Annual Progress Report—2009
Facility–Specific Work
405 National Avenue
Mountain View, California

Submitted to:

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Submitted by:
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April 2010

Project 1486.002 CC

AMEC Geomatrix

April 15, 2010
Project 1486.002 CC

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U.S. Environmental Protection Agency
Region IX
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Subject: Annual Progress Report—2009
Facility-Specific Work
Mountain View, California

Dear Ms. Lee:

This progress report is submitted by AMEC Geomatrix, Inc., on behalf of Vishay GSI, Inc. (Vishay), SUMCO Phoenix Corporation (SUMCO), and Schlumberger Technology Corporation (Schlumberger) in compliance with Section XV.D of the Administrative Order for Remedial Design and Remedial Action, Docket No. 91-4 (the Order). This report describes facility-specific work activities for the 405 National Avenue property (the site) performed on behalf of Vishay and SUMCO and the work activities associated with wells GSF 1A, GSF-1B1, and GSF-1B2 performed on behalf of Vishay, SUMCO, and Schlumberger according to the terms of Section XV.A of the Order.

If you have any questions regarding this annual progress report or the site facility-specific work in general, please contact the undersigned.

Sincerely yours,
AMEC Geomatrix, Inc.

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ANNUAL PROGRESS REPORT—2009
FACILITY-SPECIFIC WORK
405 National Avenue
Mountain View, California

1.0 INTRODUCTION

This progress report is submitted by AMEC Geomatrix, Inc. (AMEC), on behalf of Vishay GSI Inc. (Vishay), SUMCO Phoenix Corporation (SUMCO), and Schlumberger Technology Corporation (Schlumberger) in compliance with Section XV.D of the Administrative Order for Remedial Design and Remedial Action, Docket No. 91-4 (the Order). This report describes facility-specific work activities for the 405 National Avenue property (the site) performed on behalf of Vishay and SUMCO and the work activities associated with wells GSF-1A, GSF-1B1, and GSF-1B2 performed on behalf of Vishay, SUMCO, and Schlumberger according to the terms of Section XV.A of the Order. The format of this report is consistent with the 2008 Annual Progress Report.

1.1 SITE BACKGROUND

The 405 National Avenue site is located within the Middlefield-Ellis-Whisman (MEW) Study Area in Mountain View, California (Figures 1 and 2). The site is located approximately 1,200 feet south of U.S. Highway 101, approximately midway between Ellis Street and Whisman Road. The site measures approximately 290 feet by 170 feet and is bounded to the north by National Avenue, to the east by 425 National Avenue, to the west by 401 National Avenue, and to the south by the Hetch-Hetchy Easement. In addition, there is a 10-foot-wide public utility easement along the southern property boundary.

Until the site was redeveloped in 2001, there was a one-story industrial building, measuring approximately 200 feet by 100 feet and oriented approximately north-south on the site, and the west side of the building was coincident with the western property boundary. The building was constructed in the mid-1960s and was first occupied by Elmat Corporation from 1967 to 1969. Semimetals, a subsidiary of General Instrument Corporation (now Vishay) occupied the building between 1969 and 1978. Siltec Corporation (now SUMCO Phoenix Corporation) then purchased the property and occupied the building from 1978 to 1987. The property was sold to UniSil Corporation (UniSil) in 1989, and UniSil occupied the building until the spring of 1999, when UniSil ceased operations at 405 National Avenue.

In 2001, the 405 and 423 National Avenue properties were redeveloped. The redevelopment activities included demolition of existing buildings and construction of a new two-story

commercial building, along with associated parking, drainage, and utility facilities. As part of that redevelopment, the 405 and 423 National Avenue properties were combined and are now collectively referred to as 425 National Avenue. The building and parking lot footprints of the redeveloped structure are shown in relation to the old footprints of 405 and 423 National Avenue properties on Figure 2. W.F. Batton Management Company of San Carlos, California purchased the 425 National Avenue property in August 2006 and completed interior renovation of the building in April 2008.

1.1.1 Previous Investigations

Numerous investigations have been performed at the site to characterize the nature and extent of chemicals present in soil and groundwater. Wahler Associates performed five investigations of soil and groundwater (Wahler Associates, 1982; 1985; 1986a; 1986b; and 1988a) and issued a summary report of their findings (Wahler Associates, 1988b). R.L. Stollar & Associates (1990) conducted an investigation in 1989. In 1992, Watkins-Johnson Environmental, Inc. (WJE, formerly R.L. Stollar & Associates) performed an additional investigation (WJE, 1992) to characterize the extent and concentration of the chemicals of concern specified in the 106 Order, primarily trichloroethene (TCE). In 1995, Geomatrix Consultants, Inc. (Geomatrix) performed studies to further estimate chemical concentrations in the groundwater at the site (Geomatrix, 1996b).

1.2 LOCAL HYDROGEOLOGY

Groundwater aquifers within the MEW Study Area consist of shallow and deep aquifer systems, which are separated by a laterally extensive aquitard approximately 40 feet thick. The shallow aquifer system is generally less than 160 feet below ground surface (bgs) south of U.S. Highway 101 and generally less than 100 feet bgs north of U.S. Highway 101. Subdivisions within the shallow aquifer have been designated the “A” and “B” aquifers. The regional aquitard is designated the “B/C” aquitard. The zones below the “B/C” aquitard are termed the “C” aquifer and the deep aquifers (Locus, 2000).

Groundwater flow in the shallow aquifer zone is generally to the north. Groundwater in the “C” and deep aquifers is used as drinking water supply by the City of Mountain View from wells that are in the vicinity of the MEW Study Area but are located outside and upgradient of the MEW plume. The shallow and deep aquifer systems in the MEW Study Area are not used for drinking water.

1.3 DESCRIPTION OF FINAL REMEDY

Pursuant to the Consent Decree and 106 Order, Vishay and SUMCO, as successors to General Instrument Corporation and Siltec Corporation, respectively, were required to implement source control measures at the 405 National Avenue property. The results of site

characterization work provided the basis for the source control remedial design at the site. Detailed site characterization information was summarized in the Revised Combined Intermediate and Final Source Control Remedial Design (Revised FSCRD) dated, April 27, 1995. The source control remedial design for the site included both soil vapor and groundwater extraction and treatment systems described in six documents: (1) Revised FSCRD; (2) Addendum and Response to the Environmental Protection Agency's (EPA's) Comments on Revised FSCRD dated June 30, 1995; (3) letter to EPA dated July 13, 1995; (4) Revised Construction Operation and Maintenance Plan (COMP) dated January 1996; (5) Addendum to the Revised FSCRD dated, April 1996; and (6) Revised Operation and Maintenance Plan dated August 1997.

The soil vapor extraction system (VES) included one vertical vapor extraction well on the south side of the former 405 National Avenue building, and four inclined dual-purpose vapor and groundwater extraction wells on the property boundary between the 401 and former 405 National Avenue properties. Vapor extracted from these wells was piped to a vapor treatment system on 401 National Avenue and treated using granular activated carbon (GAC) beds. Treated vapor from the VES was discharged to the atmosphere under a Bay Area Air Quality Management District (BAAQMD) permit. Confirmation soil sampling was conducted at the site in January 1999. Analytical results of the soil sampling indicated that volatile organic compound (VOC) concentrations in the samples were below the cleanup objectives specified in the Record of Decision (ROD) for soils outside slurry walls. Following approval by the EPA (EPA, 1999b) of the confirmation soil sampling report, the VES was permanently shut down on March 22, 1999 and later decommissioned.

The groundwater extraction and treatment system (GETS) includes five on- and three off-site groundwater extraction wells (Figure 4a). On-site groundwater is extracted using one vertical well on the south side of the former 405 National Avenue property (SIL15A) and four inclined dual-purpose vapor and groundwater extraction wells (EX-1, EX-2, EX-3, and EX-4). The four inclined wells used for the GETS are the same four inclined wells that were formerly used for the VES. The three off-site groundwater extraction wells (GSF-1A, GSF-1B1, and GSF-1B2) are located about 200 feet north of the site and are jointly operated by Vishay/SUMCO and Schlumberger as part of the source control measures of both the 401 and 405 National Avenue sites (Figure 4a). Recovered groundwater from the five on- and three off-site extraction wells is piped to a groundwater treatment system at 401 National Avenue.

The groundwater treatment system consists of pretreatment by an ultraviolet light-hydrogen peroxide (UV-H_2O_2) oxidation unit followed by final treatment through a shallow tray air stripper (Figure 4b). Until December 2004, treated groundwater was discharged to the sanitary sewer under a discharge permit from the City of Mountain View. As of December 31, 2004, the GETS

discharges to the storm drain under a National Pollutant Discharge Elimination System (NPDES) permit (the Permit) for sites with groundwater impacted by VOCs (see Section 3.3 of the 2004 Annual Progress Report for further details). Operation of the groundwater extraction and treatment system is ongoing.

1.4 SUMMARY OF ACTIVITIES AND DELIVERABLES—2009

Actions taken to comply with the Order during 2009 included operation and maintenance of the groundwater extraction and treatment system; monitoring of system performance and permit compliance; reporting; and attending "All-Parties" meetings. These actions are summarized in Table 1 and discussed further below.

1.4.1 Operation and Maintenance

Operation and maintenance of the GETS as described in the Revised Operation and Maintenance Plan (O&M Plan; Geomatrix, 1997), for 405 National Avenue including on-site and off-site wells, continued full-time throughout the reporting period. The system operated continuously during 2009 with only minor unscheduled shutdowns as described in Section 2.2. A summary of GETS performance is included in the 2009 Annual Remedy Performance Checklist (Appendix A).

1.4.2 Monitoring and Permit Compliance

As required by the Permit, groundwater samples were collected monthly from the treatment system effluent and at least semiannually from the influent. Water samples from the treatment system were collected directly from in-line sampling ports. The volume of water treated and discharged was recorded weekly. Standard observations and field measurement of water quality parameters (pH and temperature) for the influent, midstream, and effluent samples were also collected at least quarterly in accordance with the Permit.

In accordance with the Permit, effluent water samples were analyzed for: (1) halogenated VOCs on a monthly basis using EPA Method 8260B with a reduced list by formerly known EPA Method 8010; (2) turbidity using EPA Method 180.1 on March 12, 2009; (3) and, a fish bioassay using EPA Method 821/R-02/012, 5th Edition (Geomatrix, 2009) on December 28, 2009.

Additionally, monthly influent and midstream samples were also analyzed for VOCs to monitor the GETS performance. The monthly influent, midstream and effluent results are used to calculate VOC mass removal by the extraction well network and subsequent destruction by the UV-H_2O_2 oxidation unit, and to calculate vapor mass discharge from the low-profile air stripper as required by the BAAQMD permit.

Samples analyzed for VOCs were collected in 40-milliliter (ml) glass VOA vials preserved with hydrochloric acid. The sample analyzed for turbidity was collected in an unpreserved 250-ml plastic bottle. The sample analyzed for a fish bioassay was collected in a 5-gallon plastic bottle. Samples were placed in ice-cooled chests and transported under Geomatrix chain-of-custody procedures to either a National or California Environmental Laboratory Accreditation Program Certified Laboratory (NELAP or CELAP certified laboratory). Samples collected this reporting period were delivered to Curtis & Tompkins Limited (Curtis & Tompkins) of Berkeley, California.

Based on the data obtained to meet National Pollutant Discharge Elimination System (NPDES) requirements, the groundwater extraction and treatment system operated in compliance with the site's NPDES permit effluent limitations. No spills, bypasses, or other permit violations occurred during the report period.

Other monitoring and permit compliance activities performed during the reporting period included:

- In January and July 2009, AMEC submitted Water Production Statements to the Santa Clara Valley Water District.
- On March 26 and November 19, 2009, AMEC collected water level measurements as part of the MEW-area semiannual monitoring program.
- On December 2 and 3, 2009, AMEC collected groundwater samples from the extraction wells and monitoring wells as part of the MEW-area annual groundwater sampling event.

1.4.3 Reporting

On January 30, 2009, AMEC submitted the NPDES Self-Monitoring Report Combined Annual Summary for 2009 and Calendar Quarter October–December 2009.

On April 15, 2009, AMEC submitted the 2008 Annual Progress Report to EPA in accordance with Section XV.D of the Order.

On April 30, 2009, AMEC submitted the First Quarter NPDES Self-Monitoring Report for the period from January to March 2009.

On July 30, 2009, AMEC submitted the Second Quarter NPDES Self-Monitoring Report for the period from April to June 2008.

On October 29, 2009, AMEC submitted the Third Quarter NPDES Self-Monitoring Report for the period from July to September 2008.

The capture zone analysis, based on March and November 2009 water level and pumping rate data, has been included in this annual progress report (see Section 2.3.2), and was prepared in accordance with a six step approach developed by the EPA (EPA, 2004).

1.4.4 "All-Parties" Meetings

No "All-Parties" meetings were scheduled in 2009. However, on behalf of Vishay and SUMCO, AMEC attended several meetings with various participants of "All-Parties" meetings to facilitate information exchange and progress toward remediation of the Middlefield-Ellis-Whisman site.

1.4.5 Data Generated—January to December 2009

Water samples were collected from the treatment system in accordance with both the sampling program presented in the O&M Plan and the NPDES Permit (see Section 2.0). A summary of the monitoring well network and GETS operating parameters is provided in Table 2. A summary of GETS extraction rates and volatile organic mass removed for the 2009 calendar year is provided in Table 3 and discussed in Section 2.1.

Water levels were measured by AMEC on behalf of Vishay and SUMCO on March 26 and November 19, 2009, and are summarized in Table 4. The data were submitted to Weiss Associates for incorporation into the MEW-area regional database. The data generated as part of the water level monitoring program during this year were collected in accordance with procedures described in Section 5.6.1 of the Unified Quality Assurance Project Plan dated December 1991.

Groundwater samples were collected from on- and off-site monitoring and extraction wells in accordance with the annual groundwater monitoring program for the Regional Groundwater Remediation Program for the site on December 2 and 3, 2009. These data were submitted to Weiss Associates for incorporation into the MEW-area regional database. The results are presented in Table 5 and further concentration trend analysis of the monitoring and extraction well network is provided in Step 5 of Section 2.3.2. Further discussion of the data generated from the groundwater sampling events is provided in Section 2.4.2. The chemical analytical result reports are included in Appendix B.

Additionally, as part of the annual groundwater monitoring program AMEC collected groundwater samples from monitoring wells SIL4A and SIL12A on December 3, 2009. The samples were relinquished under chain of custody directly to the laboratory for Weiss

Associates, which arranged for analysis and incorporation of analytical results into the MEW-area regional database.

2.0 GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

2.1 GETS PERFORMANCE, OPERATIONS AND MAINTENANCE DURING 2009

Figures 4a, 4b, and 4c show the GETS and a process flow schematic diagram, including the influent and effluent sampling locations, and discharge location to the municipal storm drain system from the site. Tetrachloroethene (PCE), trichloroethene (TCE), 1,1,2-trichlorotrifluoroethane (Freon 113), cis-1,2-dichloroethene (cis-1,2-DCE), 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA), 1,1,1-trichloroethane (1,1,1-TCA), trans-1,2-dichloroethene (trans-1,2-DCE), vinyl chloride (VC), and methylene chloride (MC) were detected in the influent samples collected monthly throughout the calendar year 2009, and the results are consistent with historical influent concentrations. No target VOCs were detected in effluent samples during the calendar year 2009 (Table 2).

Throughout the 2009 calendar year, monthly influent, midstream, and effluent water samples were collected to meet the requirements of the Permit and track GETS performance. In accordance with the Permit, duplicate influent samples were collected quarterly for analysis during the 2009 calendar year and analyzed for VOCs. These samples were submitted to Curtis and Tompkins for chemical analyses. AMEC followed established procedures for work at the site, which generally followed the quality assurance and quality control (QA/QC) goals and analytical laboratory quality assurance manual included in the Unified Quality Assurance Project Plan (UQAPP; Canonie Environmental, 1991), as approved by the EPA for the MEW site on February 3, 1993.

Further discussion of data validation procedures in accordance with the EPA National Functional Guidelines for Organic Compounds (EPA, 2008) is provided in Appendix C.

A summary of monthly averaged extraction rates from groundwater extraction wells and groundwater treatment system operating parameters is provided in Table 2. Measurements of water quality parameters (pH and temperature) were collected from influent, midstream, and effluent sampling ports throughout the calendar year, although required annually by the Permit. Extraction well network total monthly and cumulative flow volumes are quantified from readings recorded by individual well totalizers and the GETS totalizer (Figure 5a). Additionally, the GETS average flow rates and monthly average influent VOC concentrations were used to calculate the daily VOC mass removal rate in pounds per day (lbs/day) achieved by the UV-H_2O_2 oxidation unit (Table 3). Midstream VOC concentrations are tracked in a similar manner to calculate vapor mass discharge from the air stripper as required by the BAAQMD

permit. The cumulative pounds of VOCs removed by the GETS and average influent VOC concentrations are illustrated in Figure 5b.

The total gallons of groundwater treated in 2009 and cumulative groundwater treated since 1996 are approximately 9,328,570 gallons and 143,518,910 gallons, respectively. The total mass of VOCs removed in 2009 and cumulative mass of VOCs removed since 1996 is approximately 150 pounds and 7,603 pounds, respectively. Historical influent VOC concentration trends of the GETS, cumulative volume of treated groundwater, and cumulative mass of VOCs removed since 1996 are summarized in Table 3 and graphically represented in Figure 5b.

2.2 PROBLEMS ENCOUNTERED DURING 2009

From January to December 2009, the GETS operated continuously. One unexpected shutdown event in April 2009 lasted approximately 5½ days due to failure of system alarm notification, which has been remedied.

On April 14, 2009, upon arrival at the site to perform a weekly inspection, AMEC staff observed that the treatment system was not operating. Additionally, staff observed a telephone line failure message on the system's autodialer interface, which was not observed during the previous weekly inspection on April 6, 2009. AMEC staff immediately re-started the GETS on April 14 and began investigating the events leading up to the shut down. It was ultimately determined that a power failure at the site caused the initial shutdown, and an interruption in telephone service prevented AMEC staff from receiving immediate notification from the autodialer system which operates on battery power in the event of a power failure.

Further inspection by the telephone service company, AT&T, on April 28, 2009 revealed that the telephone service line was severed at a connection point located on an adjacent property. On April 29, 2009, AT&T successfully repaired the telephone line to the GETS. An evaluation of run-time records indicated that a shut down of the GETS occurred on April 8, 2009. On May 4, 2009, a shutdown notification letter was sent to the EPA describing the incident (AMEC 2009c).

No spills or other equipment malfunctions occurred in 2009.

Other unscheduled shutdown events were less than 24 hours in duration during the reporting period. The total hours of unscheduled system downtime were attributable to UV-H_2O_2 oxidation unit maintenance and repairs.

2.3 HYDRAULIC CONTROL AND CAPTURE ZONE ANALYSES

2.3.1 Methodology

The EPA Office of Research and Development (ORD) has developed a guidance document on a systematic approach for the evaluation of capture zones for pump and treat systems (EPA, 2004). This systematic approach includes six steps for capture zone analysis:

Step 1: Review site data, site conceptual model, and remedy goals.

Step 2: Define site-specific Target Capture Zone(s).

Step 3: Interpret water levels (potentiometric maps and water levels at pairs of wells).

Step 4: Perform appropriate calculations (flow budget calculation, capture zone width calculation and/or modeling).

Step 5: Evaluate concentration trends at monitoring wells.

Step 6: Interpret actual capture and compare to Target Capture Zone(s), assess uncertainties and data gaps.

This stepwise methodology provides a foundation for analysis and facilitates consideration of multiple lines of evidence in capture zone evaluation. Each step is addressed in Section 2.3.2 below.

2.3.2 Estimated Capture Zones for 2009

Step 1: Review Site Data, Conceptual Model, Remedial Objectives:

Understanding of the hydrostratigraphy and hydraulics at the site is based on lithologic logs of borings at the site, regional cross-sections (Locus, 2000), regional and site-specific water level data and potentiometric surface maps, VOC concentration data, groundwater extraction locations, aquifer testing, and modeling. Groundwater aquifers within the MEW Study Area are described in Section 1.2.

The shallow aquifer system is divided into A and B-aquifer depth intervals separated by an intervening interval of relatively fine-grained and lower permeability material that is termed the A/B aquitard. The B-aquifer has been subdivided into three depth interval zones, the shallower B1, and deeper B2 and B3 aquifers (e.g., Smith, 1996). The B-aquifer subdivisions tend to be separated by intervening lower permeability “aquitard” intervals; however, the subintervals vary in thickness and are not laterally contiguous across the MEW site. Figure 6 is a conceptual cross section of the hydrostratigraphy at the site illustrating the idealized aquifer

and aquitard layers, their depths, thicknesses, generalized hydraulic properties, well-screen intervals, and model layers. Groundwater flow in the shallow aquifer system is generally to the north.

As described in Section 1.3, groundwater extraction from five wells (EX-1, EX-2, EX-3, EX-4, SIL15A) provides on-site source control at the 401 and 425 National Avenue sites, and off-site groundwater extraction from three wells (GSF-1A, GSF-1B1, GSF-1B2) provides source control of chemicals in the A, B1, and B2-aquifers that are believed to have originated from the 401 and 425 National Avenue sites and commingled downgradient of the site. Vishay, SUMCO and Schlumberger jointly operate the off-site GSF wells as part of the source control measures for both the 401 and 425 National Avenue sites. Well locations in the A-aquifer and the B1 and B2-aquifers are shown on Figure 3.

In 2009, the average annual extraction well pumping rate for GSF-1B2 was 0.12 gpm, significantly lower than the originally anticipated design flow rate of 2 gpm (Geomatrix, 1997). The low pumping capacity of GSF-1B2 is a consequence of low permeability in the B2 aquifer in the vicinity of GSF-1B2. Field data and analysis show significant hydraulic connection between the B1 and B2 aquifers in the vicinity of the GSF extraction wells. Due to the hydraulic connection between the B1 and B2-aquifer intervals in the vicinity of the GSF extraction wells, pumping from GSF-1B1 provides containment within the B2 aquifer (Geomatrix, 2004a) as discussed below.

Step 2: Site Specific Target Capture Zones:

The objective lateral extent of on-site hydraulic containment in the A-aquifer (i.e., the target capture zone) for the 405 National Avenue site was established in the Revised FSCRD (Geomatrix, 1995a) and is shown on Figure 3. The vertical extent of the on site target containment zone is the base of the A-aquifer interval, which is at a depth of approximately 45 feet (ft) as described in the Revised FSCRD (Geomatrix, 1995a) and the Revised Aquifer Test and Off-Site and B2 Source Control Evaluation Report (Revised Aquifer Test Report; Geomatrix, 2004a). Most of the A-aquifer at 405 National Avenue is enclosed within a slurry wall.

The target capture zones for the off-site source control wells were generally established in the Revised Final Design, Regional Groundwater Remediation Program (Smith, 1996). The objective of the GSF wells is to hydraulically contain chemicals migrating from 401 and 425 National to downgradient A, B1 and B2-aquifer intervals. At 405 National Avenue, accordingly, the target capture zone for the GSF extraction wells is the combined extent of the remediation area at 425 National and the slurry wall at 401 National Avenue to a depth of approximately 90 feet (Figure 3; Geomatrix 1995a, 2004a).

Step 3: Interpretation of Water Levels:

Historically, potentiometric surface contour maps and estimated capture zones were submitted to EPA on a quarterly basis. On December 9, 2004, EPA provided verbal approval to reduce the frequency of monitoring and reporting to a semiannual basis. The influence of slurry walls on the water levels in the area complicates the use of standard contouring software to produce reasonable potentiometric surface maps. Potentiometric surface contours therefore were manually drawn based on linear interpolation between data points at monitoring wells. Water level data from pumping wells were generally not used explicitly in drawing the contours because water level data in pumping wells are generally substantially lower than water levels in the surrounding aquifer. Additionally, the cones of depression of pumping wells are estimated in radius.

The capture zones were estimated by calculating stagnation points downgradient of pumping wells using potentiometric maps based on the Revised Aquifer Test Report (Geomatrix 2004a); and, starting at these stagnation points, drawing flowpaths in an upgradient direction perpendicular to the contour lines of the potentiometric surface.

The formula used to calculate the distance to the stagnation point from the pumping well was based on Darcy's Law and uses pumping rate (Q), transmissivity (T), and hydraulic gradient (i), to calculate the stagnation point distance (e.g. Todd, 1980):

$$X = \frac{(0.75)\,Q}{2\,\pi\,T\,i}$$

The factor of 0.75 was included to add an element of conservatism.

The calculated distances to stagnation points using this method are general approximations that are overly conservative for several reasons. The gradient used in the calculation is measured from potentiometric surface maps constructed from data collected for pumping conditions, but the gradient assumed in the equation is for non-pumping conditions. Multiple pumping wells and slurry wall barriers in the region complicate accurate estimation of regional hydraulic gradients. Moreover, the equation is only strictly valid for a two-dimensional flow system.

The historical calculations of distances to stagnation points provided a reasonable systematic method to provide starting points for drawing estimated capture zones, but numerical modeling provides more reliable estimates of these stagnation point distances.

Hydraulic capture zones are estimated by hand from stagnation point distances, potentiometric surface contour maps, model results, and a factor of safety of two. The location of the

stagnation points in the B1 and B2-aquifers are 32 feet downgradient from GSF-1B1 and GSF-1B2, 43 feet downgradient from well GSF-1A, and 14 feet downgradient from well EX-4. Correction factors are applied to the calculated stagnation locations to compensate for variation in average flow and/or deviation between actual and target pumping rates as follows:

EX-4 downgradient extent of capture:

$$(12 \text{ feet}) \times \frac{Q_{EX4_avg}(gpm)}{1.5gpm}$$

GSF-1A downgradient extent of capture:

$$(44 \text{ feet}) \times \frac{Q_{GSF-1Aavg}(gpm)}{5\,gpm}$$

GSF-1B1 and GSF-1B2 downgradient extent of capture:

$$(54 \text{ feet}) \times \frac{Q_{GSF-1B1avg}(gpm)}{10\,gpm}$$

The average pumping rates for January through December 2009 of the individual extraction wells, including calibrated stagnation points for the following extraction wells based on an annual average pumping rate, are provided in Table 2. Figures 8a through 8f are potentiometric surface contour maps using groundwater level data obtained during the semi-annual water level measurement events in March and November 2009. Figures 8a through 8c show the estimated extent of capture using a stagnation point from Table 2 and discrete groundwater levels and flow rates observed during the March 2009 water level measurement event. Figures 8d through 8f show the estimated extent of capture using the stagnation point calculated in Table 2 and discrete groundwater levels and flow rates observed during the November 2009 water level measurement event.

Water level data collected during the semi-annual measurement events were compiled for pairs of wells to evaluate if inward gradient direction was maintained toward the extraction wells. The water level pair method for individual on-site extraction wells is of limited use in evaluating achievement of target capture for the on-site remediation area because on site hydraulic containment is a consequence of the cumulative influence of the five on-site extraction wells. However, a compilation of water level pair data for SIL13A and EX-2 provides a general assessment of inward gradient for the sequence of on site extraction wells. SIL13A is approximately 40 feet east of EX-2, which is in the central portion of the sequence of on-site extraction wells. SIL13A would be roughly cross-gradient from EX-2 for non-pumping conditions. Water level data for SIL13A and EX-2 are listed in Table 4. Hydrographs and a plot

of water level difference (Figure 7) illustrate that, historically, during the last four years the hydraulic gradient consistently has been inward toward the on-site extraction wells from SIL13A. This trend was temporarily disrupted by the decrease in operational flow rate caused by the conveyance pipe blockage beginning in 2006 and continuing through 2007, but inward gradients have been reestablished and have increased during 2008 and 2009 as GETS operational flow rates approached target flow rates.

Water level data were compiled for the off-site GSF extraction wells and a regional monitoring well cluster (REG-MW1A, REG-MW1B1, REG-MW1B2) to evaluate if inward gradient direction was maintained toward the off-site GSF extraction wells. The three regional (REG) monitoring wells are located 30 to 60 feet northwest from the off-site GSF extraction wells. Under non-pumping conditions the REG wells would be downgradient of the GSF wells. The water level data and well pair differences for the GSF wells are listed in Table 9. Hydrographs and water level difference graphs (Figure 7) illustrate that hydraulic gradients in all three aquifers have been consistently inward toward the GSF extraction wells from the REG monitoring wells except in 2007 when the operational flow rates in off-site extraction wells decreased because of the conveyance pipe blockage. As with the SIL13A and EX-2 well pair, the hydraulic gradient again became inward to the GSF extraction wells in 2008 and continued through 2009 when operational flow rates increased.

Step 4: Perform Appropriate Calculations:
Flow budget and capture zone width calculations:

Darcy's Law can be used to calculate groundwater flux rate or calculate width of containment for a given rate of extraction.

$$Q_{aq} = Tiw_t$$

or

$$Q_{ex} = Tiw_c, \text{ so } w_c = Q_{ex}/(Ti)$$

where Q_{aq} is the groundwater flux through aquifer, Q_{ex} is the pumping rate, T is transmissivity, i is hydraulic gradient, w_t is target width of containment, and w_c is the calculated width of hydraulic containment.

For the on-site A-aquifer, w_t is 100 feet, the conservatively high estimate of transmissivity is 900 square feet per day (ft^2/day), and the regional hydraulic gradient is in the range of 0.003 to 0.005. Using these values, the calculated range of Q_{aq} through the target aquifer width is in the range of 1.4 to 2.3 gpm. For a conservatively steep hydraulic gradient of 0.007, groundwater flux through a target aquifer width of 100-ft is 3.3 gpm. On-site pumping rates from the A-aquifer interval during the March and November 2009 water level measurement events are

approximately 5 gpm, a value greater than the calculated flux required to maintain the target width of containment. The average annual pumping rate from the on-site A-aquifer is 7.2 gpm, which is greater than the range necessary to reach the target width of containment of 100 ft.

For the combined on- and off-site portion of the A-aquifer, the w_t is 400 feet. Using the same estimated transmissivity of 900 ft^2/day and regional hydraulic gradient in the range of 0.005 and 0.007, the calculated range of groundwater flux through the target aquifer width is 9.4 to 13.1 gpm. Pumping rates from the GSF-1A, EX-1 through EX-4, and SIL15A extraction wells during the March and November 2009 water level measurement events is approximately 12.5 gpm and 11.7 gpm, which are within the conservative range of the calculated flux required to maintain the target width of containment. The average annual pumping rate from the combined on- and off-site portion of the A-aquifer is 12.1 gpm, which is within the conservative range necessary to reach the target aquifer width of containment of 400 ft.

The calculated widths (w_c) of containment during the March 2009 water level measurement event are approximately 325 ft and 232 ft for hydraulic gradients of 0.005 and 0.007, transmissivity of 900 ft^2/day, and the discrete March on-site extraction rate of 7.6 gpm during the semi-annual monitoring event. During the November 2009 monitoring event, the calculated w_c are approximately 287 ft and 205 ft for the hydraulic gradients and transmissivity value with the discrete November on-site extraction rate of 4.8 gpm during the semi-annual monitoring event. The estimated cumulative width of the combined on-site and off-site A-aquifer zone pumping is approximately 120 feet based on the potentiometric surface maps. These values are greater than the target width of containment of 100 feet.

The calculated w_c using the combined flow rates of the on- and off-site A-aquifer extraction GSF-1A, EX-1 through EX-4, and SIL15A wells (12.5 gpm), the estimated transmissivity of 900 ft^2/day and the conservative range of regional hydraulic gradients (0.005 and 0.007), in the A-aquifer is approximately 535 ft and 382 for the March 2009 event. For the November event, the w_c in the A-aquifer is approximately 501 ft and 358 ft at a total extraction rate of 11.7 gpm. These values are generally greater than the target width of containment of 400 feet.

For the off-site B-aquifer, w_t is 400 ft, the estimated cumulative transmissivity in the B1 and B2-aquifer intervals is 406 ft^2/day and the regional hydraulic gradient is in the range of 0.004 and 0.008. Using these values, the calculated range of groundwater flux (Q_{aq}) through the target aquifer width is approximately 3.4 to 6.8 gpm. The average pumping rates from the GSF-1B1 and GSF-1B2 extraction wells for the March and November 2009 sampling events are approximately 7.3 gpm and 5.3 gpm, which is at or exceeds the upper range of flux calculated to maintain the target width of containment.

The w_c of containment for the combined B-aquifers provided by extraction from GSF-1B1 and GSF-1B2 are approximately 865 ft and 433 ft for hydraulic gradients of 0.004 and 0.008, transmissivity of 406 ft^2/day, and average extraction rate of 7.3 gpm for the March 2009 reporting period. For the November 2009 reporting period, the w_c of containment for the combined B-aquifers provided by extraction from GSF-1B1 and GSF-1B2 are approximately 628 ft and 314 ft for an extraction rate of 5.3 gpm. These values are at or above the target width of containment of 400 feet.

This flow budget approach assumes two dimensional flow conditions and does not account for vertical flow between the A- and B-aquifers. Accordingly, the capture width calculated with this method is generally too large if vertical flow components are substantial. However, at the MEW site this approach is conservative because slurry walls remove large portions of the aquifer from the flow system upgradient of the extraction wells in the A-aquifer. The width of the A-aquifer influenced by pumping is increased by the approximate width of the upgradient slurry walls. In addition, upgradient pumping contributes to the capture zone width.

Numerical Modeling:

A calibrated, three-dimensional, numerical groundwater flow and particle tracking model was constructed using MODFLOW (McDonald and Harbaugh, 1988) and MODPATH (Pollock, 1994). The model serves as a tool to evaluate the extent of hydraulic containment by incorporating hydraulic properties based on site-specific aquifer testing and accounting for the hydraulic influence of the slurry walls. The model was calibrated by comparing modeled drawdown from simulated wells to measured drawdown from an extended pumping test at GSF-1B1. The model design, calibration, and sensitivity analyses are presented in the Revised Report on Aquifer Test and Off-Site B2 Source Control Evaluation (Geomatrix, 2004a).

Figures 9a through 9c depict the modeled extent of hydraulic containment for the A, B1 and B2 aquifers provided by pumping at 5 gpm from GSF-1A and 7 gpm from GSF-1B1, using discrete extraction rates from the March 2009 water level measurement event. Figures 9d through 9f depict the groundwater flow model during November 2009 water level measurement event when the GETS was pumping at discrete rates of 5 gpm from GSF-1A and 5 gpm from GSF-1B1. No pumping is included from GSF-1B2 in the model; the hydraulic containment within the B2 aquifer is a consequence of upward flow from the B2 aquifer into the B1 aquifer, which occurs because of hydraulic connection between the aquifers through the leaky B1/B2 aquitard.

A north-south cross sectional view, which depicts the model results in the vicinity of the GSF extraction wells (Figures 10a and 10b), shows that pumping from well GSF-1B1 results in: (1)

an upward vertical gradient from the B2 aquifer into the B1-aquifer, and (2) hydraulic capture of groundwater particles originating near the bottom of the B2-aquifer. Vertical gradient data for monitoring well clusters confirm the upward hydraulic gradient from the B2 to B1-aquifer. The model results show a width of hydraulic containment in the A-aquifer and the B1/B2-aquifer that exceeds the objective containment.

Step 5: Evaluation of Concentration Trends at Monitoring Wells:
TCE is the primary chemical impacting groundwater at the site. An evaluation of the ratios of TCE to other constituents is minor to negligible, so TCE alone can be used to evaluate concentration trends to evaluate capture. Figure 11 shows TCE concentrations detected in monitoring wells screened in the A-aquifer in December 2009.

Historical TCE concentration data were compiled for monitoring wells 108A, 116A and SIL9A, which are downgradient of the on-site target hydraulic containment area. If the on-site extraction wells have been hydraulically containing the source area, then decreasing trends in TCE concentrations at 108A (Figure 12c), 116A (Figure 12d), and SIL9A (Figure 12e) can be expected. Table 6 provides historical chemical concentration data, and Figures 12c through 12e include historical TCE data from wells 108A, 116A and SIL9A respectively. These figures show that TCE concentrations at wells 108A and 116A have consistently decreased since operation of the GETS began. In previous years, TCE concentrations in well 116A also have shown a generally decreasing trend until the last two years. The results from well 116A during 2007 may have been attributable to the operational lapse of the GETS during access vault installation; however, the GETS operated at near design flow rates during 2008 and 2009 and concentrations of TCE in well 116A have stabilized. AMEC will continue to closely monitor concentrations.

Figure 12b shows historical TCE concentrations in groundwater pumped at the GSF extraction wells. Although no data were collected in 2007, historic decreasing trends of TCE concentrations at GSF-1A and GSF-1B1 are consistent with effective remediation and hydraulic isolation of the upgradient source area. A decreasing trend in TCE concentration has not yet occurred at GSF-1B2. A longer lag time between shallow on-site source control and decreasing concentrations of TCE in the B2 interval at depth is expected (refer to monitoring well 107B2 of Figure 12d). Groundwater velocities are also slower in the B2 interval because of lower hydraulic conductivity relative to the B1 and A intervals. Convergence of TCE concentrations at GSF-1B1 and GSF-1B2 is consistent with hydraulic connection of these intervals near the GSF extraction wells.

Historical TCE concentration data were also compiled for monitoring wells 147A, 77B1 and 143B1, which are approximately 200 feet downgradient of the GSF extraction wells.

Decreasing trends of TCE concentrations at 147A, 77B1 and 143B1 (Figure 13) support that the GSF extraction wells are hydraulically containing groundwater with elevated concentrations of TCE in the off-site area.

Step 6: Discussion of Analyses of Extent of Hydraulic Containment:
Factors with potential to change the extent of hydraulic containment include pumping rates, regional hydraulic gradient, and saturated thickness of the A-aquifer. Table 2 and Figure 5a show historical compilation of pumping rates.

Figure 14 shows hydrographs for five A-aquifer monitoring wells. These data show that seasonal water level variation of a few feet for individual monitoring wells and a general, yet small, decreasing trend of water levels over the last ten years. These data show that the saturated thickness of the A-aquifer has varied by less than ten percent.

Regional hydraulic gradient influences the rate and direction of flow of groundwater through the aquifer system. The numerical modeling uses regional gradients based on water level data removed from influence of extraction wells. As long as the regional hydraulic gradient, pumping rates, and A-aquifer saturated thickness do not change significantly, the model results will continue to be valid. The potentiometric surface maps that are the basis for the hand drawn estimates of capture provide compensation for variation in gradient.

Multiple lines of evidence indicate that the extent of hydraulic containment provided by on-site groundwater extraction meets or exceeds the target capture zones. Table 7 summarizes the findings of capture zone analyses. The site-specific analyses indicate that the objective hydraulic containment is attained for the A-aquifer, and for the B1 and B2 aquifers.

2.3.3 Horizontal and Vertical Hydraulic Gradients

As documented in historical potentiometric surface maps, the horizontal hydraulic gradient is consistently north to northwest in the shallow aquifer system at the MEW site.

Table 8 provides vertical gradient data between the A and B1-aquifers, and between the B1 and B2-aquifers based on data from monitoring well clusters in the vicinity of the site. Table 8 includes vertical gradient data from February 1996 to December 2009 for two monitoring well clusters: Group I (116A, 109B1, and 107B2); and Group II (108A, 104B1, and 108B2). Table 9 includes available data from August 1999 to December 2009 for off-site extraction well cluster Group III (GSF-1A, GSF-1B1 and GSF-1B2).

Vertical hydraulic gradient is the difference in head elevations between shallow and deep wells (dH) divided by the vertical distance between the mid points of saturated well screens in adjacent depth intervals (dL) as shown in the equation below.

$$\text{Vertical Gradient} = \frac{dH}{dL}$$

Positive vertical gradient indicates downward flow, while a negative value indicates upward flow. Figure 15 includes graphs illustrating vertical gradients with time between the A and B1 intervals and between the B1 and B2 intervals. Since 1998, the vertical gradient between the A and B1-aquifers has been consistently downward. Vertical gradient between the B1 and B2 aquifers is stronger and consistently upward. A decline in vertical gradient can be observed during 2006 and 2007, which is consistent with the restriction of flow due to conveyance pipe blockage; however, the trend returns during 2008 and continues through 2009. The upward gradient from B2 to B1 is consistent with (1) field observations recorded during aquifer testing, which showed an observable hydraulic influence on the B2-aquifer due to pumping from GSF-1B1, and (2) numerical model results, which indicated hydraulic influence and capture of B2-aquifer groundwater due to pumping from GSF-1B1 (Geomatrix, 2004a).

2.4 INTERPRETATION OR EXPLANATION OF THE DATA

2.4.1 2009 Groundwater Extraction and Treatment System

Operating parameters of the GETS between January and December 2009 are summarized in Table 2, and mass removal by the extraction well network is summarized in Table 3. The data in Tables 2 and 3 and graphical representations in Figures 5a and 5b indicate that the GETS continues to effectively remove VOCs from the extracted groundwater, and provide hydraulic containment of impacted groundwater at the site in the A-aquifer, as well as the B1 and B2 aquifers.

2.4.2 2009 Groundwater Monitoring Event Results

Similar to 2008, low flow sampling was conducted during the December 2009 sampling event in accordance with EPA guidance (EPA, 1996). Prior to the December 2004 sampling event, groundwater samples were collected following purging of four casing volumes of water by bailer followed by sample collection.

Groundwater samples were collected from on and off-site monitoring wells in accordance with the annual groundwater monitoring program for the site. With the exception of two wells, 116A and SIL14A, concentrations of VOCs detected during the December 2009 sampling event were consistent with historical concentration trends observed at the site.

- Concentrations of TCE in monitoring well 116A were similar to 2007 and 2008 values, and remained higher than historical values (40,000 micro grams per liter [µg/L]).

- Concentrations of VOCs in monitoring well SIL14A have varied in the past two years. In 2008, data indicated a significant increase in VC and cis-1,2-DCE, which then decreased in 2009. This trend in VOC concentrations is consistent with biologically-induced dechlorination of TCE. However, in 2009, concentrations of cis-1,2-DCE and VC decreased in well SIL14A. Further monitoring of this well is necessary to determine any continued trends.

The analytical results from the December 2009 sampling event are summarized in Table 5. The chemical analytical result reports are included in Appendix B.

Historical TCE concentration data were also compiled for the monitoring wells in the network (Figures 12a through 12f). Decreasing trends of TCE concentrations can be observed in the concentration versus time plots for the A and B1 intervals, but less so in the B2 interval (as described in Section 2.3.2).

QA/QC procedures used to collect and analyze data during the calendar year of 2009 were summarized in a quality assurance report submitted as Appendix C.

2.4.3 Isoconcentration Maps

Figure 11 provides a TCE isoconcentration map for the A-aquifer. Figures 12a through 12f show TCE, cis-1,2-DCE, vinyl chloride, and PCE concentration trends versus time for different wells screened in each of the A, B1, and B2-aquifer intervals.

3.0 OTHER 2009 ACTIVITIES

3.1 NPDES SAMPLING PROGRAM

On September 14, 2004, AMEC submitted an application to the California Regional Water Quality Control Board (RWQCB) to operate the GETS under the conditions described in the General Waste Discharge Requirements for Discharge or Reuse of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted by Volatile Organic Compounds, NPDES permit number CAG912003. The site received authorization to operate under the Permit in a letter from the RWQCB dated November 29, 2004, and has been discharging under the Permit since January 1, 2005. The GETS is currently subject to RWQCB Order No. R2-2009-0059 adopted by the RWQCB on August 12, 2009.

