFB	50 ng	75-125	94	96

Analyses performed by: T. Davis

HL020900

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-19-5	SVMW-19-20	SVMW-19-39.5
Analysis Date		9 Feb 2000	9 Feb 2000	9 Feb 2000
Analysis Time		4:34 pm	4:56 pm	5:18 pm
Dilution Factor:	0.1	0.1	0.1	0.1

Compound	E.Q.L	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd
Chloroethane	1	nd	nd	nd
Trichlorofluoromethane	1	nd	nd	nd
Freon-113	1	nd	nd	nd
1,1-Dichloroethene	1	nd	nd	nd
Methylene Chloride	1	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	nd
Chloroform	1	nd	nd	nd
1,1,1-Trichloroethane	1	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd
1,2-Dichloroethane	1	nd	nd	nd
Benzene	1	nd	nd	nd
1,4-Dioxane	20	nd	nd	nd
Trichloroethene	1	nd	1.9	6.3
Toluene	1	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd
Tetrachloroethene	1	nd	1.2	1.2
Ethylbenzene	1	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd
m,p-Xylene	1	nd	nd	nd
o-Xylene	1	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery
DBFM	50 ng	75-125	122	114	120
Toluene - d8	50 ng	75-125	104	102	104
1,4-BFB	50 ng	75-125	99	95	100

Analyses performed by: T. Davis

HL020900

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		vapor blank	IVDMW-02-110	IVDMW-02-153	IVDMW-02-213	IVDMW-02-265	IVDMW-02-310
Analysis Date		11 Feb 2000	11 Feb 2000	11 Feb 2000	11 Feb 2000	11 Feb 2000	11 Feb 2000
Analysis Time		10:30 am	11:37 am	11:58 am	12:20 pm	12:42 pm	1:04 pm
Dilution Factor:	0.1	0.1	1	1	1	1	1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	< 10	< 10	< 10	< 10	< 10
Vinyl Chloride	1	nd	< 10	< 10	< 10	< 10	< 10
Chloroethane	1	nd	< 10	< 10	< 10	< 10	< 10
Trichlorofluoromethane	1	nd	< 10	< 10	< 10	< 10	< 10
Freon-113	1	nd	< 10	< 10	< 10	< 10	17
1,1-Dichloroethene	1	nd	< 10	< 10	< 10	< 10	< 10
Methylene Chloride	1	nd	< 10	< 10	< 10	< 10	< 10
Methyl-t-butylether	1	nd	< 10	< 10	< 10	< 10	< 10
trans-1,2-Dichloroethene	1	nd	< 10	< 10	< 10	< 10	< 10
1,1-Dichloroethane	1	nd	< 10	< 10	< 10	< 10	< 10
cis-1,2-Dichloroethene	1	nd	< 10	< 10	< 10	< 10	< 10
Chloroform	1	nd	< 10	< 10	< 10	< 10	< 10
1,1,1-Trichloroethane	1	nd	< 10	< 10	< 10	< 10	< 10
Carbon Tetrachloride	1	nd	< 10	29	40	16	15
1,2-Dichloroethane	1	nd	< 10	< 10	< 10	< 10	< 10
Benzene	1	nd	< 10	< 10	< 10	< 10	< 10
1,4-Dioxane	20	nd	< 200	< 200	< 200	< 200	< 200
Trichloroethene	1	nd	33	240	290	120	130
Toluene	1	nd	< 10	< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	1	nd	< 10	< 10	< 10	< 10	< 10
Tetrachloroethene	1	nd	< 10	< 10	< 10	< 10	< 10
Ethylbenzene	1	nd	< 10	< 10	< 10	< 10	< 10
1,1,1,2-Tetrachloroethane	1	nd	< 10	< 10	< 10	< 10	< 10
m,p-Xylene	1	nd	< 10	< 10	< 10	< 10	< 10
o-Xylene	1	nd	< 10	< 10	< 10	< 10	< 10
1,1,2,2-Tetrachloroethane	1	nd	< 10	< 10	< 10	< 10	< 10

Surrogates	Spiked	QC Limits(% Rec.)	Percent Recovery				
DBFM	50 ng	75-125	115	114	117	116	116	117
Toluene - d8	50 ng	75-125	98	101	101	99	100	99
1,4-BFB	50 ng	75-125	92	94	95	90	93	92

Analyses performed by: T. Davis

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-02-5	SVMW-02-20	SVMW-02-39	SVMW-02-39Dup.	SVMW-02-5 resample
Analysis Date		11 Feb 2000	11 Feb 2000	11 Feb 2000	11 Feb 2000	15 Feb 2000
Analysis Time		1:25 pm	1:47 pm	2:09 pm	2:31 pm	4:08pm
Dilution Factor:	0.1	0.1	0.1	0.1	0.1	0.1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd	nd	nd
Chloroethane	1	nd	nd	nd	nd	nd
Trichlorofluoromethane	1	1.3	1.7	nd	nd	1.1
Freon-113	1	7.8	9.8	nd	nd	7.9
1,1-Dichloroethene	1	nd	nd	nd	nd	nd
Methylene Chloride	1	nd	nd	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	nd	nd	nd
Chloroform	1	nd	1.0	nd	nd	nd
1,1,1-Trichloroethane	1	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	4.4	6.6	1.2	nd	4.1
1,2-Dichloroethane	1	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd
1,4-Dioxane	20	nd	nd	nd	nd	nd
Trichloroethene	1	22	40	12	10	26
Toluene	1	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	nd	nd
m,p-Xylene	1	nd	nd	nd	nd	nd
o-Xylene	1	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)	Percent Recovery				
DBFM	50 ng	75-125	127 *	120	131 *	127 *	115
Toluene - d8	50 ng	75-125	102	100	100	104	107
1,4-BFB	50 ng	75-125	100	96	96	98	85

Analyses performed by: T. Davis

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-11-5	SVMW-11-20	SVMW-11-31	SVMW-13-5	SVMW-13-20	SVMW-13-33.5
Analysis Date		11 Feb 2000	11 Feb 2000	11 Feb 2000	11 Feb 2000	11 Feb 2000	11 Feb 2000
Analysis Time		2:52 pm	3:15 pm	3:37 pm	3:58 pm	4:20 pm	4:41 pm
Dilution Factor:	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	< 2	< 2	< 2	< 2	< 2	< 2
Vinyl Chloride	1	< 2	< 2	< 2	< 2	< 2	< 2
Chloroethane	1	< 2	< 2	< 2	< 2	< 2	< 2
Trichlorofluoromethane	1	< 2	< 2	< 2	< 2	< 2	< 2
Freon-113	1	< 2	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethene	1	< 2	< 2	< 2	< 2	< 2	< 2
Methylene Chloride	1	< 2	< 2	< 2	< 2	< 2	< 2
Methyl-t-butylether	1	< 2	< 2	< 2	< 2	< 2	< 2
trans-1,2-Dichloroethene	1	< 2	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethane	1	< 2	< 2	< 2	< 2	< 2	< 2
cis-1,2-Dichloroethene	1	< 2	< 2	< 2	< 2	< 2	< 2
Chloroform	1	< 2	< 2	< 2	< 2	< 2	< 2
1,1,1-Trichloroethane	1	< 2	< 2	< 2	< 2	< 2	< 2
Carbon Tetrachloride	1	< 2	< 2	< 2	< 2	< 2	< 2
1,2-Dichloroethane	1	< 2	< 2	< 2	< 2	< 2	< 2
Benzene	1	< 2	< 2	< 2	< 2	< 2	< 2
1,4-Dioxane	20	< 40	< 40	< 40	< 40	< 40	< 40
Trichloroethene	1	3.7	2.9	6.9	3.5	9.9	4.3
Toluene	1	< 2	< 2	< 2	< 2	< 2	< 2
1,1,2-Trichloroethane	1	< 2	< 2	< 2	< 2	< 2	< 2
Tetrachloroethene	1	< 2	< 2	< 2	< 2	2.7	< 2
Ethylbenzene	1	< 2	< 2	< 2	< 2	< 2	< 2
1,1,1,2-Tetrachloroethane	1	< 2	< 2	< 2	< 2	< 2	< 2
m,p-Xylene	1	< 2	< 2	< 2	< 2	< 2	< 2
o-Xylene	1	< 2	< 2	< 2	< 2	< 2	< 2
1,1,2,2-Tetrachloroethane	1	< 2	< 2	< 2	< 2	< 2	< 2

Surrogates	Spiked	QC Limits(% Rec.)	Percent Recovery				
DBFM	50 ng	75-125	125	120	123	119	119	119
Toluene - d8	50 ng	75-125	102	100	100	102	99	103
1,4-BFB	50 ng	75-125	99	94	96	99	96	101

Analyses performed by: T. Davis

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-14-20	SVMW-14-30	SVMW-15-5	SVMW-15-20	SVMW-15-30
Analysis Date		11 Feb 2000	11 Feb 2000	11 Feb 2000	11 Feb 2000	11 Feb 2000
Analysis Time		6:06 pm	6:27 pm	5:02 pm	5:23 pm	5:44 pm
Dilution Factor:	0.1	0.2	0.2	0.2	0.2	0.2
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	< 2	< 2	< 2	< 2	< 2
Vinyl Chloride	1	< 2	< 2	< 2	< 2	< 2
Chloroethane	1	< 2	< 2	< 2	< 2	< 2
Trichlorofluoromethane	1	< 2	< 2	< 2	< 2	< 2
Freon-113	1	< 2	3.7	< 2	< 2	< 2
1,1-Dichloroethene	1	< 2	< 2	< 2	< 2	< 2
Methylene Chloride	1	< 2	< 2	< 2	< 2	< 2
Methyl-t-butylether	1	< 2	< 2	< 2	< 2	< 2
trans-1,2-Dichloroethene	1	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethane	1	< 2	< 2	< 2	< 2	< 2
cis-1,2-Dichloroethene	1	< 2	< 2	< 2	< 2	< 2
Chloroform	1	< 2	< 2	< 2	< 2	< 2
1,1,1-Trichloroethane	1	< 2	< 2	< 2	< 2	< 2
Carbon Tetrachloride	1	< 2	< 2	< 2	< 2	< 2
1,2-Dichloroethane	1	< 2	< 2	< 2	< 2	< 2
Benzene	1	< 2	< 2	< 2	< 2	< 2
1,4-Dioxane	20	< 40	< 40	< 40	< 40	< 40
Trichloroethene	1	12	16	5.8	23	3.1
Toluene	1	< 2	< 2	< 2	< 2	< 2
1,1,2-Trichloroethane	1	< 2	< 2	< 2	< 2	< 2
Tetrachloroethene	1	< 2	< 2	< 2	< 2	< 2
Ethylbenzene	1	< 2	< 2	< 2	< 2	< 2
1,1,1,2-Tetrachloroethane	1	< 2	< 2	< 2	< 2	< 2
m,p-Xylene	1	< 2	< 2	< 2	< 2	< 2
o-Xylene	1	< 2	< 2	< 2	< 2	< 2
1,1,2,2-Tetrachloroethane	1	< 2	< 2	< 2	< 2	< 2