In accordance with the NPDES Permit, AMEC prepared a detailed summary table of the NPDES sampling, reporting, and compliance requirements for the NPDES Permit (See Appendix D). AMEC also prepared a NPDES memorandum that summarizes the

sampling, reporting, and compliance requirements for the NPDES Permit, and includes the following:

- Summary Monitoring Requirements,
- Sampling and Reporting Schedule,
- Summary of Analytical Methods and Sampling Handling,
- Summary of NPDES effluent discharge and trigger level requirements,
- Summary of Reporting Requirements,
- Summary of Records and Notification Requirements,
- Regional Water Quality Control Board (RWQCB) Discharge Authorization Letter,
- Copies of NPDES Permit Order No. R2-2009-0059, Self-Monitoring Program for NPDES Permit Order No. R2-2009-0059, and Notice of Intent for NPDES Permit Order No. R2-2009-0059,
- Ultra Clean Sampling Technique (EPA Method 1669) Protocols, and
- NPDES sampling field form.

On February 17, 2006, AMEC submitted a letter to Mr. Farhad Azimzadeh of the RWQCB, which requested modifications to the Self Monitoring Program for three chemical groups. The letter, entitled “Request to Modify Self Monitoring Program under VOC General NPDES Permit,” was submitted on behalf of Vishay, SUMCO, and Schlumberger, and requested the following modifications for three chemical groups:

- Volatile Organic Compounds: Reduction in the number of compounds analyzed by EPA Method 8260B from the full list to the halogenated VOC list (formerly EPA Method 8010).
- SVOCs: Reduction in effluent monitoring frequency for SVOCs to once every three years, with the next event to be performed in 2011.
- 1,4-Dioxane: Reduction in effluent monitoring frequency for 1,4-Dioxane to once every three years, with the next event to be performed in 2011.

As directed in an email response from Mr. Azimzadeh on February 17, 2006, the modifications to the Self Monitoring Program were approved and initiated during the March 2006 sampling event and have continued since this event.

4.0 PROBLEMS ENCOUNTERED

During 2009, AMEC performed unscheduled activities on the GETS related to both operation and maintenance, and NPDES monitoring and reporting.

4.1 UNSCHEDULED OPERATION AND MAINTENANCE

As described in Section 2.2, during a routine weekly inspection on April 14, 2009, AMEC staff observed that the telephone line to the autodialer alarm notification system had malfunctioned due to a physical severance of the telephone service at the site. The severed line connection for the autodialer system prevented AMEC staff from receiving immediate notification. The GETS was restarted immediately on April 14, 2009, and the telephone line was successfully repaired shortly after. No spills or other equipment malfunctions occurred in 2009.

5.0 TECHNICAL ASSESSMENT

For 2009, the GETS treated approximately 5.4 to 19.8 gpm of impacted groundwater, with an average of 17.8 gpm. The minimum rate occurred during the unexpected April 2009 shutdown event due to a power failure in conjunction with technical problems with the telephone line; the GETS has operated near design flow rates throughout the rest of the year. Beneath the suspected source areas and throughout most of the plume extent, VOC concentrations are declining in groundwater and the plume extent is decreasing.

Table 2 summarizes the average flow rates for the extraction well network and operating parameters of the GETS between January and December 2009. The data indicate that the GETS complied with the conditions of the NPDES Permit, and effectively removed VOCs from the influent stream. Figure 5a illustrates the total volume of groundwater treated, average flow rates recorded by the GETS flow totalizer, and the sum of the flow rates for individual flow totalizers. Influent VOC concentrations have displayed a continuous downward trend since system startup, and the cumulative mass of VOCs removed has also steadily increased (Figure 5b).

The evaluation of hydraulic containment for the March and November 2009 water level event is discussed in Section 2.3.2. Multiple lines of evidence indicate that the extent of hydraulic containment provided by on-site extraction exceeds the target capture zones, and is attained with a substantial margin of safety.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The GETS is operating, and will continue to operate in conformance with the design parameters outlined in the Final Remedy. As requested by EPA, AMEC submitted an Optimization Evaluation Report (AMEC 2009b) that presented potential methods to optimize

the groundwater extraction and treatment system in September 2008. Opportunities for treatment system optimization may include: (1) replacing the UV-H_2O_2 oxidation unit with an alternative oxidation technology, and (2) researching in-situ remedial treatment technologies that are capable of decreasing VOC groundwater concentrations in groundwater underlying the site and/or lowering annual operating costs. EPA has not yet commented on the report.

7.0 FOLLOW-UP ACTIONS

The TCE concentrations in well 116A and the VOC concentrations in well SIL14A may require more frequent monitoring in the future to more closely observe the concentration trends.

8.0 WORK PLANNED FOR 2010

The following actions are planned for the remainder of the year:

- Continue to operate and maintain the groundwater extraction and treatment system as described in the O&M Plan.
- Collect water level measurements in March and November 2010 in accordance with the semiannual monitoring schedule.
- Attend semiannual “All-Parties” meetings (date to be determined).
- Prepare and submit quarterly NPDES Self Monitoring Reports in January, April, July, and October in accordance with the requirements of the NPDES Permit.
- Prepare and submit a SCVWD Water Production Statements in January and July 2010.
- Collect and analyze groundwater samples from extraction and monitoring wells in November or December of 2010 in accordance with the regional groundwater monitoring program.

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TABLES

TABLE 1

MONITORING AND REPORTING SCHEDULE
JANUARY–DECEMBER 2009
405 National Avenue
Mountain View, California

Operations and Maintenance	Frequency
Routine Inspections [1]	Weekly
Quarterly Inspections [1]	Four times per year
Annual Inspection [1]	Once per year

Monitoring	Frequency
Groundwater Extraction and Treatment System (GETS) Sampling Events	Monthly
Groundwater Level Measurements	Semiannually
Groundwater Sampling Event	Annually

Permit Compliance	Submitted
NPDES Self Monitoring Plan Reports	January, April, July, and October 2009
Santa Clara Valley Water District Water Production Statement and Fees	January and July 2009
Bay Area Air Quality Management District (BAAQMD) Permit Annual Data Update	July 2009
BAAQMD Permit Annual Fee	September 2009

Reporting	Submitted
Annual Progress Report for 2008	April 2009
Annual Capture Zone Analyses—2008	April 2009

Meetings	Attended
All Parties Meeting	None Scheduled

Note
1. As described in the Operations and Maintenance Plan, Geomatrix, 1997.

TABLE 2

AVERAGE FLOW RATES FOR EXTRACTION WELL NETWORK,
CALCULATED STAGNATION POINTS AND
GROUNDWATER TREATMENT SYSTEM OPERATING PARAMETERS
JANUARY–DECEMBER 2009[1]
405 National Avenue
Mountain View, California

Month	Average Flow Rate by Month (gpm)							
	Extraction Well Name							
	SIL15A	EX-1	EX-2	EX-3	EX-4	GSF-1A	GSF-1B1	GSF-1B2
January-09	1.7	1.0	1.8	1.4	1.8	5.0	7.1	0.11
February-09	1.6	1.1	1.7	1.2	1.6	4.8	6.6	0.12
March-09	1.6	1.1	1.7	1.4	1.8	4.9	7.2	0.13
April-09	1.4	0.6	1.5	1.2	1.4	4.2	5.7	0.10
May-09	1.7	0.8	1.7	1.3	1.8	5.0	6.7	0.12
June-09	1.7	0.9	1.7	1.4	1.8	5.0	6.3	0.11
July-09	1.8	0.9	1.7	1.4	1.9	4.9	5.2	0.11
August-09	1.8	0.6	1.7	1.5	1.9	5.0	5.8	0.10
September-09	1.7	0.7	1.7	1.5	1.6	5.1	5.6	0.10
October-09	1.5	0.7	1.6	1.5	1.7	5.1	5.5	0.10
November-09	1.5	0.5	1.4	1.5	1.8	5.1	5.2	0.10
December-09	1.5	0.5	1.6	1.5	1.9	5.0	4.9	0.10
Annual Average Flow Rate	1.6	0.8	1.6	1.4	1.7	4.9	6.0	0.11

Stagnation Point (ft) [2]	— [3]	—	—	—	14	43	32	32

Groundwater Treatment System Parameter	Influent			Effluent		
	Min	Max	Avg	Min	Max	Avg
Flow Rate (gpm) [4]	5.41	19.79	17.78	5.41	19.79	17.78
pH	7.3	7.8	8.1	8.2	8.3	8.3
Temperature ° [4]	16.5	17.6	19.7	16.2	17.5	20.2
Total VOCs (mg/l) [4]	1.68	2.57	1.96	ND (0.0005)[5]	ND (0.02)	—

Notes
1. Average monthly flow rate is calculated by individual well flow totalizers.
2. Stagnation points are based on model results, a factor of safety of two, and correction factors to account for variation in average pumping rates using the average annual pumping rates.
3. "—" = Not Applicable
4. gpm = gallons per minute; °C = degrees centigrade; mg/l = milligrams per liter.
5. ND = Not Detected; detection limits are shown in parentheses.

TABLE 3

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM (GETS)
VOLUME AND VOC MASS REMOVAL
JANUARY–DECEMBER 2009
405 National Avenue
Mountain View, California

Date of Inspection	Flow Between Inspections (gallons)[1]	Average Flow Rate (gpm)[1]	Influent VOC[2] Concentration[3] (µg/l)[4]	Average VOC Removal Rate[5] (lb/day)[6]
1/7/2009	254,870	19.6	2,233	0.53
1/15/2009	225,400			
1/21/2009	168,820			
1/27/2009	169,350			
2/5/2009	249,430	18.4	2,570	0.57
2/10/2009	137,960			
2/17/2009	163,620			
2/25/2009	218,030			
3/4/2009	192,320	19.5	1,820	0.43
3/12/2009	229,340			
3/16/2009	114,620			
3/26/2009	279,200			
4/1/2009	166,160	15.8	2,021	0.4
4/6/2009	1,379,308			
4/14/2009	620,408			
4/21/2009	188,760			
4/28/2009	193,950			
5/7/2009	246,590	18.8	2,010	0.45
5/12/2009	133,320			
5/20/2009	221,200			
5/26/2009	158,840			
6/3/2009	215,590	18.5	2,066	0.46
6/8/2009	131,620			
6/16/2009	215,760			
6/26/2009	256,740			
7/2/2009	152,960	17.5	1,817	0.37
7/6/2009	74,050			
7/14/2009	212,770			
7/21/2009	182,610			
7/31/2009	259,790			
8/4/2009	107,470	18.0	1,940	0.42
8/13/2009	233,000			
8/18/2009	130,970			
8/28/2009	253,350			
9/3/2009	156,520	17.6	1,680	0.36
9/9/2009	149,860			
9/16/2009	182,680			
9/21/2009	120,190			

TABLE 3

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM (GETS)
VOLUME AND VOC MASS REMOVAL
JANUARY–DECEMBER 2009
405 National Avenue
Mountain View, California

Date of Inspection	Flow Between Inspections (gallons)[1]	Average Flow Rate (gpm)[1]	Influent VOC[2] Concentration[3] (µg/l)[4]	Average VOC Removal Rate[5] (lb/day)[6]
10/1/2009	249,710	17.2	1,852	0.38
10/7/2009	146,370			
10/14/2009	175,320			
10/19/2009	123,960			
10/30/2009	268,500			
11/5/2009	147,810	16.9	1,778	0.36
11/13/2009	195,920			
11/20/2009	167,490			
11/25/2009	121,990			
12/2/2009	166,740	16.6	1,720	0.34
12/11/2009	214,940			
12/17/2009	143,800			
12/23/2009	285,830			
12/28/2009	258,340			
Annual Cumulative Flow for 2009 (gallons)				9,328,570
Historical Cumulative Flow from 1996 to present (gallons)				143,618,910
Annual Cumulative VOC Mass Removed for 2009 (lbs) [7]				150.4
Historical Cumulative VOC Mass Removed from 1996 to present (lbs) [8]				7,603

Notes

1. Cumulative flow measurement from extraction wells EX-1 through EX-4, SIL15A, GSF-1A, GSF-1B1, and GSF-1B2 recorded at groundwater treatment system totalizer.
2. VOC = volatile organic compound (values are total VOC concentrations).
3. Based on monthly influent water sampling analytical results.
4. µg/l = micrograms per liter.
5. Average VOC removal rate = average flow rate multiplied by influent VOC concentrations.
6. lb/day = pounds per day.
7. Calculated from flow meter readings. Flow measurements averaged over time period between weekly measurements.
8. lbs = pounds

TABLE 4

SEMIANNUAL WATER LEVEL MEASUREMENTS
MARCH AND NOVEMBER 2009
405 National Avenue
Mountain View, California

Well Name	Date Measured	Depth to Water[1]	Measuring Point Elevation[2]	Water Level Elevation[2]
SIL1A	3/26/2009	11.24	44.01	32.77
	11/19/2009	12.21	44.01	31.80
SIL2A	3/26/2009	11.01	43.42	32.41
	11/19/2009	11.95	43.42	31.47
SIL4A	3/26/2009	11.24	44.15	32.91
	11/19/2009	12.18	44.15	31.97
SIL5A	3/26/2009	10.71	45.15	34.44
	11/19/2009	11.58	45.15	33.57
SIL8A	3/26/2009	11.82	44.41	32.59
	11/19/2009	12.69	44.41	31.72
SIL9A	3/26/2009	10.30	41.21	30.91
	11/19/2009	11.00	41.21	30.21
SIL10A	3/26/2009	10.03	41.99	31.96
	11/19/2009	11.20	41.99	30.79
SIL11A	3/26/2009	10.58	42.66	32.08
	11/19/2009	11.43	42.66	31.23
SIL12A	3/26/2009	10.88	43.25	32.37
	11/19/2009	11.81	43.25	31.44
SIL13A	3/26/2009	11.76	43.50	31.74
	11/19/2009	12.67	43.50	30.83
SIL14A	3/26/2009	11.25	43.07	31.82
	11/19/2009	12.15	43.07	30.92
SIL15A[3]	3/26/2009	10.06	42.17	32.11
	11/19/2009	10.98	42.17	31.19
SIL16A	3/26/2009	11.07	43.51	32.44
	11/19/2009	12.03	43.51	31.48
SIL17A	3/26/2009	10.98	43.43	32.45
	11/19/2009	11.95	43.43	31.48
EX-1[3,4]	3/26/2009	14.68	41.61	31.23
	11/19/2009	15.37	41.61	30.74
EX-2[3,4]	3/26/2009	13.87	41.50	31.69
	11/19/2009	15.08	41.50	30.84

TABLE 4

SEMIANNUAL WATER LEVEL MEASUREMENTS
MARCH AND NOVEMBER 2009
405 National Avenue
Mountain View, California

Well Name	Date Measured	Depth to Water[1]	Measuring Point Elevation[2]	Water Level Elevation[2]
EX-3[3,4]	3/26/2009	14.25	41.47	31.39
	11/19/2009	15.48	41.47	30.52
EX-4[3,4]	3/26/2009	13.69	41.07	31.39
	11/19/2009	14.88	41.07	30.55
GSF-1A[3,4]	3/26/2009	10.67	39.57	28.90
	11/19/2009	11.58	39.57	27.99
GSF-1B1[3,4]	3/26/2009	46.77	39.61	-7.16
	11/19/2009	47.87	39.61	-8.26
GSF-1B2[3,4]	3/26/2009	16.05	39.61	23.56
	11/19/2009	15.26	39.61	24.35

Notes

1. Depth to water in feet below top of casing.
2. Elevations are expressed in feet above mean sea level.
3. Extraction well water level measurements may vary depending on cycle of well pump.
4. Depth to water parameters corrected for the 45-degree orientation of the well casings. Depths are not considered accurate due to measuring difficulties in the inclined wells.

TABLE 5

GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS SUMMARY [1]
DECEMBER 2009
405 National Avenue
Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Sampling Technique	Date Sampled	1,1-DCA	1,1-DCE	MC	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE
Extraction Wells												
EX-1	Sample Port	12/2/2009	<20	<20	<800	**1,200**	**20**	<20	**2,900**	**210**	**69**	**55**
EX-1 (Dup)	Sample Port	12/2/2009	<10	**15**	<400	**1,200**	**18**	<10	**2,700**	**210**	**72**	**57**
EX-2	Sample Port	12/2/2009	**6.7**	**8.7**	<170	**600**	**24**	**10**	**560**	**35**	**25**	<4.2
EX-3	Sample Port	12/2/2009	**3.7**	**3.3**	<100	**78**	**3.8**	**5.1**	**310**	**16**	<2.5	<2.5
EX-4	Sample Port	12/2/2009	**6.1**	**8.1**	<100 U	**190**	**4.6**	**9.8**	**830**	**46**	<2.5	<2.5
SIL15A	Sample Port	12/2/2009	**9.3**	**12**	<80 U	**300**	**7.5**	**9.4**	**360**	**35**	**4.3**	<2.0
GSF-1A	Sample Port	12/2/2009	**6.5**	**9.6**	<200	**290**	**8.9**	**7.6**	**760**	**34**	<5.0	<5.0
GSF-1B1	Sample Port	12/2/2009	<20	<20	<800	**43**	<20	<20	**2,400**	**370**	<20	<20
GSF-1B2	Sample Port	12/2/2009	<36	<36	<1,400	<36	<36	<36	**6,500**	**490**	<36	<36
Monitoring Wells												
108A	Low Flow	12/2/2009	<1.3	<1.3	<50 U	**35**	<1.3	<1.3	**200**	<5.0	<1.3	<1.3
116A	Low Flow	12/2/2009	<310	<310	<13,000 U	**6,600**	<310	<310	**40,000**	**1,900**	<310	<310
104B1	Low Flow	12/2/2009	<1.3	<1.3	<50 U	**10**	<1.3	<1.3	**140**	<5.0	<1.3	<1.3
109B1	Low Flow	12/2/2009	<5.0	<5.0	<200 U	**20**	<5.0	<5.0	**890**	**31**	<5.0	<5.0
25B1	Low Flow	12/2/2009	<1.3	**2.0**	<50 U	**25**	<1.3	**1.4**	**190**	<5.0	<1.3	<1.3
42B2	Low Flow	12/2/2009	<0.5	<0.5	<20	<0.5	<0.5	<0.5	**8.5**	<2.0	<0.5	<0.5
108B2	Low Flow	12/3/2009	<3.6	<3.6	<140 U	**3.8**	<3.6	<3.6	**600**	<14	<3.6	<3.6
107B2	Low Flow	12/2/2009	<0.5	<0.5	<20 U	**2.3**	<0.5	<0.5	**87**	<2.0	<0.5	<0.5
SIL1A	Low Flow	12/3/2009	<31	<31	<1,300	**6,000**	**58**	<31	**320**	<130	<31	<31
SIL9A	Low Flow	12/3/2009	<2.5	<2.5	<100 U	**34**	<2.5	<2.5	**450**	<10	<2.5	<2.5
SIL9A (Dup)	Low Flow	12/3/2009	<2.5	<2.5	<100 U	**35**	<2.5	<2.5	**470**	<10	<2.5	<2.5
SIL13A	Low Flow	12/3/2009	**3.6**	**3.5**	<80 U	**42**	<2.0	**4.2**	**320**	**8.2**	<2.0	<2.0
SIL14A	Low Flow	12/3/2009	<63	**140**	<2,500	**34,000**	**77**	<63	**7,900**	<250	**8,100**	<63

TABLE 5

GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS SUMMARY [1]
DECEMBER 2009
405 National Avenue
Mountain View, California

Notes
1. Groundwater samples analyzed by U.S. Environmental Protection Agency Method 8260B mass spectrophotometer, including 1,1-DCE and Freon 113, by Curtis & Tompkins, Ltd., of Berkeley, California.

Abbreviations
1,1-DCA= 1,1-dichloroethane
1,1-DCE = 1,1-dichloroethene
1,2-DCB = 1,2-dichlorobenzene
cis-1,2-DCE = cis-1,2-dichloroethene
1,1,1-TCA = 1,1,1-trichloroethane
Freon 113 = 1,1,2-trichlorotrifluoroethane
PCE = tetrachloroethene
TCE = trichloroethene
trans-1,2-DCE = trans-1,2-dichloroethene

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS[1]
OCTOBER 1985–DECEMBER 2009
405 National Avenue
Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other	
Extraction Wells												
EX-1	12/07/1995	<5	<5	<5	**30**	<5	**845**	<5	<5	<5		
EX-1	12/7/1995	**210**	**190**	**6,600**	**30**	**1700**	**400,000**	**120**	**370**	**580**		
EX-1 (Dup)	12/07/1995	<5	<5	<5	-- [2]	<5	**799**	<5	<5	<5		
EX-1	10/28/1997	<1000	<500	**2,000**	<1000	<1000	**110,000**	<4000	<4000	<1000		
EX-1	6/2/1998	<1000	<1000	**1,000**	<1000	<1000	**35,000**	<4000	<2000	<1000		
EX-1	12/1/1998	<63	<63	**1,200**	<63	**120**	**18,000**	<630	**220**	--		
EX-1	6/3/1999	<25	<25	**850**	<25	**76**	**12,000**	--	**210**	--	1,1,2-TCA	**410**
EX-1	12/10/1999	<83	<83	**1,100**	<83	<83	**12,000**	<83	**240**	<83		
EX-1 (Dup)	12/10/1999	<83	<83	**1,300**	<83	<83	**13,000**	<83	**280**	<83		
EX-1	12/04/2000	<36	<36	**1,200**	<36	**54**	**8,500**	<36	**230**	**47**		
EX-1 (Dup)	12/04/2000	<31	<31	**1,400**	<31	**40**	**10,000**	<31	**230**	**35**		
EX-1	12/05/2001	<25	<25	**1,200**	**51**	**27**	**8,100**	<25	**200**	**36**		
EX-1 (Dup)	12/05/2001	<25	<25	**1,200**	<25	<25	**6,900**	<25	**190**	**28**		
EX-1	12/16/2002	<20	<20	**1,100**	<20	<20	**6,800**	<40	**150**	**34**		
EX-1	12/10/2003	<20	<20	**1,100**	**21**	<20	**5,500**	<40	**150**	**39**		
EX-1	12/13/2004	<31	<31	**1,200**	<31	<31	**4,900**	<63	**120**	**46**		
EX-1	11/10/2005	<42	<42	**960**	<42	<42	**4,600**	**290**	**81**	**62**		
EX-1 (Dup)	11/10/2005	<36	<36	**960**	<36	<36	**4,700**	**280**	**93**	**68**		
EX-1	11/16/2006	<17	<17	**920**	<17	<17	**3,800**	**150**	**74**	**65**		
EX-1	12/10/2007	NM [3]	NM	NM	NM	NM	NM	NM	NM	NM		
EX-1	12/4/2008	<20	<20	**1,300**	<20	<20	**4,000**	**250**	**85**	**56**		
EX-1 (Dup)	12/4/2008	**8.6**	**11**	**1,200**	**15**	**12**	**3,900**	**240**	**83**	**51**		
EX-1	12/2/2009	<20	<20	**1,200**	**20**	<20	**2,900**	**210**	**69**	**55**		
EX-1 (Dup)	12/2/2009	<10	**15**	**1,200**	**18**	<10	**2,700**	**210**	**72**	**57**		
EX-2	12/7/1995	<0.5	<0.5	**2.37**	--	<0.5	**55.1**	<0.5	<0.5	<0.5		
EX-2	12/7/1995	<30	<30	**4,600**	<30	**40**	**12,000**	<100	**120**	<30	MC	**0.57**
EX-2 (Dup)	12/7/1995	<0.5	<0.5	**2.3**	--	<0.5	**54**	<0.5	<0.5	<0.5	1,2-DMB	**1.02**
											1,2,4-TMB	**1.42**
											1,3,5-TMB	**0.9**
											xylenes	**0.77**

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS[1]
OCTOBER 1985–DECEMBER 2009
405 National Avenue
Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other	
EX-2	10/28/1997	<10	<10	**370**	<10	**10**	**1,400**	<40	<40	<10	1,2,4-TMB	**2.32**
EX-2	6/2/1998	<0.5	<0.5	**3.1**	<0.5	<0.5	**1.6**	**4**	<0.5	<0.5		
EX-2	12/1/1998	**6.7**	**11**	**330**	<6.3	**18**	**1,600**	<63	**11**	--		
EX-2	6/3/1999	**8.2**	**9.2**	**390**	**6.6**	**21**	**980**	<36	**14**	--		
EX-2	12/10/1999	<3.1	**11**	**410**	**7.9**	**18**	**1,000**	<3.1	**15**	<3.1		
EX-2	12/04/2000	<3.1	**10**	**340**	**8.3**	**22**	**870**	<3.1	**11**	**3.2**	1,2-DCA	**9.4**
EX-2	12/05/2001	**7.6**	**7.7**	**400**	**17**	**13**	**830**	<4.2	**9.6**	<4.2		
EX-2	12/16/2002	**6.3**	**3.9**	**400**	**28**	**12**	**950**	<6.3	**9.5**	<3.1		
EX-2	12/10/2003	**8.4**	**12**	**510**	**7.7**	**15**	**830**	<5	**14**	2.6		
EX-2	12/13/2004	**9.1**	**12**	**490**	<7.1	**16**	**930**	<14	**10**	<7.1		
EX-2	11/10/2005	**7.8**	**12**	**470**	**12**	**14**	**780**	**62**	**11**	<7.1		
EX-2	11/16/2006	**8.0**	**11**	**430**	**4.4**	**15**	**750**	**35**	**9.8**	<3.1		
EX-2	12/10/2007	NM	NM	NM	NM	NM	NM	NM	NM	NM		
EX-2	12/4/2008	**9.2**	**10**	**590**	**6.6**	**14**	**860**	**54**	**22**	<3.1		
EX-2	12/2/2009	**6.7**	**8.7**	**600**	**24**	**10**	**560**	**35**	**25**	<4.2		
EX-3	12/05/1995	<0.5	<0.5	**2.11**	--	**0.53**	**83.9**	<0.5	<0.5	<0.5		
EX-3	12/5/1995	<10	**27**	**170**	<10	**26**	**1,900**	<10	<10	<10	1,2,4-TMB	**0.69**
EX-3 (Dup)	12/05/1995	<0.5	<0.5	**2.15**	--	**0.57**	**83.7**	<0.5	<0.5	<0.5	1,2,4-TMB 1,3,5-TMB	**1.65** **0.52**
EX-3	10/28/1997	<10	<10	**60**	<10	<10	**1,300**	<40	<40	<10		
EX-3	6/2/1998	<10	<10	<10	**30**	<10	**630**	<40	<20	<10	1,1,2-TCA	**20**
EX-3	12/1/1998	<2.5	<2.5	**35**	<2.5	**3.8**	**570**	<25	<2.5	--		
EX-3	6/3/1999	<4	<4	**43**	<4	**6**	**1,100**	**120**	<4	<4	1,1,2-TCA	**120**
EX-3	12/10/1999	<3.1	**3.2**	**53**	<3.1	**5.2**	**1,000**	<3.1	<6.3	<3.1		
EX-3	12/4/2000	<1.7	<1.7	**33**	<1.7	**3.9**	**510**	<1.7	<3.3	<1.7	1,2-DCA	**6**
EX-3	12/05/2001	<2.5	**2.9**	**43**	**2.9**	**5**	**730**	<2.5	<2.5	<2.5		
EX-3	12/16/2002	<2	**2.5**	**43**	<2	**3.6**	**710**	<4	<2	<2		
EX-3	12/10/2003	**3.7**	**4.2**	**64**	<2.5	**6.7**	**680**	<5	<2.5	<2.5		
EX-3	12/13/2004	<4.2	<4.2	**59**	<4.2	**5.8**	**690**	<8.3	<4.2	<4.2		
EX-3	11/10/2005	**3.7**	**5.4**	**72**	**1.0**	**6.5**	**550**	**28**	<0.5	**2.2**	1,2-DCB	**0.7**
EX-3	11/16/2006	**3.6**	**2.7**	**64**	<2.5	**5.4**	**470**	**18**	<2.5	<2.5		
EX-3	12/10/2007	NM	NM	NM	NM	NM	NM	NM	NM	NM		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS[1]
OCTOBER 1985–DECEMBER 2009
405 National Avenue
Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other	
EX-3	12/4/2008	**5.1**	**4.1**	**110**	<1.7	**7.1**	**460**	**24**	<1.7	<1.7		
EX-3	12/2/2009	**6.7**	**8.7**	**600**	**24**	**10**	**560**	**35**	**25**	<4.2		
EX-3	12/2/2009	**3.7**	**3.3**	**78**	**3.8**	**5.1**	**310**	**16**	<2.5	<2.5		
EX-4	12/4/1995	<0.05	<0.05	**0.406**	--	**0.146**	**15.6**	<0.05	<0.05	<0.05		
EX-4	12/4/1995	<30	<30	**200**	<30	<30	**1,100**	<30	<30	<30	1,2,4-TMB 1,3,5-TMB	**0.201** **0.084**
EX-4 (Dup)	12/4/1995	<0.05	<0.05	**0.426**	--	**0.143**	**15.2**	<0.05	<0.05	<0.05	1,2-DMB 1,2,4-TMB xylenes	**1.02** **0.106** **0.086**
EX-4	10/28/1997	<30	<30	**160**	<30	<30	**1,100**	<100	<100	<30		
EX-4	6/2/1998	<30	<30	**180**	<30	<30	**1,300**	<100	<50	<30	1,1,2-TCA	**30**
EX-4	12/1/1998	<6.3	**10**	**150**	<6.3	**16**	**1,300**	<63	<6.3	--		
EX-4	6/3/1999	**6**	**7.5**	**110**	**3.3**	**13**	**760**	<25	<2.5	--	1,2-DCB	**2.9**
EX-4	12/10/1999	<2.5	**9.7**	**120**	**2.8**	**14**	**880**	<2.5	<5	**2.5**	1,2-DCB	**2.7**
EX-4	12/4/2000	<2.5	**7.4**	**110**	**4.1**	**15**	**770**	<2.5	<5	**3.3**	1,2-DCB	**2.7**
EX-4	12/05/2001	**4.6**	**4.7**	**110**	**4.1**	**6.6**	**630**	<2.5	<2.5	<2.5		
EX-4	12/16/2002	**3.7**	**6.2**	**85**	<2	**6.9**	**620**	<4	<2	<2		
EX-4	12/10/2003	**5.3**	**6.3**	**130**	**2.5**	**9.9**	**700**	<5	<2.5	<2.5		
EX-4	12/13/2004	**5.3**	**6**	**120**	<4.2	**8.5**	**680**	<8.3	<4.2	<4.2		
EX-4	11/10/2005	**6.1**	**8.0**	**150**	<5.0	**9.2**	**600**	**39**	<5.0	<5.0		
EX-4	11/16/2006	**5.6**	**7.6**	**150**	<5.0	**9.9**	**800**	**45**	<5.0	<5.0		
EX-4	12/10/2007	NM	NM	NM	NM	NM	NM	NM	NM	NM		
EX-4	12/4/2008	**7.6**	**7.8**	**200**	<5.0	**13**	**1,100**	**59**	<5.0	<5.0		
EX-4	12/2/2009	**6.1**	**8.1**	**190**	**4.6**	**9.8**	**830**	**46**	<2.5	<2.5		
GSF-1A	7/17/1996	<30	<30	**920**	<30	<30	**3,500**	<100	<100	<30		
GSF-1A	10/14/1996	<10	<10	**540**	<10	<10	**2,100**	<40	<40	<10		
GSF-1A	10/15/1996	<50	<50	**260**	<50	<50	**1,200**	<200	<200	<50		
GSF-1A	10/16/1996	<30	<30	**590**	<30	<30	**2,500**	<100	<100	<30		
GSF-1A	10/17/1996	<30	<30	**590**	<30	<30	**2,400**	<100	<100	<30		
GSF-1A	10/18/1996	<30	<30	**610**	<30	<30	**2,500**	<100	<100	<30		
GSF-1A	10/28/1997	<30	<30	**630**	<30	<30	**1,900**	<100	<100	<30		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS[1]
OCTOBER 1985–DECEMBER 2009
405 National Avenue
Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other	
GSF-1A	6/2/1998	<30	<30	**520**	<30	<30	<30	<100	<50	<30	1,1,2-TCA	**1,700**
GSF-1A	12/1/1998	<6.3	**9.5**	**380**	<6.3	<6.3	**1,400**	<63	<6.3	--		
GSF-1A	6/3/1999	**5.4**	**7.6**	**330**	**5.9**	**8.1**	**1,200**	<50	<5	--		
GSF-1A	12/10/1999	<3.6	**7**	**290**	**6.9**	**7.5**	**1,100**	<3.6	<7.1	<3.6	1,2-DCB	**4**
GSF-1A	12/04/2000	<3.6	<3.6	**200**	**8.2**	**6**	**870**	<3.6	<7.1	<3.6	1,2-DCB	**4**
GSF-1A	12/4/2000	<3.6	<3.6	**200**	**8.2**	**6**	**870**	<3.6	<7.1	<3.6	1,2-DCA	**4.2**
GSF-1A	12/05/2001	**3.9**	**4.3**	**250**	**16**	**4.5**	**810**	<2.5	<2.5	<2.5	1,2-DCB	**2.9**
GSF-1A	12/16/2002	**3.4**	**3.3**	**210**	**12**	**3.7**	**830**	<5	<2.5	<2.5	1,2-DCB	**3**
GSF-1A	12/10/2003	**4.6**	**6.7**	**240**	**5.3**	**5.3**	**740**	<5	<2.5	6.6	1,2-DCB	**3.2**
GSF-1A	12/13/2004	**5**	**6.2**	**230**	**4.5**	**5.2**	**720**	<8.3	<4.2	<4.2		
GSF-1A	11/10/2005	<6.3	**8.6**	**190**	**8.2**	<6.3	**580**	**29**	<6.3	<6.3		
GSF-1A	11/16/2006	**3.7**	**6.1**	**190**	**3.9**	**4.4**	**610**	**19**	<3.6	<3.6		
GSF-1A	12/10/2007	NM	NM	NM	NM	NM	NM	NM	NM	NM		
GSF-1A	12/4/2008	**7.5**	**9.0**	**290**	**7.1**	**10**	**950**	**42**	<4.2	<4.2		
GSF-1A	12/2/2009	**6.5**	**9.6**	**290**	**8.9**	**7.6**	**760**	**34**	<5.0	<5.0		
GSF-1B1	7/16/1996	<300	<300	<300	<300	<300	**33,000**	<1000	<1000	<300		
GSF-1B1	10/14/1996	<300	<300	<300	<300	<300	**41,000**	<1000	<1000	<300		
GSF-1B1	10/15/1996	<300	<300	<300	<300	<300	**34,000**	<1000	<1000	<300		
GSF-1B1	10/16/1996	<300	<300	<300	<300	<300	**39,000**	<1000	<1000	<300		
GSF-1B1	10/17/1996	<300	<300	<300	<300	<300	**41,000**	<1000	<1000	<300		
GSF-1B1	10/18/1996	<300	<300	<300	<300	<300	**43,000**	<1000	<1000	<300		
GSF-1B1	10/28/1997	<300	<300	<300	<300	<300	**22,000**	<1000	<1000	<300		
GSF-1B1	6/2/1998	<300	<300	<300	<300	<300	**18,000**	<1000	<500	<300	1,1,2-TCA	**800**
GSF-1B1	12/1/1998	<36	<36	**82**	<36	<36	**14,000**	**980**	<36	--	1,1,2-TCA	**980**
GSF-1B1	6/3/1999	<50	<50	**66**	<50	<50	**11,000**	**690**	<50	--	1,1,2-TCA	**690**
GSF-1B1	12/10/1999	<83	<83	<83	<83	<83	**11,000**	<83	<170	<83		
GSF-1B1	12/04/2000	<31	<31	**60**	<31	<31	**8,900**	<31	<63	<31		
GSF-1B1	12/05/2001	<36	<36	**50**	<36	<36	**8,700**	<36	<36	<36		
GSF-1B1	12/16/2002	<31	<31	**60**	<31	<31	**8,000**	<63	<31	<31		
GSF-1B1	12/10/2003	<25	<25	**70**	<25	<25	**6,700**	<50	<25	<25		
GSF-1B1	12/13/2004	<31	<31	**65**	<31	<31	**6,000**	<63	<31	<31		
GSF-1B1	11/10/2005	<31	<31	**51**	<31	<31	**4,500**	**330**	<31	<31		
GSF-1B1	11/16/2006	<36	<36	**52**	<36	<36	**4,900**	**690**	<36	<36		

TABLE 6

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OCTOBER 1985–DECEMBER 2009
405 National Avenue
Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other
GSF-1B1	12/10/2007	NM	NM	NM	NM	NM	NM	NM	NM	NM	
GSF-1B1	12/4/2008	<20	<20	**33**	<20	<20	**3,600**	**480**	<20	<20	
GSF-1B1	12/2/2009	<20	<20	**43**	<20	<20	**2,400**	**370**	<20	<20	
GSF-1B2	7/22/1996	<50	<50	<50	<50	<50	**5,000**	<200	<200	<50	
GSF-1B2	10/14/1996	<10	<10	<10	<10	<10	**3,000**	<40	<40	<10	
GSF-1B2	10/15/1996	<100	<100	<100	<100	<100	**5,000**	<400	<400	<100	
GSF-1B2	10/16/1996	<100	<100	<100	<100	<100	**6,100**	<400	<400	<100	
GSF-1B2	10/17/1996	<50	<50	<50	<50	<50	**6,100**	<200	<200	<50	
GSF-1B2	10/18/1996	<100	<100	<100	<100	<100	**7,000**	<400	--	<100	
GSF-1B2	10/28/1997	<300	<300	<300	<300	<300	**28,000**	<1000	<1000	<300	
GSF-1B2	11/26/1997	<300	<300	<300	<300	<300	**28,000**	<1000	<1000	<300	
GSF-1B2	6/2/1998	<50	<50	<50	<50	<50	**4,700**	<200	<100	<50	1,1,2-TCA **200**
GSF-1B2	12/2/1998	<17	<17	<17	<17	<17	**5,200**	**350**	<17	--	1,1,2-TCA **350**
GSF-1B2	6/3/1999	<15	<15	<15	<15	<15	**5,100**	**310**	<15	--	1,1,2-TCA **310**
GSF-1B2	12/10/1999	<25	<25	<25	<25	<25	**6,700**	<25	<50	<25	
GSF-1B2	4/27/2000	<20	<20	**29**	<20	<20	**9,300**	<20	<40	<20	
GSF-1B2	12/04/2000	<31	<31	<31	<31	<31	**6,500**	<31	<63	<31	
GSF-1B2	12/06/2001	<31	<31	<31	<31	<31	**5,800**	<31	<31	<31	
GSF-1B2	12/16/2002	<20	<20	<20	<20	<20	**7,100**	<40	<20	<20	
GSF-1B2	12/10/2003	<36	<36	<36	<36	<36	**11,000**	<71	<36	<36	
GSF-1B2	12/13/2004	<63	<63	<63	<63	<63	**8,300**	<130	<63	<63	
GSF-1B2	11/10/2005	<42	<42	<42	<42	<42	**6,300**	**560**	<42	<42	
GSF-1B2	11/16/2006	<83	<83	<83	<83	<83	**10,000**	**680**	<83	<83	
GSF-1B2	12/10/2007	NM	NM	NM	NM	NM	NM	NM	NM	NM	
GSF-1B2	12/18/2008	<63	<63	<63	<63	<63	**9,200**	**650**	<63	<63	
GSF-1B2	12/2/2009	<36	<36	<36	<36	<36	**6,500**	**490**	<36	<36	
SIL15A	3/31/1992	<200	<200	**3,600**	<200	<200	**4,800**	<200	<400	<200	
SIL15A	12/8/1995	<30	<30	**430**	<30	**55**	**2,300**	<100	<100	<30	
SIL15A	10/28/1997	<5	**13**	**100**	<5	**12**	**820**	<20	<20	<5	
SIL15A	6/2/1998	**7**	**12**	**110**	<5	**12**	**670**	<20	<10	<5	1,1,2-TCA **14**
SIL15A	12/1/1998	**11**	**13**	<3.1	<3.1	**24**	**650**	<31	**5.5**	--	

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS[1]
OCTOBER 1985–DECEMBER 2009
405 National Avenue
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Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other
SIL15A	6/3/1999	**11**	**8.7**	**78**	<2.5	**26**	**570**	<25	**4.4**	--	
SIL15A	12/10/1999	<2	**26**	**110**	**4.7**	**22**	**560**	<2	<4	<2	1,2-DCB **2.1**
SIL15A	12/04/2000	<2	**12**	**90**	<2	**23**	**490**	<2	<4	**2.7**	1,2-DCA **11**
SIL15A	12/05/2001	**8.5**	**10**	**77**	**2**	**15**	**470**	<1.3	<1.3	**1.5**	
SIL15A	12/16/2002	**5.9**	**8.6**	**82**	**1.4**	**11**	**440**	<2.5	<1.3	<1.3	
SIL15A	12/10/2003	**8.6**	**9.3**	**150**	**2.1**	**12**	**430**	<3.3	**2.5**	<1.7	
SIL15A	12/13/2004	**11**	**11**	**190**	<3.1	**18**	**450**	<6.3	<3.1	<3.1	
SIL15A	11/10/2005	**7.8**	**4.7**	**180**	**12**	**12**	**390**	**23**	<2.5	<2.5	
SIL15A	11/16/2006	**8.3**	**10**	**200**	**2.6**	**15**	**480**	**49**	<2.5	<2.5	
SIL15A	12/10/2007	NM	NM	NM	NM	NM	NM	NM	NM	NM	
SIL15A	12/4/2008	**12**	**13**	**320**	**5.3**	**14**	**490**	**48**	**5.0**	<2.5	
SIL15A	12/2/2009	**9.3**	**12**	**300**	**7.5**	**9.4**	**360**	**35**	**4.3**	<2.0	
Monitoring Wells											
108A	9/16/1986	<5000	<5000	--	--	<5000	**38,000**	<5000	<10000	<5000	
108A	10/9/1986	<500	<500	**9,300**	--	<500	**8,100**	<500	<500	<500	
108A	11/2/1986	<500	<500	**11,000**	<500	<500	**29,000**	<500	<500	<500	
108A	12/2/1986	<250	<250	**2,800**	<100	<250	**19,000**	<250	<500	<250	
108A	2/24/1987	<500	<500	**15,000**	<500	<500	**26,000**	<500	<500	<500	
108A	6/10/1987	<500	<500	**9400**	<500	<500	**28,000**	<500	<500	<500	
108A	9/28/1987	<500	<500	**11,000**	<500	<500	**19,000**	<500	<500	<500	
108A	12/30/1987	<500	<500	**7,000**	<500	<500	**12,000**	<500	<500	<500	
108A	3/16/1988	<500	<500	**13,000**	<500	<500	**15,000**	<500	<500	<500	
108A	9/1/1988	<500	<500	**3,500**	<500	<500	**7,800**	<500	<500	<500	
108A	2/16/1989	<500	<500	**3,700**	<500	<500	**9,800**	<500	<500	<500	
108A	12/7/1995	<30	<30	**38**	<30	<30	**1,100**	<100	<100	<30	
108A	9/11/1996	<25	<25	**45**	<25	<25	**820**	<25	<50	<25	
108A	10/28/1997	<5	<5	**16**	<5	<5	**450**	<20	<20	<5	
108A	6/2/1998	<5	<5	**16**	<5	<5	**340**	<20	<10	<5	
108A	12/2/1998	<1.7	<1.7	**16**	<1.7	<1.7	**300**	<17	<1.7	--	
108A	6/4/1999	<1	<1	**14**	<1	**1.8**	**250**	<10	<1	--	
108A	12/10/1999	<1	<1	**15**	<1	<1	**240**	<1	<2	<1	
108A	12/05/2000	<1	<1	**14**	<1	**1.7**	**220**	<1	<2	**1.1**	
108A	12/06/2001	<0.7	**0.9**	**15**	<0.7	**1.7**	**210**	<0.7	<0.7	**1.1**	