Surrogates	Spiked	QC Limits(% Rec.)	Percent Recovery			
DBFM	50 ng	75-125	120	123	118	119	118
Toluene - d8	50 ng	75-125	101	100	101	98	99
1,4-BFB	50 ng	75-125	95	95	94	93	92

Analyses performed by: T. Davis

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-16-5 resample	SVMW-16-20 resample	SVMW-16-40 resample	SVMW-17-5	SVMW-17-20
Analysis Date		15 Feb 2000	15 Feb 2000	15 Feb 2000	11 Feb 2000	11 Feb 2000
Analysis Time		4:40pm	5:03pm	5:26pm	6:48pm	7:09pm
Dilution Factor:	0.1	0.1	0.1	0.1	0.2	0.2
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd	< 2	< 2
Vinyl Chloride	1	nd	nd	nd	< 2	< 2
Chloroethane	1	nd	nd	nd	< 2	< 2
Trichlorofluoromethane	1	nd	nd	nd	< 2	< 2
Freon-113	1	nd	nd	nd	< 2	< 2
1,1-Dichloroethene	1	nd	nd	1.4	< 2	< 2
Methylene Chloride	1	nd	nd	nd	< 2	< 2
Methyl-t-butylether	1	nd	nd	nd	< 2	< 2
trans-1,2-Dichloroethene	1	nd	nd	nd	< 2	< 2
1,1-Dichloroethane	1	nd	nd	nd	< 2	< 2
cis-1,2-Dichloroethene	1	nd	nd	nd	< 2	< 2
Chloroform	1	nd	nd	nd	< 2	< 2
1,1,1-Trichloroethane	1	nd	nd	nd	< 2	< 2
Carbon Tetrachloride	1	nd	1.0	2.2	< 2	2.5
1,2-Dichloroethane	1	nd	nd	nd	< 2	< 2
Benzene	1	nd	nd	nd	< 2	< 2
1,4-Dioxane	20	nd	nd	nd	< 40	< 40
Trichloroethene	1	nd	19	28	2.7	21
Toluene	1	nd	nd	nd	< 2	< 2
1,1,2-Trichloroethane	1	nd	nd	nd	< 2	< 2
Tetrachloroethene	1	nd	nd	1.1	< 2	< 2
Ethylbenzene	1	nd	nd	nd	< 2	< 2
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	< 2	< 2
m,p-Xylene	1	nd	nd	nd	< 2	< 2
o-Xylene	1	nd	nd	nd	< 2	< 2
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	< 2	< 2

Surrogates	Spiked	QC Limits(% Rec.)	Percent Recovery				
DBFM	50 ng	75-125	122	115	117	125	122
Toluene - d8	50 ng	75-125	109	109	108	103	100
1,4-BFB	50 ng	75-125	90	88	84	96	92

Analyses performed by: T. Davis

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		Vapor Blank	SVMW-20-5	SVMW-20-20	SVMW-21-5	SVMW-21-20
Analysis Date		14 Feb 2000	14 Feb 2000	14 Feb 2000	14 Feb 2000	14 Feb 2000
Analysis Time		12:45pm	4:45pm	5:07pm	5:28pm	5:50pm
Dilution Factor:	0.1	0.1	0.1	0.1	0.1	0.1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd	nd	nd
Chloroethane	1	nd	nd	nd	nd	nd
Trichlorofluoromethane	1	nd	nd	nd	nd	nd
Freon-113	1	nd	nd	nd	nd	nd
1,1-Dichloroethene	1	nd	nd	nd	nd	nd
Methylene Chloride	1	nd	nd	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	9.4	13
1,1,1-Trichloroethane	1	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd	nd
1,2-Dichloroethane	1	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd
1,4-Dioxane	20	nd	nd	nd	nd	nd
Trichloroethene	1	nd	1.3	3.3	9.1	9.6
Toluene	1	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	nd	nd
m,p-Xylene	1	nd	nd	nd	nd	nd
o-Xylene	1	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery		
DBFM	50 ng	75-125	108	120	121	113	117
Toluene - d8	50 ng	75-125	103	107	108	108	109
1,4-BFB	50 ng	75-125	83	87	88	85	88

Analyses performed by: T. Davis

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MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-04-5	SVMW-04-20	SVMW-05-5	SVMW-05-20	SVMW-05-40	SVMW-05-40Dup.
Analysis Date		14 Feb 2000	14 Feb 2000	14 Feb 2000	14 Feb 2000	14 Feb 2000	14 Feb 2000
Analysis Time		1:07pm	1:28pm	1:50pm	2:12pm	2:33pm	2:55pm
Dilution Factor:	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found	Amount found
Dichlorodifluoromethane	1	nd	nd	nd	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd	nd	nd	nd
Chloroethane	1	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	1	nd	nd	nd	nd	1.8	nd
Freon-113	1	nd	1.9	nd	nd	3.1	3.0
1,1-Dichloroethene	1	nd	nd	nd	nd	nd	nd
Methylene Chloride	1	nd	nd	nd	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	1	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	1.2	3.3	nd	nd	6.6	6.1
1,2-Dichloroethane	1	nd	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd	nd
1,4-Dioxane	20	nd	nd	nd	nd	nd	nd
Trichloroethene	1	9.3	26	6.9	3.3	34	32
Toluene	1	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1	1.3	1.3	nd	nd	1.4	1.3
Ethylbenzene	1	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	nd	nd	nd
m,p-Xylene	1	nd	nd	nd	nd	nd	nd
o-Xylene	1	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery			
DBFM	50 ng	75-125	106	108	106	114	114	113
Toluene - d8	50 ng	75-125	105	106	104	106	107	106
1,4-BFB	50 ng	75-125	86	83	83	88	90	87

Analyses performed by: T. Davis

HL020900

148 SO. VINEWOOD STREET • ESCONDIDO, CA 92029 • PHONE (760) 735-3208 • FAX (760) 735-2469

MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-22-5 resample	SVMW-22-18	SVMW-22-26.5	SVMW-24-5	SVMW-24-19.5
Analysis Date		15 Feb 2000	14 Feb 2000	14 Feb 2000	14 Feb 2000	14 Feb 2000
Analysis Time		5:48pm	3:39pm	4:01pm	6:12pm	6:34pm
Dilution Factor:	0.1	0.1	0.1	0.1	0.1	0.1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd	nd	nd
Chloroethane	1	nd	nd	nd	nd	nd
Trichlorofluoromethane	1	nd	nd	nd	nd	nd
Freon-113	1	nd	nd	1.1	nd	1.4
1,1-Dichloroethene	1	nd	nd	nd	nd	nd
Methylene Chloride	1	nd	nd	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	18	9.9
1,1,1-Trichloroethane	1	nd	nd	nd	1.3	nd
Carbon Tetrachloride	1	nd	nd	nd	18	8.7
1,2-Dichloroethane	1	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd
1,4-Dioxane	20	nd	nd	nd	nd	nd
Trichloroethene	1	2.0	1.3	3.6	15	8.4
Toluene	1	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	5.3	6.7
Ethylbenzene	1	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	nd	nd
m,p-Xylene	1	nd	nd	nd	nd	nd
o-Xylene	1	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery		
DBFM	50 ng	75-125	114	114	116	115	115
Toluene - d8	50 ng	75-125	108	106	106	106	104
1,4-BFB	50 ng	75-125	86	86	87	86	85

Analyses performed by: T. Davis

HL020900

148 SO. VINEWOOD STREET • ESCONDIDO, CA 92029 • PHONE (760) 735-3208 • FAX (760) 735-2469

MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-26-5	SVMW-26-23.5	SVMW-26-23.5Dup.	SVMW-28-5	SVMW-28-19	Vapor Blank
Analysis Date		15 Feb 2000	15 Feb 2000	15 Feb 2000	15 Feb 2000	15 Feb 2000	15 Feb 2000
Analysis Time		10:23am	10:45am	11:07am	12:15pm	12:38pm	9:59am
Dilution Factor:	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd	nd	nd	nd
Chloroethane	1	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	1	nd	nd	nd	nd	nd	nd
Freon-113	1	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	1	nd	nd	nd	nd	nd	nd
Methylene Chloride	1	nd	nd	nd	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	1	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	1	nd	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd	nd
1,4-Dioxane	20	nd	nd	nd	nd	nd	nd
Trichloroethene	1	1.2	1.6	1.6	1.8	2.3	nd
Toluene	1	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	nd	nd	nd
m,p-Xylene	1	nd	nd	nd	nd	nd	nd
o-Xylene	1	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery			
DBFM	50 ng	75-125	118	110	115	117	116	112
Toluene - d8	50 ng	75-125	109	106	106	108	108	104
1,4-BFB	50 ng	75-125	91	84	88	87	90	84

Analyses performed by: T. Davis

HL020900

MOBILE ONE LABORATORIES INC.
148 SO. VINEWOOD STREET • ESCONDIDO, CA 92029 • PHONE (760) 735-3208 • FAX (760) 735-2469

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-29-5	SVMW-29-23	SVMW-30-5	SVMW-30-21	SVMW-30-39
Analysis Date		15 Feb 2000	15 Feb 2000	15 Feb 2000	15 Feb 2000	15 Feb 2000
Analysis Time		2:09pm	2:31pm	1:01pm	1:24pm	1:46pm
Dilution Factor:	0.1	0.1	0.1	0.1	0.1	0.1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd	nd	nd
Chloroethane	1	nd	nd	nd	nd	nd
Trichlorofluoromethane	1	nd	nd	nd	nd	nd
Freon-113	1	nd	nd	nd	nd	nd
1,1-Dichloroethene	1	nd	nd	nd	nd	nd
Methylene Chloride	1	nd	nd	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	18	nd	nd
Chloroform	1	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	1	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd	nd
1,2-Dichloroethane	1	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd
1,4-Dioxane	20	nd	nd	nd	nd	nd
Trichloroethene	1	1.1	5.5	120	15	5.5
Toluene	1	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	nd	nd
m,p-Xylene	1	nd	nd	nd	nd	nd
o-Xylene	1	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery		
DBFM	50 ng	75-125	120	119	114	116	124
Toluene - d8	50 ng	75-125	108	110	105	105	108
1,4-BFB	50 ng	75-125	87	91	87	90	91

Analyses performed by: T. Davis

HL020900

148 SO. VINEWOOD STREET • ESCONDIDO, CA 92029 • PHONE (760) 735-3208 • FAX (760) 735-2469

MOBILE ONE LABORATORIES INC.