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS[1]
OCTOBER 1985–DECEMBER 2009
405 National Avenue
Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other
108A	12/16/2002	<0.7	<0.7	**13**	<0.7	**1.7**	**220**	<1.4	<0.7	**1.1**	
108A	12/9/2003	0.7	**0.8**	**16**	<0.6	**1.4**	**170**	<1.3	<0.6	**0.8**	
108A	12/13/2004	<1.3	<1.3	**14**	<1.3	**1.6**	**190**	<2.5	<1.3	<1.3	
108A	11/10/2005	<1.7	<1.7	**9.6**	<1.7	<1.7	**180**	<1.7	<1.7	<1.7	
108A	11/16/2006	<0.7	<0.7	**10**	<0.7	**1.1**	**130**	**2.3**	<0.7	**0.8**	
108A	12/10/2007	**0.9**	<0.7	**16**	<0.7	**1.3**	**160**	**1.8**	<0.7	**0.7**	
108A (Dup)	12/10/2007	**0.9**	<0.7	**16**	<0.7	**1.2**	**150**	**2.1**	<0.7	**1.0**	
108A	12/4/2008	<1.3	<1.3	**19**	<1.3	<1.3	**150**	<2.5	<1.3	<1.3	
108A	12/2/2009	<1.3	<1.3	**35**	<1.3	<1.3	**200**	<5.0	<1.3	**1.4**	
116A	9/22/1986	<500	<500	--	--	<500	**13,000**	<500	<500	<500	
116A	10/7/1986	<500	<500	**37,000**	--	**790**	**39,000**	<500	<500	<500	1,2-DCA **1200**
116A	11/2/1986	<5000	<5000	**33,000**	<5000	<5000	**160,000**	<5000	<5000	<5000	
116A	12/1/1986	<500	<500	**48,000**	<630	<500	**120,000**	<500	<1000	<500	
116A	1/5/1987	<5000	<5000	--	<5000	<5000	**440,000**	<5000	<5000	<5000	
116A	2/24/1987	<500	<500	**11,000**	<500	<500	**54,000**	<500	<500	<500	
116A	6/10/1987	<5000	<5000	**15,000**	<5000	<5000	**140,000**	<5000	<5000	<5000	
116A	9/25/1987	<5000	<5000	**38,000**	<5000	<5000	**220,000**	<5000	<5000	<5000	
116A	12/30/1987	<5000	<5000	**21,000**	<5000	<5000	**82,000**	<5000	<5000	<5000	
116A	3/16/1988	<500	<500	**3,300**	<500	<500	**13,000**	<500	<500	<500	
116A	9/1/1988	<5000	<5000	**16,000**	<5000	<5000	**170,000**	<5000	<5000	<5000	
116A	2/16/1989	<5000	<5000	**14,000**	<5000	<5000	**200,000**	<5000	<5000	<5000	
116A	11/10/1992	<5000	<5000	**8,400**	<5000	<5000	**52,000**	<5000	<5000	<5000	
116A	9/17/1996	<250	<250	**6,700**	<250	<250	**12,000**	<250	<500	<250	
116A	10/28/1997	<100	<100	**5,100**	<100	<100	**9,600**	<400	<400	<100	
116A	6/2/1998	<100	<100	**3,500**	<100	<100	**3,500**	<400	<200	<100	
116A	12/2/1998	**24**	**24**	**2,400**	**77**	<8.3	**2,800**	<83	**61**	--	
116A	6/4/1999	**34**	**55**	**4,000**	**27**	<25	**8,300**	<250	**39**	--	
116A	12/10/1999	<13	**29**	**2,200**	**47**	<13	**3,700**	<13	**54**	<13	
116A	12/05/2000	<130	**230**	**9,000**	<130	**270**	**48,000**	<130	**370**	<130	
116A	12/5/2000	<130	**230**	**9,000**	<130	**270**	**48,000**	<130	**370**	<130	
116A	2/22/2001	<170	<170	**8,500**	<170	**240**	**46,000**	<170	**290**	<170	
116A	12/06/2001	**9.7**	**7.4**	**860**	**54**	**10**	**2,200**	<6.3	**20**	<6.3	
116A	12/6/2001	**9.7**	**7.4**	**860**	**54**	**10**	**2,200**	<6.3	**20**	<6.3	

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS[1]
OCTOBER 1985–DECEMBER 2009
405 National Avenue
Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other
116A	12/16/2002	<42	**46**	**2,800**	<42	<42	**14,000**	<83	**87**	<42	
116A	12/9/2003	<36	<36	**1,700**	<36	<36	**7,200**	<71	**67**	<36	
116A	12/13/2004	<100	<100	**1,900**	<100	<100	**17,000**	<200	<100	<100	
116A	11/9/2005	<83	<83	**1,800**	<83	<83	**14,000**	**360**	<83	<83	
116A	2/11/2005	<100	<100	**2,400**	<100	<100	**17,000**	**660**	**110**	<100	
116A (Dup)	2/11/2005	<100	<100	**2,000**	<100	<100	**17,000**	**690**	**120**	<100	
116A	2/11/2005	<63	<63	**2,000**	<63	<63	**11,000**	**420**	**83**	<63	
116A (Dup)	2/11/2005	<100	<100	**2,300**	<100	<100	**12,000**	**550**	<100	<100	
116A	11/16/2006	<71	<71	**2,000**	<71	<71	**13,000**	**730**	**75**	<71	
116A	12/10/2007	<83	**110**	**5,000**	<83	**130**	**36,000**	**1,300**	**230**	<83	
116A	12/4/2008	<200	<200	**6,700 J**	<200	<200	**39,000 J**	**1,900 J**	**290 J**	<200	
116A	12/2/2009	<310	<310	**6,600**	<310	<310	**40,000**	**1,900**	<310	<310	
104B1	9/16/1986	<5000	<5000	**610**	<50	<5000	**25,000**	<5000	<10000	<5000	
104B1	10/9/1986	**55**	**190**	**800**	--	**93**	**490**	<50	<50	<50	1,2-DCA **200**
104B1	11/2/1986	<500	<500	<500	<500	**600**	**16,000**	<500	<500	<500	
104B1	12/1/1986	<50	<50	**620**	<13	<50	**2,500**	<50	<100	<50	
104B1	2/24/1987	<50	<50	**450**	<50	<50	**6,400**	<50	<50	<50	
104B1	6/4/1987	<50	<50	**220**	<50	<50	**2,100**	<50	<50	<50	
104B1	7/9/1987	<50	<50	**270**	<50	<50	**2,300**	<50	<50	<50	
104B1	9/23/1987	<50	<50	**310**	<50	<50	**2,100**	<50	<50	<50	
104B1	12/18/1987	<50	<50	**150**	<50	<50	**2,000**	<50	<50	<50	
104B1	2/8/1988	<500	<500	<500	<500	<500	**5,200**	<500	<500	<500	
104B1	2/17/1989	<50	<50	**92**	<50	<50	**1,800**	<50	<50	<50	
104B1	9/11/1996	<25	<25	<25	<25	<25	**1,000**	<40	<50	<25	
104B1	10/28/1997	<5	<5	**13**	<5	<5	**580**	<20	<20	<5	
104B1	6/3/1998	<5	<5	**15**	<5	<5	**670**	<20	<10	<5	1,1,2-TCA **7**
104B1	12/2/1998	<25	<25	**28**	<25	<25	**6,100**	**380**	<25	--	1,1,2-TCA **380**
104B1	6/4/1999	<13	<13	**16**	<13	<13	**2,900**	**150**	<13	--	1,1,2-TCA **150**
104B1	12/10/1999	<1.7	**2.5**	**21**	<1.7	**1.8**	**530**	<1.7	<3.3	<1.7	
104B1	12/05/2000	<13	<13	**22**	<13	<13	**3,700**	<13	<25	<13	
104B1	2/22/2001	<13	<13	**23**	<13	<13	**3,300**	<13	<13	<13	
104B1	12/06/2001	**1.2**	**3.5**	**21**	<1	<1	**320**	<1	<1	<1	
104B1	12/6/2001	**1.2**	**3.5**	**21**	<1	<1	**320**	<1	<1	<1	

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS[1]
OCTOBER 1985–DECEMBER 2009
405 National Avenue
Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other
104B1	12/18/2002	<17	<17	**24**	<17	<17	**5100**	<33	<17	<17	
104B1	12/9/2003	<1.3	**1.5**	**13**	<1.3	<1.3	**310**	<2.5	<1.3	<1.3	
104B1	12/14/2004	<500	<500	<500	<500	<500	**100,000**	**2300**	<500	<500	
104B1	2/11/2005	<2.0	<2.0	**15**	<2.0	<2.0	**230**	**6.0**	<2.0	<2.0	
104B1	2/11/2005	<31	<31	<31	<31	<31	**3,600**	**430**	<31	<31	
104B1	11/9/2005	<1.0	**1.9**	**14**	<1.0	<1.0	**190**	**3.8**	<1.0	<1.0	
104B1	11/16/2006	<1.3	**1.6**	**11**	<1.3	<1.3	**180**	**2.8**	<1.3	<1.3	
104B1	12/10/2007	<1.3	**1.6**	**9.3**	<1.3	<1.3	**160**	<2.5	<1.3	<1.3	
104B1	12/4/2008	<1.3	**1.7**	**12**	<1.3	<1.3	**160**	<2.5	<1.3	<1.3	
104B1	12/2/2009	<1.3	<1.3	**10**	<1.3	<1.3	**140**	<5.0	<1.3	<1.3	
109B1	9/19/1986	<500	<500	--	--	<500	**31,000**	<500	<1000	<500	
109B1	10/9/1986	**110**	**350**	**2,800**	--	**230**	**470**	<50	<50	<50	1,2-DCA **480**
109B1	11/2/1986	<500	<500	**1,100**	<500	**1100**	**33,000**	<500	<500	<500	
109B1	12/2/1986	<500	<500	**256**	<50	<500	**11,000**	<500	<1000	<500	
109B1	2/24/1987	<500	<500	<500	<500	<500	**13,000**	<500	<500	<500	
109B1	6/5/1987	<500	<500	**500**	<500	<500	**20,000**	<500	<500	<500	
109B1	9/25/1987	<500	<500	<500	<500	<500	**20,000**	<500	<500	<500	
109B1	12/11/1987	<500	<500	<500	<500	<500	**22,000**	<500	<500	<500	
109B1	2/8/1988	<500	<500	<500	<500	<500	**24,000**	<500	<500	<500	
109B1	6/23/1988	<500	<500	<500	<500	<500	**39,000**	<500	<500	<500	
109B1	7/29/1988	<500	<500	**600**	<500	<500	**30,000**	<500	<500	<500	
109B1	8/31/1988	<500	<500	<500	<500	<500	**31,000**	<500	<500	<500	
109B1	9/28/1988	<500	<500	<500	<500	<500	**32,000**	<500	<500	<500	
109B1	10/31/1988	<500	<500	<500	<500	<500	**30,000**	<500	<500	<500	
109B1	11/30/1988	<500	<500	<500	<500	<500	**33,000**	<500	<500	<500	
109B1	12/30/1988	<500	<500	<500	<500	<500	**30,000**	<500	<500	<500	
109B1	1/20/1989	<500	<500	<500	<500	<500	**34,000**	<500	<500	<500	
109B1	2/28/1989	<500	<500	<500	<500	<500	**21,000**	<500	<500	<500	
109B1	3/30/1989	<500	<500	<500	<500	<500	**28,000**	<500	<500	<500	
109B1	4/21/1989	<500	<500	<500	<500	<500	**27,000**	<500	<500	<500	
109B1	5/30/1989	<500	<500	<500	<500	<500	**26,000**	<500	<500	<500	
109B1	10/6/1992	<500	<500	<500	<500	<500	**17,000**	<500	<500	<500	
109B1	9/11/1996	<50	<50	<50	<50	<50	**2,500**	<100	<100	<50	

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS[1]
OCTOBER 1985–DECEMBER 2009
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Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other	
109B1	10/28/1997	<10	<10	**50**	<10	<10	**1,800**	<40	<40	<10	1,1,2-TCA	**30**
109B1	6/3/1998	<10	<10	**40**	<10	<10	**1,100**	<40	<20	<10	1,1,2-TCA	**10**
109B1	12/2/1998	<6.3	<6.3	**40**	<6.3	<6.3	**1,900**	**100**	<6.3	--	1,1,2-TCA	**100**
109B1	6/4/1999	<5	**6.7**	**36**	<5	<5	**1,600**	**85**	<5	--	1,1,2-TCA	**85**
109B1	12/10/1999	<5	**5.8**	**34**	<5	<5	**1,500**	<5	<10	<5		
109B1	12/05/2000	<5	<5	**41**	<5	<5	**1,800**	<5	<10	<5		
109B1	12/05/2001	<5	<5	**29**	<5	<5	**1,400**	<5	<5	<5		
109B1	12/17/2002	<6.3	<6.3	**26**	<6.3	<6.3	**2,000**	<13	<6.3	<6.3		
109B1	12/10/2003	<4.2	**4.2**	**26**	<4.2	<4.2	**1,300**	<8.3	<4.2	<4.2		
109B1	12/14/2004	<13	<13	**16**	<13	<13	**1,400**	<25	<13	<13		
109B1	11/9/2005	<5.0	<5.0	**17**	<5.0	<5.0	**840**	**61**	<5.0	<5.0		
109B1	11/16/2006	<4.2	<4.2	**12**	<4.2	<4.2	**820**	**70**	<4.2	<4.2		
109B1	12/10/2007	<7.1	<7.1	**17**	<7.1	<7.1	**840**	**34**	<7.1	<7.1		
109B1	12/4/2008	<5.0	<5.0	**15 J**	<5.0	<5.0	**700 J**	**25 J**	<5.0	<5.0		
109B1	12/2/2009	<5.0	<5.0	**20**	<5.0	<5.0	**890**	**31**	<5.0	<5.0		
25B1	10/31/1985	**40**	**44**	--	**1**	<0.5	**7,400**	<0.5	<0.5	<0.5	1,2-DCA	**95**
25B1	12/5/1985	<100	**120**	--	--	**170**	**15,000**	<100	<100	<100		
25B1	12/16/1985	<50	<50	--	<50	**170**	**7,200**	<50	<50	<50		
25B1	10/23/1986	<50	**60**	**1,000**	<50	<50	**10,000**	<50	<50	<50	MC	**1600**
25B1	2/8/1988	**50**	**70**	**1,200**	<50	**70**	**2,700**	<50	<50	<50		
25B1	9/11/1996	<12	<12	**110**	<12	<12	**750**	<20	<25	<12		
25B1	10/29/1997	<10	<10	**110**	<10	<10	**780**	<40	<40	<10		
25B1	6/2/1998	<10	<10	**500**	<10	<10	<10	<40	<20	<10		
25B1	12/1/1998	**3.2**	**4.5**	**250**	**12**	<2	**300**	<20	<2	--		
25B1	6/3/1999	**1.9**	**1.5**	**310**	**1.5**	<1	**5.2**	<10	<1	--		
25B1	12/10/1999	<10	<10	**290**	<10	<10	70	<10	<20	<10		
25B1	12/06/2000	<1.7	**6.7**	**150**	**1.8**	**2.5**	**410**	<1.7	<3.3	<1.7	1,2-DCA	**2.9**
25B1	12/05/2001	**2.2**	**3.7**	**80**	<1	**1.2**	**270**	<1	<1	<1		
25B1	12/17/2002	**3.5**	**6.6**	**80**	<2	**2.4**	**610**	<4	<2	<2		
25B1	12/8/2003	**1.5**	**2.2**	**35**	<0.8	**1.1**	**240**	<1.7	<0.8	<0.8		
25B1	12/14/2004	<5	**5.3**	**69**	<5	<5	**520**	<10	<5	<5		
25B1	11/9/2005	**2.2**	**3.6**	**55**	**2.3**	**1.5**	**450**	**1.3**	<1.0	<1.0		
25B1	11/16/2006	**2.5**	**7.9**	**61**	<0.5	**2.2**	**430**	<3.1	<0.5	<0.5		

TABLE 6

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OCTOBER 1985–DECEMBER 2009
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Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other
25B1	12/10/2007	**2.9**	**4.4**	**48**	<2.0	<2.0	**380**	<4.0	<2.0	<2.0	
25B1	12/4/2008	<2.5	**3.2**	**45**	<2.5	<2.5	**320**	<5.0	<2.5	<2.5	
25B1	12/2/2009	<1.3	**2.0**	**25**	<1.3	**1.4**	**190**	<5.0	<1.3	<1.3	
42B2	10/31/1985	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
42B2	11/20/1985	-0-	--	--	--	--	--	--	--	--	
42B2	12/16/1985	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
42B2	10/16/1986	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
42B2	11/21/1992	<1	<1	<1	<1	<1	<1	<1	<1	<1	
42B2	9/11/1996	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
42B2	10/29/1997	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<0.5	
42B2	6/2/1998	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<1	<0.5	
42B2	12/1/1998	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	--	
42B2	6/3/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	--	
42B2	12/10/1999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	
42B2	12/06/2000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	
42B2	12/05/2001	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
42B2	12/16/2002	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	
42B2	12/8/2003	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	
42B2	12/14/2004	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	
42B2	11/9/2005	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
42B2	11/16/2006	<0.5	<0.5	<0.5	<0.5	<0.5	**1.7**	**0.6**	<0.5	<0.5	
42B2	12/10/2007	<0.5	<0.5	<0.5	<0.5	<0.5	**3.6**	<1.0	<0.5	<0.5	
42B2	12/4/2008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	
42B2	12/2/2009	<0.5	<0.5	<0.5	<0.5	<0.5	**8.5**	<1.0	<0.5	<0.5	
108B2	9/19/1986	<500	<500	<5	<5	<500	**2,500**	<500	<1000	<500	
108B2	10/8/1986	<50	<50	<0.5	--	<50	**620**	<50	<50	<50	
108B2	12/1/1986	<50	<50	--	--	<50	**3,100**	<50	<100	<50	
108B2	1/5/1987	<50	<50	--	<50	<50	**3,000**	<50	<50	<50	
108B2	1/9/1987	<50	<50	<50	<50	<50	**2,700**	<50	<50	<50	
108B2	2/23/1987	<50	<50	<50	<50	<50	**4,400**	<50	<50	<50	
108B2	6/4/1987	<50	<50	<50	<50	<50	**3,600**	<50	<50	<50	
108B2	9/24/1987	<50	<50	<50	<50	<50	**3,000**	<50	<50	<50	
108B2	12/17/1987	<50	<50	<50	<50	<50	**3,500**	<50	<50	<50	

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS[1]
OCTOBER 1985–DECEMBER 2009
405 National Avenue
Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other	
108B2	3/8/1988	<50	<50	<50	<50	<50	**3,900**	<50	<50	<50		
108B2	11/24/1992	<100	<100	<100	<100	<100	**2,300**	<100	<100	<100		
108B2	9/11/1996	<50	<50	<50	<50	<50	**1,900**	<50	<100	<50		
108B2	10/29/1997	<30	<30	<30	<30	<30	**3,100**	<100	<100	<30	1,1,2-TCA	**160**
108B2	6/2/1998	<30	<30	**960**	<30	<30	**1,300**	<100	<50	<30	1,1,2-TCA	**60**
108B2	12/2/1998	<8.3	<8.3	**52**	<8.3	<8.3	**2,700**	**130**	<8.3	--	1,1,2-TCA	**130**
108B2	6/3/1999	<6.3	<6.3	<6.3	<6.3	<6.3	**1,700**	<63	<6.3	--		
108B2	12/10/1999	<5	<5	<5	<5	<5	**1,800**	<5	<10	<5		
108B2	4/27/2000	<6.3	<6.3	<6.3	<6.3	<6.3	**1,700**	<6.3	<13	<6.3		
108B2	12/05/2000	<6.3	<6.3	<6.3	<6.3	<6.3	**1,700**	<6.3	<13	<6.3		
108B2	12/06/2001	<4.2	<4.2	**12**	<4.2	<4.2	**1,400**	<4.2	<4.2	<4.2		
108B2	12/18/2002	<5	<5	**6.3**	<5	<5	**1,900**	<10	<5	<5		
108B2	12/9/2003	<13	<13	<13	<13	<13	**3,200**	<25	<13	<13		
108B2	12/14/2004	<7.1	<7.1	<7.1	<7.1	<7.1	**930**	<14	<7.1	<7.1		
108B2	11/9/2005	<7.1	<7.1	<7.1	<7.1	<7.1	**930**	<7.1	<7.1	<7.1		
108B2 [4]	11/16/2006	<0.5	**0.8**	**5.7**	<0.5	<0.5	**760**	<5.0	<0.5	<0.5		
108B2	3/16/2009	<3.6	<3.6	**4.0**	<3.6	<3.6	**480**	<3.6	<7.1	<3.6		
108B2	12/3/2009	<3.6	<3.6	**3.8**	<3.6	<3.6	**600**	<3.6	<7.1	<3.6		
107B2	9/19/1986	<5	<5	--	--	<5	**120**	<5	<10	<5		
107B2	10/8/1986	<5	<5	<5	--	<5	**340**	<5	<5	<5		
107B2	12/2/1986	<5	<5	--	--	<5	**240**	<5	<10	<5		
107B2	1/5/1987	<5	<5	--	<5	<5	**230**	<5	<5	<5		
107B2	1/8/1987	<5	<5	<0.5	<5	<5	**200**	<5	<5	<5		
107B2	2/23/1987	<5	<5	<5	<5	<5	**340**	<5	<5	<5		
107B2	6/2/1987	<5	<5	<5	<5	<5	**270**	<5	<5	<5		
107B2	9/17/1987	<5	<5	**14**	<5	**7**	**260**	**14**	<5	<5		
107B2	12/14/1987	<5	<5	<5	<5	<5	**140**	<5	<5	<5		
107B2	3/11/1988	<50	<50	<50	<50	<50	**510**	<50	<50	<50		
107B2	6/15/1988	<5	<5	<5	<5	<5	**320**	<5	<5	<5		
107B2	7/26/1988	<5	<5	<5	<5	<5	**480**	<5	<5	<5		
107B2	8/25/1988	<5	<5	**5**	<5	<5	**360**	<5	<5	<5		
107B2	9/22/1988	<5	<5	<5	<5	<5	**430**	<5	<5	<5		
107B2	10/26/1988	<5	<5	<5	<5	<5	**320**	<5	<5	<5		

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OCTOBER 1985–DECEMBER 2009
405 National Avenue
Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other
107B2	11/28/1988	<5	<5	<5	<5	<5	**240**	<5	<5	<5	
107B2	12/16/1988	<5	<5	<5	<5	<5	**210**	<5	<5	<5	
107B2	1/16/1989	<5	<5	<5	<5	<5	**270**	<5	<5	<5	
107B2	2/23/1989	<0.5	<0.5	<0.5	<0.5	<0.5	**190**	<0.5	<0.5	<0.5	
107B2	3/27/1989	<5	<5	<5	<5	<5	**260**	<5	<5	<5	
107B2	4/17/1989	<5	<5	<5	<5	<5	**190**	<5	<5	<5	
107B2	5/24/1989	<5	<5	<5	<5	<5	**190**	<5	<5	<5	
107B2	9/11/1996	<3	<3	<3	<3	<3	**200**	<10	<10	<3	
107B2	10/28/1997	<10	<10	**10**	<10	<10	**740**	<40	<40	<10	
107B2	6/3/1998	<3	<3	**3**	<3	<3	**170**	<10	<5	<3	
107B2	12/1/1998	<0.7	<0.7	**1.4**	<0.7	<0.7	**190**	<7.1	<0.7	--	
107B2	6/4/1999	<0.5	<0.5	**160**	0.8	<0.5	**1.6**	<5	<0.5	--	
107B2	12/10/1999	<0.5	<0.5	**3.2**	<0.5	<0.5	**170**	<0.5	<1	<0.5	
107B2	4/27/2000	<0.5	<0.5	**5.4**	<0.5	<0.5	**150**	<0.5	<1	<0.5	
107B2	12/06/2000	<0.5	<0.5	**6.2**	<0.5	<0.5	**140**	<0.5	<1	<0.5	
107B2	12/06/2001	<0.5	<0.5	**2.7**	<0.5	<0.5	**120**	<0.5	<0.5	<0.5	
107B2	12/17/2002	<0.5	<0.5	**3.4**	<0.5	<0.5	**120**	<1	<0.5	<0.5	
107B2	12/10/2003	<0.5	<0.5	**3.4**	<0.5	<0.5	**92**	<1	<0.5	<0.5	
107B2	12/13/2004	<0.6	<0.6	**2.3**	<0.6	<0.6	**110**	<1.3	<0.6	<0.6	
107B2	11/9/2005	<0.5	<0.5	**0.7**	<0.5	<0.5	**84**	<0.5	<0.5	<0.5	
107B2	11/16/2006	<0.5	<0.5	**0.7**	<0.5	<0.5	**94**	<1.0	<0.5	<0.5	
107B2	12/10/2007	<0.5	<0.5	**1.1**	<0.5	<0.5	**95**	<1.0	<0.5	<0.5	
107B2	12/4/2008	<0.5	<0.5	**1.1**	<0.5	<0.5	**88**	<1.0	<0.5	<0.5	
107B2	12/2/2009	<0.5	<0.5	**2.3**	<0.5	<0.5	**87**	<1.0	<0.5	<0.5	
SIL1A	9/1/1982	--	**200**	--	**24,000**	--	**17,000**	--	**150**	**1400**	
SIL1A	8/29/1984	**8**	**100**	--	**5,950**	**8**	**3,347**	--	**220**	**907**	
SIL1A	8/1/1985	--	**120**	--	**47,000**	<1	**20,000**	--	**460**	**370**	t-1,3-DCP **47,000** toluene **6**
SIL1A	10/10/1985	<250	<250	--	**18,000**	<250	**26,000**	<500	**240**	**560**	
SIL1A	12/18/1985	<10	**52**	--	--	**8.3**	**41,000**		**1200**	**1000**	1,1,2-TCA **58**
SIL1A	7/8/1986	<130	<130	--	--	<130	**22,000**	<130	<500	**370**	MC **330**
SIL1A	10/16/1986	<50	<50	--	--	<50	**27,000**	<10	<500	**440**	
SIL1A	9/8/1987	<1	**340**	--	--	**830**	**9,000**	--	<1	**41,000**	

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HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS[1]
OCTOBER 1985–DECEMBER 2009
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Mountain View, California

Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other
SIL1A	2/4/1988	<500	<500	**20,000**	<500	<500	**2,300**	<500	<500	<500	
SIL1A	4/27/1988	<500	<500	--	--	<500	**13,000**	--	<500	<500	
SIL1A	8/30/1988	<500	<500	**24,000**	<500	<500	**13,000**	<500	<500	<500	
SIL1A	8/31/1988	<2500	<2500	--	--	<2500	**6,900**	--	<2500	<2500	
SIL1A	6/24/1989	<500	<500	**11,000**	<500	<500	**12,000**	<1000	<500	<500	
SIL1A	2/20/1992	<100	<100	**2,000**	<100	<100	**5,700**	<100	<200	**180**	
SIL1A	12/8/1995	<100	<100	**1,300**	<100	<100	**9,400**	<400	<400	**460**	
SIL1A	9/12/1996	<50	<50	**1,000**	<50	<50	**8,600**	<200	<200	**240**	
SIL1A	10/29/1997	<50	<50	**4,500**	<50	<50	**2,800**	<200	<200	**60**	
SIL1A	6/2/1998	<50	<50	**970**	<50	<50	**7.9**	<200	<100	**160**	
SIL1A	12/1/1998	<36	<36	**780**	<36	<36	**6,900**	<360	<36	**120**	
SIL1A	6/3/1999	**4.5**	**9.1**	**2,500**	**27**	**2.8**	**4,000**	<5	**120**	**110**	
SIL1A	12/10/1999	<25	<25	**8,100**	**52**	<25	**4,200**	<25	**200**	**100**	
SIL1A	12/07/2000	<17	<17	**580**	<17	<17	**4,000**	<17	<33	**69**	
SIL1A	12/06/2001	<6.3	<6.3	**730**	**8.1**	<6.3	**1,700**	<6.3	**13**	**32**	
SIL1A	12/16/2002	<10	<10	**1,600**	**95**	<10	**3,800**	<20	**18**	**70**	
SIL1A	12/10/2003	<2.5	<2.5	**840**	**12**	<2.5	**530**	<5	**7.5**	**9.1**	
SIL1A	12/14/2004	<17	<17	**1,000**	<17	<17	**3,100**	<33	<17	**58**	
SIL1A	11/9/2005	<5.0	**6.2**	**440**	**10**	**13**	**2,400**	<10	<5.0	**46**	
SIL1A	11/16/2006	**4.5**	**8.4**	**460**	**7.4**	**16**	**2,300**	**17**	<2.0	**57**	
SIL1A	12/10/2007	<50	<50	**6,400**	<50	<50	**870**	<100	**91**	<50	
SIL1A	12/4/2008	<31	<31	**5,000**	**51**	<31	**380**	<63	**35**	<31	
SIL1A	12/3/2009	<62.50	<62.50	**6,000**	**58**	<62.50	**320**	<130	<62.50	<62.50	
SIL9A	8/1/1985	**130**	**140**	--	**1,200**	**320**	**5,200**	--	<100	<100	
SIL9A	10/10/1985	**130**	**100**	--	**3,700**	**110**	**11,000**	<200	<200	<100	
SIL9A	12/18/1985	**81**	**59**	--	--	**43**	**29,000**	--	**9.8**	**29**	
SIL9A	7/8/1986	<130	<130	--	--	<130	**4,400**	<130	<500	<130	
SIL9A	10/16/1986	**38**	**38**	--	--	**72**	**8,300**	<10	<500	**34**	
SIL9A	2/4/1988	<500	<500	**2,100**	<500	<500	**2,100**	<500	<500	<500	
SIL9A	4/27/1988	<50	<50	--	--	<100	**3,300**	--	<50	<50	
SIL9A	8/30/1988	<500	<500	**1,100**	<500	<500	**7,500**	<500	<500	<500	
SIL9A	8/31/1988	<250	<250	--	--	<250	**6,000**	--	<250	<250	MC **4600**
SIL9A	10/16/1988	<50	<50	--	--	<50	**8,300**	--	<50	<50	

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HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS[1]
OCTOBER 1985–DECEMBER 2009
405 National Avenue
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Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other
SIL9A	7/24/1989	**29**	**55**	--	**440**	**43**	**4,600**	<100	<10	<10	
SIL9A	2/20/1992	<100	<100	**1,500**	<100	<100	**6,500**	<100	<200	<100	
SIL9A	12/7/1995	<30	<30	**290**	<30	<30	**1,700**	<100	<100	<30	
SIL9A	9/12/1996	<30	<30	**340**	<30	<30	**2,700**	<100	<100	<30	
SIL9A	10/29/1997	<10	<10	**180**	<10	<10	**1,700**	<40	<40	<10	
SIL9A	6/2/1998	<10	<10	**200**	<10	<10	**1,200**	<40	<20	<10	
SIL9A	12/1/1998	**6.5**	**9.8**	**210**	**6.1**	**9.3**	**1,100**	**18**	<0.5	**2**	1,1,2-TCA **18** 1,2-DCB **5.3**
SIL9A	6/3/1999	**6**	**4.7**	**130**	**6.7**	**12**	**900**	<42	<4.2	--	
SIL9A	12/10/1999	<3.1	**5.9**	**170**	**8.5**	**9**	**940**	<6.3	<6.3	<3.1	
SIL9A	12/07/2000	<4.2	**4.7**	**160**	**14**	**10**	**1,100**	<4.2	<8.3	<4.2	
SIL9A (Dup)	12/07/2000	<4.2	<4.2	**170**	**17**	**13**	**1,100**	<4.2	<8.3	<4.2	1,2-DCA **5.7**
SIL9A	12/06/2001	**4.3**	**3.6**	**120**	**4.7**	**4.8**	**610**	<3.1	<3.1	<3.1	
SIL9A (Dup)	12/06/2001	**4.1**	**5.5**	**140**	**3.6**	**5**	**700**	<2.5	<2.5	<2.5	
SIL9A	12/16/2002	**3.9**	**4.6**	**140**	**6.7**	<3.1	**1,300**	<6.3	<3.1	<3.1	
SIL9A	12/9/2003	**3.5**	**3.7**	**110**	**3.7**	4.8	**760**	<6.3	<3.1	<3.1	
SIL9A	12/14/2004	<10	<10	**73**	<10	<10	**1,200**	<20	<10	<10	
SIL9A	11/9/2005	<3.6	<3.6	**53**	<3.6	<3.6	**920**	<7.1	<3.6	<3.6	
SIL9A (Dup)	11/9/2005	<4.2	<4.2	**54**	<4.2	<4.2	**820**	<8.3	<4.2	<4.2	
SIL9A	11/16/2006	<2.0	<2.0	**48**	**2.0**	**2.0**	**930**	**12**	<2.0	<2.0	
SIL9A	12/10/2007	<3.6	<3.6	**190**	<3.6	**12**	**510**	**29**	<3.6	<3.6	
SIL9A	12/4/2008	<3.6	<3.6	**43**	<3.6	<3.6	**550**	<7.1	<3.6	<3.6	
SIL9A (Dup)	12/4/2008	<3.1	<3.1	**35**	<3.1	<3.1	**530**	<6.3	<3.1	<3.1	
SIL9A	12/3/2009	<2.5	<2.5	**34**	<2.5	<2.5	**450**	<10	<2.5	<2.5	
SIL9A (Dup)	12/3/2009	<2.5	<2.5	**35**	<2.5	<2.5	**470**	<10	<2.5	<2.5	
SIL13A	2/4/1988	<500	<500	<500	<500	<500	**550**	<500	<500	<500	
SIL13A	4/27/1988	<250	<250	--	--	<250	**8,100**	--	<250	<250	
SIL13A	12/07/2000	<3.1	<3.1	**34**	<3.1	**5.7**	**860**	<3.1	<6.3	<3.1	
SIL13A	12/06/2001	<1.7	<1.7	**29**	<1.7	**3**	**600**	<1.7	<1.7	<1.7	
SIL13A	12/16/2002	<2	<2	**25**	<2	**2.7**	**700**	<4	<2	<2	
SIL13A	12/9/2003	<1.7	<1.7	**22**	<1.7	**2.2**	**410**	<3.3	<1.7	<1.7	
SIL13A	12/14/2004	<3.1	<3.1	**20**	<3.1	**3.6**	**620**	<6.3	<3.1	<3.1	
SIL13A	11/9/2005	<2.5	<2.5	**22**	<2.5	<2.5	**440**	<5.0	<2.5	<2.5	

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OCTOBER 1985–DECEMBER 2009
405 National Avenue
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Results reported in micrograms per liter (µg/l)

Well	Date Sampled	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	TCE	Freon 113	Vinyl Chloride	PCE	Other
SIL13A	11/16/2006	<2.5	<2.5	**22**	<2.5	**2.8**	**420**	**9.5**	<2.5	<2.5	
SIL13A	12/10/2007	<1.7	<1.7	**12**	<1.7	**2.6**	**340**	**3.3**	<1.7	<1.7	
SIL13A	12/4/2008	<3.1	<3.1	**28**	<3.1	<3.1	**360**	<6.3	<3.1	<3.1	
SIL13A	12/3/2009	**3.6**	**3.5**	**42**	<2.0	**4.2**	**320**	**8.2**	<2.0	<2.0	
SIL14A	1/6/1990	<50	<50	**90**	<50	<50	**230**	<50	<50	<50	
SIL14A	2/20/1992	<5000	<5000	**19,000**	<5000	<5000	**270,000**	<5000	<10000	<5000	
SIL14A	12/07/2000	<25	**37**	**4,500**	**29**	**30**	**5,900**	<25	**1800**	<25	
SIL14A	12/06/2001	<13	**24**	**4,500**	**49**	<13	**3,100**	<13	**2300**	<13	
SIL14A	12/16/2002	**8.5**	**12**	**2,200**	**120**	**11**	**4,600**	<17	**960**	<8.3	
SIL14A	12/18/2002	<0.7	<0.7	**11**	<0.7	**1.1**	**140**	<1.4	<0.7	**1**	
SIL14A	12/10/2003	<25	**28**	**4900**	<25	<25	**3,600**	<50	**2,100**	<25	
SIL14A	12/14/2004	<200	<200	**23,000**	<200	<200	**9,700**	<400	**13,000**	<200	
SIL14A	2/11/2005	<63	<63	**8,600**	<63	<63	**4,200**	**210**	**2,500**	<63	
SIL14A	2/11/2005	<25	<25	**1,900**	<25	<25	**3,800**	**150**	**550**	<25	
SIL14A	11/9/2005	<50	<50	**5,500**	<50	<50	**3,500**	<100	**1,700**	<50	
SIL14A	11/16/2006	<20	**27**	**3,500**	<20	<20	**3,500**	**130**	**920**	<20	
SIL14A	12/10/2007	<310	<310	**54,000**	<310	<310	**6,900**	<630	**18,000**	<310	
SIL14A	12/4/2008	<310	**360**	**120,000**	<310	<310	**660**	<630	**37,000**	<310	
SIL14A	12/3/2009	<125.0	**140**	**34,000**	**77**	<125.0	**7,900**	<125.0	**8,100**	<125.0	

Notes

1. Chemicals listed are those detected in the influent and midstream sample(s) by analytical methods specified in NPDES Permit No. CAG912003 (the Permit); under NPDES Order No. R2-2004-0055. The constituents, which appear in abbreviated form in the table headings, are: 1,1-DCA= 1,1-dichloroethane; 1,2-DCA= 1,2-dichloroethane; 1,1-DCE= 1,1-dichloroethene; cis-1,2-DCE= cis-1,2-dichloroethene; trans-1,2-DCE= trans-1,2-dichloroethene; 1,1,1-TCA= 1,1,1-trichloroethane; 1,1,2-TCA= 1,1,2-trichloroethane; TCE= trichloroethene; Freon 113= 1,1,2-trichlorotrifluoroethane; PCE= tetrachloroethene; 1,2,4-TMB= 1,2,4-trimethylbenzene; 1,3,5-TMB= 1,3,5-trimethylbenzene; 1,2-DCB = 1,2-dichlorobenzene; MC= Methylene Chloride; 1,2-DMB= 1,2-dimethylbenzene; xylenes = o-xylenes; and t-1,3-DCP= trans-1,3-dichloropropene.
2. "--" = No data.
3. NM = Not measured; no groundwater samples were obtained from the GETS wells as the system was shutdown due to non-routine maintenance of the conveyance piping. Sampling will resume in 2008.
4. The EPA approved the removal of this well from all monitoring, starting with the November/December 2007 sampling event. No more samples will be obtained from this well until further notice.

TABLE 7

SUMMARY OF RESULTS FROM CAPTURE ZONE EVALUATION
405 National Avenue
Mountain View, California

Line of Evidence	Is Capture Sufficient?	Comments
Water Levels: Potentiometric surface maps Water level pairs	Yes CWC[1]	• Target capture extents exceeded for the A- and B1/B2-aquifers. • Inward gradient in A-aquifer toward on-site extraction wells. • Inward gradient from REG-MW1 toward GSF extraction wells in A, B1, and B2-aquifer intervals.
Calculations: Flow budget (Darcy flux) Capture zone width calculations Numerical modeling	Yes Yes Yes	• Extraction rate exceeds Darcy Flux • Calculated containment width exceeds target capture zone width in Aquifers A and B1/B2. • Model width exceeds target capture zone width for Aquifers A and B1/B2.
Concentration Trends: Downgradient of on-site Downgradient of GSF	CWC CWC	• Decreasing chemical concentrations between on-site and off-site extraction wells is consistent with on-site source control. • Decreasing chemical concentrations downgradient of GSF wells is consistent with off-site hydraulic containment.
Overall Conclusion: Multiple lines of evidence indicate that extent of hydraulic containment (capture) is sufficient for Aquifers A and B1/B2.		

Note
1. CWC = Consistent with capture

TABLE 8

GROUNDWATER ELEVATIONS AND VERTICAL GRADIENT IN WELL PAIRS
FEBRUARY 1996–DECEMBER 2009
405 National Avenue
Mountain View, California

	Vertical Gradient Between Aquifer Zones											
	Nested Well Group I (116A, 109B1, 107B2)						Nested Well Group II (108A, 104B1, 108B2)					
	B1 to B2			A to B1			B1 to B2			A to B1		
	109B1	107B2		116A	109B1		104B1	108B2		108A	104B1	
	Well Screen Mid-Point			Well Screen Mid-Point			Well Screen Mid-Point			Well Screen Mid-Point		
	-20.6	-42.4	Vertical	12.7	-20.6	Vertical	-22.8	-37.8	Vertical	18.2	-22.8	Vertical
Date	Water Levels		Gradient	Water Levels		Gradient	Water Levels		Gradient	Water Levels		Gradient
02/22/96	31.09	32.64	-0.07	30.38	31.09	-0.02	31.13	33.05	-0.13	30.71	31.13	-0.01
05/23/96	30.72	33.44	-0.12	30.29	30.72	-0.01	30.79	33.43	-0.18	30.53	30.79	-0.01
08/22/96	29.81	32.38	-0.12	29.47	29.81	-0.01	29.86	32.73	-0.19	29.78	29.86	0.00
09/23/96	29.40	32.00	-0.12	29.19	29.40	-0.01	29.42	32.36	-0.20	29.62	29.42	0.00
09/30/96	29.94	32.96	-0.14	30.11	29.94	0.01	30.17	32.93	-0.18	30.43	30.17	0.01
10/07/96	29.46	32.04	-0.12	28.74	29.46	-0.02	29.51	32.44	-0.20	29.29	29.51	-0.01
10/14/96	28.19	31.40	-0.15	28.53	28.19	0.01	28.22	31.95	-0.25	29.32	28.22	0.03
10/21/96	27.85	30.57	-0.12	28.15	27.85	0.01	27.92	31.70	-0.25	28.96	27.92	0.03
10/28/96	28.00	30.60	-0.12	28.27	28.00	0.01	28.04	31.58	-0.24	29.00	28.04	0.02
11/04/96	27.90	30.69	-0.13	28.06	27.90	0.00	27.95	31.47	-0.23	28.78	27.95	0.02
11/21/96	29.28	31.88	-0.12	28.42	29.28	-0.03	29.38	31.61	-0.15	28.99	29.38	-0.01
12/16/96	29.29	31.97	-0.12	28.52	29.29	-0.02	29.38	32.19	-0.19	29.01	29.38	-0.01
01/20/97	30.43	32.72	-0.11	29.60	30.43	-0.02	30.56	33.43	-0.19	30.08	30.56	-0.01
02/20/97	30.57	33.24	-0.12	29.94	30.57	-0.02	30.69	33.41	-0.18	30.43	30.69	-0.01
03/20/97	29.71	32.90	-0.15	29.69	29.71	0.00	29.82	33.06	-0.22	30.25	29.82	0.01
04/21/97	29.87	33.08	-0.15	29.80	29.87	0.00	29.96	33.49	-0.24	30.30	29.96	0.01
05/22/97	29.41	31.83	-0.11	29.77	29.41	0.01	29.48	32.19	-0.18	30.38	29.48	0.02
06/26/97	28.87	30.93	-0.09	29.36	28.87	0.01	28.94	31.34	-0.16	30.07	28.94	0.03

TABLE 8

GROUNDWATER ELEVATIONS AND VERTICAL GRADIENT IN WELL PAIRS
FEBRUARY 1996–DECEMBER 2009
405 National Avenue
Mountain View, California

	Vertical Gradient Between Aquifer Zones											
	Nested Well Group I (116A, 109B1, 107B2)						Nested Well Group II (108A, 104B1, 108B2)					
	B1 to B2			A to B1			B1 to B2			A to B1		
	109B1	107B2		116A	109B1		104B1	108B2		108A	104B1	
	Well Screen Mid-Point			Well Screen Mid-Point			Well Screen Mid-Point			Well Screen Mid-Point		
	-20.6	-42.4	Vertical	12.7	-20.6	Vertical	-22.8	-37.8	Vertical	18.2	-22.8	Vertical
Date	Water Levels		Gradient	Water Levels		Gradient	Water Levels		Gradient	Water Levels		Gradient
07/21/97	28.90	31.28	-0.11	29.91	28.90	0.03	28.90	31.38	-0.17	30.26	28.90	0.03
08/28/97	29.51	31.27	-0.08	29.85	29.51	0.01	29.52	31.67	-0.14	30.28	29.52	0.02
09/15/97	28.81	31.03	-0.10	29.83	28.81	0.03	28.84	31.21	-0.16	30.33	28.84	0.04
10/20/97	29.41	32.56	-0.14	30.35	29.41	0.03	29.55	32.90	-0.22	30.80	29.55	0.03
11/17/97	30.23	32.78	-0.12	30.75	30.23	0.02	30.30	33.13	-0.19	31.14	30.30	0.02
12/22/97	30.83	33.27	-0.11	31.27	30.83	0.01	32.33	33.77	-0.10	31.64	32.33	-0.02
01/15/98	29.11	31.56	-0.11	31.22	29.11	0.06	31.57	31.56	0.00	31.69	31.57	0.00
02/26/98	30.18	32.24	-0.09	32.37	30.18	0.07	30.21	32.79	-0.17	32.80	30.21	0.06
03/16/98	28.99	31.70	-0.12	31.30	28.99	0.07	29.03	31.55	-0.17	31.70	29.03	0.07
04/20/98	28.59	31.24	-0.12	30.58	28.59	0.06	28.63	31.34	-0.18	30.84	28.63	0.05
05/25/98	28.60	31.20	-0.12	30.62	28.60	0.06	28.61	31.25	-0.18	31.07	28.61	0.06
06/25/98	28.74	31.21	-0.11	30.45	28.74	0.05	28.73	31.28	-0.17	30.99	28.73	0.06
07/23/98	29.67	32.58	-0.13	31.08	29.67	0.04	29.68	32.51	-0.19	31.48	29.68	0.04
08/27/98	28.11	30.25	-0.10	30.26	28.11	0.06	28.09	30.29	-0.15	30.83	28.09	0.07
11/19/98	27.60	29.19	-0.07	29.53	27.60	0.06	27.60	29.25	-0.11	30.16	27.60	0.06
05/27/99	28.31	30.10	-0.08	30.74	28.31	0.07	28.01	30.31	-0.15	30.67	28.01	0.06
08/20/99	27.66	29.47	-0.08	29.92	27.66	0.07	27.66	29.54	-0.13	30.37	27.66	0.07
11/18/99	27.62	29.65	-0.09	29.79	27.62	0.07	27.60	29.64	-0.14	30.18	27.60	0.06
02/24/00	30.57	31.66	-0.05	31.45	30.57	0.03	30.55	31.49	-0.06	31.54	30.55	0.02

TABLE 8

GROUNDWATER ELEVATIONS AND VERTICAL GRADIENT IN WELL PAIRS
FEBRUARY 1996–DECEMBER 2009
405 National Avenue
Mountain View, California

	Vertical Gradient Between Aquifer Zones											
	Nested Well Group I (116A, 109B1, 107B2)						Nested Well Group II (108A, 104B1, 108B2)					
	B1 to B2			A to B1			B1 to B2			A to B1		
	109B1	107B2		116A	109B1		104B1	108B2		108A	104B1	
	Well Screen Mid-Point			Well Screen Mid-Point			Well Screen Mid-Point			Well Screen Mid-Point		
	-20.6	-42.4	Vertical	12.7	-20.6	Vertical	-22.8	-37.8	Vertical	18.2	-22.8	Vertical
Date	Water Levels		Gradient	Water Levels		Gradient	Water Levels		Gradient	Water Levels		Gradient
03/13/00	29.39	30.84	-0.07	31.50	29.39	0.06	29.29	30.88	-0.11	31.76	29.29	0.06
05/25/00	28.10	29.76	-0.08	30.22	28.10	0.06	27.99	29.70	-0.11	30.54	27.99	0.06
08/24/00	27.56	29.47	-0.09	29.79	27.56	0.07	27.52	29.58	-0.14	30.14	27.52	0.06
11/16/00	27.14	29.08	-0.09	29.27	27.14	0.06	27.11	29.14	-0.14	29.86	27.11	0.07
02/22/01	27.15	29.39	-0.10	29.30	27.15	0.06	27.46	29.50	-0.14	29.91	27.46	0.06
05/24/01	27.22	29.27	-0.09	29.21	27.22	0.06	27.23	29.33	-0.14	29.87	27.23	0.06
08/23/01	28.27	29.55	-0.06	29.15	28.27	0.03	28.21	29.43	-0.08	29.65	28.21	0.04
09/06/01	26.97	28.92	-0.09	28.87	26.97	0.06	26.90	29.07	-0.14	29.58	26.90	0.07
11/15/01	27.01	29.20	-0.10	28.83	27.01	0.05	26.98	29.31	-0.16	29.61	26.98	0.06
02/28/02	27.38	29.56	-0.10	29.17	27.38	0.05	27.38	29.81	-0.16	29.72	27.38	0.06
05/23/02	27.33	29.71	-0.11	29.09	27.33	0.05	27.26	30.02	-0.18	29.72	27.26	0.06
08/22/02	27.15	29.52	-0.11	28.96	27.15	0.05	27.08	29.81	-0.18	29.65	27.08	0.06
11/21/02	27.16	29.61	-0.11	28.97	27.16	0.05	27.09	29.88	-0.19	29.55	27.09	0.06
02/27/03	27.83	30.29	-0.11	29.52	27.83	0.05	27.84	30.80	-0.20	30.08	27.84	0.05
05/22/03	29.35	32.44	-0.14	31.55	29.35	0.07	29.74	32.92	-0.21	31.37	29.74	0.04
08/28/03	28.36	30.93	-0.12	30.51	28.36	0.06	28.30	31.02	-0.18	31.05	28.30	0.07
11/20/03	27.73	30.33	-0.12	29.43	27.73	0.05	27.73	30.36	-0.18	30.07	27.73	0.06
03/25/04	28.37	31.34	-0.14	29.84	28.37	0.04	28.65	31.5	-0.19	30.4	28.65	0.04

TABLE 8

GROUNDWATER ELEVATIONS AND VERTICAL GRADIENT IN WELL PAIRS
FEBRUARY 1996–DECEMBER 2009
405 National Avenue
Mountain View, California

	Vertical Gradient Between Aquifer Zones											
	Nested Well Group I (116A, 109B1, 107B2)						Nested Well Group II (108A, 104B1, 108B2)					
	B1 to B2			A to B1			B1 to B2			A to B1		
	109B1	107B2		116A	109B1		104B1	108B2		108A	104B1	
	Well Screen Mid-Point			Well Screen Mid-Point			Well Screen Mid-Point			Well Screen Mid-Point		
	-20.6	-42.4	Vertical	12.7	-20.6	Vertical	-22.8	-37.8	Vertical	18.2	-22.8	Vertical
Date	Water Levels		Gradient	Water Levels		Gradient	Water Levels		Gradient	Water Levels		Gradient
05/27/04	27.99	30.59	-0.12	29.30	27.99	0.04	27.96	30.91	-0.20	30.12	27.96	0.05
08/26/04	27.66	30.45	-0.13	29.36	27.66	0.05	27.65	30.69	-0.20	29.93	27.65	0.06
11/18/04	27.14	30.01	-0.13	28.87	27.14	0.05	27.15	30.02	-0.19	29.47	27.15	0.06
03/24/05	28.73	31.50	-0.13	30.19	28.73	0.04	28.69	31.77	-0.21	30.70	28.69	0.05
11/17/05	27.75	30.51	-0.13	29.22	27.75	0.04	27.77	30.60	-0.19	29.74	27.77	0.05
03/23/06	29.35	32.14	-0.13	30.44	29.35	0.03	29.32	32.52	-0.21	31.19	29.32	0.05
11/16/06	28.93	31.70	-0.13	29.75	28.93	0.02	28.89	32.06	-0.21	30.30	28.89	0.03
03/22/07	30.94	33.43	-0.11	30.95	30.94	0.00	30.96	31.22	-0.02	33.69	30.96	0.07
11/15/07	30.39	32.03	-0.08	30.97	30.39	0.02	30.41	--	--	31.09	30.41	0.02
04/02/08	28.99	31.45	-0.11	28.29	28.99	-0.02	28.99	30.64	-0.11	31.67	28.99	0.07
11/20/08	28.23	30.57	-0.11	29.73	28.23	0.05	28.19	30.59	-0.16	30.15	28.19	0.05
03/26/09	30.92	31.51	-0.03	30.43	30.92	-0.01	29.9	31.79	-0.13	30.82	29.90	0.02
11/19/09	28.32	30.35	-0.09	29.60	28.32	0.04	28.37	30.49	-0.14	29.88	28.37	0.04
Average Vertical Gradient Values	**-0.11**			**0.03**			**-0.17**			**0.04**		

Notes
1. All water level and well screen measurements are expressed as feet mean sea level (ft msl).
2. All vertical gradients can be expressed as unitless values, or as feet per feet (ft/ft).
3. Positive vertical gradients indicate downward vertical flow, negative gradients indicate upward vertical flow.
4. The EPA approved the removal of this well from all monitoring. Groundwater elevations were not obtained during the November/December 2007 sampling event for this reason; however, in order to monitor the vertical gradient between aquifer zones, the groundwater elevation at well 108B2 was obtained during 2008. No analytical samples have been obtained from this well since 2007.

TABLE 9

VERTICAL GRADIENT DATA IN VICINITY OF OFF-SITE EXTRACTION WELLS
SEPTEMBER 1996 to DECEMBER 2009
Shared Off-Site Source Control Wells
405 National Avenue
Mountain View, California

	Vertical Gradient Between Aquifer Zones					
	Nested Well Group III (GSF-1A, GSF-1B1, GSF-1B2)					
	B1 to B2			A to B1		
	GSF-1B1	GSF-1B2		GSF-1A	GSF-1B1	
	Well Screen Mid-Point			Well Screen Mid-Point		
	-28.39	-37.89	Vertical	15.07	-28.39	Vertical
Date	Water Levels		Gradient	Water Levels		Gradient
9/23/1996	10.25	29.76	-2.05	28.33	10.25	0.42
9/30/1996	9.99	28.46	-1.94	30.04	9.99	0.46
10/7/1996	10.21	29.83	-2.07	28.12	10.21	0.41
10/14/1996	15.35	-12.89	2.97	27.49	15.35	0.28
10/21/1996	15.87	-11.91	2.92	27.1	15.87	0.26
10/28/1996	15.74	-10.90	2.80	27.12	15.74	0.26
11/4/1996	15.88	-16.57	3.42	26.91	15.88	0.25
11/21/1996	11.32	26.56	-1.60	27.33	11.32	0.37
12/16/1996	11.46	23.44	-1.26	27.43	11.46	0.37
1/20/1997	10.26	24.19	-1.47	28.46	10.26	0.42
2/20/1997	10.27	24.48	-1.50	28.85	10.27	0.43
3/20/1997	13.73	22.1	-0.88	28.8	13.73	0.35
4/21/1997	13.69	26.88	-1.39	28.67	13.69	0.34
5/22/1997	14.13	27.49	-1.41	28.66	14.13	0.33
6/26/1997	14.74	28.5	-1.45	28.22	14.74	0.31
7/21/1997	14.65	22.45	-0.82	28.52	14.65	0.32
8/28/1997	14.16	27.02	-1.35	28.58	14.16	0.33
9/15/1997	15.2	27.26	-1.27	28.55	15.2	0.31
10/20/1997	13.89	27.5	-1.43	26.21	13.89	0.28
11/17/1997	13.32	26.45	-1.38	29.6	13.32	0.37
12/22/1997	12.47	28.97	-1.74	30.14	12.47	0.41
1/15/1998	14.36	29.8	-1.63	29.32	14.36	0.34
2/26/1998	13.52	28.85	-1.61	31.18	13.52	0.41
3/16/1998	14.79	30.48	-1.65	29.99	14.79	0.35
4/20/1998	15.23	28.2	-1.37	29.38	15.23	0.33
5/28/1998	15.18	27.96	-1.35	29.39	15.18	0.33
6/25/1998	15.05	28.1	-1.37	29.25	15.05	0.33
7/23/1998	13.85	28.07	-1.50	29.74	13.85	0.37
8/27/1998	15.46	29.02	-1.43	27.8	15.46	0.28
11/19/1998	16.24	25.9	-1.02	28.34	16.24	0.28
5/27/1999	15.86	26.98	-1.17	28.51	15.86	0.29
8/26/1999	16.91	26.5	-1.01	28.45	16.91	0.27
11/18/1999	17.67	24.96	-0.77	28.28	17.67	0.24
2/24/2000	9.84	30.02	-2.12	30.39	9.84	0.47
3/13/2000	17.65	23.00	-0.56	29.9	17.65	0.28
5/25/2000	18.86	24.68	-0.61	28.64	18.86	0.23
8/24/2000	17.4	24.86	-0.79	28.25	17.40	0.25
11/16/2000	16.58	23.49	-0.73	27.77	16.58	0.26

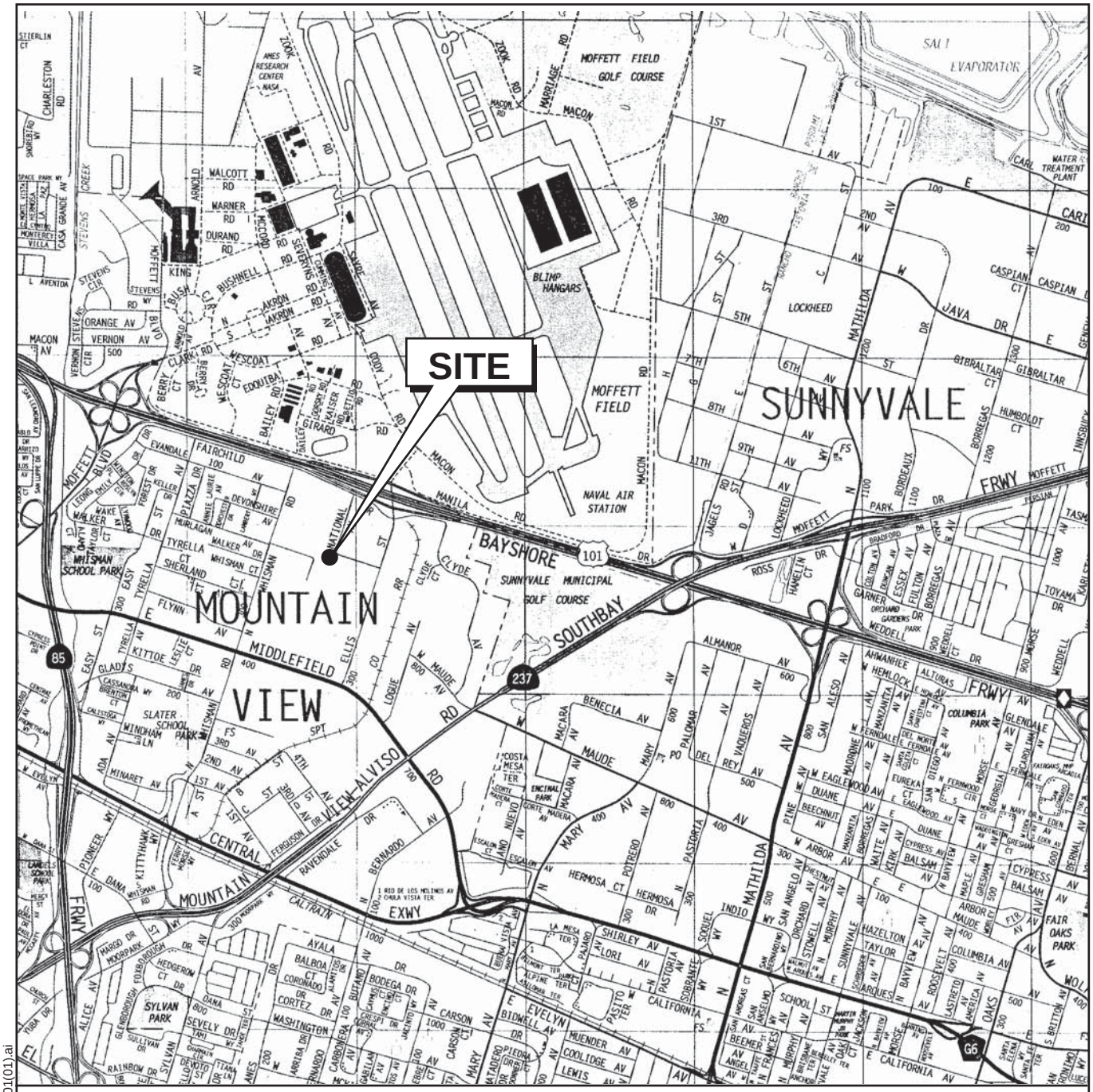
TABLE 9

VERTICAL GRADIENT DATA IN VICINITY OF OFF-SITE EXTRACTION WELLS
SEPTEMBER 1996 to DECEMBER 2009
Shared Off-Site Source Control Wells
405 National Avenue
Mountain View, California

	Vertical Gradient Between Aquifer Zones					
	Nested Well Group III (GSF-1A, GSF-1B1, GSF-1B2)					
	B1 to B2			A to B1		
	GSF-1B1	GSF-1B2		GSF-1A	GSF-1B1	
	Well Screen Mid-Point			Well Screen Mid-Point		
	-28.39	-37.89	Vertical	15.07	-28.39	Vertical
Date	Water Levels		Gradient	Water Levels		Gradient
2/22/2001	15.44	24.86	-0.99	27.9	15.44	0.29
5/24/2001	14.46	23.7	-0.97	27.74	14.46	0.31
8/27/2001	12.04	27.9	-1.67	28.24	12.04	0.37
9/6/2001	11.97	23.42	-1.21	27.48	11.97	0.36
11/15/2001	11.57	24.43	-1.35	27.46	11.57	0.37
2/28/2002	11.57	24.43	-1.35	27.46	11.57	0.37
5/23/2002	11.71	24.63	-1.36	27.47	11.71	0.36
8/22/2002	14.37	24.65	-1.08	27.44	14.37	0.30
11/21/2002	13.16	22.99	-1.03	27.45	13.16	0.33
2/27/2003	13.69	24.59	-1.15	27.86	13.69	0.33
5/22/2003	14.45	23.18	-0.92	29.15	14.45	0.34
8/28/2003	12.69	23	-1.09	28.91	12.69	0.37
11/20/2003	12.32	24.3	-1.26	27.84	12.32	0.36
3/25/2004	15.56	23.22	-0.81	28.24	15.56	0.29
5/27/2004	11.02	23.68	-1.33	27.96	11.02	0.39
8/26/2004	8.56	24.76	-1.71	27.84	8.56	0.44
11/18/2004	9.1	24.3	-1.60	27.37	9.1	0.42
3/24/2005	7.71	25.78	-1.90	28.56	7.71	0.48
11/17/2005	5.69	24.17	-1.95	27.65	5.69	0.51
3/23/2006	12.31	23.65	-1.19	29.08	12.31	0.39
11/16/2006	11.73	23.07	-1.19	28.27	11.73	0.38
3/22/2007	18.04	24.75	-0.71	29.54	18.04	0.26
11/15/2007[4]	29.8	30.23	-0.05	29.89	29.80	0.00
4/2/2008	9.55	25.12	-1.64	29.21	9.55	0.45
11/20/2008	-4.64	25.09	-3.13	-28.22	-4.64	-0.54
3/26/2009	-7.16	23.56	-3.23	28.90	-7.16	0.83
11/19/2009	-8.26	24.35	-3.43	27.99	-8.26	0.83
Average Vertical Gradient Values	**-1.12**			**0.34**		

Notes
1. All water level and well screen measurements are expressed as feet mean sea level (ft msl).
2. All vertical gradients can be expressed as unitless values, or as feet per feet (ft/ft).
3. Positive vertical gradients indicate downward vertical flow, negative gradients indicate upward vertical flow.
4. Vertical gradients for the November 15, 2007 sampling event are expected to reflect non-pumping conditions in the wells for the GETS shutdown from November 6, 2007 through December 17, 2007.

FIGURES



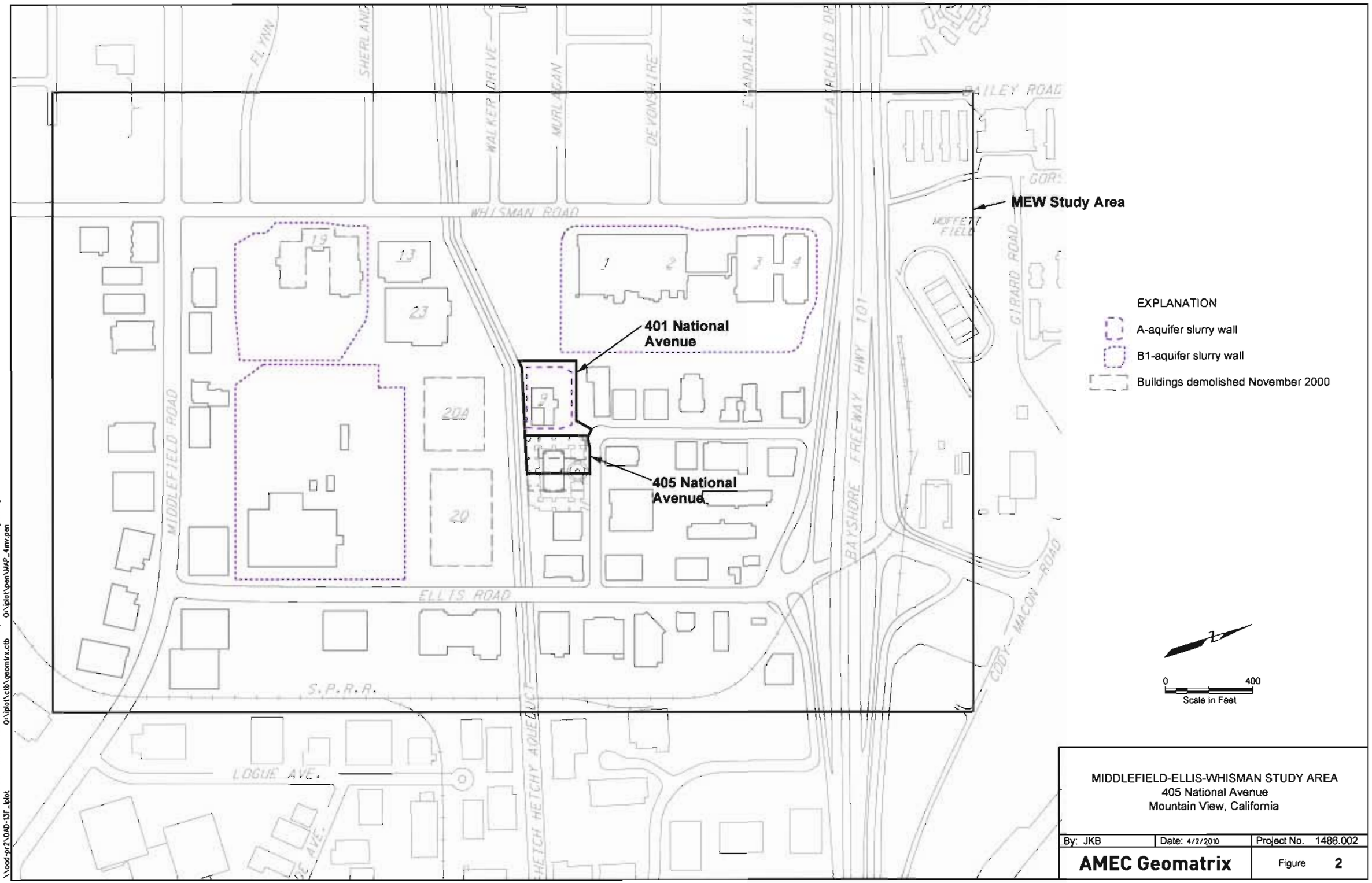
Base map from *The Thomas Guide, 1997 Golden Gate Street Guide and Directory.* Reproduced with permission granted by THOMAS BROS. MAPS®. This map is copyrighted by THOMAS BROS. MAPS®. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission. All rights reserved.

0 0.5 mile

SITE LOCATION MAP
405 National Avenue
Mountain View, California

By: JKB	Date: 03/09/2010	Project No. 1486.002
AMEC Geomatrix		Figure **1**

R:\1000-1900s\1486\1486.002\1486.002cc\2009rpts\2009ar\10_0306_ar_fig_01(01).ai



MIDDLEFIELD-ELLIS-WHISMAN STUDY AREA
405 National Avenue
Mountain View, California

By: JKB	Date: 4/2/2010	Project No. 1486.002
AMEC Geomatrix		Figure 2

steve.wessels R:\1000-1900s\1486\1486.002\1486.002cc\2009rpts\2009sr\10_0306_sr_fig_02.dgn
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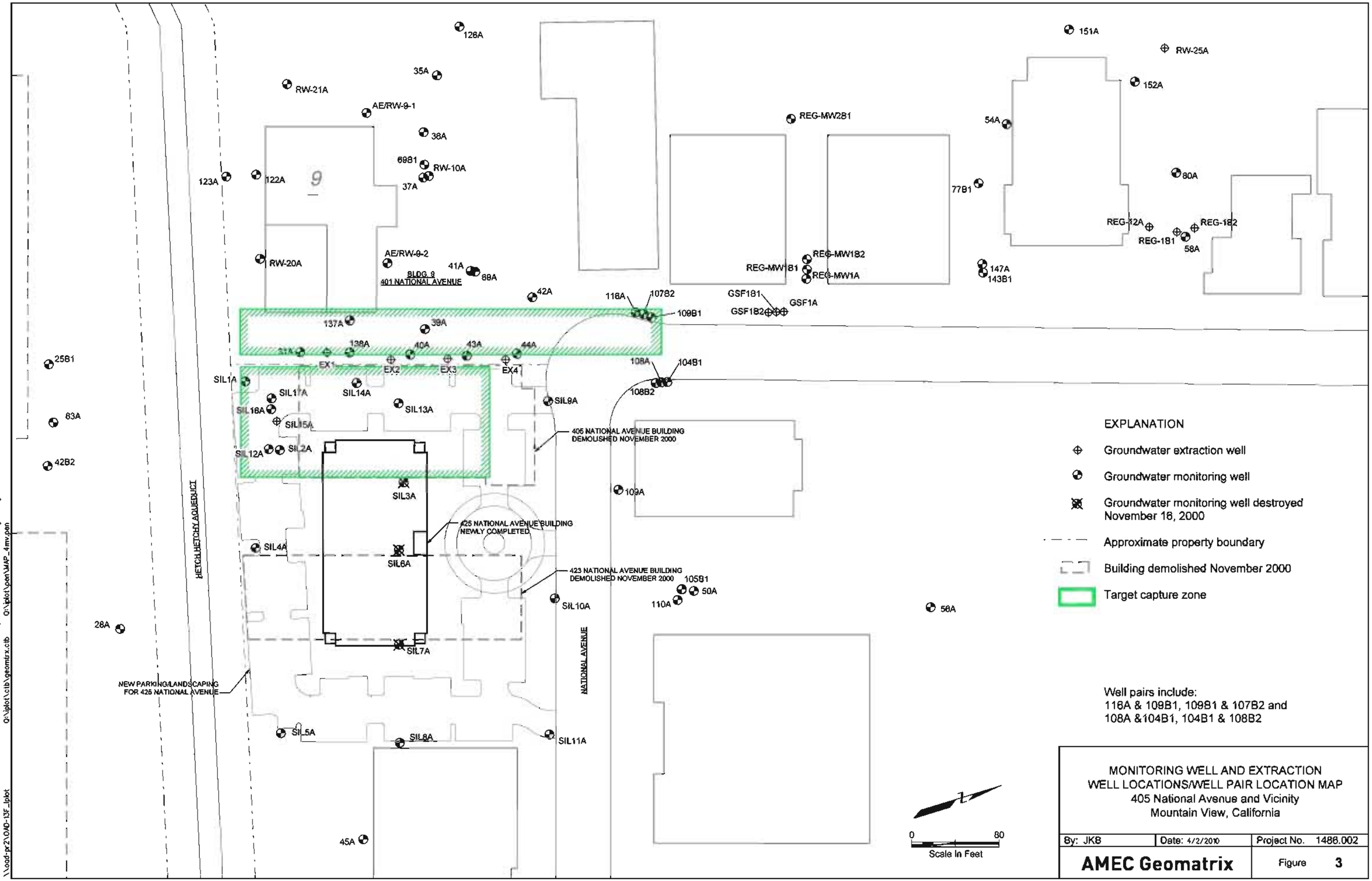

MONITORING WELL AND EXTRACTION
WELL LOCATIONS/WELL PAIR LOCATION MAP
405 National Avenue and Vicinity
Mountain View, California

By: JKB	Date: 4/2/2010	Project No. 1486.002
AMEC Geomatrix		Figure 3

steve.wessels R:\1000-1900s\1486\1486.002\1486.002cc\2009rpts\2009qr\10_0306_qr_fig_03.dgn
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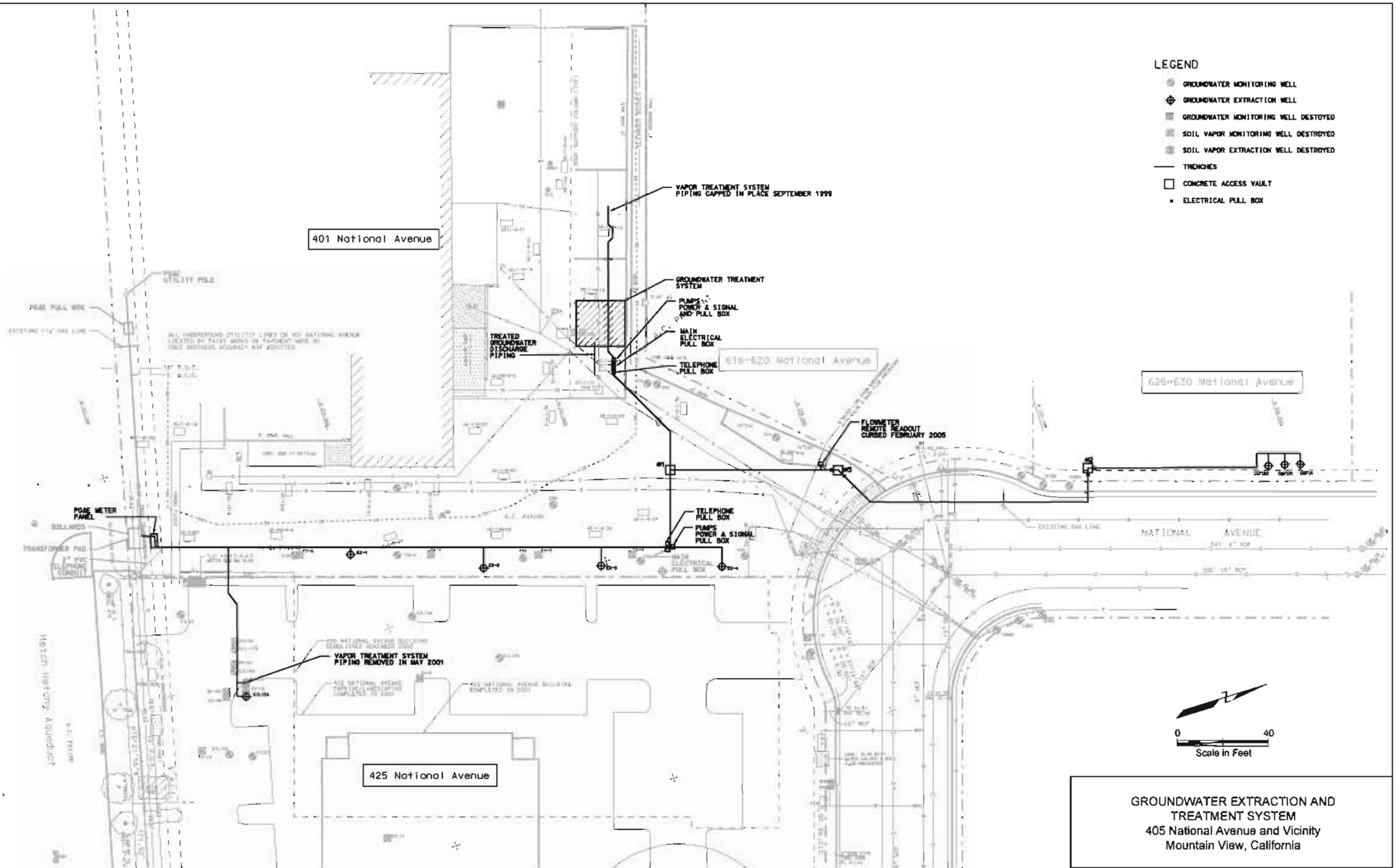

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM
405 National Avenue and Vicinity
Mountain View, California

By: JKB	Date: 4/2/2010	Project No. 1486.002
AMEC Geomatrix		Figure **4a**

steve.wessels R:\1000-1900s\1486\1486.002\1486.002cc\2009rpts\2009cr\10_0306_cr_fig_04c.dgn
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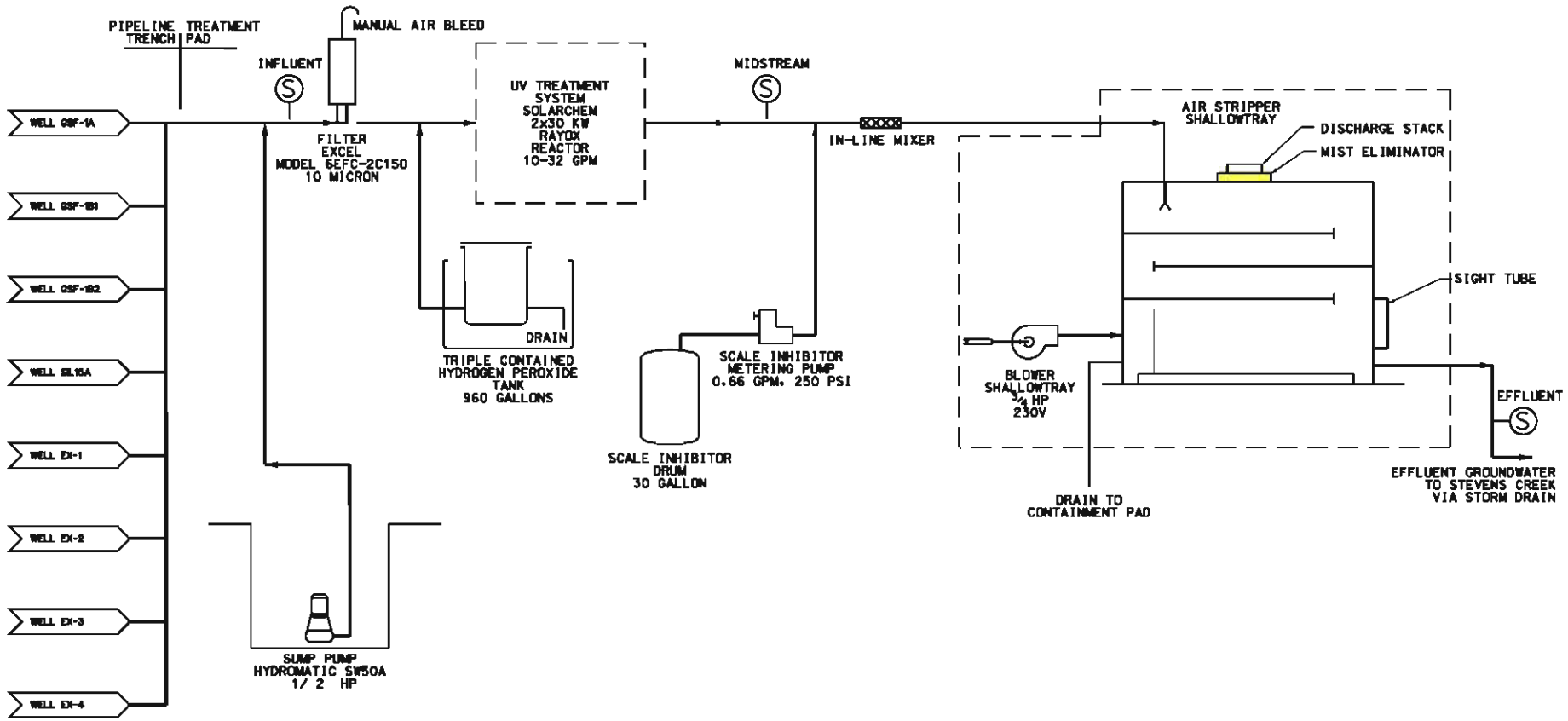


LEGEND

BLOWER

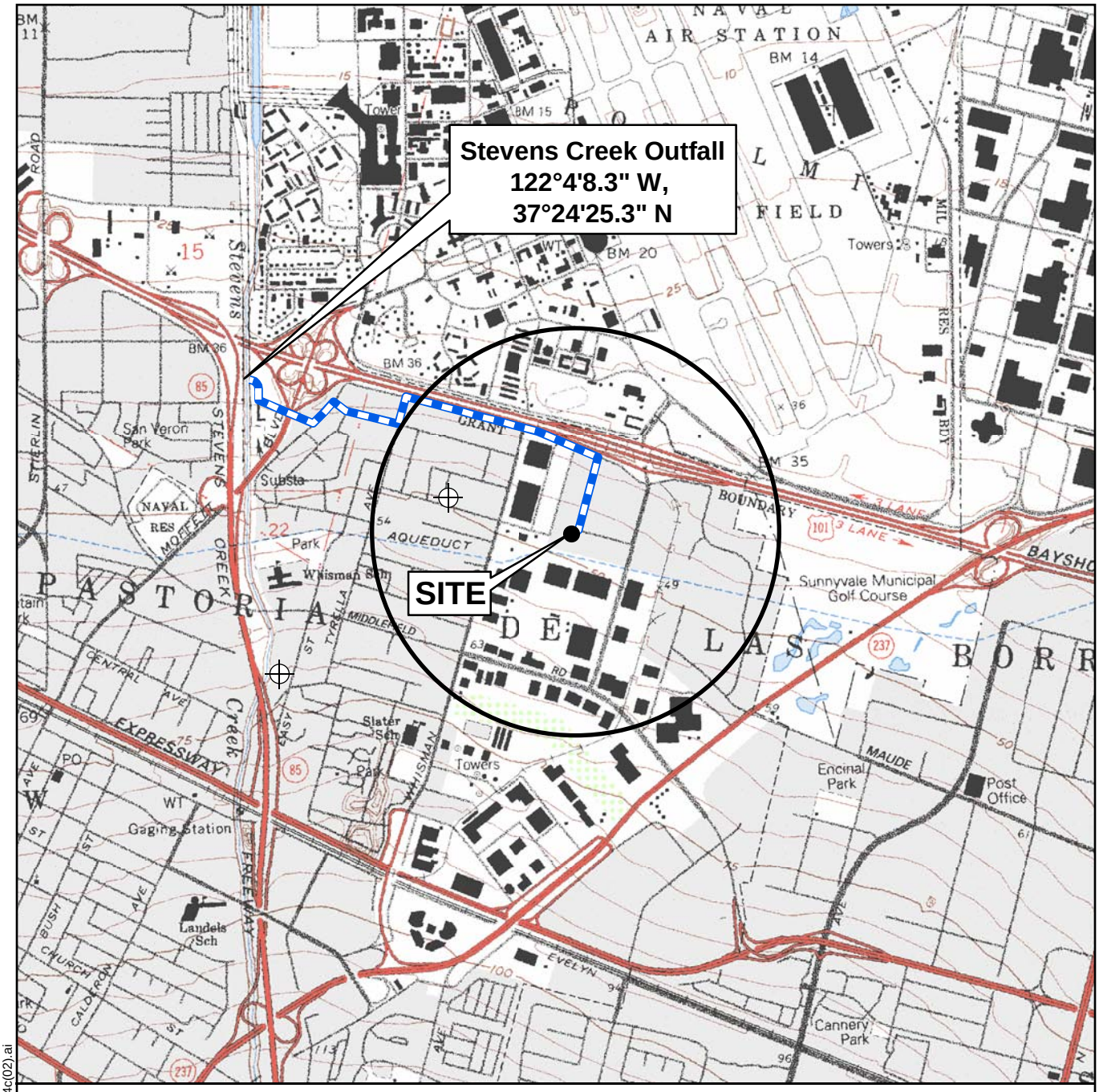
METERING PUMP

SUBMERSIBLE PUMP

SAMPLE PORT

PROCESS FLOW SCHEMATIC
405 National Avenue
Mountain View, California

By: JKB	Date: 4/2/2010	Project No. 1486.002
AMEC Geomatrix		Figure **4b**



Base map from U.S.G.S. 7.5' Mountain View, California topographic quadrangle.