Report Summary

EPA Method 8260B (5030 Prep.)

Client: Harding Lawson Associates
Project: Aerojet

Matrix: vapor
Units: ug/L

Sample Name:		SVMW-32-5	SVMW-32-20	SVMW-1-5	SVMW-1-20	SVMW-1-40
Analysis Date		15 Feb 2000	15 Feb 2000	15 Feb 2000	15 Feb 2000	15 Feb 2000
Analysis Time		11:30am	11:53am	2:54pm	3:17pm	3:41pm
Dilution Factor:	0.1	0.1	0.1	0.1	0.1	0.1
Compound	E.Q.L	Amount Found	Amount Found	Amount Found	Amount Found	Amount Found
Dichlorodifluoromethane	1	nd	nd	nd	nd	nd
Vinyl Chloride	1	nd	nd	nd	nd	nd
Chloroethane	1	nd	nd	nd	nd	nd
Trichlorofluoromethane	1	nd	nd	nd	nd	nd
Freon-113	1	nd	nd	21	24	22
1,1-Dichloroethene	1	nd	nd	nd	1.4	1.6
Methylene Chloride	1	nd	nd	nd	nd	nd
Methyl-t-butylether	1	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	1	nd	nd	nd	nd	nd
1,1-Dichloroethane	1	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	1	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd	nd
1,1,1-Trichloroethane	1	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	1.6	2.1	2.1
1,2-Dichloroethane	1	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd
1,4-Dioxane	20	nd	nd	nd	nd	nd
Trichloroethene	1	nd	3.1	3.6	8.9	7.3
Toluene	1	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	nd	1.0
Ethylbenzene	1	nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	nd	nd
m,p-Xylene	1	nd	nd	nd	nd	nd
o-Xylene	1	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	nd	nd

Surrogates	Spiked	QC Limits(% Rec.)			Percent Recovery		
DBFM	50 ng	75-125	115	115	137 *	127 *	126 *
Toluene - d8	50 ng	75-125	106	109	107	114	108
1,4-BFB	50 ng	75-125	85	88	99	96	93

Analyses performed by: T. Davis

HL020900

148 SO. VINEWOOD STREET • ESCONDIDO, CA 92029 • PHONE (760) 735-3208 • FAX (760) 735-2469

MOBILE ONE LABORATORIES INC.

MOBILE/ONE LABORATORIES INC.

Footnote Summary

Footnote	Definition
E.Q.L.	Estimated Quantitation Limit
ICV	Initial Calibration Verification.
nd	Not detected above the E.Q.L.
*	Surrogate recovery is slightly higher than desirable; no corrective action taken.

HL020900

148 SO. VINEWOOD STREET • ESCONDIDO, CA 92029 • PHONE (760) 735-3208 • FAX (760) 735-2469

MOBILE/ONE LABORATORIES, INC.

CHAIN-OF-CUSTODY RECORD

HLI ROC

MOL: ~~HLA020800~~

148 So. Vinewood Street, Escondido, CA 92029-1921 (760) 735-3208 FAX (760) 735-2469

Date: 2/9/00 Page 1 of 1

Client: Harding Lawson

Site Address:

Project: Aerojet

Sampler (signature):

Turnaround Requested:

- [x] Onsite/24-48 hrs.
- [ ] Offsite
- [ ] Other

Analysis Requested

Sample ID	Date	Time	Location	TPHg+d-8015M	TPHg-8015M (P&T)	BTEX-8020	TPHg/BTEX-8015M/8020	TRPH-418.1	8260 (VOC's-8240)						Matrix: Soil (S), Sludge (SL), Aqueous (W)	Number of containers
Vapor Blank	2/9	0800							X						V	1
MW-3 @ 37'	2/9	0908	p = 15 sec						X						V	1
MW-3 @ 93		0915	p = 36 sec						X						V	1
MW-3 @ 140.5		0950	p = 54 sec						X						V	1
MW 3 @ 193		0950	p = 174 sec						X						V	1
IVDMW-01 @ 201.5		1045	p = 78 sec						X						V	1
IVDMW-01 @ 93		1045	p = 36 sec						X						V	1
IVDMW-01 @ 263		1110	p = 101 sec						X						V	1
IVDMW-01 @ 306		1110	p = 118 sec						X						V	1
IVDMW-01 @ 256		1130	p = 99 sec						X						V	1
SVMW-06 @ 5		1150	p = 145 ml						X						V	1
SVMW-06 @ 20		1150	p = 579 ml						X						V	1
SVMW-06 @ 34		1200	p = 985 ml						X						V	1
SVMW-08 @ 5		1230	p = 145 ml						X						V	1
SVMW-08 @ 34	2/9	1250	p = 985 ml						X						V	1

1. RELINQUISHED BY:	Date:	2. RELINQUISHED BY:	Date:	3. RELINQUISHED BY:	Date:
Signature:* [signature]	2/9/00	Signature:*		Signature:*	
Printed Name: Rex R. Haley	Time: 1515	Printed Name:	Time:	Printed Name:	Time:
Company: HLA		Company:		Company:	

1. RECEIVED BY:	Date:	2. RECEIVED BY:	Date:	3. RECEIVED BY:	Date:
Signature:* Tamara Davis	2/9/00	Signature:*		Signature:*	
Printed Name: Tamara Davis	Time: 1515	Printed Name:	Time:	Printed Name:	Time:
Company: MW		Company:		Company:	

Sample Receipt

Intact: Yes No

Seal Intact: Yes No N/A

Cold: Yes No

N/A (**Received on site**)

Special Instructions

*Signature constitutes authorization to proceed with analysis and acceptance of conditions on back.

CHAIN–OF–CUSTODY RECORD

MOBILE/one LABORATORIES INC.

MOL: ~~HLA020800~~ HLA020900

148 So. Vinewood Street, Escondido, CA 92029-1921 (760) 735-3208 FAX (760) 735-2469

Date: 2/9/00 Page 2 of 2

Client: Harding Lawson

Site Address:

Project:

Sampler (signature):

Turnaround Requested:

- [x] Onsite/24-48 hrs.
- [ ] Offsite
- [ ] Other

Analysis Requested

Sample ID	Date	Time	Location	TPHg+d–8015M	TPHg–8015M (P&T)	BTEX–8020	TPHg/BTEX–8015M/8020	TRPH–418.1	8260 (VOC's–8240)						Matrix: Soil (S), Sludge (SL), Aqueous (W)	Number of containers
SVMW-10 @ 20	2/9	1255	P-579						X						V	1
SVMW-10 @30		1300	P-869						X						V	1
SVMW-19 @ 5		1500	P-145						X						V	1
SVMW-19 @ 20		1500	P579						X						V	1
SVMW-19 @ 39.5	2/9	1500	P1159						X						V	1

1. RELINQUISHED BY:	Date:	2. RELINQUISHED BY:	Date:	3. RELINQUISHED BY:	Date:
Signature:* [signature]	2/9/00	Signature:*		Signature:*	
Printed Name: Lex R. Harvey	Time: 1515	Printed Name:	Time:	Printed Name:	Time:
Company: HLA		Company:		Company:	

1. RECEIVED BY:	Date:	2. RECEIVED BY:	Date:	3. RECEIVED BY:	Date:
Signature:* Tamara Davis	2/9/00	Signature:*		Signature:*	
Printed Name: Tamara Davis	Time: 1515	Printed Name:	Time:	Printed Name:	Time:
Company: MOL		Company:		Company:	

*Signature constitutes authorization to proceed with analysis and acceptance of conditions on back.

Sample Receipt

Intact: Yes No

Seal Intact: Yes No N/A

Cold: Yes No

N/A **(Received on site)**

Special Instructions

CHAIN-OF-CUSTODY RECORD

MOBILE/ONE LABORATORIES INC.

H-109

MOL: ~~HLA020800~~

148 So. Vinewood Street, Escondido, CA 92029-1921 (760) 735-3208 FAX (760) 735-2469

Date: 2/11/00 Page 1 of 2

Client: Harding Lawson

Site Address:

Project: Aerojet

Sampler (signature):

Turnaround Requested:

- [x] Onsite/24-48 hrs.
- [ ] Offsite
- [ ] Other

Analysis Requested

Sample ID	Date	Time	Location	TPHg+d-8015M	TPHg-8015M (P&T)	BTEX-8020	TPHg/BTEX-8015M/8020	TRPH-418.1	8260 (VOC's-8240)						Matrix: Soil (S), Sludge (SL), Aqueous (W)	Number of containers
62, Blank	2/11/00	0940	p 145 ml						X						W	1
SVMW02-5'		0955	p 145 ml						X							
SVMW02-20'		1000	p 579 ml						X							
SVMW02-39		1005	p 1130 ml						X							
IVDMW02-110'		1049	p-34 sec						X							
IVDMW02-153		1048	p-60 sec						X							
IVDMW02-213		1051	p-1.37 min						X							
IVDMW02-265		1055	p-107 sec						X							
IVDMW02-310		1100	p-120 sec						X							
SVMW11-5		1130	p-145 ml						X							
SVMW11-20		1133	p-579 ml						X							
SVMW11-31		1137	p-880 ml						X							
SVMW13-5		1150	p-145 ml						X							
SVMW13-20		1153	p-579 ml						X							
SVMW13-33.5		1155	p-956 ml						X						W	1

1. RELINQUISHED BY:	Date:	2. RELINQUISHED BY:	Date:	3. RELINQUISHED BY:	Date:
Signature: [signature]	2-11-00	Signature:*		Signature:*	
Printed Name: Ken P. Harty	Time: 1450	Printed Name:	Time:	Printed Name:	Time:
Company: HLA		Company:		Company:	

1. RECEIVED BY:	Date:	2. RECEIVED BY:	Date:	3. RECEIVED BY:	Date:
Signature:* [signature]	2/11	Signature:*		Signature:*	
Printed Name: Tamara Davis	Time: 1450	Printed Name:	Time:	Printed Name:	Time:
Company: MOL		Company:		Company:	

*Signature constitutes authorization to proceed with analysis and acceptance of conditions on back.