N

0 2,000 Feet

EXPLANATION

Domestic well (not in operation)

Storm drain alignment

DISCHARGE LOCATION MAP
405 National Avenue
Mountain View, California

By: JKB	Date: 04/08/2010	Project No. 1486.002
AMEC Geomatrix		Figure 4c

R:\1000-1900s\1486\1486.002\1486.002cc\2009rpts\2009ar\10_0306_ar_fig_04c(02).ai

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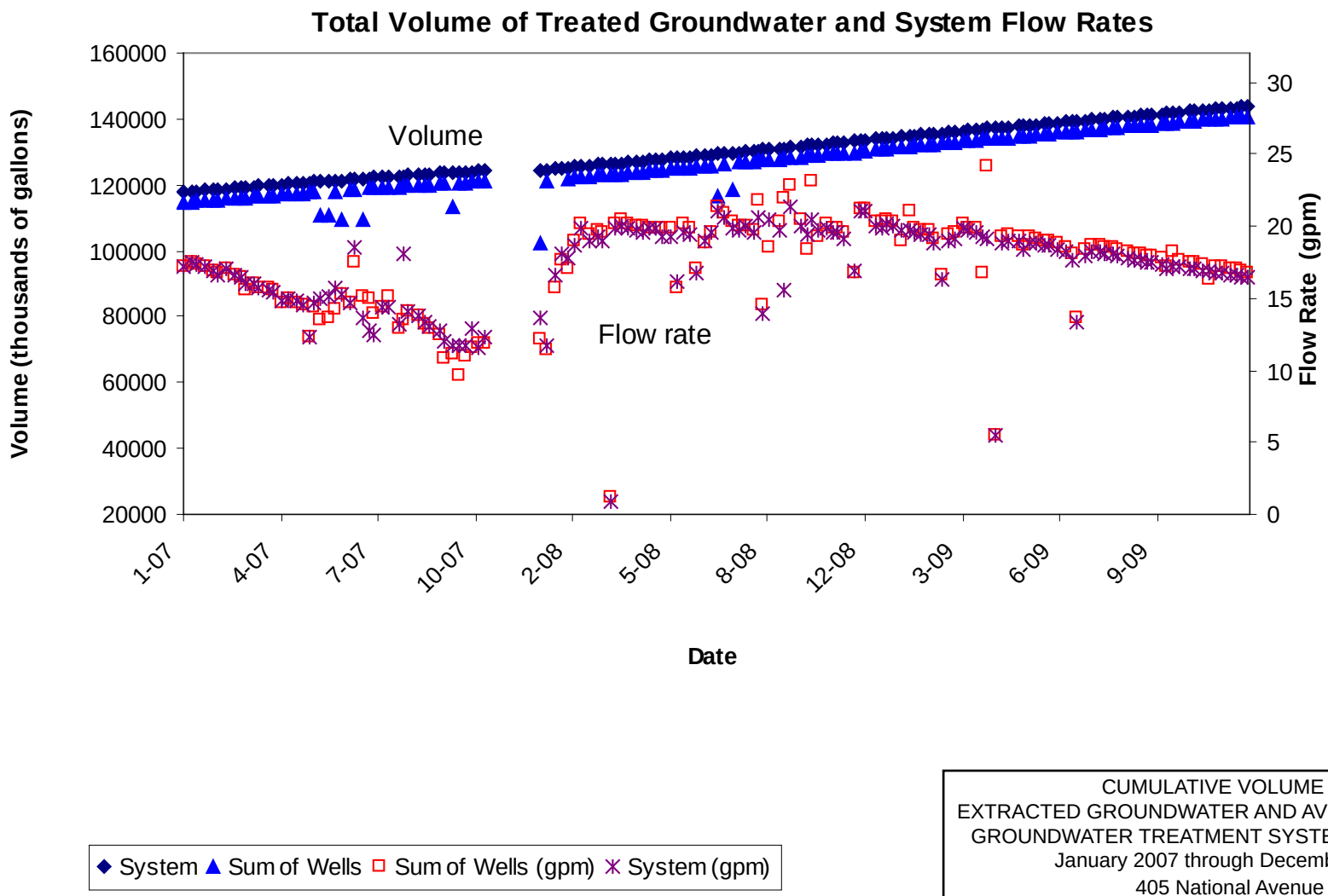
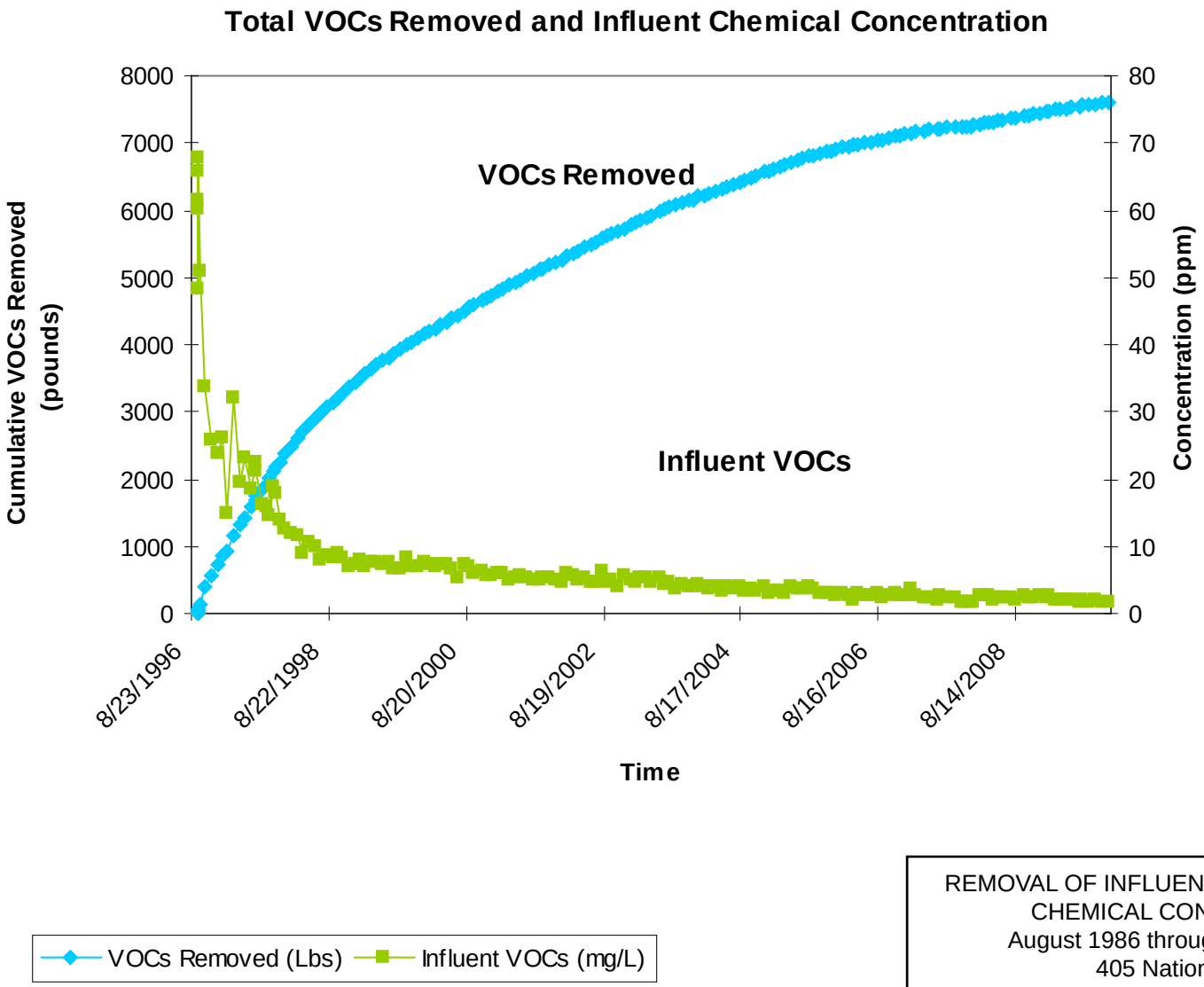


CUMULATIVE VOLUME OF
EXTRACTED GROUNDWATER AND AVERAGE MONTHLY
GROUNDWATER TREATMENT SYSTEM FLOW RATES
January 2007 through December 2009
405 National Avenue
Mountain View, California

By: JKB	Date: 04/06/2010	Project No. 1486.002
AMEC Geomatrix		Figure 5a

R:\1000-1900s\1486\1486.002\1486.002cc\2009rpts\2009ar\10_0306_ar_fig_05b.ai



REMOVAL OF INFLUENT VOCs AND INFLUENT CHEMICAL CONCENTRATIONS
August 1986 through December 2009
405 National Avenue
Mountain View, California

By: JKB	Date: 04/06/2010	Project No. 1486.002
AMEC Geomatrix		Figure 5b

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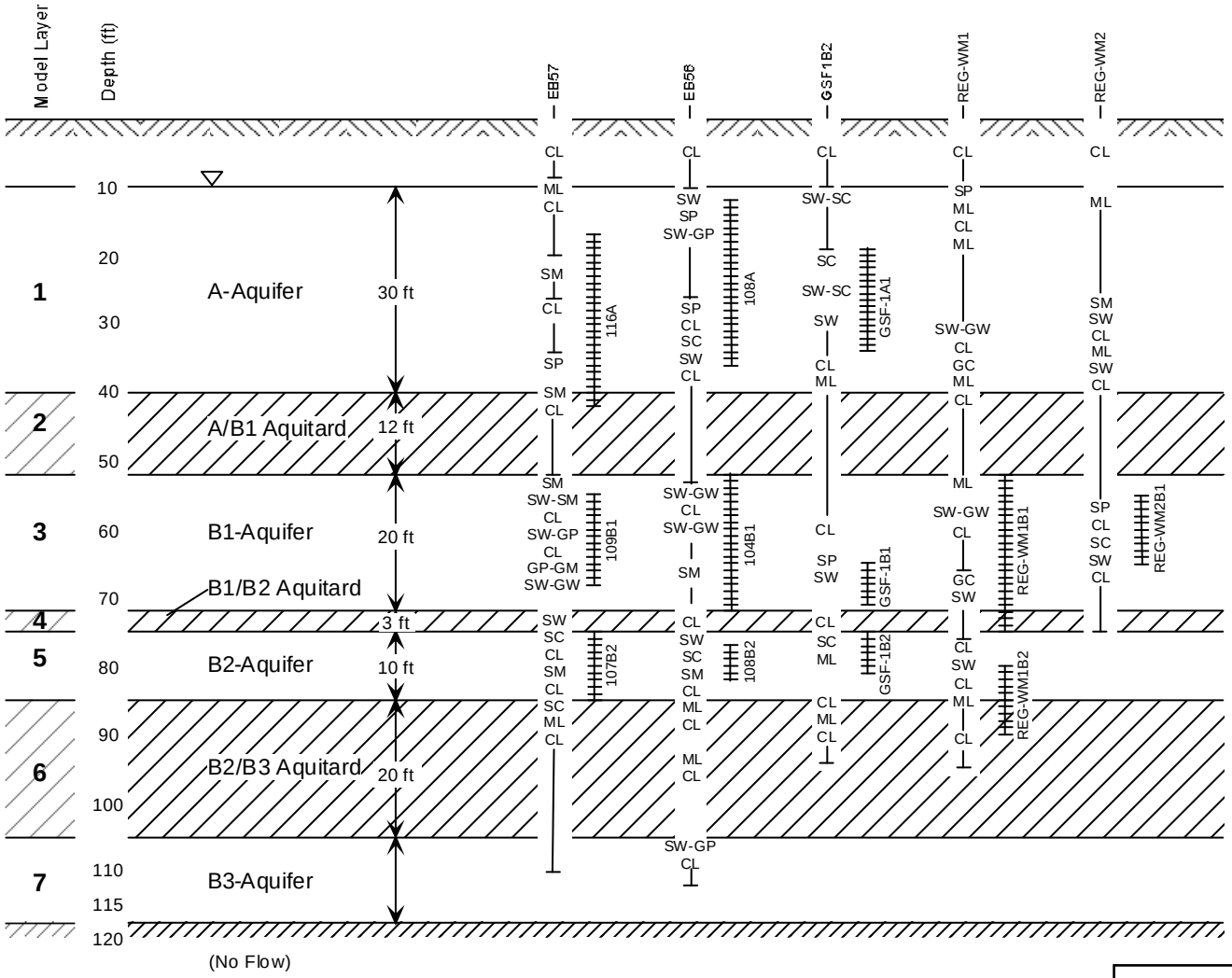


Assigned Properties

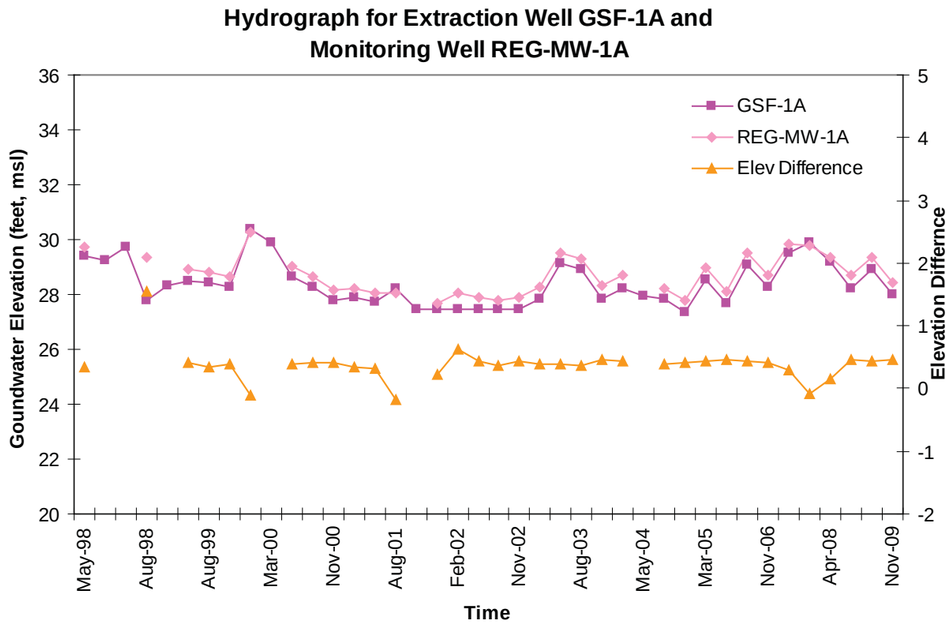
	Hydraulic Conductivity (ft/d) Horizontal	Vertical	Storage
A-Aquifer	30	3	0.1 (Specific Yield)
A/B1 Aquitard	0.015	0.015	Specific Storage (1/ft) 1×10^{-10}
B1-Aquifer	20	2	1×10^{-5}
B1/B2 Aquitard	0.015	0.015	1×10^{-10}
B2-Aquifer	0.6	0.3	1×10^{-5}
B2/B3 Aquitard	0.2	0.2	1×10^{-10}
B3-Aquifer	40	4	1×10^{-5}

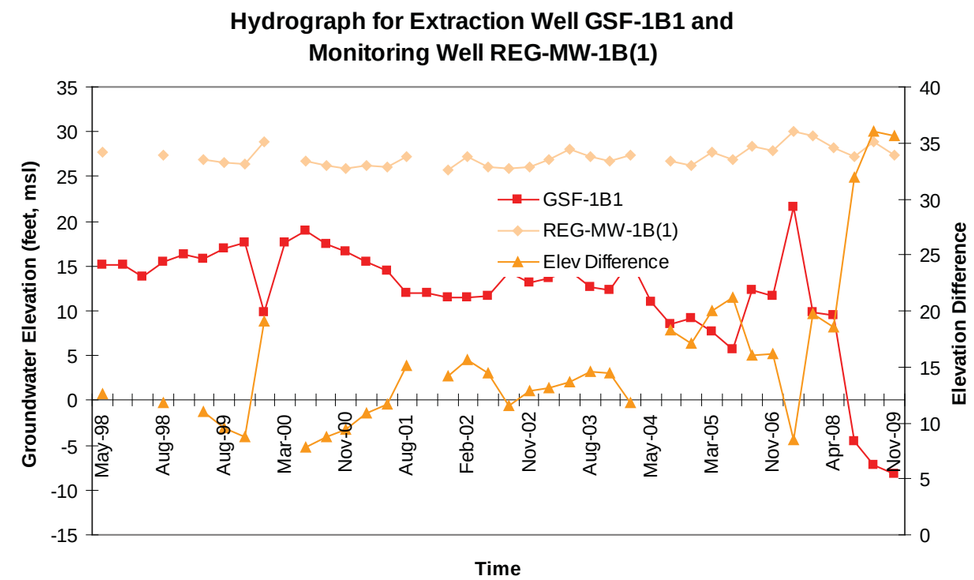
Explanation

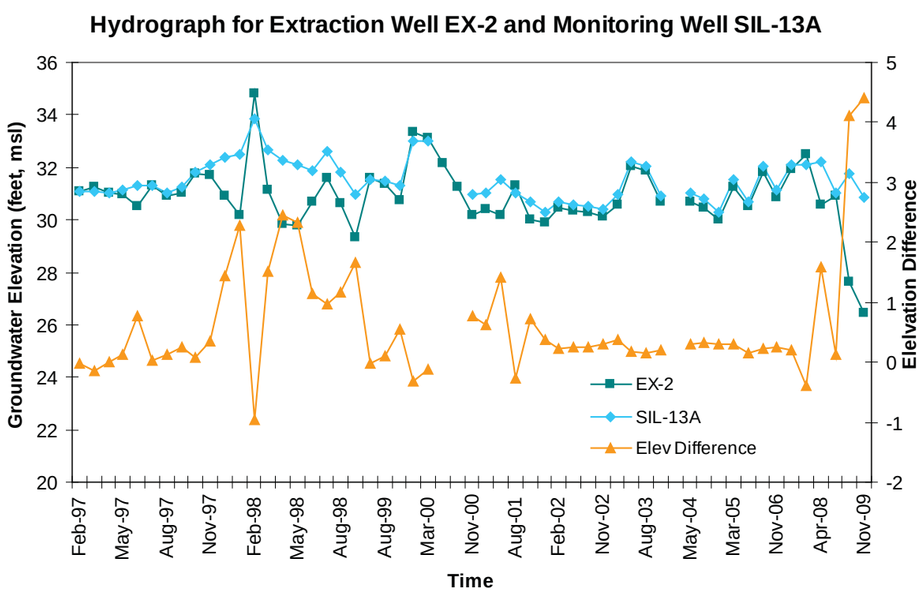
Well screen interval

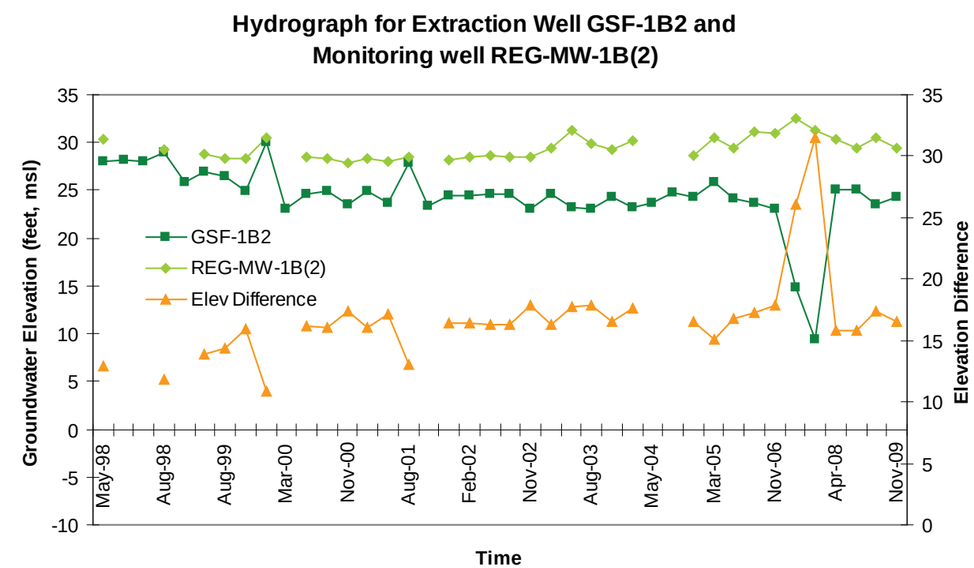
CONCEPTUAL CROSS SECTION
405 National Avenue
Mountain View, California

By: JKB	Date: 04/02/2010	Project No. 1486.002
AMEC Geomatrix		Figure 6









Note:
1. Non-pumping conditions (i.e., a decrease in elevation difference) is expected for the water level data observed during the November 15, 2007 sampling event (e.g., the last data point) during which time the GETS was shutdown.

GROUNDWATER ELEVATIONS IN WELL PAIRS
ACROSS AQUIFERS
405 National Avenue
Mountain View, California

By: JKB	Date: 04/02/2010	Project No. 1486.002
AMEC Geomatrix		Figure 7

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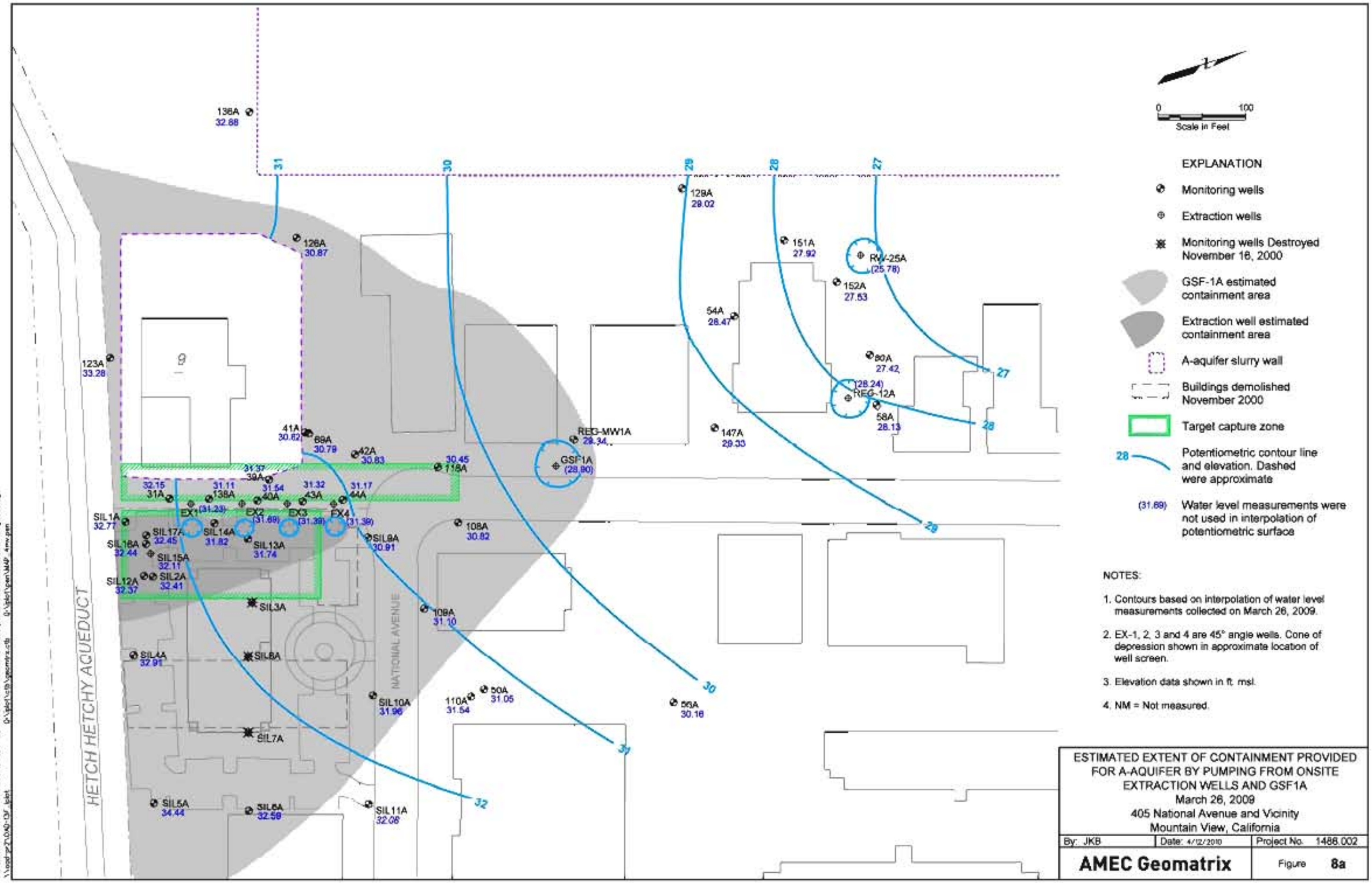
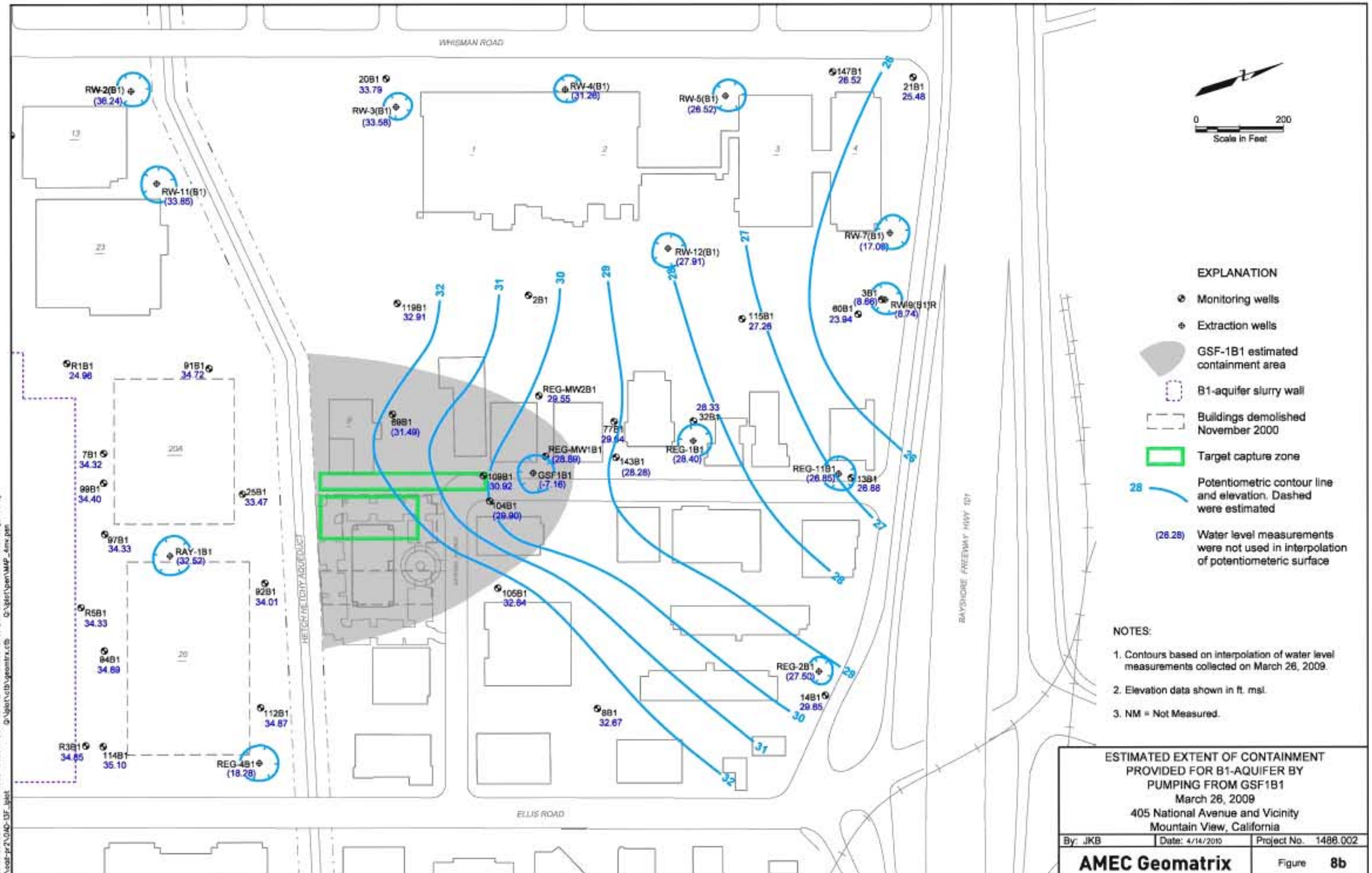
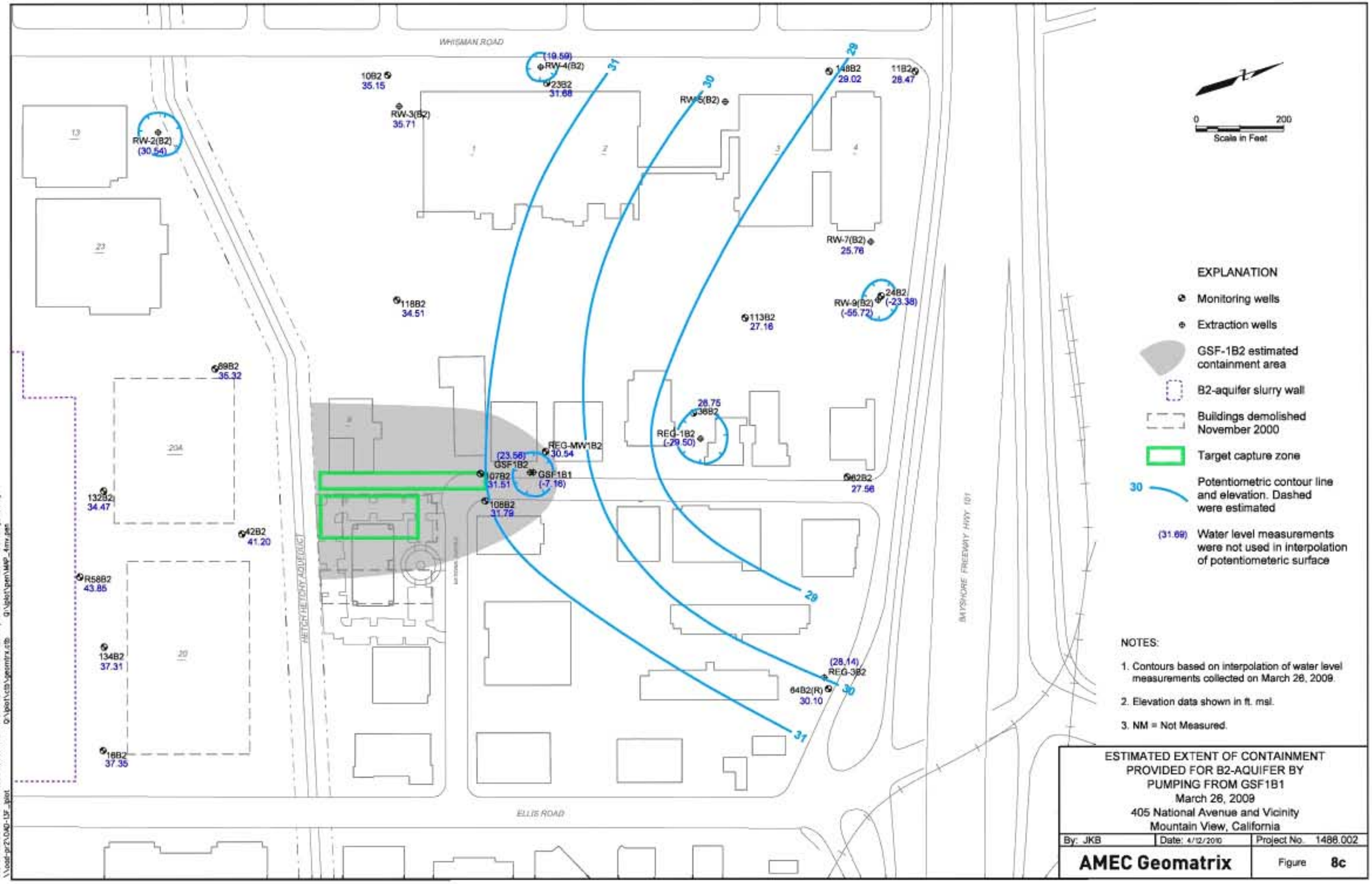

0
100
Scale in Feet
EXPLANATION
Monitoring wells
Extraction wells
Monitoring wells Destroyed November 16, 2000
GSF-1A estimated containment area
Extraction well estimated containment area
A-aquifer slurry wall
Buildings demolished November 2000
Target capture zone
28
Potentiometric contour line and elevation. Dashed were approximate
(31.69)
Water level measurements were not used in interpolation of potentiometric surface
NOTES:
1. Contours based on interpolation of water level measurements collected on March 26, 2009.
2. EX-1, 2, 3 and 4 are 45° angle wells. Cone of depression shown in approximate location of well screen.
3. Elevation data shown in ft. msl.
4. NM = Not measured.
ESTIMATED EXTENT OF CONTAINMENT PROVIDED FOR A-AQUIFER BY PUMPING FROM ONSITE EXTRACTION WELLS AND GSF1A
March 26, 2009
405 National Avenue and Vicinity
Mountain View, California
By: JKB
Date: 4/12/2010
Project No. 1486.002
AMEC Geomatrix
Figure 8a
HETCH HETCHY AQUEDUCT
NATIONAL AVENUE
136A 32.88
126A 30.87
123A 33.28
129A 29.02
151A 27.92
RW-25A (25.78)
152A 27.53
54A 28.47
80A 27.42
(28.24) REG-12A
58A 28.13
147A 29.33
REG-MW1A 28.34
GSF-1A (28.80)
41A 30.62
69A 30.79
42A 30.83
30.45 118A
31.37 39A
31.54 40A
31.32 43A
31.17 44A
32.15 31A
31.11 138A
EX1 (31.23)
EX2 (31.69)
EX3 (31.39)
EX4 (31.38)
SIL1A 32.77
SIL17A 32.45
SIL14A 31.82
SIL13A 31.74
SIL9A 30.91
SIL16A 32.44
SIL15A 32.11
SIL12A 32.37
SIL2A 32.41
SIL3A
SIL8A
SIL4A 32.91
SIL10A 31.96
SIL7A
SIL5A 34.44
SIL6A 32.58
SIL11A 32.08
108A 30.82
108A 31.10
110A 31.54
50A 31.05
56A 30.16
27
28
29
30
31
32


WHISMAN ROAD
ELLIS ROAD
HETCH HETCHY AQUEDUCT
BAYSHORE FREEWAY HWY 101
RW-2(B1) (36.24)
RW-11(B1) (33.85)
20B1 33.79
RW-3(B1) (33.58)
RW-4(B1) (31.26)
RW-5(B1) (26.52)
147B1 26.52
21B1 25.48
RW-7(B1) (17.08)
RW-12(B1) (27.91)
3B1 (8.86)
RW9(B1)R (8.74)
60B1 23.94
115B1 27.26
119B1 32.91
2B1
R1B1 24.96
91B1 34.72
7B1 34.32
99B1 34.40
25B1 33.47
97B1 34.33
RAY-1B1 (32.52)
92B1 34.01
R5B1 34.33
84B1 34.69
112B1 34.87
R3B1 34.85
114B1 35.10
REG-4B1 (18.28)
REG-MW2B1 29.55
69B1 (31.49)
77B1 29.64
REG-MW1B1 (28.89)
143B1 (28.28)
REG-1B1 (28.40)
28.33
32B1
108B1 30.92
GSF1B1 (-7.16)
104B1 (29.90)
REG-11B1 (26.85)
13B1 26.88
105B1 32.84
REG-2B1 (27.50)
14B1 29.85
8B1 32.67
21
26
27
28
29
30
31
32
0 200
Scale in Feet
EXPLANATION
Monitoring wells
Extraction wells
GSF-1B1 estimated containment area
B1-aquifer slurry wall
Buildings demolished November 2000
Target capture zone
28 Potentiometric contour line and elevation. Dashed were estimated
(28.28) Water level measurements were not used in interpolation of potentiometeric surface
NOTES:
1. Contours based on interpolation of water level measurements collected on March 26, 2009.
2. Elevation data shown in ft. msl.
3. NM = Not Measured.
ESTIMATED EXTENT OF CONTAINMENT PROVIDED FOR B1-AQUIFER BY PUMPING FROM GSF1B1
March 26, 2009
405 National Avenue and Vicinity
Mountain View, California
By: JKB
Date: 4/14/2010
Project No. 1486.002
AMEC Geomatrix
Figure 8b


WHISMAN ROAD
ELLIS ROAD
BAYSHORE FREEWAY HWY 101
HETCH HETCHY AQUEDUCT
RW-2(B2)
(30.54)
RW-3(B2)
35.71
RW-4(B2)
(19.59)
23B2
31.68
RW-5(B2)
RW-7(B2)
25.76
RW-9(B2)
(-55.72)
24B2
(-23.38)
10B2
35.15
148B2
29.02
11B2
28.47
118B2
34.51
113B2
27.16
89B2
35.32
132B2
34.47
42B2
41.20
R58B2
43.85
134B2
37.31
16B2
37.35
REG-MW1B2
30.54
(23.58)
GSF1B2
107B2
31.51
GSF1B1
(-7.16)
108B2
31.79
26.75
36B2
REG-1B2
(-29.50)
62B2
27.56
(28.14)
REG-3B2
64B2(R)
30.10
29
30
31
0
200
Scale in Feet
EXPLANATION
Monitoring wells
Extraction wells
GSF-1B2 estimated containment area
B2-aquifer slurry wall
Buildings demolished November 2000
Target capture zone
30 Potentiometric contour line and elevation. Dashed were estimated
(31.69) Water level measurements were not used in interpolation of potentiometeric surface
NOTES:
1. Contours based on interpolation of water level measurements collected on March 26, 2009.
2. Elevation data shown in ft. msl.
3. NM = Not Measured.
ESTIMATED EXTENT OF CONTAINMENT
PROVIDED FOR B2-AQUIFER BY
PUMPING FROM GSF1B1
March 26, 2009
405 National Avenue and Vicinity
Mountain View, California
By: JKB
Date: 4/12/2010
Project No. 1486.002
AMEC Geomatrix
Figure 8c

0 100
Scale in Feet

EXPLANATION

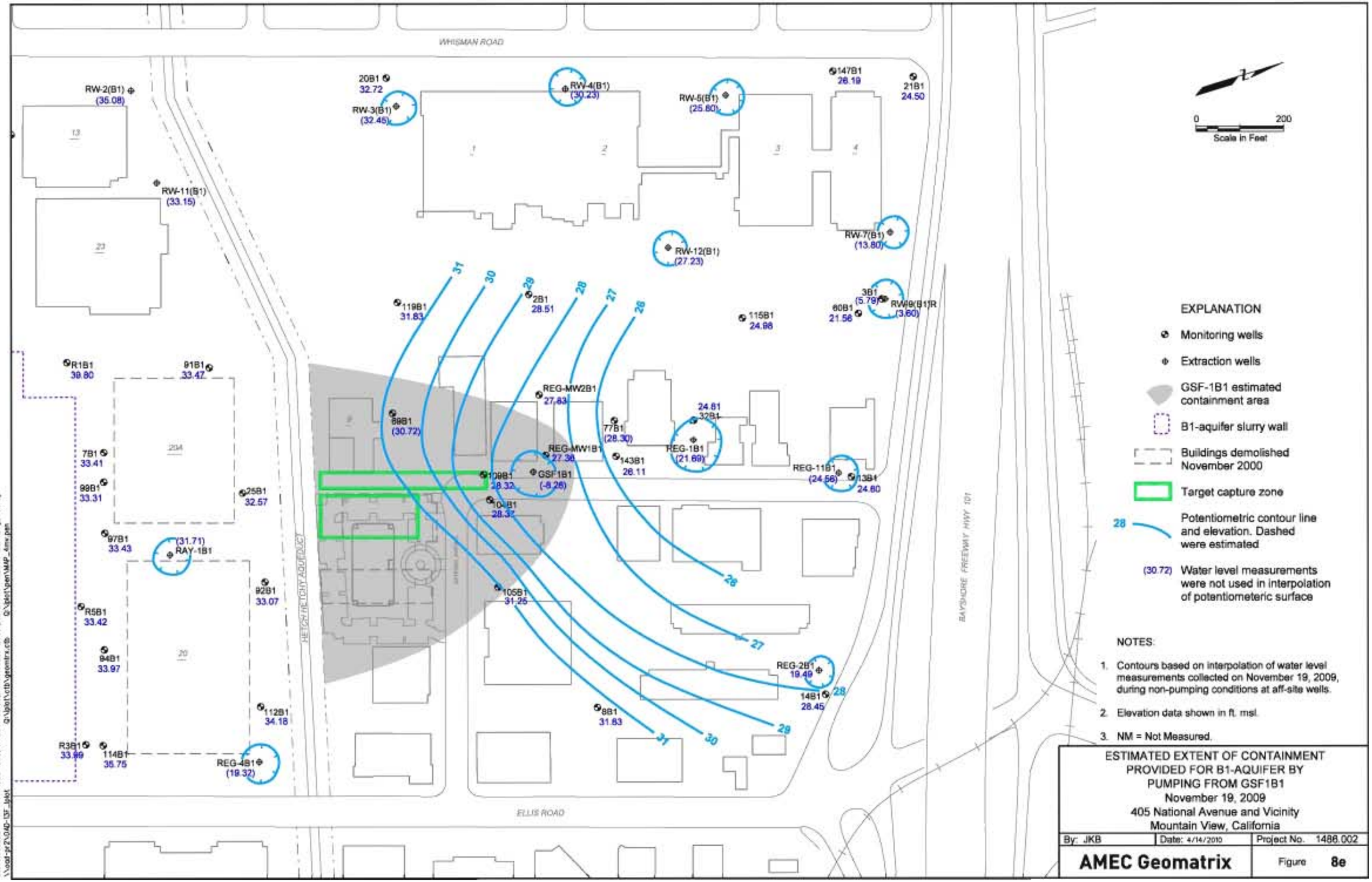
- Monitoring wells
- Extraction wells
- Monitoring wells Destroyed November 16, 2000
- GSF-1A estimated containment area
- Extraction well estimated containment area
- A-aquifer slurry wall
- Buildings demolished November 2000
- Target capture zone
- 28 — Potentiometric contour line and elevation. Dashed were approximate
- (31.19) Water level measurements were not used in interpolation of potentiometric surface

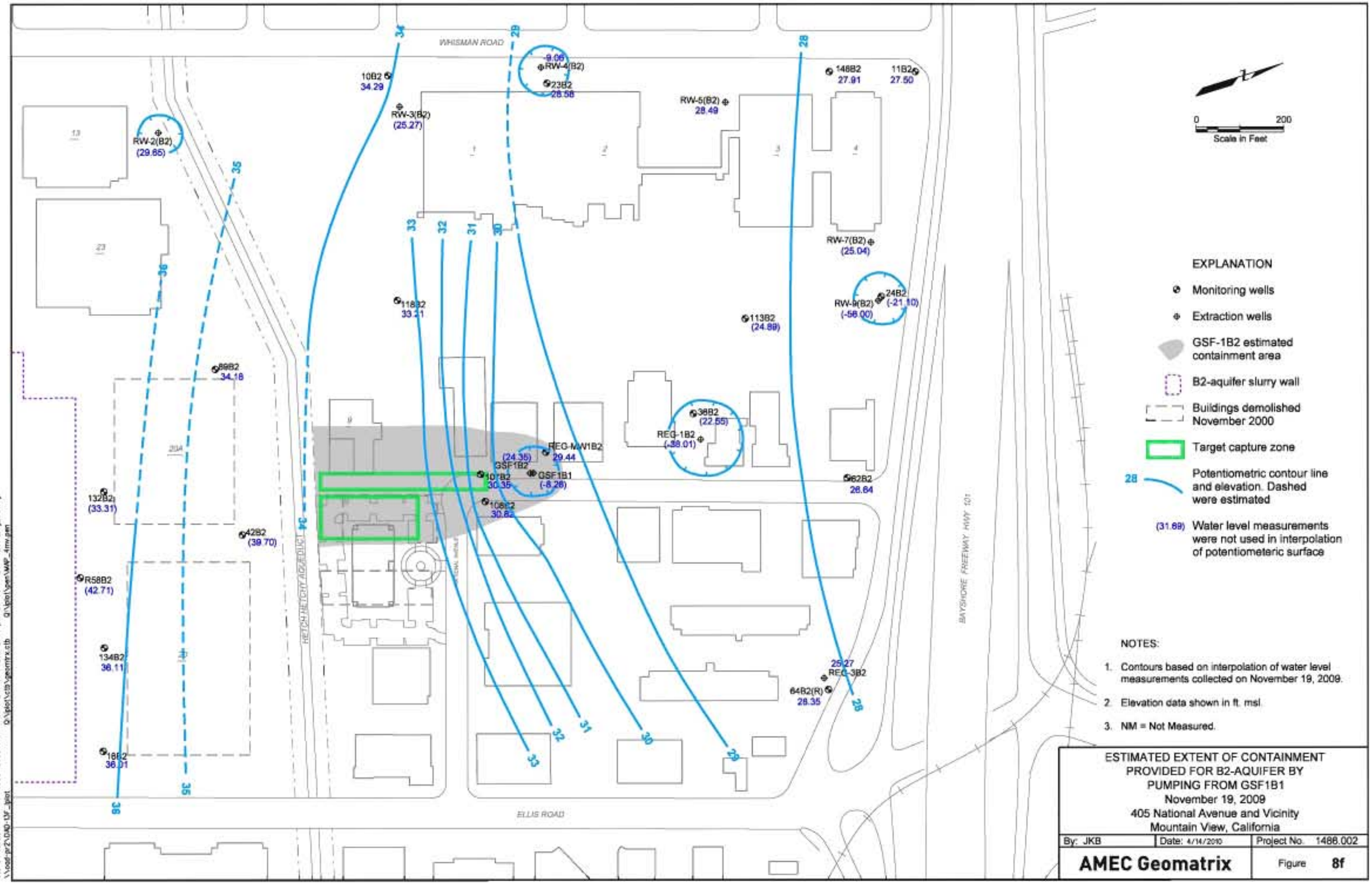
NOTES:

1. Contours based on interpolation of water level measurements collected on November 19, 2009, during non-pumping conditions at all on- and off-site wells.
2. EX-1, 2, 3 and 4 are 45° angle wells.
3. Elevation data shown in ft. msl.
4. NM = Not measured.

ESTIMATED EXTENT OF CONTAINMENT PROVIDED FOR A-AQUIFER BY PUMPING FROM ONSITE EXTRACTION WELLS AND GSF1A
November 19, 2009
405 National Avenue and Vicinity
Mountain View, California

By: JKB	Date: 4/12/2010	Project No. 1486.002
AMEC Geomatrix		Figure 8d


WHISMAN ROAD
ELLIS ROAD
HETCH HETCHY AQUEDUCT
BAYSHORE FREEWAY HWY 101
0
200
Scale in Feet
EXPLANATION
Monitoring wells
Extraction wells
GSF-1B1 estimated containment area
B1-aquifer slurry wall
Buildings demolished November 2000
Target capture zone
28 Potentiometric contour line and elevation. Dashed were estimated
(30.72) Water level measurements were not used in interpolation of potentiometeric surface
NOTES:
1. Contours based on interpolation of water level measurements collected on November 19, 2009, during non-pumping conditions at aff-site wells.
2. Elevation data shown in ft. msl.
3. NM = Not Measured.
ESTIMATED EXTENT OF CONTAINMENT PROVIDED FOR B1-AQUIFER BY PUMPING FROM GSF1B1
November 19, 2009
405 National Avenue and Vicinity
Mountain View, California
By: JKB
Date: 4/14/2010
Project No. 1486.002
AMEC Geomatrix
Figure 8e
RW-2(B1) (35.08)
20B1 32.72
RW-3(B1) (32.45)
RW-4(B1) (30.23)
RW-5(B1) (25.80)
147B1 26.19
21B1 24.50
RW-11(B1) (33.15)
RW-12(B1) (27.23)
RW-7(B1) (13.80)
3B1 (5.79)
RW9(B1)R (3.60)
60B1 21.56
115B1 24.98
119B1 31.83
2B1 28.51
R1B1 39.80
91B1 33.47
REG-MW2B1 27.83
88B1 (30.72)
77B1 (28.30)
24.81
32B1
REG-1B1 (21.69)
REG-MW1B1 27.38
143B1 26.11
REG-11B1 (24.56)
13B1 24.80
7B1 33.41
99B1 33.31
25B1 32.57
109B1 28.32
GSF-1B1 (-8.26)
10-B1 28.37
97B1 33.43
(31.71) RAY-1B1
92B1 33.07
105B1 31.25
R5B1 33.42
84B1 33.97
REG-2B1 19.49
14B1 28.45
112B1 34.18
8B1 31.83
R3B1 33.99
114B1 35.75
REG-4B1 (19.32)
31
30
29
28
27
26


WHISMAN ROAD
ELLIS ROAD
BAYSHORE FREEWAY HWY 101
HETCH HETCHY AQUEDUCT
0
200
Scale in Feet
EXPLANATION
Monitoring wells
Extraction wells
GSF-1B2 estimated containment area
B2-aquifer slurry wall
Buildings demolished November 2000
Target capture zone
28
Potentiometric contour line and elevation. Dashed were estimated
(31.88)
Water level measurements were not used in interpolation of potentiometeric surface
NOTES:
1. Contours based on interpolation of water level measurements collected on November 19, 2009.
2. Elevation data shown in ft. msl.
3. NM = Not Measured.
ESTIMATED EXTENT OF CONTAINMENT PROVIDED FOR B2-AQUIFER BY PUMPING FROM GSF1B1
November 19, 2009
405 National Avenue and Vicinity
Mountain View, California
By: JKB
Date: 4/14/2010
Project No. 1486.002
AMEC Geomatrix
Figure 8f

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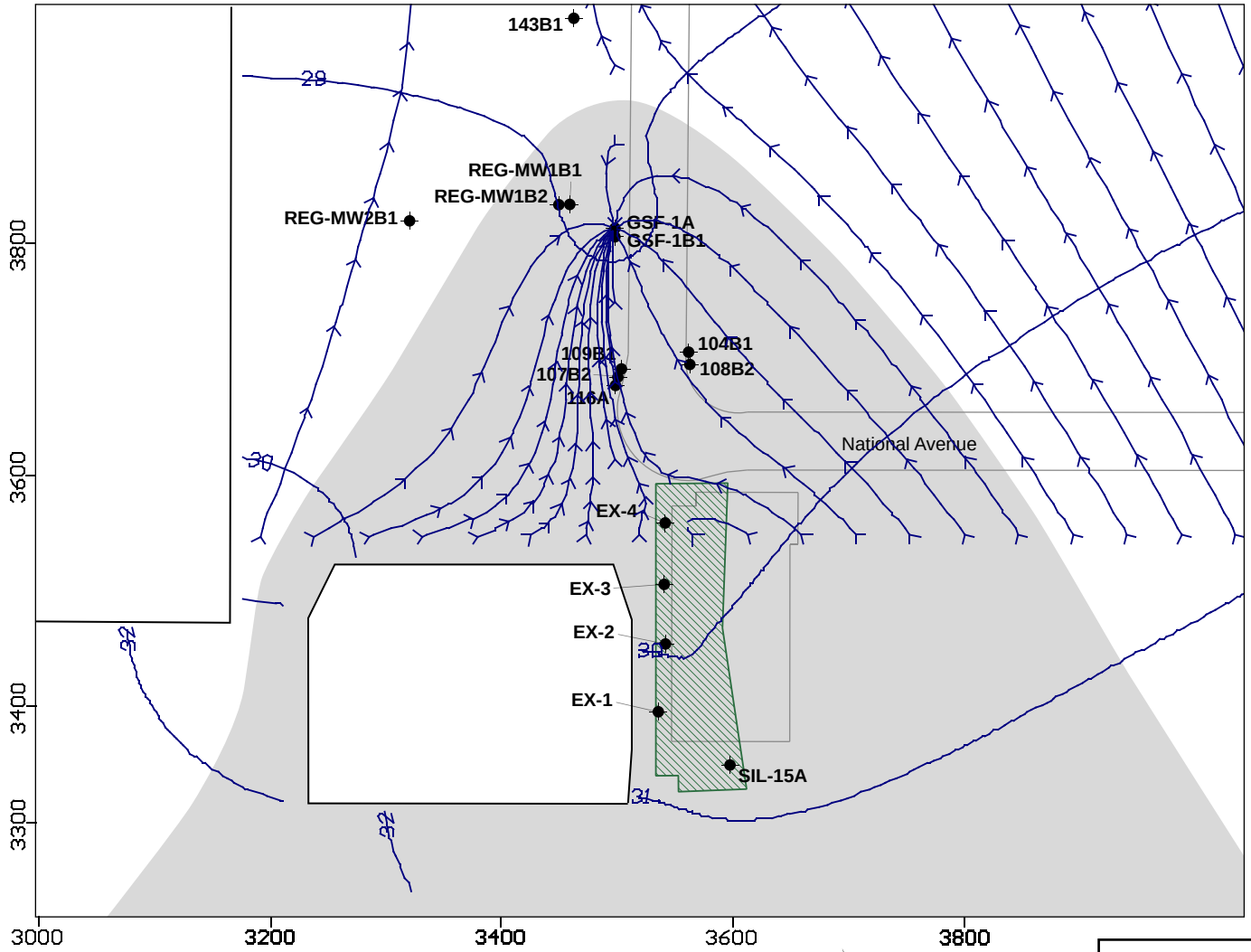

Explanation

Extent of hydraulic containment

Area of remediation

Notes:

1. Model groundwater flow pathlines originate at middle of the A-aquifer.
2. Distance between arrows on pathlines represents 6-month travel time.
3. 1-foot interval for equipotential contours.
4. Well locations approximate.

0 150 Feet
(Approximate)

ESTIMATED EXTENT OF CONTAINMENT PROVIDED BY PUMPING 5 GPM FROM GSF-1A, A-AQUIFER
405 National Avenue
Mountain View, California

By: MZ	Date: 04/02/2010	Project No. 1486.002
AMEC Geomatrix		Figure 9a

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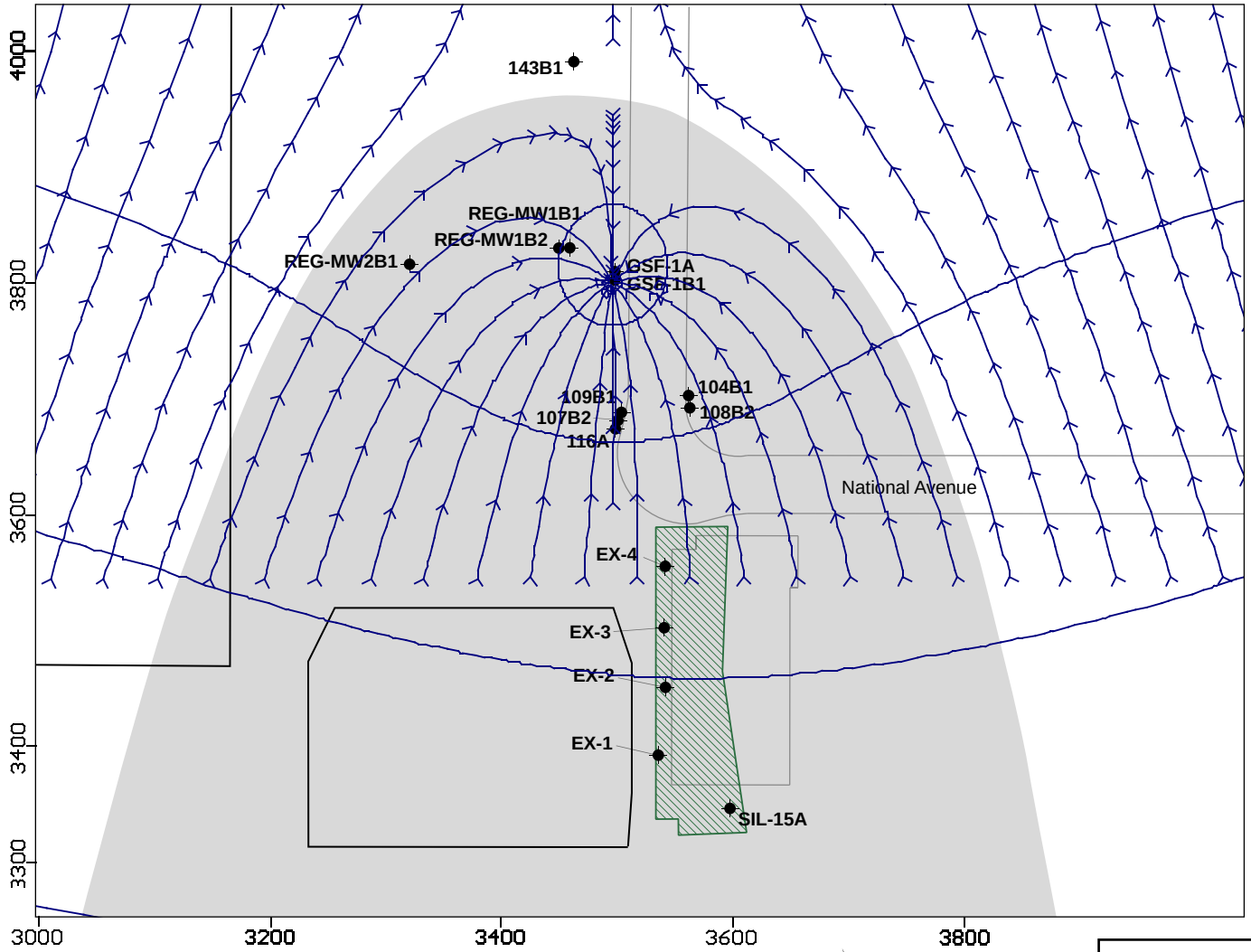

Explanation

Extent of hydraulic containment

Area of remediation

Notes:

1. Model groundwater flow pathlines originate at middle of the B1-aquifer.
2. Distance between arrows on pathlines represents 6-month travel time.
3. 1-foot interval for equipotential contours.
4. Well locations approximate.

0 150 Feet
(Approximate)

ESTIMATED EXTENT OF CONTAINMENT PROVIDED BY PUMPING 7 GPM FROM GSF-1B1, B1-AQUIFER
405 National Avenue
Mountain View, California

By: MZ	Date: 04/02/2010	Project No. 1486.002
AMEC Geomatrix		Figure 9b

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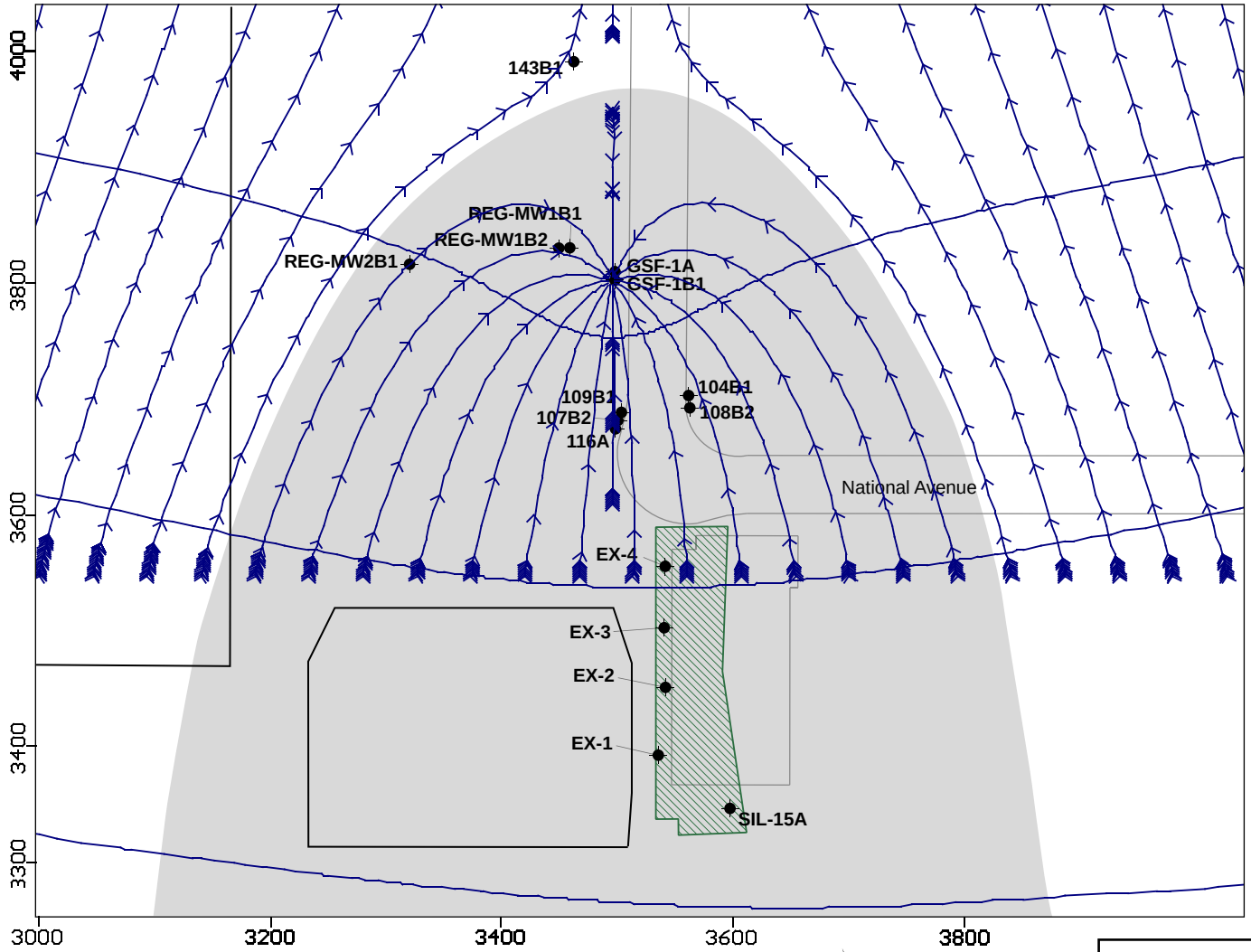

Explanation

Extent of hydraulic containment

Area of remediation

Notes:

1. Model groundwater flow pathlines originate near the base of the B2-aquifer.
2. Distance between arrows on pathlines represents 6-month travel time.
3. Closely spaced arrows at beginning of pathlines are due to slow velocity as groundwater flows upward through the aquitard between the B2- and B1-aquifers.
4. 1-foot interval for equipotential contours.
5. Well locations approximate.

0 150 Feet
(Approximate)

ESTIMATED EXTENT OF CONTAINMENT PROVIDED BY PUMPING 7 GPM FROM GSF-1B1, B2-AQUIFER
405 National Avenue
Mountain View, California

By: MZ	Date: 04/02/2010	Project No. 1486.002
AMEC Geomatrix		Figure 9c

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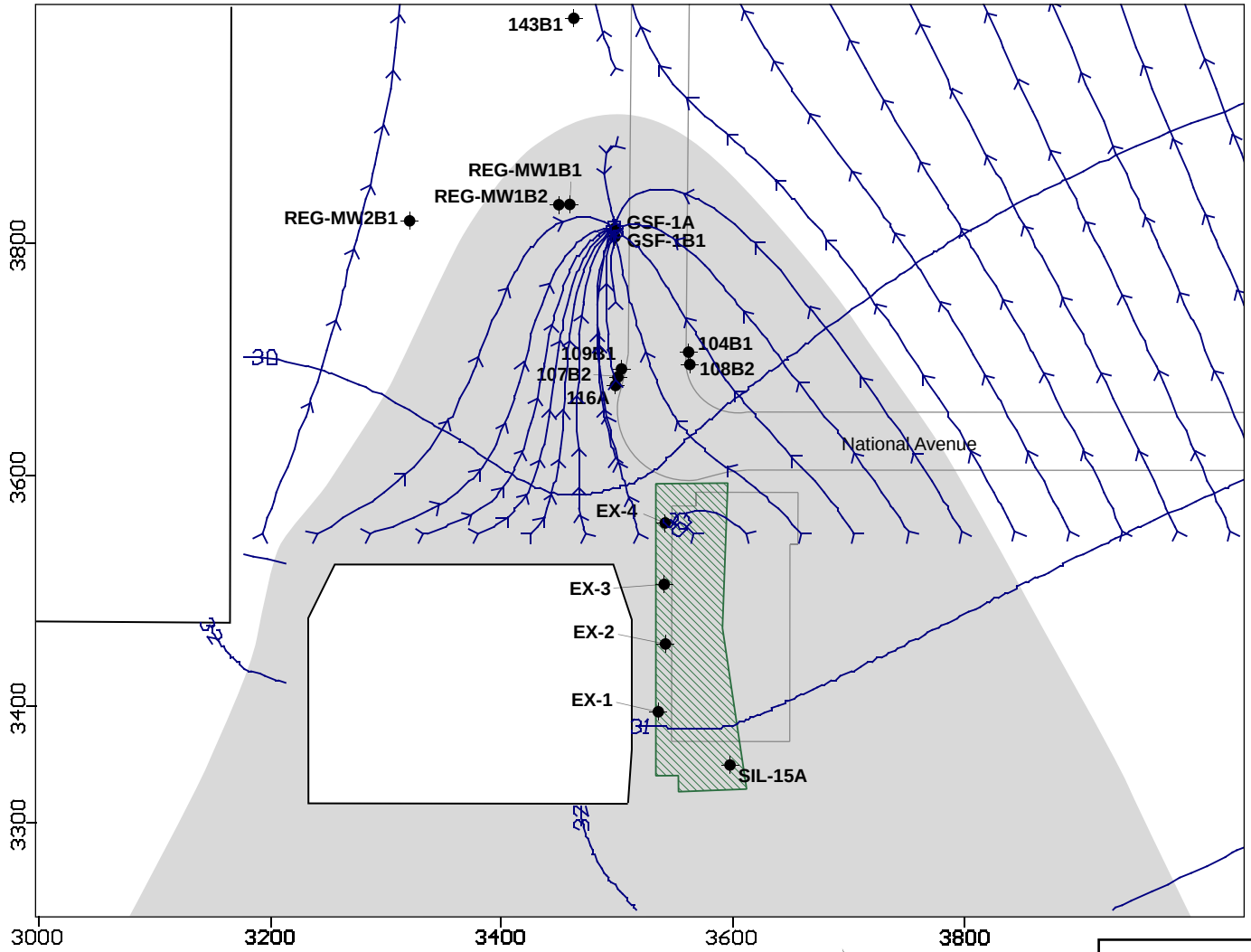

Explanation

Extent of hydraulic containment

Area of remediation

Notes:

1. Model groundwater flow pathlines originate at middle of the A-aquifer.
2. Distance between arrows on pathlines represents 6-month travel time.
3. 1-foot interval for equipotential contours.
4. Well locations approximate.

0 150 Feet
(Approximate)

ESTIMATED EXTENT OF CONTAINMENT PROVIDED BY PUMPING 5 GPM FROM GSF-1A, A-AQUIFER
405 National Avenue
Mountain View, California

By: MZ	Date: 04/02/2010	Project No. 1486.002
AMEC Geomatrix		Figure 9d

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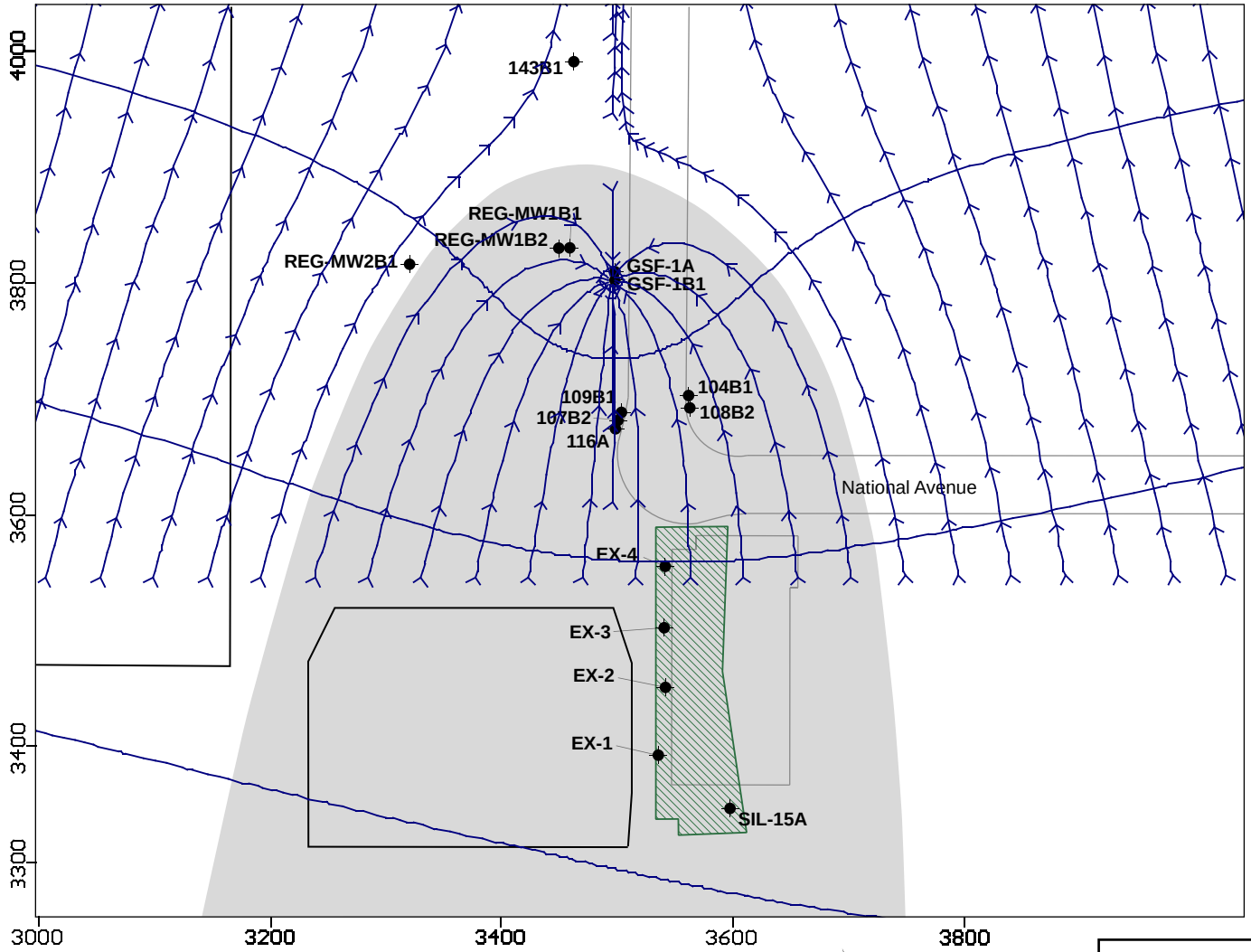

Explanation

Extent of hydraulic containment

Area of remediation

Notes:

1. Model groundwater flow pathlines originate at middle of the B1-aquifer.
2. Distance between arrows on pathlines represents 6-month travel time.
3. 1-foot interval for equipotential contours.
4. Well locations approximate.

0 150 Feet
(Approximate)

ESTIMATED EXTENT OF CONTAINMENT PROVIDED BY PUMPING 5 GPM FROM GSF-1B1, B1-AQUIFER
405 National Avenue
Mountain View, California

By: MZ	Date: 04/02/2010	Project No. 1486.002
AMEC Geomatrix		Figure 9e

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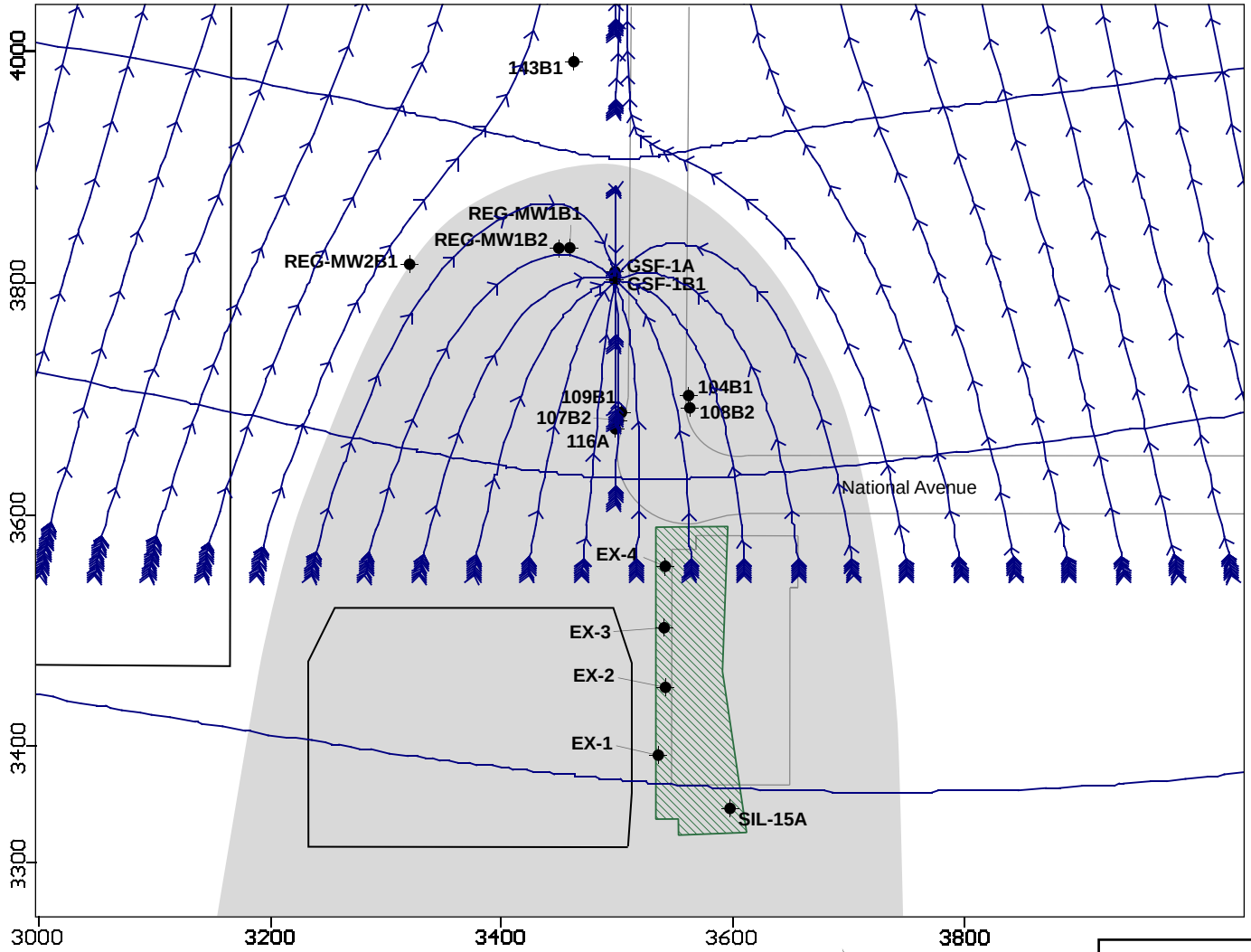

Explanation

Extent of hydraulic containment

Area of remediation

Notes:

1. Model groundwater flow pathlines originate near the base of the B2-aquifer.
2. Distance between arrows on pathlines represents 6-month travel time.
3. Closely spaced arrows at beginning of pathlines are due to slow velocity as groundwater flows upward through the aquitard between the B2- and B1-aquifers.
4. 1-foot interval for equipotential contours.
5. Well locations approximate.

N

0 150 Feet
(Approximate)

ESTIMATED EXTENT OF CONTAINMENT PROVIDED BY PUMPING 5 GPM FROM GSF-1B1, B2-AQUIFER
405 National Avenue
Mountain View, California

By: MZ	Date: 04/02/2010	Project No. 1486.002
AMEC Geomatrix		Figure 9f

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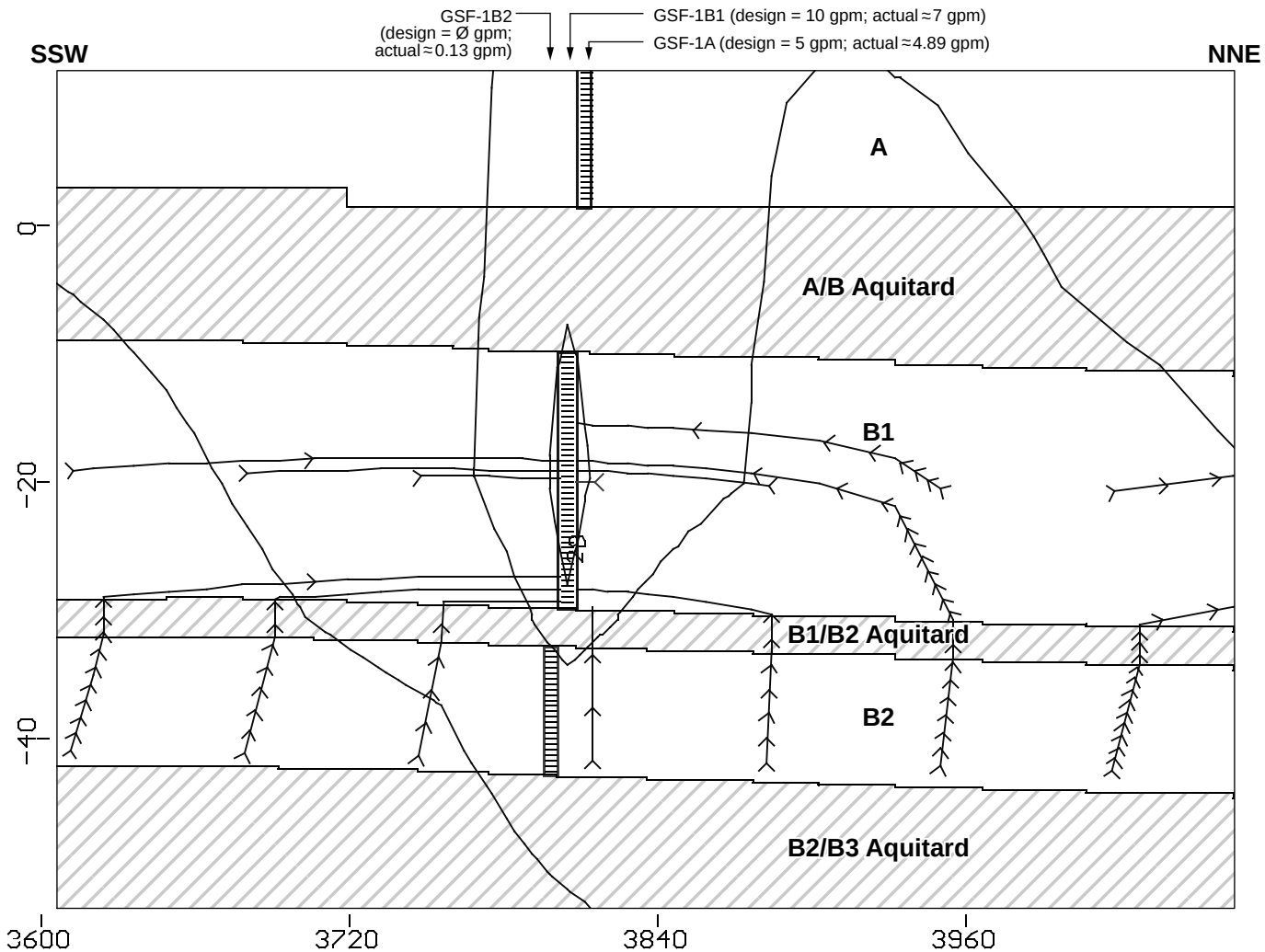
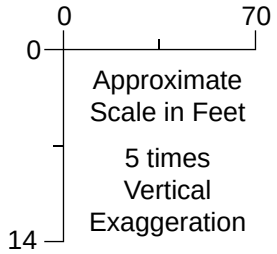


Notes:

1) Distance between arrows on pathlines represent 6-month travel time.
2) 1-foot interval for equipotential contours.
3) Equipotential contours show upward hydraulic gradient from B2 to B1.
4) Groundwater particles released near base of B2-interval are captured by extraction from GSF-1B2.
5) No pumping from GSF-1B2 for this simulation. Actual average extraction rate from GSF-1B2 is approx 0.13 gpm.



CROSS SECTIONAL VIEW OF MODEL FLOW
BETWEEN B1 AND B2-AQUIFERS
March 2009
405 National Avenue
Mountain View, California

By: JKB	Date: 04/05/2010	Project No. 1486.002
AMEC Geomatrix		Figure **10a**

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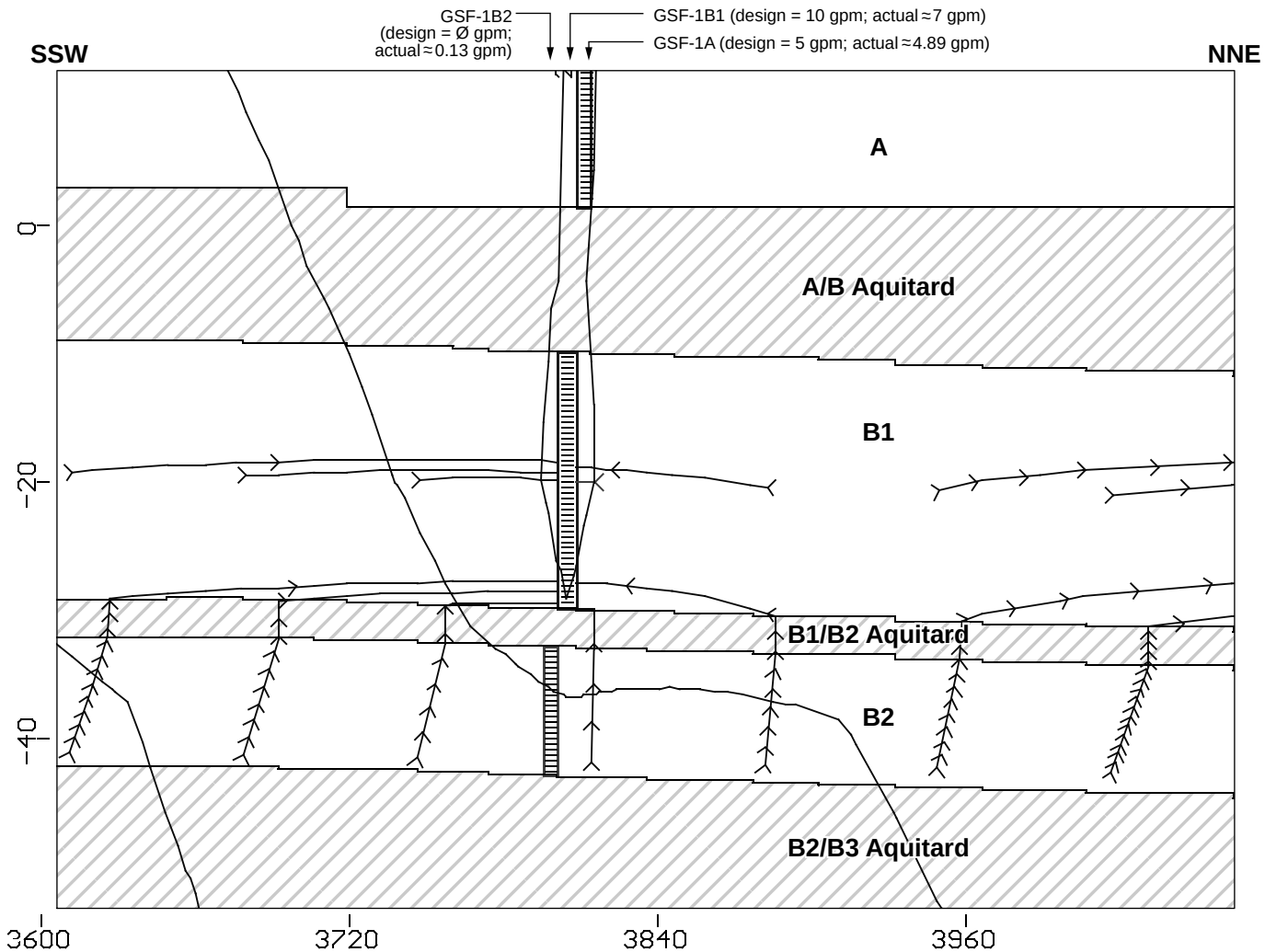
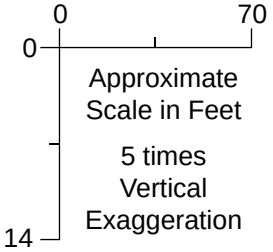


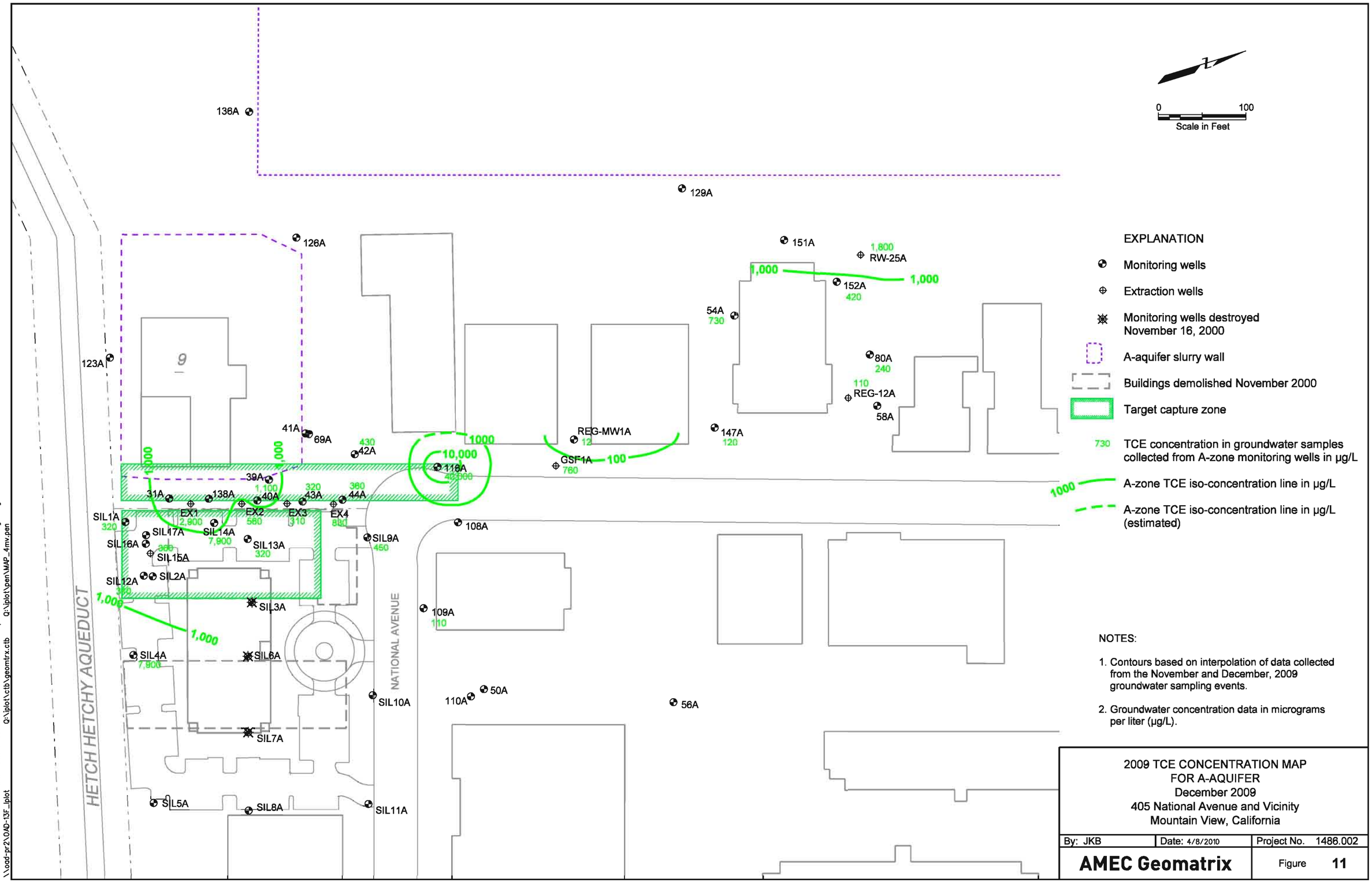
Notes:

1) Distance between arrows on pathlines represent 6-month travel time.
2) 1-foot interval for equipotential contours.
3) Equipotential contours show upward hydraulic gradient from B2 to B1.
4) Groundwater particles released near base of B2-interval are captured by extraction from GSF-1B2.
5) No pumping from GSF-1B2 for this simulation. Actual average extraction rate from GSF-1B2 is approx 0.13 gpm.