Sample Receipt

Intact: Yes No

Seal Intact: Yes No N/A

Cold: Yes No

N/A **(Received on site)**

Special Instructions

CHAIN-OF-CUSTODY RECORD

MOBILE/one LABORATORIES INC.

148 So. Vinewood Street, Escondido, CA 92029-1921 (760) 735-3208 FAX (760) 735-2469

HL MOL

MOL: ~~HLA021100~~

Date: 2/11/00 Page 2 of 2

Client: Harding Lawson

Site Address:

Project: Aerojet

Sampler (signature):

Turnaround Requested:

- [x] Onsite/24-48 hrs.
- [ ] Offsite
- [ ] Other

Analysis Requested

Sample ID	Date	Time	Location	TPHg+d-8015M	TPHg-8015M (P&T)	BTEX-8020	TPHg/BTEX-8015M/8020	TRPH-418.1	8260 (VOC's-8240)						Matrix: Soil (S), Sludge (SL), Aqueous (W)	Number of containers
SVMW15-5	2/11/00	1210	p-145						X						V	1
SVMW15-20		1213	p-579						X						V	1
SVMW15-30		1215	p-869						X						V	1
SVMW14-5		~~1325~~	~~p-145~~ plugged						X						V	1
SVMW14-20		1327	p-579						X						V	1
SVMW14-30		1330	p-869						X						V	1
SVMW17-5		1350	p-145						X						V	1
SVMW17-20		1355	p-579						X						V	1
SVMW16-5		1445	p-145						X						V	1
SVMW ~~20~~ 16-20		1447	p-579						X						V	1
SVMW 16-40		1450	p-1159						X						V	1

1. RELINQUISHED BY:	Date:	2. RELINQUISHED BY:	Date:	3. RELINQUISHED BY:	Date:
Signature:* [illegible]	2/11/00	Signature:*		Signature:*	
Printed Name: [illegible]	Time: 1450	Printed Name:	Time:	Printed Name:	Time:
Company: HLA		Company:		Company:	

1. RECEIVED BY:	Date:	2. RECEIVED BY:	Date:	3. RECEIVED BY:	Date:
Signature:* Tamara Davis	2/11	Signature:*		Signature:*	
Printed Name: Tamara Davis	Time: 1450	Printed Name:	Time:	Printed Name:	Time:
Company: MOL		Company:		Company:	

*Signature constitutes authorization to proceed with analysis and acceptance of conditions on back.

Sample Receipt

Intact: Yes No

Seal Intact: Yes No N/A

Cold: Yes No

N/A **(Received on site)**

Special Instructions

CHAIN-OF-CUSTODY RECORD

MOBILE ONE LABORATORIES INC.

148 So. Vinewood Street, Escondido, CA 92029-1921 (760) 735-3208 FAX (760) 735-2469

MOL: HLA022800

Date: 2/14/00 Page 1 of 1

Client: Harding Lawson

Site Address:

Project: Aerojet

Sampler (signature):

Turnaround Requested:

- [x] Onsite/24-48 hrs.
- [ ] Offsite
- [ ] Other

Analysis Requested

Sample ID	Date	Time	Location	TPHg+d-8015M	TPHg-8015M (P&T)	BTEX-8020	TPHg/BTEX-8015M/8020	TRPH-418.1	8260 (VOC's-8240)						Matrix: Soil (S), Sludge (SL), Aqueous (W)	Number of containers
SVMW4-5	2/14	1050							X						V	1
SVMW4-20		1055							X							
SVMW5-5		1057							X							
SVMW5-20		1110							X							
SVMW5-40		1115							X							
SVMW22-5		1240							X							
SVMW22-18		1243							X							
SVMW22-26.5		1245							X							
SVMW20-5		1250							X							
SVMW20-20		1255							X							
SVMW24-5		1530							X							
SVMW21-19.5		1535							X						V	1
SVMW-21-5									X							
SVMW-21-20									X							

ADDED 3/2/00 RMW

1. RELINQUISHED BY:	Date:	2. RELINQUISHED BY:	Date:	3. RELINQUISHED BY:	Date:
Signature:*		Signature:*		Signature:*	
Printed Name:	Time:	Printed Name:	Time:	Printed Name:	Time:
Company:		Company:		Company:	
1. RECEIVED BY:	Date:	**2. RECEIVED BY:**	Date:	**3. RECEIVED BY:**	Date:
Signature: Pamela Davis	2/14	Signature:*		Signature:*	
Printed Name: Pamela Davis	Time:	Printed Name:	Time:	Printed Name:	Time:
Company: MOL	1540	Company:		Company:	

*Signature constitutes authorization to proceed with analysis and acceptance of conditions on back.

Sample Receipt

Intact: Yes No

Seal Intact: Yes No N/A

Cold: Yes No

N/A **(Received on site)**

Special Instructions

MOBILE/ONE LABORATORIES, INC.

CHAIN-OF-CUSTODY RECORD

HLC - MOC

MOL: ~~HLA020800~~

148 So. Vinewood Street, Escondido, CA 92029-1921 (760) 735-3208 FAX (760) 735-2469

Date: 2/15/00 Page 1 of 2

Client: Harding Lawson

Site Address:

Project: Aerojet

Sampler (signature):

Turnaround Requested:

- [x] Onsite/24-48 hrs.
- [ ] Offsite
- [ ] Other

Analysis Requested

Sample ID	Date	Time	Location	TPHg+d-8015M	TPHg-8015M (P&T)	BTEX-8020	TPHg/BTEX-8015M/8020	TRPH-418.1	8260 (VOC's-8240)						Matrix: Soil (S), Sludge (SL), Aqueous (W)	Number of containers
SVMW 26-5	2/15	0935							X						V	1
SVMW26-23.5		0940							X						V	1
SVMW32-5		0955							X						V	1
SVMW32-20		1000							X						V	1
SVMW28-5		1025							X						V	1
SVMW28-19		1030							X						V	1
SVMW30-5		1035							X						V	1
SVMW30-21		1037							X						V	1
SVMW30-39		1040							X						V	1
SVMW29-5		1043							X						V	1
SVMW29-23		1045							X						V	1
SVMW1-5		1115							X						V	1
SVMW1-20		1117							X						V	1
SVMW1-40		1120							X						V	1
SVMW16 resample		1340							X						V	1

1. RELINQUISHED BY:	Date:	2. RELINQUISHED BY:	Date:	3. RELINQUISHED BY:	Date:
Signature: [signature]	2-15-00	Signature:*		Signature:*	
Printed Name: Rex Haby	Time:	Printed Name:	Time:	Printed Name:	Time:
Company: HLA	1415	Company:		Company:	

1. RECEIVED BY:	Date:	2. RECEIVED BY:	Date:	3. RECEIVED BY:	Date:
Signature:* Tamara Davis	2/15/00	Signature:*		Signature:*	
Printed Name: Tamara Davis	Time:	Printed Name:	Time:	Printed Name:	Time:
Company: MOL	1415	Company:		Company:	

Sample Receipt

Intact: Yes No

Seal Intact: Yes No N/A

Cold: Yes No

N/A (**Received on site**)

Special Instructions

*Signature constitutes authorization to proceed with analysis and acceptance of conditions on back.

CHAIN-OF-CUSTODY RECORD

MOBILE ONE LABORATORIES INC.

HLC-MOL

MOL: HLA02850

148 So. Vinewood Street, Escondido, CA 92029-1921 (760) 735-3208 FAX (760) 735-2469

Date: 2/15 Page 2 of 2

Client: Harding Lawson

Site Address:

Project: Aerojet

Sampler (signature):

Turnaround Requested:

- [x] Onsite/24-48 hrs.
- [ ] Offsite
- [ ] Other

Analysis Requested

Sample ID	Date	Time	Location	TPHg+d-8015M	TPHg-8015M (P&T)	BTEX-8020	TPHg/BTEX-8015M/8020	TRPH-418.1	8260 (VOC's-8240)						Matrix: Soil (S), Sludge (SL), Aqueous (W)	Number of containers
SVMW16-20 resample	2/15	1345							X						W	1
SVMW16-40 resample		1350							X						W	1
SVMW22-5 resample		1355							X						W	1
SVDMW02-5 resample		1400							X						W	1

1. RELINQUISHED BY:	Date:	2. RELINQUISHED BY:	Date:	3. RELINQUISHED BY:	Date:
Signature:* [signature]	2-15-00	Signature:*		Signature:*	
Printed Name: Rex F. Harry	Time: 1415	Printed Name:	Time:	Printed Name:	Time:
Company: HLA		Company:		Company:	

1. RECEIVED BY:	Date:	2. RECEIVED BY:	Date:	3. RECEIVED BY:	Date:
Signature: Tamara Davis	2/15/00	Signature:*		Signature:*	
Printed Name: Tamara Davis	Time: 1415	Printed Name:	Time:	Printed Name:	Time:
Company: MOL		Company:		Company:	

*Signature constitutes authorization to proceed with analysis and acceptance of conditions on back.

Sample Receipt

Intact: Yes No

Seal Intact: Yes No N/A

Cold: Yes No

N/A **(Received on site)**

Special Instructions

Precis
A Quanterra Product

Quanterra
1721 South Grand Ave.
Santa Ana, CA 92705

Tel (714) 258-8610
Fax (714) 258-0921

February 16, 2000

QUANTERRA INCORPORATED LOT NUMBER: **E0B100184**

David Johnson
Harding Lawson Associates
330 N. D Street
Suite 310
San Bernardino, CA 92401

Dear Mr. Johnson,

This report contains the analytical results for the seven samples received under chain of custody by Quanterra Incorporated on February 10, 2000. These samples are associated with your AEROJET project.