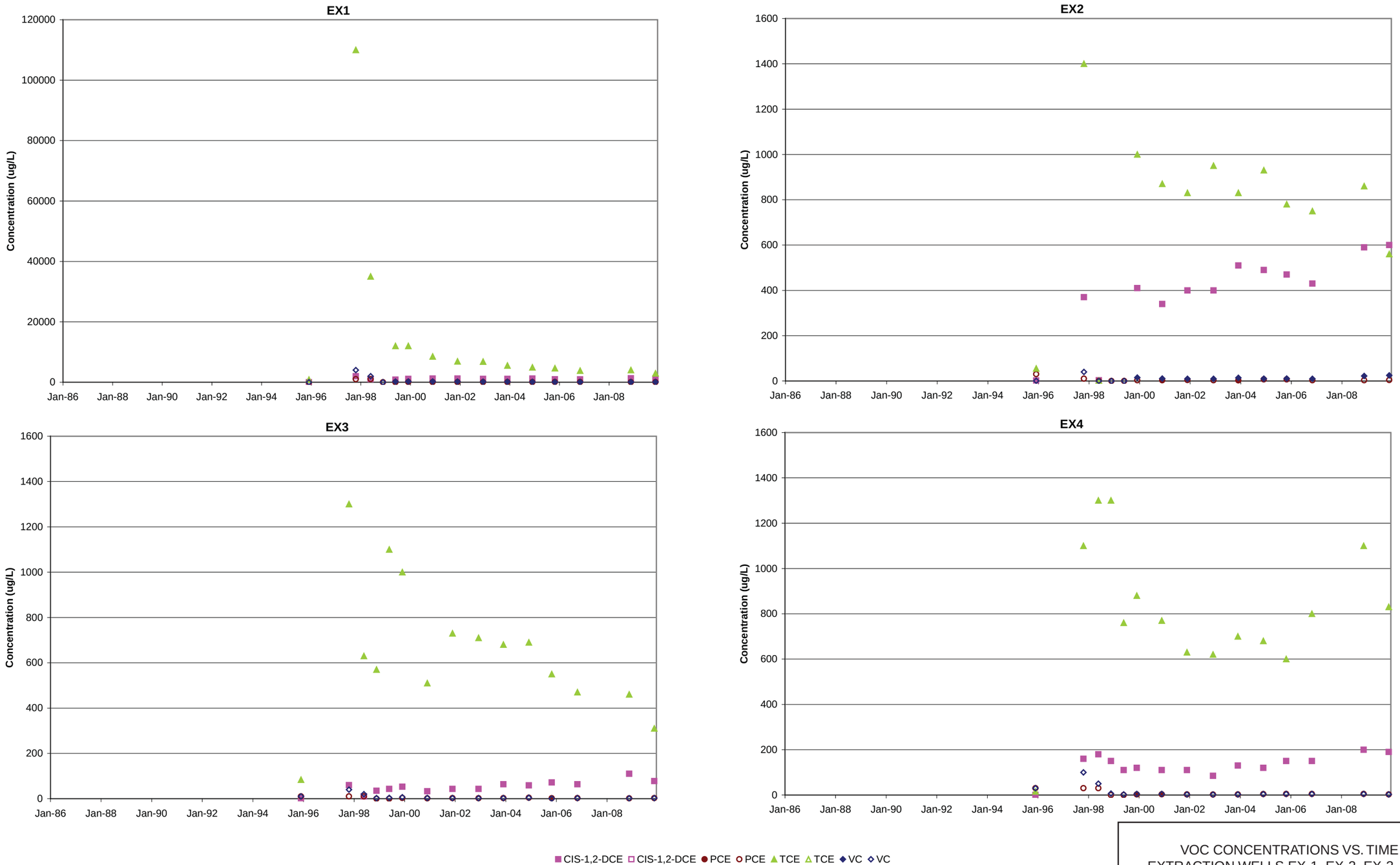


CROSS SECTIONAL VIEW OF MODEL FLOW
BETWEEN B1 AND B2-AQUIFERS
November 2009
405 National Avenue
Mountain View, California

By: JKB	Date: 04/05/2010	Project No. 1486.002
AMEC Geomatrix		Figure **10b**



steve.wessels R:\1000-1900s\1486\1486.002\1486.002cc\2009rpts\2009cr\10_0306_cr_fig_11.dgn
\\oad-pr2\OAD-13F_iplot Q:\iplot\ctb\geomtrx.ctb Q:\iplot\pen\MAP_4mv.pen



Notes:
1. Y-axis on different scales.
2. Open symbol means the consitutent was not detected at or above the reporting limit (See Table 6).
3. Closed symbol means the consitutent was detected at or above the reporting limit (See Table 6).
4. There is no 2007 data for these wells due to operational suspension of GETS during November-December 2007 when the sampling event occurred.

VOC CONCENTRATIONS VS. TIME
EXTRACTION WELLS EX-1, EX-2, EX-3, EX-4
405 National Avenue
Mountain View, California

By: JKB	Date: 03/22/2010	Project No. 1486.002
AMEC Geomatrix		Figure 12a

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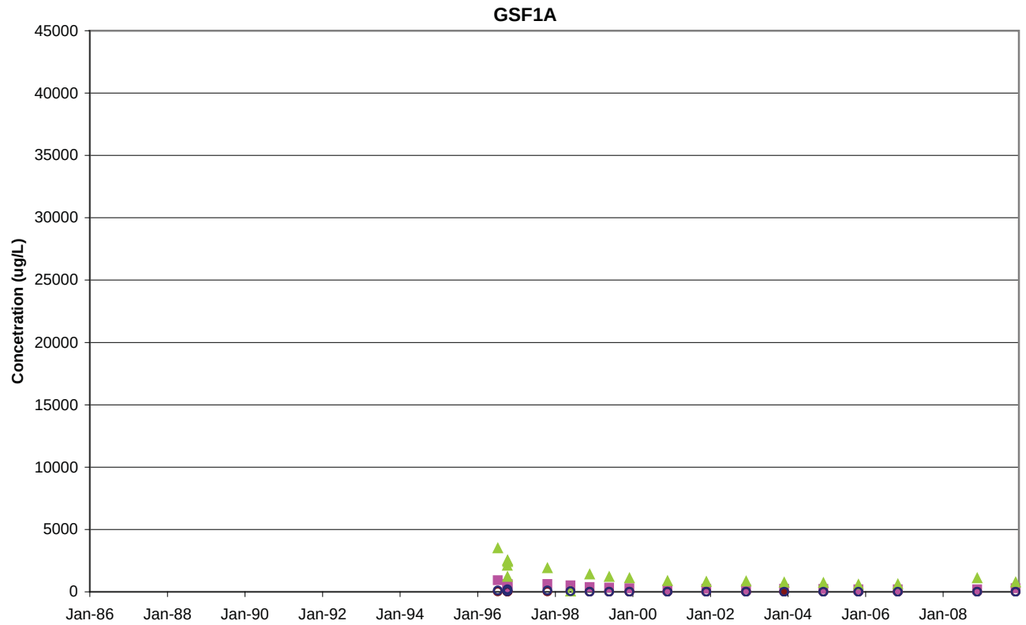

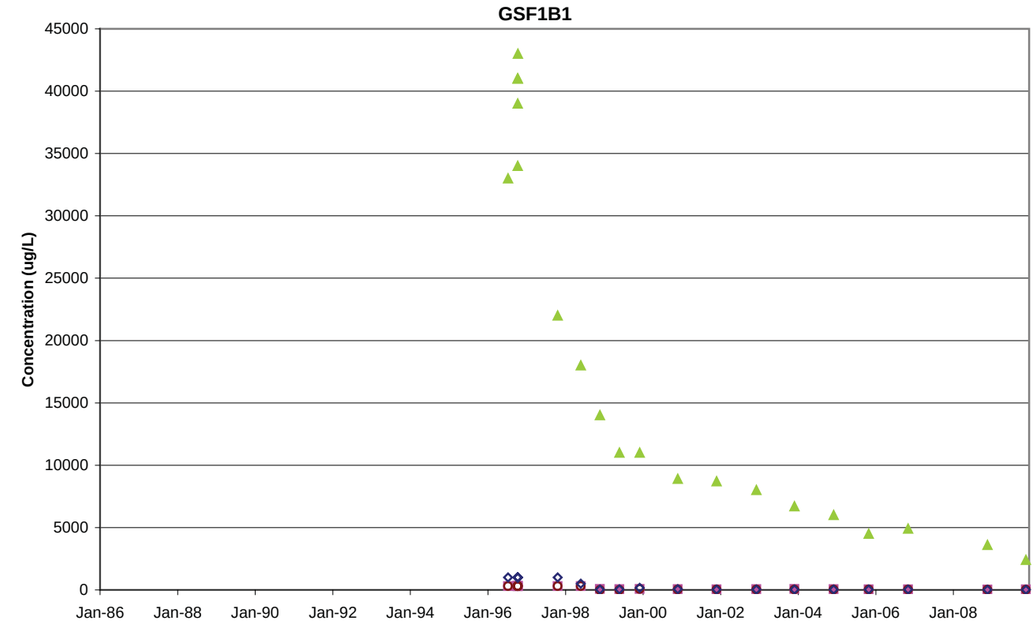

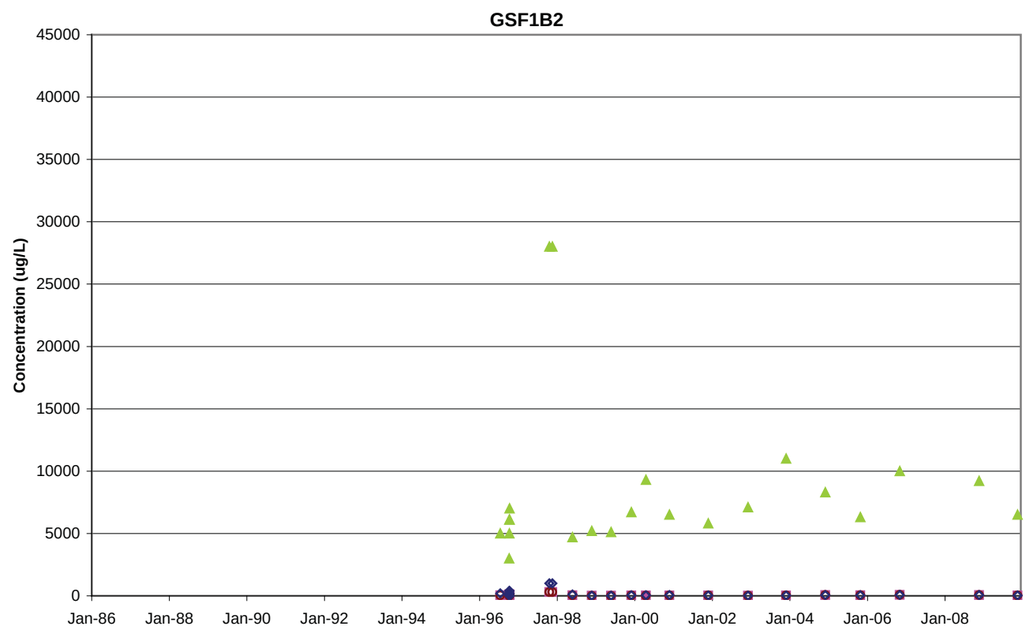

CIS-1,2-DCE CIS-1,2-DCE PCE PCE TCE TCE VC VC

Notes:
1. Y-axis on different scales.
2. Open symbol means the consitutent was not detected at or above the reporting limit (See Table 6).
3. Closed symbol means the consitutent was detected at or above the reporting limit (See Table 6).
4. There is no 2007 data for these wells due to operational suspension of GETS during November-December 2007 when the sampling event occurred.

VOC CONCENTRATIONS VS. TIME
EXTRACTION WELLS GSF-1A, GSF-1B1, GSF-1B2, AND SIL-15A
405 National Avenue
Mountain View, California

By: JKB	Date: 03/22/2010	Project No. 1486.002
AMEC Geomatrix		Figure 12b

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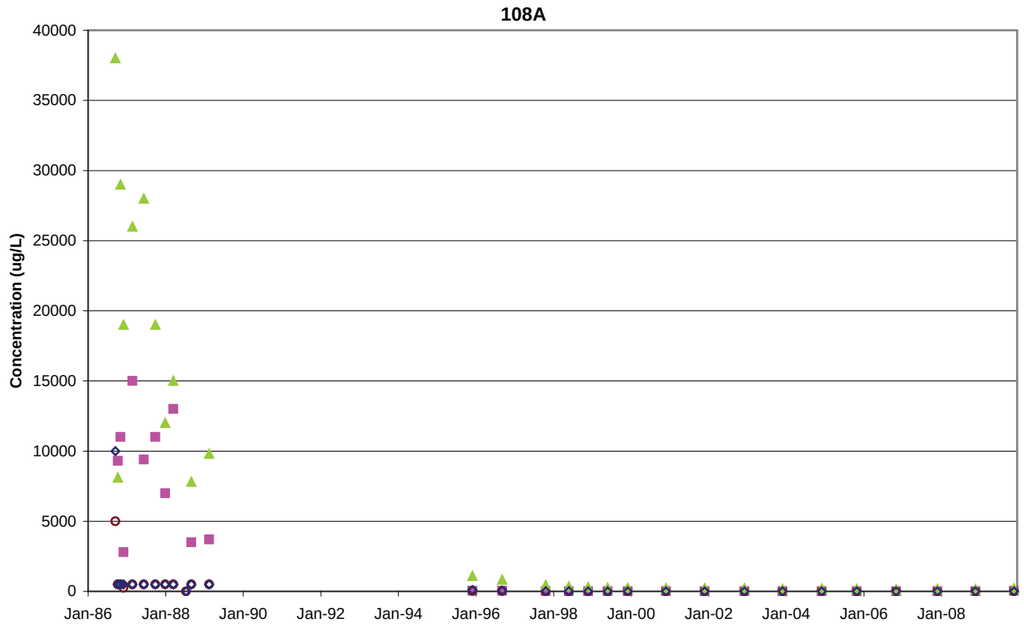

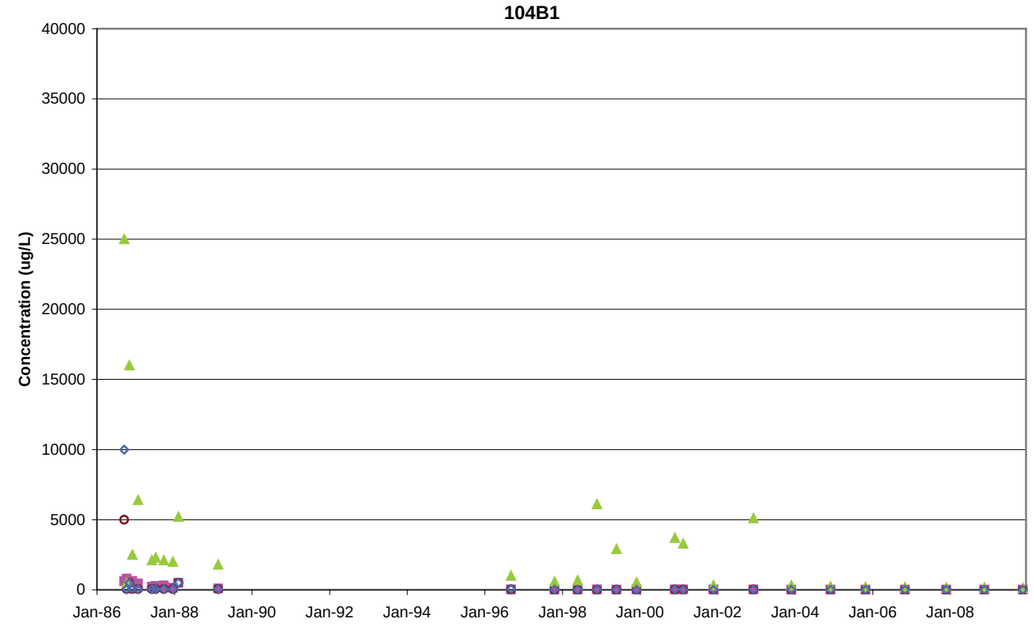

CIS-1,2-DCE CIS-1,2-DCE PCE PCE TCE TCE VC VC

Notes:
1. Y-axis on different scales.
2. Open symbol means the consitutent was not detected at or above the reporting limit (See Table 6).
3. Closed symbol means the consitutent was detected at or above the reporting limit (See Table 6).
4. Well 108B2 was approved by the Environmental Protection Agency (E.P.A.) in 2007 to be removed from the list of monitored wells. No more analytical data will be collected from this well untill further notice.

VOC CONCENTRATIONS VS. TIME
MONITORING WELLS 108A AND 104B1
405 National Avenue
Mountain View, California

By: JKB	Date: 03/22/2010	Project No. 1486.002
AMEC Geomatrix		Figure 12c

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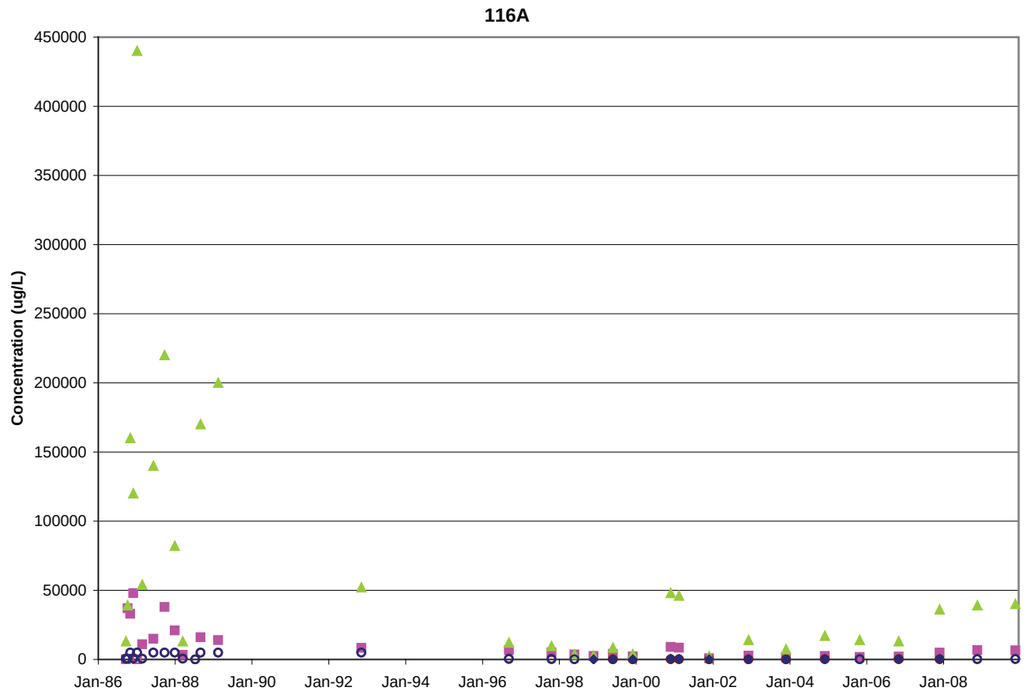

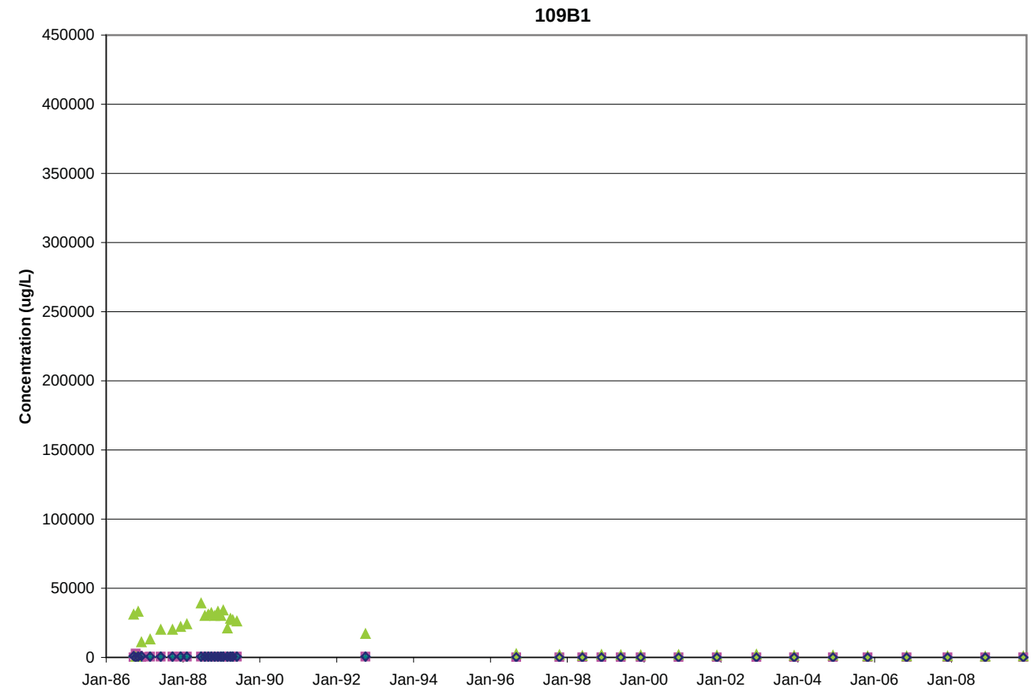

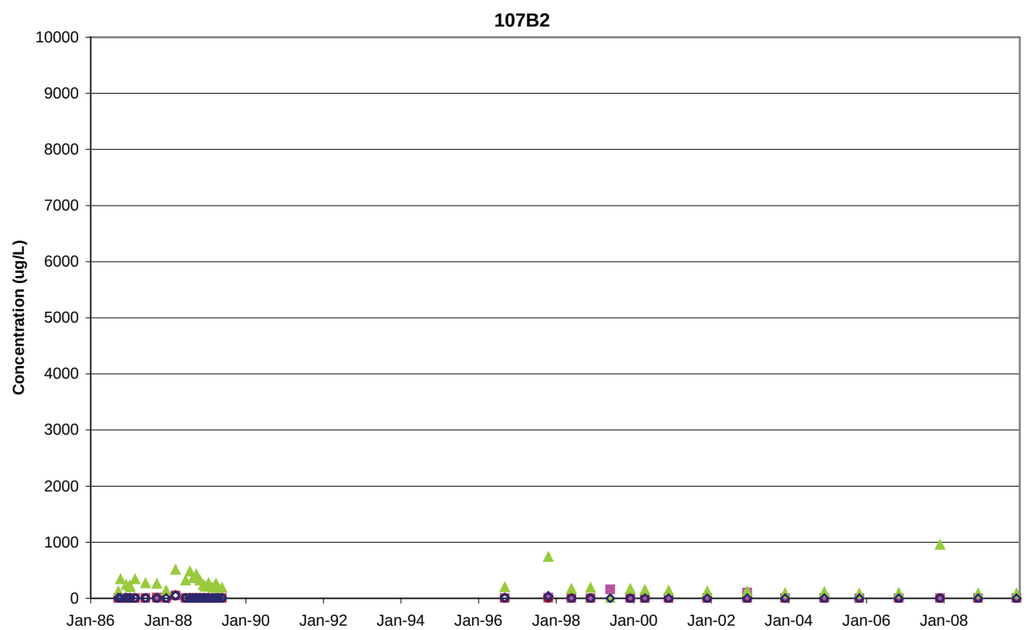

CIS-1,2-DCE CIS-1,2-DCE PCE PCE TCE TCE VC VC

Notes:
1. Y-axis on different scales.
2. Open symbol means the consitutent was not detected at or above the reporting limit (See Table 6).
3. Closed symbol means the consitutent was detected at or above the reporting limit (See Table 6).

VOC CONCENTRATIONS VS. TIME
MONITORING WELLS 116A, 109B1, and 107B2
405 National Avenue
Mountain View, California

By: JKB	Date: 04/05/2010	Project No. 1486.002
AMEC Geomatrix		Figure 12d

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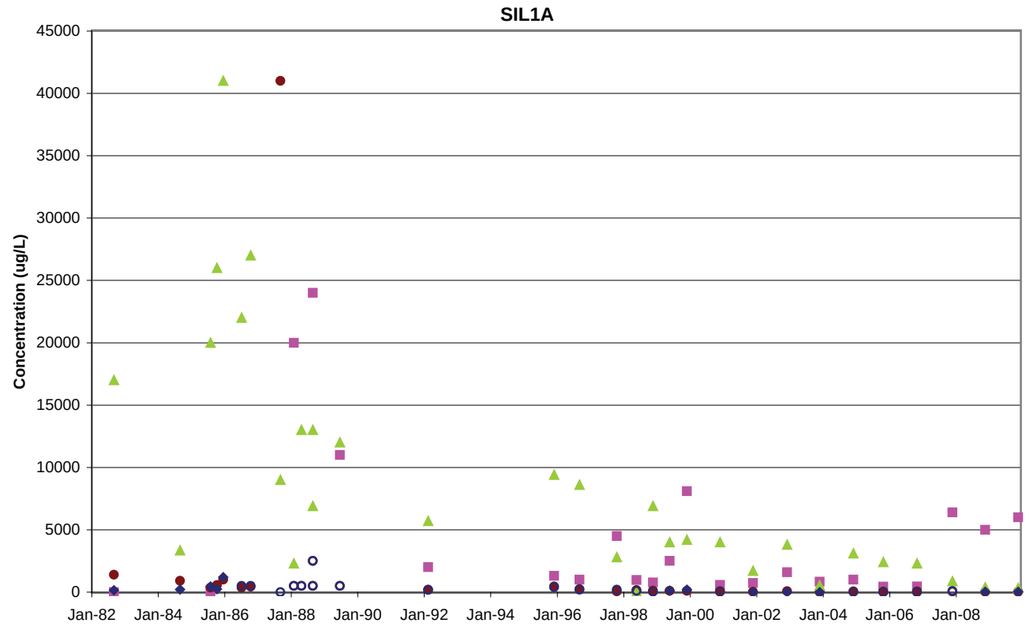

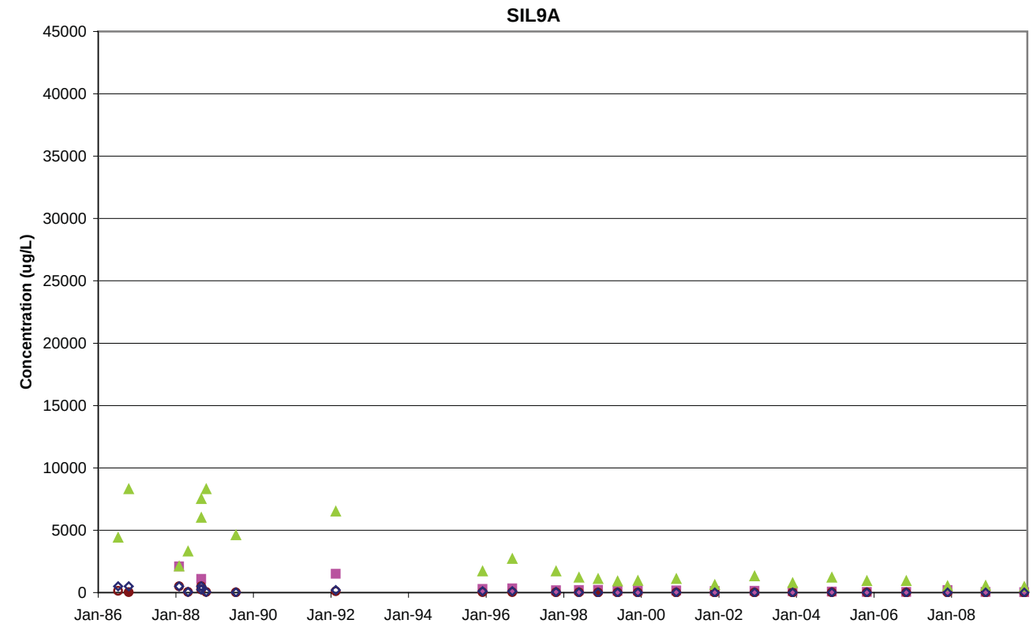

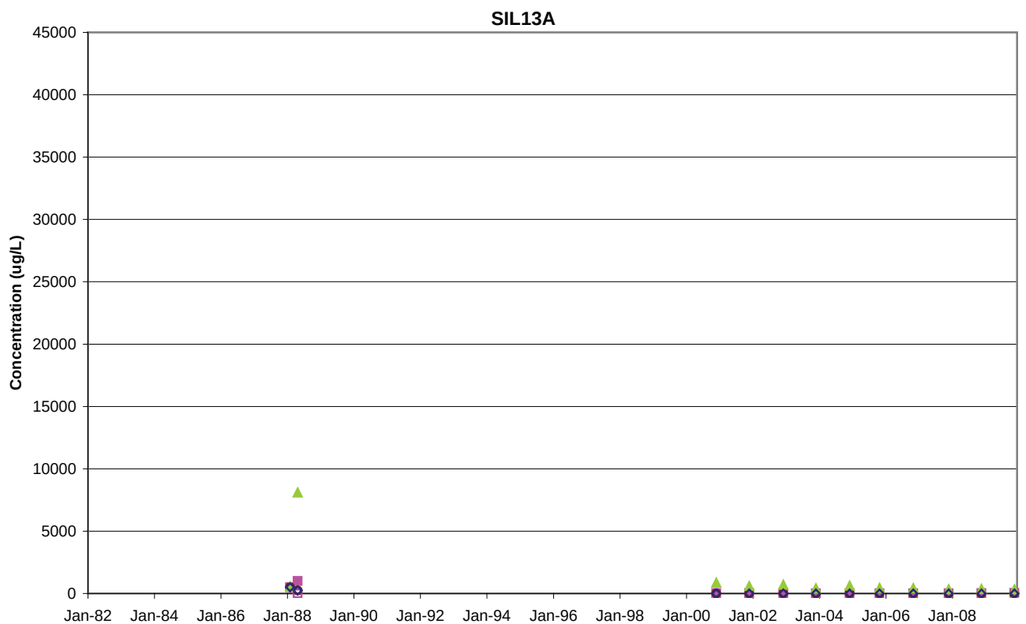

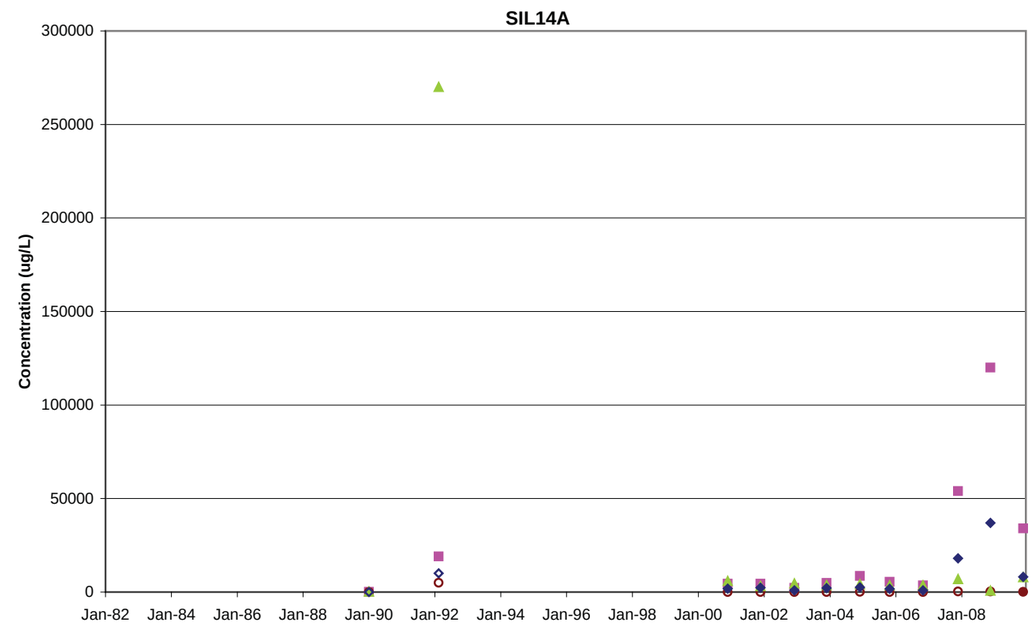

■ CIS-1,2-DCE □ CIS-1,2-DCE ● PCE ○ PCE ▲ TCE △ TCE ◆ VC ○ VC

Notes:
1. Y-axis on different scales.
2. Open symbol means the consitutent was not detected at or above the reporting limit (See Table 6).
3. Closed symbol means the consitutent was detected at or above the reporting limit (See Table 6).

VOC CONCENTRATIONS VS. TIME
MONITORING WELLS SIL1A, SIL9A,
SIL13A, and SIL14A
405 National Avenue
Mountain View, California

By: JKB	Date: 03/30/2010	Project No. 1486.002
AMEC Geomatrix		Figure 12e

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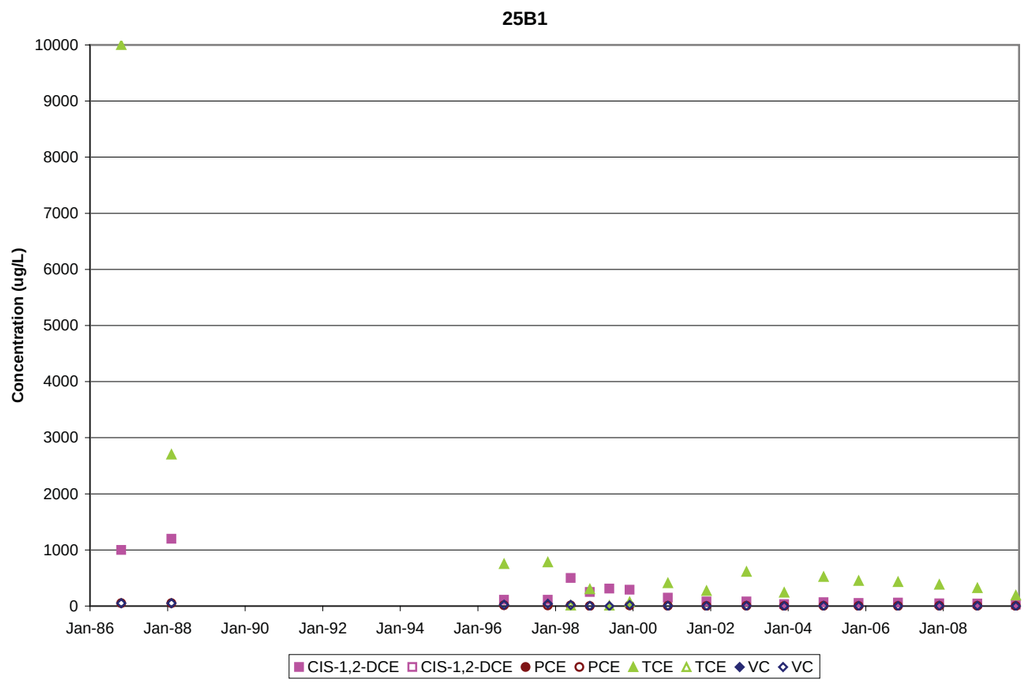

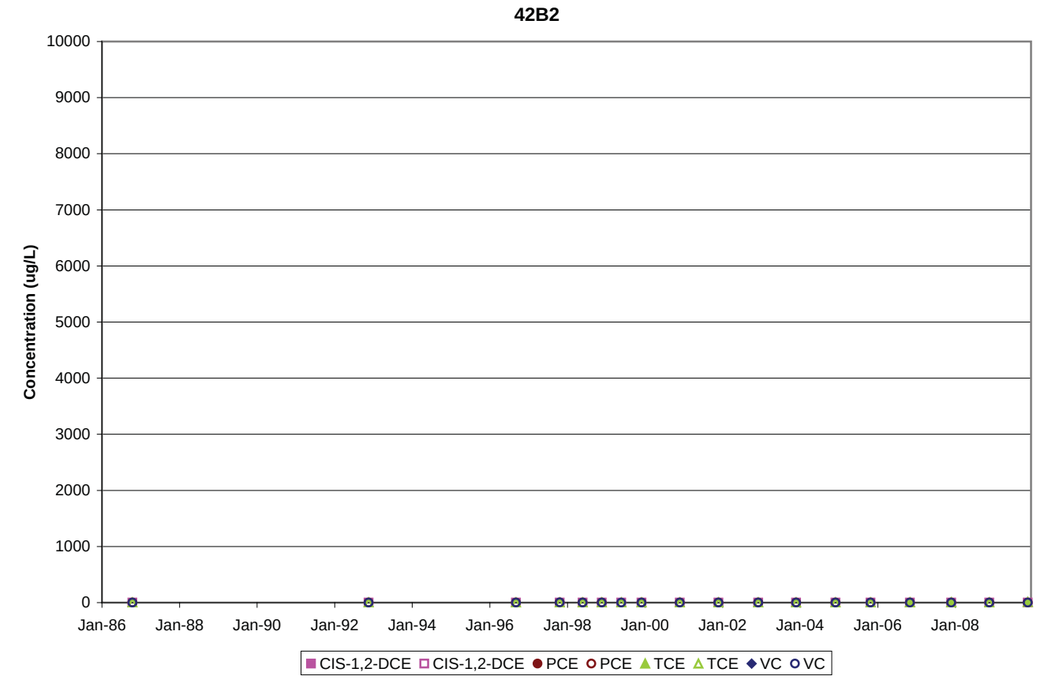

Notes:
1. Y-axis on different scales.
2. Open symbol means the consitutent was not detected at or above the reporting limit (See Table 6).
3. Closed symbol means the consitutent was detected at or above the reporting limit (See Table 6).

VOC CONCENTRATIONS VS. TIME
MONITORING WELLS 25B1 and 42B1
405 National Avenue
Mountain View, California

By: JKB	Date: 03/22/2010	Project No. 1486.002
AMEC Geomatrix		Figure 12f

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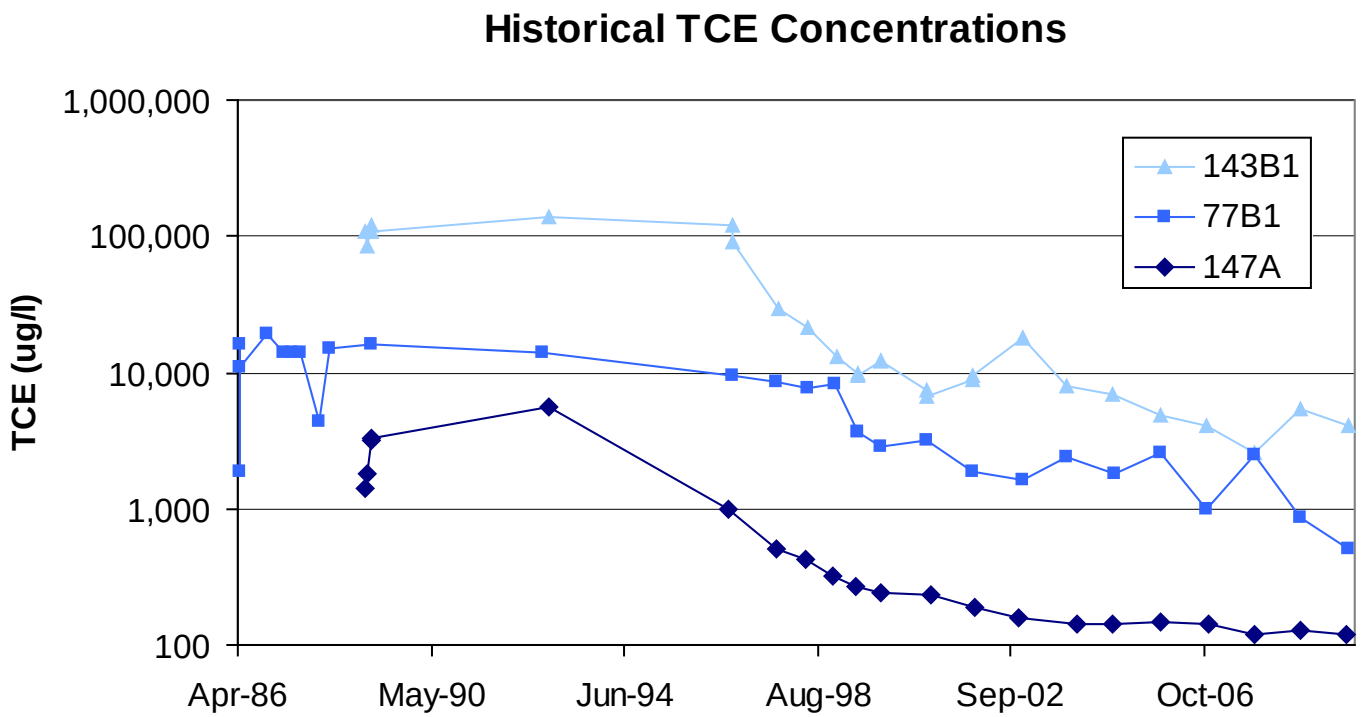

HISTORICAL TCE CONCENTRATION TRENDS FROM DOWNGRADIENT MONITORING WELLS
405 National Avenue
Mountain View, California

By: JKB	Date: 03/22/2010	Project No. 1486.002
AMEC Geomatrix		Figure 13

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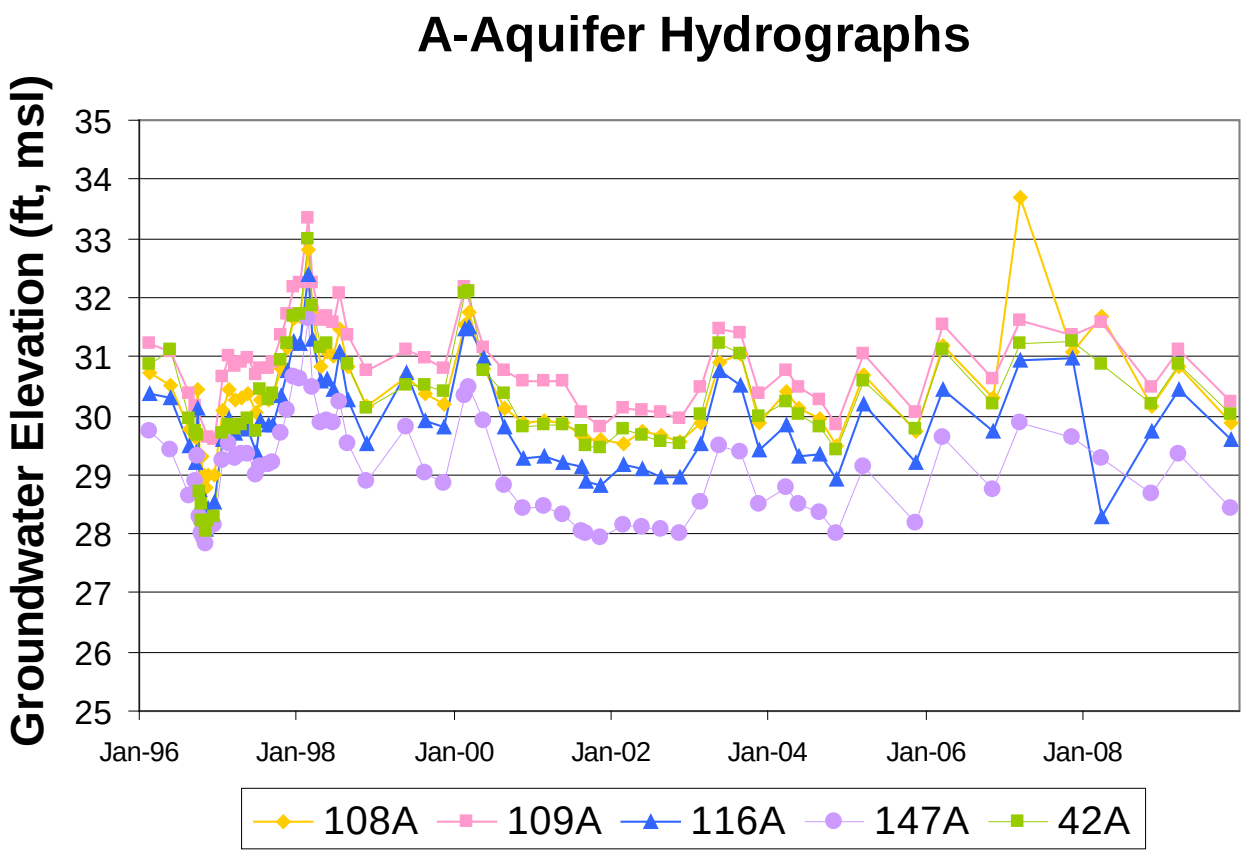
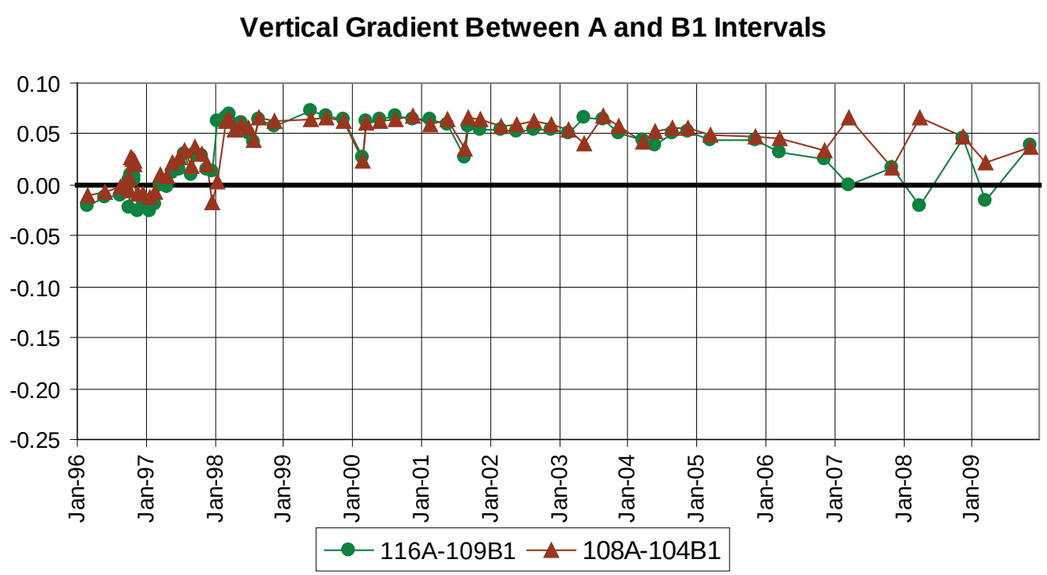
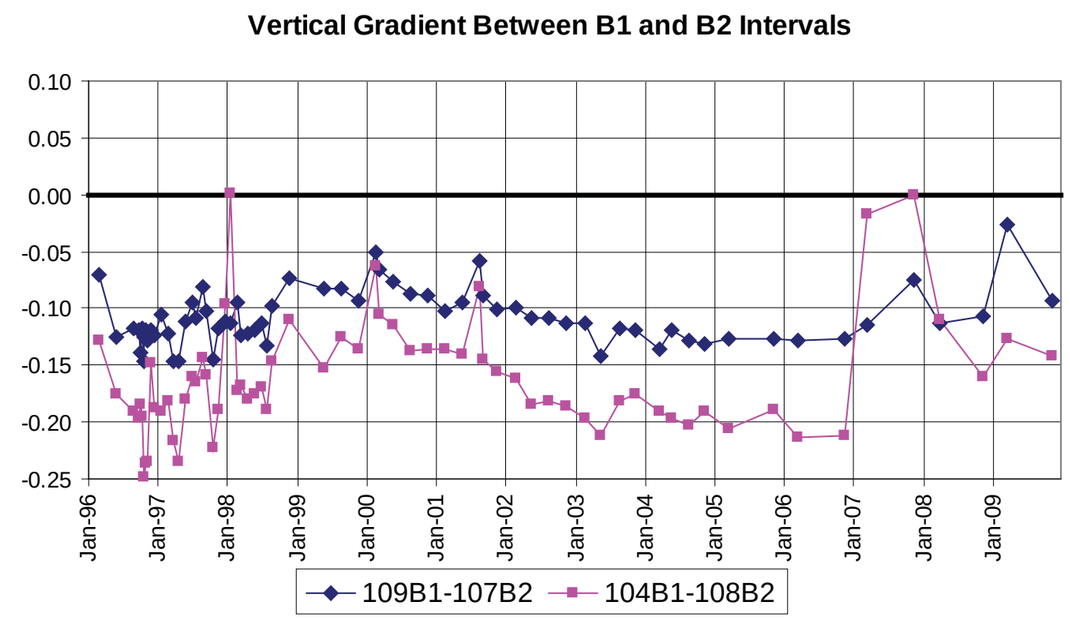


A-AQUIFER HYDROGRAPHS OF SELECTED WELLS
405 National Avenue
Mountain View, California

By: JKB	Date: 03/22/2010	Project No. 1486.002
AMEC Geomatrix		Figure 14





VERTICAL GRADIENTS
BETWEEN SELECTED WELL PAIRS
405 National Avenue
Mountain View, California

By: JKB	Date: 03/23/2010	Project No. 1486.002
AMEC Geomatrix		Figure 15

R:\1000-1900s\1486\1486.002\1486.002cc\2009rpts\2009ar\10_0306_art_fig_15.ai

APPENDIX A

2009 Annual Remedy Performance Checklist

2009 Annual Report Remedy Performance Checklist

I. GENERAL SITE INFORMATION	
Facility Name: 405 National Avenue	
Facility Address, City, State: 405 National Avenue, Mountain View, California	
Checklist completion date: April 7, 2010	EPA Site ID: CAD088839105
Site Lead: ☐ Fund ☑ PRP ☐ State ☐ State Enforcement ☐ Federal Facility ☐ Other, specify:	
Site Remedy Components (Include Other Reference Documents for More Information, as appropriate): Five on-site extraction wells and three off-site extraction wells. Extracted water is pre-treated by an Ultra-Violet (UV)/Oxidation unit followed by final treatment through a shallow tray air stripper. See: Revised Combined Intermediate and Final Source Control Remedial Design (Geomatrix, 1995)	

II. CONTACTS

List important personnel associated with the Site: Name, title, phone number, e-mail address:

	Name/Title	Phone	E-mail
PRP / Facility Representative	Greg Hedger SUMCO Phoenix Corporation EHS Director	(480) 473-6603	greg.hedger@sumcousa.com
	Donald M. Clark Vishay GSI, Inc. Vice President, EHS	(919) 676-5324	donald.clark@vishay.com
PRP Contractor/ Consultant	Harold Rush AMEC Geomatrix, Inc. Project Manager	(510) 663-4234	harold.rush@amec.com
O&M Contractor	NA		
Other	NA		

2009 Annual Report Remedy Performance Checklist

III. O&M COSTS (OPTIONAL)

What is your annual O&M cost total for the reporting year?_____
Breakout your annual O&M cost total into the following categories (use either dollars or %):

- Analytical (e.g., lab costs): _____
- Labor (e.g., site maintenance, sampling):_____
- Materials (e.g., treatment chemicals): _____
- Oversight (e.g., project management): _____
- Utilities (e.g., electric, gas, phone, water):_____
- Reporting (e.g., NPDES, progress): _____
- Other (e.g., capital improvements): _____

Describe unanticipated/unusually high or low O&M costs (go to section [fill in] to recommend optimization methods):

During 2009, there were no unanticipated or unusually high or low O&M costs.