All applicable quality control procedures met method-specified acceptance criteria.

This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions, please feel free to call me at 714-258-8610.

Sincerely,

Diane Suzuki
Project Manager

cc: Project File

Chain of Custody Record

Quanterra

QUA-4124

Client: HLA	Project Manager: DAVID M. JOHNSON	Date: 02-08/09-00	Chain Of Custody Number: 76287
Address: 330 N. D STREET, Suite 310	Telephone Number (Area Code)/Fax Number: (909) 888-1600	Lab Number:	Page 1 of 1
City: SAN BERNARDINO; State: CA; Zip Code: 92401	Site Contact:		
Project Name: Aerojet	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 46716-101			

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers Type	Containers No.	Preservative	Condition on Receipt	Analysis: 8260
MW-05 - WATER	02-08-00	1210	WATER	120 mL	VOA	3	HCl		X
MW-06	02-08-00	1330	WATER	120 mL	VOA	3	HCl		X
MW-03	02-08-00	1430	WATER	120 mL	VOA	3	HCl		X
MW-02	02-08-00	1745	WATER	120 mL	VOA	3	HCl		X
MW-04	02-08-00	1615	WATER	120 mL	VOA	3	HCl		X
MW-01	02-09-00	0930	WATER	120 mL	VOA	3	HCl		X

Special Instructions

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Turn Around Time Required: ☒ Normal ☐ Rush

QC Level: ☐ I. ☐ II. ☐ III.

Project Specific (Specify):

1. Relinquished By: [signature]	Date: 02-09-00	Time: 1000	1. Received By: Frankie #1982	Date: 2-10	Time: 10:40
2. Relinquished By: Frankie #1982	Date: 2-09-00	Time: 10:45	2. Received By: [signature]	Date: 2/10/00	Time: 10,245
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments

DISTRIBUTION: WHITE - Stays with Sample; CANARY - Returned to Client with Report; PINK - Field Copy

QUANTERRA INC. - SANTA ANA
PROJECT RECEIPT CHECKLIST

Date: 2/10/00

Quantims Lot #: EOB100184 Quote #: 33843
Client Name: HLA Project: AEROJET
Received by: RMARTIN Date/Time Received: 2/10 10:45
Delivered by : ☐Client ☐Airborne ☐Fed Ex ☐DHL ☐Ultra-Ex ☐Rey B.
☐UPS ☐ATD ☑Other DES

Initial / Date

Custody Seal Status: ☐Intact (RM) ☐Broken ☑None ..... (RM) 2/10
Custody Seal #(s): ☑No Seal # .....
Sample Container(s): ☑Quanterra ☐Client ☐N/A .....
Temperature(s) (COOLER/BLANK) in °C: 5.0 / 5.0 (CORRECTED TEMP).....
Thermometer Used : ☑IR (Infra-red) ☐Digital (Probe) .....
Samples: ☑Intact ☐Broken ☐Other _____.....
Anomalies: ☑No ☐Yes (See Clouseau) .....
Labeled by .....
Labeling checked by .....

Short-Hold Notification: ☐Ph ☐Wet Chem ☐Metals (Filter/Pres) ☐Encore ☑N/A ...
Outside Analysis(es) (Test/Lab/Date Sent Out) :

N/A

********** LEAVE NO BLANK SPACES ; USE N/A **********

Fraction	1&6	-7									PH
VOAh /*	3	3									N/A
		TRIP Blank not on the COC									

h:HCl s:H2SO4 na:Sodium Hydroxide znna: Sodium Hydroxide + Zinc Acetate n:HNO3 n/f:HNO3 field filtered
* Number VOA's w/ air bubbles present n/f/l:HNO3 Lab filtered

LOGGED BY/DATE: (RM) 2/10/00 REVIEWED BY/DATE: _____

PRC Ver. 4 021599

DEPENDABLE EXPRESS SERVICE, INC.

17064 Pepper Brook Way
Hacienda Heights, CA 91745
(626) 913-2273

No. 129772

Reg. ☐
Rush ☐
Exp. ☐

MESSENGER	24 HOUR SERVICE	DATE
Frankie		2-10-00

CHARGE TO: Quanterra

ADDRESS | SUITE #

AUTHORIZED BY | REF 340

PICK UP FROM: AEROJET

STREET AND NUMBER: 111 3RD St. | SUITE #

CITY: AZUSA | ZIP CODE

DELIVER TO: Quanterra

STREET AND NUMBER: 1721 Grand | SUITE #

CITY: Santa Ana | ZIP CODE

RETURN ☐ YES ☐ NO

P/U TIME	DEL. TIME	COMMODITY
10:00	10:45	
WAITING TIME MIN.	WEIGHT 10 LBS.	NO. PCS. 1

SPECIAL INSTRUCTIONS:

FOR OFFICE USE ONLY	
DEL. CHG.	
RETURN	
RUSH	
EXP.	
NIGHT OR HOLIDAY	
WAITING TIME	
EXTRA WEIGHT	
SUB TOTAL	
CASH ADVANCE	
TOTAL	

RECEIVED BY (PLEASE SIGN LEGIBLY)
X F.# 1982

RETURN RECEIVED BY (PLEASE SIGN LEGIBLY)
X

Terms and Conditions Upon Which Pick-ups and Deliveries are made

Not responsible for loss or damage (A) Unless same is reported to us in writing within fifteen (15) days. Loss limited to $100.00 per shipment unless a higher value is declared by customer on front of this ticket at time pick-up or delivery is authorized, in which case extra rates may be charged by us for insuring the excess value. Losses adjusted on basis of invoice cost price less reasonable depreciation.

WHITE-OFFICE YELLOW-DRIVER PINK-CUSTOMER

SAMPLE SUMMARY

E0B100184

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D8EE5	001	MW-05-WATER	02/08/00	12:00
D8EE7	002	MW-06	02/08/00	13:30
D8EE8	003	MW-03	02/08/00	14:30
D8EE9	004	MW-02	02/08/00	17:45
D8EEA	005	MW-04	02/08/00	16:15
D8EED	006	MW-01	02/09/00	09:30
D8EF1	007	TRIP BLANK	02/09/00	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

METHODS SUMMARY

E0B100184

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-05-WATER

GC/MS Volatiles

Lot-Sample #...: E0B100184-001 **Work Order #...:** D8EE5101 **Matrix.....:** WATER
Date Sampled...: 02/08/00 12:00 **Date Received..:** 02/10/00 10:45 **MS Run #.....:** 0042187
Prep Date.....: 02/10/00 **Analysis Date..:** 02/10/00
Prep Batch #...: 0042428 **Analysis Time..:** 19:20
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	2.0	ug/L	0.40
Chloromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
Chloroethane	ND	2.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	0.50
Trichlorofluoromethane	ND	2.0	ug/L	0.20
1,1,2-Trichlorotrifluoro-ethane	ND	1.0	ug/L	0.20
1,1-Dichloroethene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.20
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
Carbon disulfide	ND	1.0	ug/L	0.30
Acetone	ND	10	ug/L	2.0
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.20
1,1-Dichloroethane	ND	1.0	ug/L	0.20
2,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
Chloroform	ND	1.0	ug/L	0.20
Bromochloromethane	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
2-Butanone	ND	5.0	ug/L	3.0
1,1-Dichloropropene	ND	1.0	ug/L	0.30
Carbon tetrachloride	ND	1.0	ug/L	0.30
1,2-Dibromoethane	ND	1.0	ug/L	0.20
Benzene	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.20
1,2-Dichloropropane	ND	1.0	ug/L	0.20
Bromodichloromethane	ND	1.0	ug/L	0.20
Dibromomethane	ND	1.0	ug/L	0.20
1-Bromo-2-chloroethane	ND	1.0	ug/L	0.50
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.20
4-Methyl-2-pentanone	ND	5.0	ug/L	2.0
Toluene	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.20
1,3-Dichloropropane	ND	1.0	ug/L	0.20
Tetrachloroethene	ND	1.0	ug/L	0.20
2-Hexanone	ND	5.0	ug/L	2.0
Dibromochloromethane	ND	1.0	ug/L	0.20

(Continued on next page)

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-05-WATER

GC/MS Volatiles

Lot-Sample #...: E0B100184-001 **Work Order #...:** D8EE5101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	1.0	ug/L	0.30
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.20
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Styrene	ND	1.0	ug/L	0.20
Bromoform	ND	1.0	ug/L	0.30
Isopropylbenzene	ND	1.0	ug/L	0.20
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.30
1,2,3-Trichloropropane	ND	1.0	ug/L	0.30
n-Propylbenzene	ND	1.0	ug/L	0.40
Bromobenzene	ND	1.0	ug/L	0.30
1,3,5-Trimethylbenzene	ND	1.0	ug/L	0.20
2-Chlorotoluene	ND	1.0	ug/L	0.30
4-Chlorotoluene	ND	1.0	ug/L	0.30
tert-Butylbenzene	ND	1.0	ug/L	0.20
1,2,4-Trimethylbenzene	ND	1.0	ug/L	0.20
sec-Butylbenzene	ND	1.0	ug/L	0.30
p-Isopropyltoluene	ND	1.0	ug/L	0.20
1,3-Dichlorobenzene	ND	1.0	ug/L	0.20
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
n-Butylbenzene	ND	1.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.20
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	0.60
1,2,4-Trichlorobenzene	ND	1.0	ug/L	0.30
Hexachlorobutadiene	ND	1.0	ug/L	0.30
Naphthalene	ND	1.0	ug/L	0.40
1,2,3-Trichlorobenzene	ND	1.0	ug/L	0.40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	92	(70 - 130)
1,2-Dichloroethane-d4	111	(60 - 140)
Toluene-d8	111	(70 - 130)

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-06

GC/MS Volatiles

Lot-Sample #...: E0B100184-002 **Work Order #...:** D8EE7101 **Matrix.....:** WATER
Date Sampled...: 02/08/00 13:30 **Date Received..:** 02/10/00 10:45 **MS Run #.....:** 0042187
Prep Date.....: 02/10/00 **Analysis Date..:** 02/10/00
Prep Batch #...: 0042428 **Analysis Time..:** 20:21
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	50	ug/L	10
Chloromethane	ND	50	ug/L	7.5
Vinyl chloride	ND	50	ug/L	7.5
Chloroethane	ND	50	ug/L	7.5
Bromomethane	ND	50	ug/L	12
Trichlorofluoromethane	ND	50	ug/L	5.0
1,1,2-Trichlorotrifluoro-ethane	ND	25	ug/L	5.0
1,1-Dichloroethene	ND	25	ug/L	5.0
Methylene chloride	ND	25	ug/L	5.0
Methyl tert-butyl ether	ND	25	ug/L	12
Carbon disulfide	ND	25	ug/L	7.5
Acetone	ND	250	ug/L	50
trans-1,2-Dichloroethene	ND	25	ug/L	5.0
1,1-Dichloroethane	ND	25	ug/L	5.0
2,2-Dichloropropane	ND	25	ug/L	7.5
cis-1,2-Dichloroethene	**69**	**25**	**ug/L**	**7.5**
Chloroform	ND	25	ug/L	5.0
Bromochloromethane	ND	25	ug/L	7.5
1,1,1-Trichloroethane	ND	25	ug/L	5.0
2-Butanone	ND	120	ug/L	75
1,1-Dichloropropene	ND	25	ug/L	7.5
Carbon tetrachloride	**39**	**25**	**ug/L**	**7.5**
1,2-Dibromoethane	ND	25	ug/L	5.0
Benzene	ND	25	ug/L	7.5
Trichloroethene	**1500**	**25**	**ug/L**	**5.0**
1,2-Dichloropropane	ND	25	ug/L	5.0
Bromodichloromethane	ND	25	ug/L	5.0
Dibromomethane	ND	25	ug/L	5.0
1-Bromo-2-chloroethane	ND	25	ug/L	12
cis-1,3-Dichloropropene	ND	25	ug/L	5.0
4-Methyl-2-pentanone	ND	120	ug/L	50
Toluene	ND	25	ug/L	5.0
1,1,2-Trichloroethane	ND	25	ug/L	5.0
1,2-Dichloroethane	ND	25	ug/L	5.0
1,3-Dichloropropane	ND	25	ug/L	5.0
Tetrachloroethene	**1700**	**25**	**ug/L**	**5.0**
2-Hexanone	ND	120	ug/L	50
Dibromochloromethane	ND	25	ug/L	5.0

(Continued on next page)

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-06

GC/MS Volatiles

Lot-Sample #...: E0B100184-002 **Work Order #...:** D8EE7101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	25	ug/L	7.5
1,1,1,2-Tetrachloroethane	ND	25	ug/L	5.0
Ethylbenzene	ND	25	ug/L	5.0
m-Xylene & p-Xylene	ND	25	ug/L	12
o-Xylene	ND	25	ug/L	5.0
trans-1,3-Dichloropropene	ND	25	ug/L	12
Styrene	ND	25	ug/L	5.0
Bromoform	ND	25	ug/L	7.5
Isopropylbenzene	ND	25	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	25	ug/L	7.5
1,2,3-Trichloropropane	ND	25	ug/L	7.5
n-Propylbenzene	ND	25	ug/L	10
Bromobenzene	ND	25	ug/L	7.5
1,3,5-Trimethylbenzene	ND	25	ug/L	5.0
2-Chlorotoluene	ND	25	ug/L	7.5
4-Chlorotoluene	ND	25	ug/L	7.5
tert-Butylbenzene	ND	25	ug/L	5.0
1,2,4-Trimethylbenzene	ND	25	ug/L	5.0
sec-Butylbenzene	ND	25	ug/L	7.5
p-Isopropyltoluene	ND	25	ug/L	5.0
1,3-Dichlorobenzene	ND	25	ug/L	5.0
1,4-Dichlorobenzene	ND	25	ug/L	7.5
n-Butylbenzene	ND	25	ug/L	7.5
1,2-Dichlorobenzene	ND	25	ug/L	5.0
1,2-Dibromo-3-chloro-propane	ND	50	ug/L	15
1,2,4-Trichlorobenzene	ND	25	ug/L	7.5
Hexachlorobutadiene	ND	25	ug/L	7.5
Naphthalene	ND	25	ug/L	10
1,2,3-Trichlorobenzene	ND	25	ug/L	10

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	106	(70 - 130)
1,2-Dichloroethane-d4	117	(60 - 140)
Toluene-d8	112	(70 - 130)

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-03

GC/MS Volatiles

Lot-Sample #...: E0B100184-003 **Work Order #...:** D8EE8101 **Matrix.....:** WATER
Date Sampled...: 02/08/00 14:30 **Date Received..:** 02/10/00 10:45 **MS Run #.....:** 0042187
Prep Date.....: 02/10/00 **Analysis Date..:** 02/10/00
Prep Batch #...: 0042428 **Analysis Time..:** 20:51
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	100	ug/L	20
Chloromethane	ND	100	ug/L	15
Vinyl chloride	ND	100	ug/L	15
Chloroethane	ND	100	ug/L	15
Bromomethane	ND	100	ug/L	25
Trichlorofluoromethane	ND	100	ug/L	10
1,1,2-Trichlorotrifluoro-ethane	ND	50	ug/L	10
1,1-Dichloroethene	ND	50	ug/L	10
Methylene chloride	ND	50	ug/L	10
Methyl tert-butyl ether	ND	50	ug/L	25
Carbon disulfide	ND	50	ug/L	15
Acetone	ND	500	ug/L	100
trans-1,2-Dichloroethene	ND	50	ug/L	10
1,1-Dichloroethane	ND	50	ug/L	10
2,2-Dichloropropane	ND	50	ug/L	15
cis-1,2-Dichloroethene	ND	50	ug/L	15
Chloroform	ND	50	ug/L	10
Bromochloromethane	ND	50	ug/L	15
1,1,1-Trichloroethane	ND	50	ug/L	10
2-Butanone	ND	250	ug/L	150
1,1-Dichloropropene	ND	50	ug/L	15
Carbon tetrachloride	ND	50	ug/L	15
1,2-Dibromoethane	ND	50	ug/L	10
Benzene	ND	50	ug/L	15
Trichloroethene	**120**	**50**	**ug/L**	**10**
1,2-Dichloropropane	ND	50	ug/L	10
Bromodichloromethane	ND	50	ug/L	10
Dibromomethane	ND	50	ug/L	10
1-Bromo-2-chloroethane	ND	50	ug/L	25
cis-1,3-Dichloropropene	ND	50	ug/L	10
4-Methyl-2-pentanone	ND	250	ug/L	100
Toluene	ND	50	ug/L	10
1,1,2-Trichloroethane	ND	50	ug/L	10
1,2-Dichloroethane	ND	50	ug/L	10
1,3-Dichloropropane	ND	50	ug/L	10
Tetrachloroethene	**4200**	**50**	**ug/L**	**10**
2-Hexanone	ND	250	ug/L	100
Dibromochloromethane	ND	50	ug/L	10

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HARDING LAWSON ASSOCIATES

Client Sample ID: MW-03

GC/MS Volatiles

Lot-Sample #...: E0B100184-003 **Work Order #...:** D8EE8101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	50	ug/L	15
1,1,1,2-Tetrachloroethane	ND	50	ug/L	10
Ethylbenzene	ND	50	ug/L	10
m-Xylene & p-Xylene	ND	50	ug/L	25
o-Xylene	ND	50	ug/L	10
trans-1,3-Dichloropropene	ND	50	ug/L	25
Styrene	ND	50	ug/L	10
Bromoform	ND	50	ug/L	15
Isopropylbenzene	ND	50	ug/L	10
1,1,2,2-Tetrachloroethane	ND	50	ug/L	15
1,2,3-Trichloropropane	ND	50	ug/L	15
n-Propylbenzene	ND	50	ug/L	20
Bromobenzene	ND	50	ug/L	15
1,3,5-Trimethylbenzene	ND	50	ug/L	10
2-Chlorotoluene	ND	50	ug/L	15
4-Chlorotoluene	ND	50	ug/L	15
tert-Butylbenzene	ND	50	ug/L	10
1,2,4-Trimethylbenzene	ND	50	ug/L	10
sec-Butylbenzene	ND	50	ug/L	15
p-Isopropyltoluene	ND	50	ug/L	10
1,3-Dichlorobenzene	ND	50	ug/L	10
1,4-Dichlorobenzene	ND	50	ug/L	15
n-Butylbenzene	ND	50	ug/L	15
1,2-Dichlorobenzene	ND	50	ug/L	10
1,2-Dibromo-3-chloro-propane	ND	100	ug/L	30
1,2,4-Trichlorobenzene	ND	50	ug/L	15
Hexachlorobutadiene	ND	50	ug/L	15
Naphthalene	ND	50	ug/L	20
1,2,3-Trichlorobenzene	ND	50	ug/L	20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	106	(70 - 130)
1,2-Dichloroethane-d4	118	(60 - 140)
Toluene-d8	113	(70 - 130)