IV. ON-SITE DOCUMENTS AND RECORDS (Check all that apply)

☑ O&M Manual ☑ O&M Maintenance Logs ☑ O&M As-built drawings ☐ O&M reports
☑ Daily access/Security logs
☑ Site-Specific Health & Safety Plan ☑ Contingency/Emergency Response Plan
☐ O&M/OSHA Training Records ☐ Settlement Monument Records
☐ Gas Generation Records ☐ Groundwater monitoring records ☐ Leachate extraction records
☑ Discharge Compliance Records
☑ Air discharge permit ☑ Effluent discharge permit ☐ Waste disposal, POTW permit

Are these documents currently readily available? ☑ Yes ☐ No If no, where are records kept?

V. INSTITUTIONAL CONTROLS (as applicable)

List institutional controls called for (and from what enforcement document):

Status of their implementation:

Where are the ICs documented and/or reported?

ICs are being properly implemented and enforced? ☐ Yes ☐ No, elaborate below
ICs are adequate for site protection? ☐ Yes ☐ No, elaborate below

Additional remarks regarding ICs:

2009 Annual Report Remedy Performance Checklist

VI. SIGNIFICANT SITE EVENTS **Check all Significant Site events Since the Last Checklist that Affects or May Affect Remedy Performance**
☐ Community Issues ☐ Vandalism ☐ Maintenance Issues ☐ Other:
Please elaborate on Significant Site Events: N/A.
VII. REDEVELOPMENT
Is redevelopment on property planned☐ Yes ☑ No If yes, what is planned? Please describe below. Is redevelopment plan complete? ☐ Yes, date:_____; ☐ No ☐ Not Applicable Redevelopment proposal in progress? ☐ Yes, elaborate below ☐ No; If no, is a proposal anticipated? ☐ Yes ☐ No
☐ Is the redevelopment proposal compatible with remedy performance? ☐ Yes ☐ No Elaborate on redevelopment proposal and how it affects remedy performance:

2009 Annual Report Remedy Performance Checklist

VIII. GROUNDWATER REMEDY (reference isoconcentration, capture zone maps, trend analysis, and other documentation to support analysis)

Groundwater Quality Data

List the types of data that are available:	What is the source report?
Historical Groundwater Monitoring Tables; concentration trend plots for individual wells; isoconcentration maps; capture zone analyses and figures	2009 Annual Progress Report

☑ Contaminant trend(s) tracked during O&M (i.e., temporal analysis of groundwater contaminant trends).
☐ Groundwater data tracked with software for temporal analyses.
☐ Reviewed MNA parameters to ensure health of substrate (e.g., DO, pH, temperature), if appropriate?

Groundwater Pump & Treat Extraction Well and Treatment System Data

List the types of data that are available:	What is the source report?
Total volume extracted for reporting periods and historical; influent, midstream, and effluent concentrations; VOC mass removed; individual well and treatment system extraction rates; QA/QC	2009 Annual Progress Report and Quarterly NPDES Self Monitoring reports

☑ The system is functioning adequately.
☐ The system has been shut down for significant periods of time in the past year. Please elaborate below.

Discharge Data

List the types of data that are available:	What is the source report?
Monthly influent, midfluent, and effluent concentration data; influent and effluent temperature and pH; flow rates	2009 Annual Progress Report and Quarterly NPDES SMP Reports

☑ The system is in compliance with discharge permits.

Slurry Wall Data

List the types of data that are available: What is the source report?

Is slurry wall operating as designed? ☐ Yes ☐ No

If not, what is being done to correct the situation?

Elaborate on technical data and/or other comments

2009 Annual Report Remedy Performance Checklist

IX. AIR MONITORING/VAPOR INTRUSION PATHWAY EVALUATION (Include in Annual Progress Report and reference document)
Walk-through/Surveys: See Pathway Sampling Report for 425 National Avenue, Mountain View, California (Geomatrix, June 2004) **Air testing/monitoring conducted:** Post-renovation indoor air sampling conducted at 425 National Avenue building on September 20, 2007 and March 27, 2008.
Summary of Results: Air monitoring results from the 2007 and 2008 sampling events indicated that all first and second floor ambient air samples were below the current EPA action level of 5.0 micrograms per cubic meter ($\mu g/m^3$). **Problems Encountered:** None. **Recommendations/Next Steps:** Monitoring and/or institutional controls may be necessary in accordance with EPA's final plan to address the Indoor air pathway at the MEW Site.
Schedule: The air monitoring results for the March 2008 sampling event were submitted to EPA on May 29 and June 6, 2008.
X. REMEDY PERFORMANCE ASSESSMENT
A. Groundwater Remedies
What are the remedial goals for groundwater? ☑ Plume containment (prevent plume migration); ☑ Plume restoration (attain ROD-specific cleanup levels in aquifer); ☐ Other goals, please explain:_____ _____ Have you done a trend analysis? ☑ Yes ☐ No; If Yes, what does it show? Multiple lines of evidence indicate that the extent of hydraulic containment provided by on-site groundwater extraction meets or exceeds the target capture zones. (Refer to Annual Progress Report -2009, AMEC Geomatrix) (Is it inconclusive due to inadequate data? Are the concentrations increasing or decreasing?) Explain and provide source document reference _____ _____
If plume containment is a remedial goal, check all that apply: ☑ Plume migration is under control (explain basis below) ☐ Plume migration is not under control (explain basis below) ☐ Insufficient data to determine plume stability (explain below) (Include attachments that substantiate your answers, e.g., reference plume, trend analysis, and capture zone maps in source document)

2009 Annual Report Remedy Performance Checklist

Elaborate on basis for determining that plume containment goal is being met or not being met: See Section 2.3.2 of the Annual Progress Report - 2009.
If plume restoration is a cleanup objective, check all that apply: ☑ Progress is being made toward reaching cleanup levels (explain basis below) ☐ Progress is not being made toward reaching cleanup levels (explain basis below) ☐ Insufficient data to determine progress toward restoration goal (explain below)
Elaborate on basis for determining progress or lack of progress toward restoration goal: Plume containment, Decreasing concentration trends in both on-site and off-site monitoring wells and in down gradient regional monitoring wells (See: Annual Progress Report—2009, AMEC Geomatrix).
B. Vertical Migration
Have you done an assessment of vertical gradients? ☑ Yes ☐ No; If Yes, what does it show? (Is it inconclusive due to inadequate data? Are the concentrations increasing or decreasing? Explain and provide source document reference Concentrations are decreasing. See Section 2.3.2 of the Annual Progress Report - 2009.
C. Source Control Remedies
What are the remedial goals for source control? The Administrative Order for Remedial Design and Remedial Action, U.S. EPA Docket No. 91-4, (106 Order):EPA Region IX; Revised Combined Intermediate and Final Source Control Remedial Design, 405 National Avenue, Mountain View, California; Geomatrix (April 1995) Elaborate on basis for determining progress or lack of progress toward these goals: There is a general decreasing trend in concentrations of target constituents for the groundwater extraction and treatment system and the monitoring well network (on-site and off-site). Refer to Section 2.0 of the 2009 Annual Progress Report.

2009 Annual Report Remedy Performance Checklist

XI. PROJECTIONS
Administrative Issues Dates of next monitoring and sampling events for next annual reporting period: See Section 8.0 of 2009 Annual Progress Report.
A. Groundwater Remedies - Projections for the upcoming year and long-term (Check all that apply)
Remedy Projections for **the upcoming year (2010)** ☐ No significant changes projected. ☐ Groundwater remedy will be converted to monitored natural attenuation. Target date: ☐ Groundwater Pump & Treat will be shut down. Target date: ☐ Groundwater cleanup standards to be modified. Target date: ☐ PRP will request remedy modification. Target date of request: ☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date: ☐ Change in the number and/or types of analytes being analyzed. ☐ Increasing or ☐decreasing? Target date: ☐ Change in groundwater extraction system. Expansion or minimization (i.e., number of extraction wells and/or pumping rate)? Target date: ☑ Modification on groundwater treatment? Elaborate below. Target date: Dates To Be Determined ☐ Change in discharge location. Target date ☐ Other modification(s) anticipated: _____ Elaborate below. Target date:_____
Elaborate on Remedy Projections: Modification of extraction rates in accordance with recommendations in Optimization Evaluation Report (AMEC Geomatrix, September 2008).
Remedy Projections for **the long-term** (Check all that apply) ☐ No significant changes projected. ☐ Groundwater remedy will be converted to monitored natural attenuation. Target date: ☐ Groundwater Pump & Treat will be shut down. Target date: ☐ Groundwater cleanup standards to be modified. Target date: ☐ PRP will request remedy modification. Target date of request: ☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date: ☐ Change in the number and/or types of analytes being analyzed. ☐ Increasing or ☐ decreasing? Target date: ☐ Change in groundwater extraction system. Expansion or minimization (i.e., number of extraction wells and/or pumping rate)? Target date: ☑ Modification on groundwater treatment? Elaborate below. Target date: Dates To Be Determined ☐ Change in discharge location. Target date: ☐ Other modification(s) anticipated: _____ Elaborate below. Target date:_____
Elaborate on Remedy Projections: Evaluation of alternative treatment technologies that are capable of accelerating the reduction of VOC concentrations in groundwater (See Section 6.2 of the Optimization Evaluation Report).

2009 Annual Report Remedy Performance Checklist

B. Projections – Slurry Walls (Check all that apply)
Remedy Projections for **the upcoming year** ☑ No significant changes projected. ☐ PRP will request remedy modification. Target date of request: ☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date: ☐ Other modification(s) anticipated: _____ Elaborate below. Target date:_____
Elaborate on Remedy Projections:
Remedy Projections for **the long-term** ☑ No significant changes projected. ☐ PRP will request remedy modification. Target date of request: ☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date: ☐ Other modification(s) anticipated: _____ Elaborate below. Target date:
Elaborate on Remedy Projections:
C. Projections—Other Remedial Options Being Reviewed to Enhance Cleanup Progress implementing recommendations from last report or Five-Year Review Has optimization study been implemented or scheduled? ☑ Yes; ☐No; If Yes, please elaborate. See Section 7.2 of Optimization Evaluation Report (AMEC Geomatrix, September 2008).
XII. ADMINISTRATIVE ISSUES **Check all that apply:**
☐ Explanation of Significant Differences in progress ☐ ROD Amendment in progress ☐ Site in operational and functional ("shake down") period; ☐ Notice of Intent to Delete in progress ☐ Partial site deletion in progress ☐ TI Waivers ☐ Other administrative issues: Date of Next EPA Five-Year Review: **September 30, 2014**
XII. RECOMMENDATIONS

APPENDIX B

Analytical Results Report and Chain-of-Custody Documents

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 209483
ANALYTICAL REPORT

AMEC Geomatrix, Inc. 2101 Webster Street Oakland, CA 94612	Project : 1486.002 EE Location : MEW Level : II

Sample ID	Lab ID
EFF-012109	209483-001
INF-012109	209483-002
MID-012109	209483-003
TRIP BLANK	209483-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 01/29/2009
Project Manager

Signature: _____ Date: 01/29/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**209483**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486.002 EE**
Location:	**MEW**
Request Date:	**01/22/09**
Samples Received:	**01/22/09**

This data package contains sample and QC results for four water samples, requested for the above referenced project on 01/22/09. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

CHAIN-OF-CUSTODY RECORD

209483 OAK 15152

PROJECT NAME: MEW		DATE: 1/21/09	PAGE 1 OF 1
PROJECT NUMBER: 1486.002/EE	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jennifer Bennett	LABORATORY ADDRESS:		
TURNAROUND TIME: standard			
SAMPLE SHIPMENT METHOD: Lab pick up	LABORATORY CONTACT:		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): R David Pearson

ANALYSES: 8260B/8010 MS

DATE	TIME	SAMPLE NUMBER	8260B/8010 MS	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
1/21/09	1018	EFF-012109	X	40 ml VOA	W		HCl	X		3	
	1032	INF-012109	X		W			X		3	
	1025	MID-012109	X		W			X		3	
	trip	blank	X					X		2	

RDP

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: R David Pearson	1/21/09	1400	SIGNATURE:	1/22/09	
PRINTED NAME: R David Pearson			PRINTED NAME: M. Villanueva		
COMPANY: AMEC			COMPANY: C&T		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 11

SAMPLING COMMENTS:

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # Z09483 Date Received 1/22/09 Number of coolers 1
Client AMEC Project MEW

Date Opened 1/22/09 By (print) M. VILLANUEVA (sign) [signature]
Date Logged in ✓ By (print) ✓ (sign) ✓

1. Did cooler come with a shipping slip (airbill, etc) _____ YES (NO)
   Shipping info _____

2A. Were custody seals present? ... ☑ YES (circle) on cooler on samples ☐ NO
   How many 1 Name UNBREAKABLE Date 1/21/09
2B. Were custody seals intact upon arrival? _____ (YES) NO N/A
3. Were custody papers dry and intact when received? _____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ (YES) NO
6. Indicate the packing in cooler: (if other, describe) _____

☐ Bubble Wrap ☑ Foam blocks ☑ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.1

☐ Samples Received on ice & cold without a temperature blank

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES (NO)
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO
10. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
11. Are sample labels present, in good condition and complete? _____ (YES) NO
12. Do the sample labels agree with custody papers? _____ (YES) NO
13. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
14. Are the samples appropriately preserved? _____ (YES) NO N/A
15. Are bubbles > 6mm absent in VOA samples? _____ YES (NO) N/A
16. Was the client contacted concerning this sample delivery? _____ YES NO
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS TB 1/2 VOA w/ BUBBLE

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	209483	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	EFF-012109	Batch#:	147260
Lab ID:	209483-001	Sampled:	01/21/09
Matrix:	Water	Received:	01/22/09
Units:	ug/L	Analyzed:	01/26/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	93	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	101	80-122

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	209483	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	INF-012109	Batch#:	147260
Lab ID:	209483-002	Sampled:	01/21/09
Matrix:	Water	Received:	01/22/09
Units:	ug/L	Analyzed:	01/26/09
Diln Fac:	33.33		

Analyte	Result	RL	MDL
Chloromethane	ND	33	6.7
Vinyl Chloride	6.5 J	17	3.3
Bromomethane	ND	33	7.8
Chloroethane	ND	33	6.7
Trichlorofluoromethane	ND	33	6.7
Freon 113	190	67	13
1,1-Dichloroethene	6.5 J	17	4.6
Methylene Chloride	ND	670	33
trans-1,2-Dichloroethene	ND	17	3.4
1,1-Dichloroethane	5.4 J	17	3.5
cis-1,2-Dichloroethene	210	17	4.2
Chloroform	ND	33	3.3
1,1,1-Trichloroethane	8.3 J	17	3.3
Carbon Tetrachloride	ND	17	3.3
1,2-Dichloroethane	ND	17	3.5
Trichloroethene	1,800	17	4.6
1,2-Dichloropropane	ND	17	3.9
Bromodichloromethane	ND	17	3.3
cis-1,3-Dichloropropene	ND	17	3.3
trans-1,3-Dichloropropene	ND	17	3.3
1,1,2-Trichloroethane	ND	17	4.4
Tetrachloroethene	6.7 J	17	4.9
Dibromochloromethane	ND	17	3.3
Chlorobenzene	ND	17	3.3
Bromoform	ND	17	6.7
1,1,2,2-Tetrachloroethane	ND	17	4.0
1,3-Dichlorobenzene	ND	17	3.9
1,4-Dichlorobenzene	ND	17	3.8
1,2-Dichlorobenzene	ND	17	3.3

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	93	80-137
Toluene-d8	100	80-120
Bromofluorobenzene	99	80-122

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	209483	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	MID-012109	Units:	ug/L
Lab ID:	209483-003	Sampled:	01/21/09
Matrix:	Water	Received:	01/22/09

Analyte	Result	RL	MDL	Diln Fac	Batch#	Analyzed
Chloromethane	ND	2.5	0.5	2.500	147260	01/26/09
Vinyl Chloride	ND	1.3	0.3	2.500	147260	01/26/09
Bromomethane	ND	2.5	0.6	2.500	147260	01/26/09
Chloroethane	ND	2.5	0.5	2.500	147260	01/26/09
Trichlorofluoromethane	ND	2.5	0.5	2.500	147260	01/26/09
Freon 113	170	10	2.0	5.000	147312	01/27/09
1,1-Dichloroethene	ND	1.3	0.3	2.500	147260	01/26/09
Methylene Chloride	ND	50	2.5	2.500	147260	01/26/09
trans-1,2-Dichloroethene	ND	1.3	0.3	2.500	147260	01/26/09
1,1-Dichloroethane	4.4	1.3	0.3	2.500	147260	01/26/09
cis-1,2-Dichloroethene	3.5	1.3	0.3	2.500	147260	01/26/09
Chloroform	0.3 J	2.5	0.3	2.500	147260	01/26/09
1,1,1-Trichloroethane	7.7	1.3	0.3	2.500	147260	01/26/09
Carbon Tetrachloride	ND	1.3	0.3	2.500	147260	01/26/09
1,2-Dichloroethane	ND	1.3	0.3	2.500	147260	01/26/09
Trichloroethene	48	1.3	0.3	2.500	147260	01/26/09
1,2-Dichloropropane	ND	1.3	0.3	2.500	147260	01/26/09
Bromodichloromethane	ND	1.3	0.3	2.500	147260	01/26/09
cis-1,3-Dichloropropene	ND	1.3	0.3	2.500	147260	01/26/09
trans-1,3-Dichloropropene	ND	1.3	0.3	2.500	147260	01/26/09
1,1,2-Trichloroethane	ND	1.3	0.3	2.500	147260	01/26/09
Tetrachloroethene	0.5 J	1.3	0.4	2.500	147260	01/26/09
Dibromochloromethane	ND	1.3	0.3	2.500	147260	01/26/09
Chlorobenzene	ND	1.3	0.3	2.500	147260	01/26/09
Bromoform	ND	1.3	0.5	2.500	147260	01/26/09
1,1,2,2-Tetrachloroethane	ND	1.3	0.3	2.500	147260	01/26/09
1,3-Dichlorobenzene	ND	1.3	0.3	2.500	147260	01/26/09
1,4-Dichlorobenzene	ND	1.3	0.3	2.500	147260	01/26/09
1,2-Dichlorobenzene	ND	1.3	0.3	2.500	147260	01/26/09

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
1,2-Dichloroethane-d4	91	80-137	2.500	147260	01/26/09
Toluene-d8	100	80-120	2.500	147260	01/26/09
Bromofluorobenzene	97	80-122	2.500	147260	01/26/09

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	209483	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	147260
Lab ID:	209483-004	Sampled:	01/21/09
Matrix:	Water	Received:	01/22/09
Units:	ug/L	Analyzed:	01/26/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	93	80-137
Toluene-d8	102	80-120
Bromofluorobenzene	98	80-122

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	209483	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	147260
Units:	ug/L	Analyzed:	01/26/09
Diln Fac:	1.000		

Type: BS Lab ID: QC480615

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	20.00	19.99	100	73-133
Trichloroethene	20.00	20.78	104	80-120
Chlorobenzene	20.00	20.12	101	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	86	80-137
Toluene-d8	100	80-120
Bromofluorobenzene	97	80-122

Type: BSD Lab ID: QC480616

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	20.00	19.41	97	73-133	3	20
Trichloroethene	20.00	20.92	105	80-120	1	20
Chlorobenzene	20.00	19.73	99	80-120	2	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	84	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	94	80-122

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	209483	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC480617	Batch#:	147260
Matrix:	Water	Analyzed:	01/26/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	90	80-137
Toluene-d8	102	80-120
Bromofluorobenzene	97	80-122

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	209483	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC480832	Batch#:	147312
Matrix:	Water	Analyzed:	01/27/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	20.00	20.32	102	73-133
Trichloroethene	20.00	21.44	107	80-120
Chlorobenzene	20.00	19.63	98	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	85	80-137
Toluene-d8	100	80-120
Bromofluorobenzene	97	80-122

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	209483	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC480833	Batch#:	147312
Matrix:	Water	Analyzed:	01/27/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	93	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	98	80-122

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	209483	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	147312
MSS Lab ID:	209499-001	Sampled:	01/21/09
Matrix:	Water	Received:	01/23/09
Units:	ug/L	Analyzed:	01/27/09
Diln Fac:	1.000		

Type: MS Lab ID: QC480862

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.1379	25.00	26.81	107	76-133
Trichloroethene	0.2614	25.00	27.65	110	74-129
Chlorobenzene	<0.1000	25.00	24.76	99	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	93	80-137
Toluene-d8	103	80-120
Bromofluorobenzene	96	80-122

Type: MSD Lab ID: QC480863

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	25.90	104	76-133	3	20
Trichloroethene	25.00	26.78	106	74-129	3	20
Chlorobenzene	25.00	24.56	98	80-120	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	88	80-137
Toluene-d8	100	80-120
Bromofluorobenzene	95	80-122

RPD= Relative Percent Difference

CHAIN-OF-CUSTODY RECORD

209483 OAK 15152

PROJECT NAME: MEW		DATE: 1/21/09	PAGE 1 OF 1
PROJECT NUMBER: 1486.002/EE	LABORATORY NAME: Curtis T Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jennifer Bennett	LABORATORY ADDRESS:		
TURNAROUND TIME: standard			
SAMPLE SHIPMENT METHOD: Lab pick up	LABORATORY CONTACT:		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): R David Pearson

ANALYSES: 8260B/8010 (mg)

DATE	TIME	SAMPLE NUMBER	8260B/8010 (mg)	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
1/21/09	1018	EFF-012109	X	40 ml VOA	W		HCl	X		3	
	1032	INF-012109	X		W			X		3	
	1025	MID-012109	X		W			X		3	
	trip	blank	X		W			X		2	

RDP

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: R David Pearson	1/21/09	1400	SIGNATURE: [signature]	1/22/09	
PRINTED NAME: R David Pearson			PRINTED NAME: M. VILLANUEVA		
COMPANY: AMEC			COMPANY: CTT		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 11

SAMPLING COMMENTS:

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 209483 Date Received 1/22/09 Number of coolers 1
Client AMEC Project MIEW

Date Opened 1/22/09 By (print) M. VILLANUEVA (sign) [signature]
Date Logged in ✓ By (print) ✓ (sign) ✓

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
   Shipping info_____

2A. Were custody seals present? ... ☑ YES (circle) on cooler on samples ☐ NO
   How many 1 Name UNBREAKABLE Date 1/22/09
2B. Were custody seals intact upon arrival? _____ (YES) NO N/A
3. Were custody papers dry and intact when received? _____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☑ Foam blocks ☑ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.1

☐ Samples Received on ice & cold without a temperature blank

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES (NO)
   If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO
10. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
11. Are sample labels present, in good condition and complete? _____ (YES) NO
12. Do the sample labels agree with custody papers? _____ (YES) NO
13. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
14. Are the samples appropriately preserved? _____ (YES) NO N/A
15. Are bubbles > 6mm absent in VOA samples? _____ YES (NO) N/A
16. Was the client contacted concerning this sample delivery? _____ YES NO
   If YES, Who was called?_____ By_____ Date:_____

COMMENTS TB 1/2 VOA w/ BUBBLE

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 209795
ANALYTICAL REPORT

AMEC Geomatrix, Inc. 2101 Webster Street Oakland, CA 94612	Project : 1486 Location : MEW Level : II

Sample ID	Lab ID
INF-020509	209795-001
EX-5-020509	209795-002
MID-020509	209795-003
EFF-020509	209795-004
TRIP BLANK	209795-005

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 02/20/2009
Project Manager

Signature: _____ Date: 02/20/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**209795**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486**
Location:	**MEW**
Request Date:	**02/05/09**
Samples Received:	**02/05/09**

This data package contains sample and QC results for five water samples, requested for the above referenced project on 02/05/09. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

CHAIN-OF-CUSTODY RECORD

209795 OAK 15151

PROJECT NAME: MEW			DATE: 02/05/09 PAGE 1 OF 1
PROJECT NUMBER: 1486	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jennifer.Bennett@AMEC.com	LABORATORY ADDRESS: Berkeley, CA		
TURNAROUND TIME: Standard	LABORATORY CONTACT: Anna P.		GEOTRACKER REQUIRED YES (NO)
SAMPLE SHIPMENT METHOD: lab drop off	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): [signature] Ikri Ki

ANALYSES: VOCs by 8260B; 8260 LVOC

	DATE	TIME	SAMPLE NUMBER	VOCs by 8260B	8260 LVOC	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
1	02/05/09	0920	INF-020509	X		40mL VOA	W	N	HCl	Y	N	3	
2	↓	0915	EX-5-020509	X		↓	↓	↓	↓	↓	↓		
3		0910	MID-020509	X									
4		0905	EFF-020509	X									
5			TRIP BLANK (KM)	X									

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: [signature]	2/5/09	0930	SIGNATURE: [signature]	2/5/09	0930
PRINTED NAME: Tiffany Klitzke			PRINTED NAME: J.F. Bennett		
COMPANY: AMEC Geomatrix			COMPANY: AMEC Geomatrix		
SIGNATURE: [signature]	2/5/09	1620	SIGNATURE: [signature]	2/5/09	1620
PRINTED NAME: J.F. Bennett			PRINTED NAME: Anna Phyhrillo		
COMPANY: AMEC Geomatrix			COMPANY: Curtis + Tompkins		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS:

SAMPLING COMMENTS:

(1) Please use 8010 list for INF-020509, and MID-020509, and EX5-020509

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 209795 Date Received 2/5/09 Number of coolers 1
Client AMWC Project TABW

Date Opened 2/5/09 By (print) M. VILLANUEVA (sign) [illegible]
Date Logged in ✓ By (print) ✓ (sign) ✓

1. Did cooler come with a shipping slip (airbill, etc) _____ YES ~~NO~~
   Shipping info _____

2A. Were custody seals present? ... ☐ YES (circle) on cooler on samples ☐ ~~NO~~
   How many _____ Name _____ Date _____
2B. Were custody seals intact upon arrival? _____ YES NO ~~N/A~~
3. Were custody papers dry and intact when received? _____ ~~YES~~ NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ ~~YES~~ NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ ~~YES~~ NO
6. Indicate the packing in cooler: (if other, describe) _____

   ☑ Bubble Wrap ☐ Foam blocks ☑ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels
7. Temperature documentation:

   Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) 4.9

   ☐ Samples Received on ice & cold without a temperature blank

   ☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES ~~NO~~
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ ~~YES~~ NO
10. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
11. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
12. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
13. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
14. Are the samples appropriately preserved? _____ ~~YES~~ NO N/A
15. Are bubbles > 6mm absent in VOA samples? _____ ~~YES~~ NO N/A
16. Was the client contacted concerning this sample delivery? _____ YES NO
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____
_____
_____
_____
_____
_____
_____
_____

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	INF-020509	Batch#:	147869
Lab ID:	209795-001	Sampled:	02/05/09
Matrix:	Water	Received:	02/05/09
Units:	ug/L	Analyzed:	02/13/09
Diln Fac:	33.33		

Analyte	Result	RL
Chloromethane	ND	33
Vinyl Chloride	ND	17
Bromomethane	ND	33
Chloroethane	ND	33
Trichlorofluoromethane	ND	33
Freon 113	240	67
1,1-Dichloroethene	ND	17
Methylene Chloride	ND	670
trans-1,2-Dichloroethene	ND	17
1,1-Dichloroethane	ND	17
cis-1,2-Dichloroethene	230	17
Chloroform	ND	33
1,1,1-Trichloroethane	ND	17
Carbon Tetrachloride	ND	17
1,2-Dichloroethane	ND	17
Trichloroethene	2,100	17
1,2-Dichloropropane	ND	17
Bromodichloromethane	ND	17
cis-1,3-Dichloropropene	ND	17
trans-1,3-Dichloropropene	ND	17
1,1,2-Trichloroethane	ND	17
Tetrachloroethene	ND	17
Dibromochloromethane	ND	17
Chlorobenzene	ND	17
Bromoform	ND	17
1,1,2,2-Tetrachloroethane	ND	17
1,3-Dichlorobenzene	ND	17
1,4-Dichlorobenzene	ND	17
1,2-Dichlorobenzene	ND	17

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	102	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	107	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	EX-5-020509	Batch#:	147915
Lab ID:	209795-002	Sampled:	02/05/09
Matrix:	Water	Received:	02/05/09
Units:	ug/L	Analyzed:	02/13/09
Diln Fac:	33.33		

Analyte	Result	RL
Chloromethane	ND	33
Vinyl Chloride	ND	17
Bromomethane	ND	33
Chloroethane	ND	33
Trichlorofluoromethane	ND	33
Freon 113	240	67
1,1-Dichloroethene	ND	17
Methylene Chloride	ND	670
trans-1,2-Dichloroethene	ND	17
1,1-Dichloroethane	ND	17
cis-1,2-Dichloroethene	230	17
Chloroform	ND	33
1,1,1-Trichloroethane	ND	17
Carbon Tetrachloride	ND	17
1,2-Dichloroethane	ND	17
Trichloroethene	2,100	17
1,2-Dichloropropane	ND	17
Bromodichloromethane	ND	17
cis-1,3-Dichloropropene	ND	17
trans-1,3-Dichloropropene	ND	17
1,1,2-Trichloroethane	ND	17
Tetrachloroethene	ND	17
Dibromochloromethane	ND	17
Chlorobenzene	ND	17
Bromoform	ND	17
1,1,2,2-Tetrachloroethane	ND	17
1,3-Dichlorobenzene	ND	17
1,4-Dichlorobenzene	ND	17
1,2-Dichlorobenzene	ND	17

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	111	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	MID-020509	Batch#:	147915
Lab ID:	209795-003	Sampled:	02/05/09
Matrix:	Water	Received:	02/05/09
Units:	ug/L	Analyzed:	02/13/09
Diln Fac:	3.333		

Analyte	Result	RL
Chloromethane	ND	3.3
Vinyl Chloride	ND	1.7
Bromomethane	ND	3.3
Chloroethane	ND	3.3
Trichlorofluoromethane	ND	3.3
Freon 113	200	6.7
1,1-Dichloroethene	ND	1.7
Methylene Chloride	ND	67
trans-1,2-Dichloroethene	ND	1.7
1,1-Dichloroethane	3.9	1.7
cis-1,2-Dichloroethene	2.8	1.7
Chloroform	ND	3.3
1,1,1-Trichloroethane	8.4	1.7
Carbon Tetrachloride	ND	1.7
1,2-Dichloroethane	ND	1.7
Trichloroethene	41	1.7
1,2-Dichloropropane	ND	1.7
Bromodichloromethane	ND	1.7
cis-1,3-Dichloropropene	ND	1.7
trans-1,3-Dichloropropene	ND	1.7
1,1,2-Trichloroethane	ND	1.7
Tetrachloroethene	ND	1.7
Dibromochloromethane	ND	1.7
Chlorobenzene	ND	1.7
Bromoform	ND	1.7
1,1,2,2-Tetrachloroethane	ND	1.7
1,3-Dichlorobenzene	ND	1.7
1,4-Dichlorobenzene	ND	1.7
1,2-Dichlorobenzene	ND	1.7

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	111	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	147869
Units:	ug/L	Analyzed:	02/12/09
Diln Fac:	1.000		

Type: BS Lab ID: QC483116

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	30.18	121	73-133
Trichloroethene	25.00	29.44	118	80-120
Chlorobenzene	25.00	25.15	101	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	93	80-137
Toluene-d8	100	80-120
Bromofluorobenzene	101	80-122

Type: BSD Lab ID: QC483117

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	30.87	123	73-133	2	20
Trichloroethene	25.00	28.41	114	80-120	4	20
Chlorobenzene	25.00	24.37	97	80-120	3	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	95	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	100	80-122

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC483118	Batch#:	147869
Matrix:	Water	Analyzed:	02/12/09
Units:	ug/L		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	0.5
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	97	80-137
Toluene-d8	100	80-120
Bromofluorobenzene	108	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC483322	Batch#:	147915
Matrix:	Water	Analyzed:	02/13/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	20.00	23.46	117	73-133
Trichloroethene	20.00	22.22	111	80-120
Chlorobenzene	20.00	19.58	98	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	101	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	101	80-122

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC483323	Batch#:	147915
Matrix:	Water	Analyzed:	02/13/09
Units:	ug/L		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	0.5
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	109	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	147915
MSS Lab ID:	209835-004	Sampled:	02/05/09
Matrix:	Water	Received:	02/06/09
Units:	ug/L	Analyzed:	02/13/09
Diln Fac:	1.000		

Type: MS Lab ID: QC483386

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.1000	25.00	30.84	123	76-133
Trichloroethene	<0.1000	25.00	28.39	114	74-129
Chlorobenzene	<0.1000	25.00	25.21	101	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	102	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	101	80-122

Type: MSD Lab ID: QC483387

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	30.02	120	76-133	3	20
Trichloroethene	25.00	28.71	115	74-129	1	20
Chlorobenzene	25.00	25.01	100	80-120	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	102	80-122

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	EFF-020509	Batch#:	147869
Lab ID:	209795-004	Sampled:	02/05/09
Matrix:	Water	Received:	02/05/09
Units:	ug/L	Analyzed:	02/13/09
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	0.5
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	EFF-020509	Batch#:	147869
Lab ID:	209795-004	Sampled:	02/05/09
Matrix:	Water	Received:	02/05/09
Units:	ug/L	Analyzed:	02/13/09
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	110	80-125
1,2-Dichloroethane-d4	101	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	109	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	147914
Lab ID:	209795-005	Sampled:	02/05/09
Matrix:	Water	Received:	02/05/09
Units:	ug/L	Analyzed:	02/13/09
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	0.5
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	147914
Lab ID:	209795-005	Sampled:	02/05/09
Matrix:	Water	Received:	02/05/09
Units:	ug/L	Analyzed:	02/13/09
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-125
1,2-Dichloroethane-d4	108	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	107	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	147869
Units:	ug/L	Analyzed:	02/12/09
Diln Fac:	1.000		

Type: BS Lab ID: QC483116

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	30.18	121	73-133
Benzene	25.00	26.61	106	80-120
Trichloroethene	25.00	29.44	118	80-120
Toluene	25.00	27.97	112	80-120
Chlorobenzene	25.00	25.15	101	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-125
1,2-Dichloroethane-d4	93	80-137
Toluene-d8	100	80-120
Bromofluorobenzene	101	80-122

Type: BSD Lab ID: QC483117

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	30.87	123	73-133	2	20
Benzene	25.00	26.29	105	80-120	1	20
Trichloroethene	25.00	28.41	114	80-120	4	20
Toluene	25.00	27.72	111	80-120	1	20
Chlorobenzene	25.00	24.37	97	80-120	3	20

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-125
1,2-Dichloroethane-d4	95	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	100	80-122

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC483118	Batch#:	147869
Matrix:	Water	Analyzed:	02/12/09
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	0.5
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC483118	Batch#:	147869
Matrix:	Water	Analyzed:	02/12/09
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	0.5
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-125
1,2-Dichloroethane-d4	97	80-137
Toluene-d8	100	80-120
Bromofluorobenzene	108	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	147914
Units:	ug/L	Analyzed:	02/13/09
Diln Fac:	1.000		

Type: BS Lab ID: QC483319

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	20.00	22.47	112	73-133
Benzene	20.00	20.47	102	80-120
Trichloroethene	20.00	20.36	102	80-120
Toluene	20.00	19.96	100	80-120
Chlorobenzene	20.00	19.62	98	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-125
1,2-Dichloroethane-d4	98	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	101	80-122

Type: BSD Lab ID: QC483320

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	20.00	21.79	109	73-133	3	20
Benzene	20.00	19.99	100	80-120	2	20
Trichloroethene	20.00	19.80	99	80-120	3	20
Toluene	20.00	19.33	97	80-120	3	20
Chlorobenzene	20.00	19.62	98	80-120	0	20

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-125
1,2-Dichloroethane-d4	97	80-137
Toluene-d8	99	80-120
Bromofluorobenzene	100	80-122

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC483321	Batch#:	147914
Matrix:	Water	Analyzed:	02/13/09
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	0.5
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	209795	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC483321	Batch#:	147914
Matrix:	Water	Analyzed:	02/13/09
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	0.5
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-125
1,2-Dichloroethane-d4	100	80-137
Toluene-d8	102	80-120
Bromofluorobenzene	103	80-122

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 210652
ANALYTICAL REPORT

AMEC Geomatrix, Inc. 2101 Webster Street Oakland, CA 94612	Project : 1486.002 Location : MEW Level : II

Sample ID	Lab ID
EFF-031209	210652-001
FB-031209	210652-002
MID-031209	210652-003
INF-031209	210652-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 03/20/2009
Project Manager

Signature: _____ Date: 03/23/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**210652**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486.002**
Location:	**MEW**
Request Date:	**03/13/09**
Samples Received:	**03/13/09**

This data package contains sample and QC results for four water samples, requested for the above referenced project on 03/13/09. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

Turbidity (SM2130B):
No analytical problems were encountered.

210652

OAK 15168

CHAIN-OF-CUSTODY RECORD

PROJECT NAME: MKW			DATE: 3-12-09 PAGE 1 OF 1
PROJECT NUMBER: 1486.002	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jennifer Bennett	LABORATORY ADDRESS:		
TURNAROUND TIME: standard			
SAMPLE SHIPMENT METHOD: lab pick up	LABORATORY CONTACT:		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): R David Pearson

ANALYSES

DATE	TIME	SAMPLE NUMBER	8260B	8010 8260B List	Turbidity	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
3/12/09	1040	EFF-031209	X		X		W		HCl	X		3	
	1050	FB-031209	X				W			X		3	
	1105	MID-031209		X			W			X		3	
	1110	INF-031209		X			W			X		3	

1 2 3 4 5

RDP

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: R David Pearson	3/12/09	1500	SIGNATURE:		
PRINTED NAME: R David Pearson			PRINTED NAME: Aaron Greer		
COMPANY: AMEC