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-02

GC/MS Volatiles

Lot-Sample #...: E0B100184-004 **Work Order #...:** D8EE9101 **Matrix.....:** WATER
Date Sampled...: 02/08/00 17:45 **Date Received..:** 02/10/00 10:45 **MS Run #.....:** 0042187
Prep Date.....: 02/10/00 **Analysis Date..:** 02/10/00
Prep Batch #...: 0042428 **Analysis Time..:** 21:22
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	5.0	ug/L	1.0
Chloromethane	ND	5.0	ug/L	0.75
Vinyl chloride	ND	5.0	ug/L	0.75
Chloroethane	ND	5.0	ug/L	0.75
Bromomethane	ND	5.0	ug/L	1.2
Trichlorofluoromethane	ND	5.0	ug/L	0.50
1,1,2-Trichlorotrifluoro-ethane	ND	2.5	ug/L	0.50
1,1-Dichloroethene	ND	2.5	ug/L	0.50
Methylene chloride	ND	2.5	ug/L	0.50
Methyl tert-butyl ether	ND	2.5	ug/L	1.2
Carbon disulfide	ND	2.5	ug/L	0.75
Acetone	ND	25	ug/L	5.0
trans-1,2-Dichloroethene	ND	2.5	ug/L	0.50
1,1-Dichloroethane	ND	2.5	ug/L	0.50
2,2-Dichloropropane	ND	2.5	ug/L	0.75
cis-1,2-Dichloroethene	**7.4**	**2.5**	**ug/L**	**0.75**
Chloroform	**3.7**	**2.5**	**ug/L**	**0.50**
Bromochloromethane	ND	2.5	ug/L	0.75
1,1,1-Trichloroethane	ND	2.5	ug/L	0.50
2-Butanone	ND	12	ug/L	7.5
1,1-Dichloropropene	ND	2.5	ug/L	0.75
Carbon tetrachloride	**3.4**	**2.5**	**ug/L**	**0.75**
1,2-Dibromoethane	ND	2.5	ug/L	0.50
Benzene	ND	2.5	ug/L	0.75
Trichloroethene	**140**	**2.5**	**ug/L**	**0.50**
1,2-Dichloropropane	ND	2.5	ug/L	0.50
Bromodichloromethane	ND	2.5	ug/L	0.50
Dibromomethane	ND	2.5	ug/L	0.50
1-Bromo-2-chloroethane	ND	2.5	ug/L	1.2
cis-1,3-Dichloropropene	ND	2.5	ug/L	0.50
4-Methyl-2-pentanone	ND	12	ug/L	5.0
Toluene	ND	2.5	ug/L	0.50
1,1,2-Trichloroethane	ND	2.5	ug/L	0.50
1,2-Dichloroethane	ND	2.5	ug/L	0.50
1,3-Dichloropropane	ND	2.5	ug/L	0.50
Tetrachloroethene	**80**	**2.5**	**ug/L**	**0.50**
2-Hexanone	ND	12	ug/L	5.0
Dibromochloromethane	ND	2.5	ug/L	0.50

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HARDING LAWSON ASSOCIATES

Client Sample ID: MW-02

GC/MS Volatiles

Lot-Sample #...: E0B100184-004 **Work Order #...:** D8EE9101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	2.5	ug/L	0.75
1,1,1,2-Tetrachloroethane	ND	2.5	ug/L	0.50
Ethylbenzene	ND	2.5	ug/L	0.50
m-Xylene & p-Xylene	ND	2.5	ug/L	1.2
o-Xylene	ND	2.5	ug/L	0.50
trans-1,3-Dichloropropene	ND	2.5	ug/L	1.2
Styrene	ND	2.5	ug/L	0.50
Bromoform	ND	2.5	ug/L	0.75
Isopropylbenzene	ND	2.5	ug/L	0.50
1,1,2,2-Tetrachloroethane	ND	2.5	ug/L	0.75
1,2,3-Trichloropropane	ND	2.5	ug/L	0.75
n-Propylbenzene	ND	2.5	ug/L	1.0
Bromobenzene	ND	2.5	ug/L	0.75
1,3,5-Trimethylbenzene	ND	2.5	ug/L	0.50
2-Chlorotoluene	ND	2.5	ug/L	0.75
4-Chlorotoluene	ND	2.5	ug/L	0.75
tert-Butylbenzene	ND	2.5	ug/L	0.50
1,2,4-Trimethylbenzene	ND	2.5	ug/L	0.50
sec-Butylbenzene	ND	2.5	ug/L	0.75
p-Isopropyltoluene	ND	2.5	ug/L	0.50
1,3-Dichlorobenzene	ND	2.5	ug/L	0.50
1,4-Dichlorobenzene	ND	2.5	ug/L	0.75
n-Butylbenzene	ND	2.5	ug/L	0.75
1,2-Dichlorobenzene	ND	2.5	ug/L	0.50
1,2-Dibromo-3-chloro-propane	ND	5.0	ug/L	1.5
1,2,4-Trichlorobenzene	ND	2.5	ug/L	0.75
Hexachlorobutadiene	ND	2.5	ug/L	0.75
Naphthalene	ND	2.5	ug/L	1.0
1,2,3-Trichlorobenzene	ND	2.5	ug/L	1.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	103	(70 - 130)
1,2-Dichloroethane-d4	118	(60 - 140)
Toluene-d8	112	(70 - 130)

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-04

GC/MS Volatiles

Lot-Sample #...: E0B100184-005 **Work Order #...:** D8EEA101 **Matrix.....:** WATER
Date Sampled...: 02/08/00 16:15 **Date Received..:** 02/10/00 10:45 **MS Run #.....:** 0042187
Prep Date.....: 02/10/00 **Analysis Date..:** 02/10/00
Prep Batch #...: 0042428 **Analysis Time..:** 21:52
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	50	ug/L	10
Chloromethane	ND	50	ug/L	7.5
Vinyl chloride	ND	50	ug/L	7.5
Chloroethane	ND	50	ug/L	7.5
Bromomethane	ND	50	ug/L	12
Trichlorofluoromethane	ND	50	ug/L	5.0
1,1,2-Trichlorotrifluoro-ethane	ND	25	ug/L	5.0
1,1-Dichloroethene	ND	25	ug/L	5.0
Methylene chloride	ND	25	ug/L	5.0
Methyl tert-butyl ether	ND	25	ug/L	12
Carbon disulfide	ND	25	ug/L	7.5
Acetone	ND	250	ug/L	50
trans-1,2-Dichloroethene	ND	25	ug/L	5.0
1,1-Dichloroethane	ND	25	ug/L	5.0
2,2-Dichloropropane	ND	25	ug/L	7.5
cis-1,2-Dichloroethene	**66**	**25**	**ug/L**	**7.5**
Chloroform	ND	25	ug/L	5.0
Bromochloromethane	ND	25	ug/L	7.5
1,1,1-Trichloroethane	ND	25	ug/L	5.0
2-Butanone	ND	120	ug/L	75
1,1-Dichloropropene	ND	25	ug/L	7.5
Carbon tetrachloride	**39**	**25**	**ug/L**	**7.5**
1,2-Dibromoethane	ND	25	ug/L	5.0
Benzene	ND	25	ug/L	7.5
Trichloroethene	**1400**	**25**	**ug/L**	**5.0**
1,2-Dichloropropane	ND	25	ug/L	5.0
Bromodichloromethane	ND	25	ug/L	5.0
Dibromomethane	ND	25	ug/L	5.0
1-Bromo-2-chloroethane	ND	25	ug/L	12
cis-1,3-Dichloropropene	ND	25	ug/L	5.0
4-Methyl-2-pentanone	ND	120	ug/L	50
Toluene	ND	25	ug/L	5.0
1,1,2-Trichloroethane	ND	25	ug/L	5.0
1,2-Dichloroethane	ND	25	ug/L	5.0
1,3-Dichloropropane	ND	25	ug/L	5.0
Tetrachloroethene	**1800**	**25**	**ug/L**	**5.0**
2-Hexanone	ND	120	ug/L	50
Dibromochloromethane	ND	25	ug/L	5.0

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HARDING LAWSON ASSOCIATES

Client Sample ID: MW-04

GC/MS Volatiles

Lot-Sample #...: E0B100184-005 **Work Order #...:** D8EEA101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	25	ug/L	7.5
1,1,1,2-Tetrachloroethane	ND	25	ug/L	5.0
Ethylbenzene	ND	25	ug/L	5.0
m-Xylene & p-Xylene	ND	25	ug/L	12
o-Xylene	ND	25	ug/L	5.0
trans-1,3-Dichloropropene	ND	25	ug/L	12
Styrene	ND	25	ug/L	5.0
Bromoform	ND	25	ug/L	7.5
Isopropylbenzene	ND	25	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	25	ug/L	7.5
1,2,3-Trichloropropane	ND	25	ug/L	7.5
n-Propylbenzene	ND	25	ug/L	10
Bromobenzene	ND	25	ug/L	7.5
1,3,5-Trimethylbenzene	ND	25	ug/L	5.0
2-Chlorotoluene	ND	25	ug/L	7.5
4-Chlorotoluene	ND	25	ug/L	7.5
tert-Butylbenzene	ND	25	ug/L	5.0
1,2,4-Trimethylbenzene	ND	25	ug/L	5.0
sec-Butylbenzene	ND	25	ug/L	7.5
p-Isopropyltoluene	ND	25	ug/L	5.0
1,3-Dichlorobenzene	ND	25	ug/L	5.0
1,4-Dichlorobenzene	ND	25	ug/L	7.5
n-Butylbenzene	ND	25	ug/L	7.5
1,2-Dichlorobenzene	ND	25	ug/L	5.0
1,2-Dibromo-3-chloro-propane	ND	50	ug/L	15
1,2,4-Trichlorobenzene	ND	25	ug/L	7.5
Hexachlorobutadiene	ND	25	ug/L	7.5
Naphthalene	ND	25	ug/L	10
1,2,3-Trichlorobenzene	ND	25	ug/L	10

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	106	(70 - 130)
1,2-Dichloroethane-d4	119	(60 - 140)
Toluene-d8	113	(70 - 130)

HARDING LAWSON ASSOCIATES

Client Sample ID: MW-01

GC/MS Volatiles

Lot-Sample #...: E0B100184-006 **Work Order #...:** D8EED101 **Matrix.....:** WATER
Date Sampled...: 02/09/00 09:30 **Date Received..:** 02/10/00 10:45 **MS Run #.....:** 0042187
Prep Date.....: 02/10/00 **Analysis Date..:** 02/10/00
Prep Batch #...: 0042428 **Analysis Time..:** 19:50
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	2.0	ug/L	0.40
Chloromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
Chloroethane	ND	2.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	0.50
Trichlorofluoromethane	ND	2.0	ug/L	0.20
1,1,2-Trichlorotrifluoro-ethane	ND	1.0	ug/L	0.20
1,1-Dichloroethene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.20
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
Carbon disulfide	ND	1.0	ug/L	0.30
Acetone	ND	10	ug/L	2.0
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.20
1,1-Dichloroethane	ND	1.0	ug/L	0.20
2,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
Chloroform	ND	1.0	ug/L	0.20
Bromochloromethane	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
2-Butanone	ND	5.0	ug/L	3.0
1,1-Dichloropropene	ND	1.0	ug/L	0.30
Carbon tetrachloride	ND	1.0	ug/L	0.30
1,2-Dibromoethane	ND	1.0	ug/L	0.20
Benzene	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.20
1,2-Dichloropropane	ND	1.0	ug/L	0.20
Bromodichloromethane	ND	1.0	ug/L	0.20
Dibromomethane	ND	1.0	ug/L	0.20
1-Bromo-2-chloroethane	ND	1.0	ug/L	0.50
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.20
4-Methyl-2-pentanone	ND	5.0	ug/L	2.0
Toluene	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.20
1,3-Dichloropropane	ND	1.0	ug/L	0.20
Tetrachloroethene	ND	1.0	ug/L	0.20
2-Hexanone	ND	5.0	ug/L	2.0
Dibromochloromethane	ND	1.0	ug/L	0.20

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HARDING LAWSON ASSOCIATES

Client Sample ID: MW-01

GC/MS Volatiles

Lot-Sample #...: E0B100184-006 **Work Order #...:** D8EED101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	1.0	ug/L	0.30
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.20
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Styrene	ND	1.0	ug/L	0.20
Bromoform	ND	1.0	ug/L	0.30
Isopropylbenzene	ND	1.0	ug/L	0.20
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.30
1,2,3-Trichloropropane	ND	1.0	ug/L	0.30
n-Propylbenzene	ND	1.0	ug/L	0.40
Bromobenzene	ND	1.0	ug/L	0.30
1,3,5-Trimethylbenzene	ND	1.0	ug/L	0.20
2-Chlorotoluene	ND	1.0	ug/L	0.30
4-Chlorotoluene	ND	1.0	ug/L	0.30
tert-Butylbenzene	ND	1.0	ug/L	0.20
1,2,4-Trimethylbenzene	ND	1.0	ug/L	0.20
sec-Butylbenzene	ND	1.0	ug/L	0.30
p-Isopropyltoluene	ND	1.0	ug/L	0.20
1,3-Dichlorobenzene	ND	1.0	ug/L	0.20
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
n-Butylbenzene	ND	1.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.20
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	0.60
1,2,4-Trichlorobenzene	ND	1.0	ug/L	0.30
Hexachlorobutadiene	ND	1.0	ug/L	0.30
Naphthalene	ND	1.0	ug/L	0.40
1,2,3-Trichlorobenzene	ND	1.0	ug/L	0.40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	94	(70 - 130)
1,2-Dichloroethane-d4	113	(60 - 140)
Toluene-d8	113	(70 - 130)

HARDING LAWSON ASSOCIATES

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: E0B100184-007 **Work Order #...:** D8EF1101 **Matrix.....:** WATER
Date Sampled...: 02/09/00 **Date Received..:** 02/10/00 10:45 **MS Run #.....:** 0042187
Prep Date.....: 02/10/00 **Analysis Date..:** 02/10/00
Prep Batch #...: 0042428 **Analysis Time..:** 18:50
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	2.0	ug/L	0.40
Chloromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
Chloroethane	ND	2.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	0.50
Trichlorofluoromethane	ND	2.0	ug/L	0.20
1,1,2-Trichlorotrifluoro-ethane	ND	1.0	ug/L	0.20
1,1-Dichloroethene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.20
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
Carbon disulfide	ND	1.0	ug/L	0.30
Acetone	ND	10	ug/L	2.0
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.20
1,1-Dichloroethane	ND	1.0	ug/L	0.20
2,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
Chloroform	ND	1.0	ug/L	0.20
Bromochloromethane	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
2-Butanone	ND	5.0	ug/L	3.0
1,1-Dichloropropene	ND	1.0	ug/L	0.30
Carbon tetrachloride	ND	1.0	ug/L	0.30
1,2-Dibromoethane	ND	1.0	ug/L	0.20
Benzene	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.20
1,2-Dichloropropane	ND	1.0	ug/L	0.20
Bromodichloromethane	ND	1.0	ug/L	0.20
Dibromomethane	ND	1.0	ug/L	0.20
1-Bromo-2-chloroethane	ND	1.0	ug/L	0.50
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.20
4-Methyl-2-pentanone	ND	5.0	ug/L	2.0
Toluene	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.20
1,3-Dichloropropane	ND	1.0	ug/L	0.20
Tetrachloroethene	ND	1.0	ug/L	0.20
2-Hexanone	ND	5.0	ug/L	2.0
Dibromochloromethane	ND	1.0	ug/L	0.20

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HARDING LAWSON ASSOCIATES

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: E0B100184-007 **Work Order #...:** D8EF1101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	1.0	ug/L	0.30
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.20
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Styrene	ND	1.0	ug/L	0.20
Bromoform	ND	1.0	ug/L	0.30
Isopropylbenzene	ND	1.0	ug/L	0.20
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.30
1,2,3-Trichloropropane	ND	1.0	ug/L	0.30
n-Propylbenzene	ND	1.0	ug/L	0.40
Bromobenzene	ND	1.0	ug/L	0.30
1,3,5-Trimethylbenzene	ND	1.0	ug/L	0.20
2-Chlorotoluene	ND	1.0	ug/L	0.30
4-Chlorotoluene	ND	1.0	ug/L	0.30
tert-Butylbenzene	ND	1.0	ug/L	0.20
1,2,4-Trimethylbenzene	ND	1.0	ug/L	0.20
sec-Butylbenzene	ND	1.0	ug/L	0.30
p-Isopropyltoluene	ND	1.0	ug/L	0.20
1,3-Dichlorobenzene	ND	1.0	ug/L	0.20
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
n-Butylbenzene	ND	1.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.20
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	0.60
1,2,4-Trichlorobenzene	ND	1.0	ug/L	0.30
Hexachlorobutadiene	ND	1.0	ug/L	0.30
Naphthalene	ND	1.0	ug/L	0.40
1,2,3-Trichlorobenzene	ND	1.0	ug/L	0.40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	105	(70 - 130)
1,2-Dichloroethane-d4	106	(60 - 140)
Toluene-d8	114	(70 - 130)

QC DATA ASSOCIATION SUMMARY

E0B100184

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8260B		0042428	0042187
002	WATER	SW846 8260B		0042428	0042187
003	WATER	SW846 8260B		0042428	0042187
004	WATER	SW846 8260B		0042428	0042187
005	WATER	SW846 8260B		0042428	0042187
006	WATER	SW846 8260B		0042428	0042187
007	WATER	SW846 8260B		0042428	0042187

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E0B100184 **Work Order #...:** D8H54101 **Matrix.....:** WATER
MB Lot-Sample #: E0B110000-428

Prep Date.....: 02/10/00 **Analysis Time..:** 18:10
Analysis Date..: 02/10/00 **Prep Batch #...:** 0042428

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260B
Chloromethane	ND	2.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	2.0	ug/L	SW846 8260B
1,1,2-Trichlorotrifluoro-ethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
Acetone	ND	10	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Bromochloromethane	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
2-Butanone	ND	5.0	ug/L	SW846 8260B
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
1,2-Dibromoethane	ND	1.0	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
Dibromomethane	ND	1.0	ug/L	SW846 8260B
1-Bromo-2-chloroethane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
2-Hexanone	ND	5.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E0B100184 **Work Order #...:** D8H54101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260B
o-Xylene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Styrene	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
Isopropylbenzene	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260B
n-Propylbenzene	ND	1.0	ug/L	SW846 8260B
Bromobenzene	ND	1.0	ug/L	SW846 8260B
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260B
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260B
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260B
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260B
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260B
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260B
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260B
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
n-Butylbenzene	ND	1.0	ug/L	SW846 8260B
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260B
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260B
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260B
Naphthalene	ND	1.0	ug/L	SW846 8260B
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	87	(70 - 130)
1,2-Dichloroethane-d4	109	(60 - 140)
Toluene-d8	108	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E0B100184 **Work Order #...:** D8H54102 **Matrix.....:** WATER
LCS Lot-Sample#: E0B110000-428
Prep Date.....: 02/10/00 **Analysis Date..:** 02/10/00
Prep Batch #...: 0042428 **Analysis Time..:** 17:40

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
1,1-Dichloroethene	**10.0**	**9.81**	**ug/L**	**98**	**SW846 8260B**
Benzene	**10.0**	**9.95**	**ug/L**	**100**	**SW846 8260B**
Trichloroethene	**10.0**	**8.80**	**ug/L**	**88**	**SW846 8260B**
Toluene	**10.0**	**9.96**	**ug/L**	**100**	**SW846 8260B**
Chlorobenzene	**10.0**	**9.50**	**ug/L**	**95**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	111	(70 - 130)
1,2-Dichloroethane-d4	115	(60 - 140)
Toluene-d8	110	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E0B100184 **Work Order #...:** D8EED102-MS **Matrix.....:** WATER
MS Lot-Sample #: E0B100184-006 D8EED103-MSD
Date Sampled...: 02/09/00 09:30 **Date Received..:** 02/10/00 10:45 **MS Run #.....:** 0042187
Prep Date.....: 02/10/00 **Analysis Date..:** 02/10/00
Prep Batch #...: 0042428 **Analysis Time..:** 23:54

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	**ND**	**10.0**	**10.6**	**ug/L**	**106**		**SW846 8260B**
	ND	**10.0**	**9.67**	**ug/L**	**97**	**9.2**	**SW846 8260B**
Benzene	**ND**	**10.0**	**10.3**	**ug/L**	**103**		**SW846 8260B**
	ND	**10.0**	**9.77**	**ug/L**	**98**	**5.0**	**SW846 8260B**
Trichloroethene	**ND**	**10.0**	**8.89**	**ug/L**	**85**		**SW846 8260B**
	ND	**10.0**	**8.49**	**ug/L**	**81**	**4.6**	**SW846 8260B**
Toluene	**ND**	**10.0**	**10.7**	**ug/L**	**107**		**SW846 8260B**
	ND	**10.0**	**12.3**	**ug/L**	**123**	**15**	**SW846 8260B**
Chlorobenzene	**ND**	**10.0**	**9.52**	**ug/L**	**95**		**SW846 8260B**
	ND	**10.0**	**9.17**	**ug/L**	**92**	**3.7**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	118	(70 - 130)
	118	(70 - 130)
1,2-Dichloroethane-d4	127	(60 - 140)
	127	(60 - 140)
Toluene-d8	122	(70 - 130)
	123	(70 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters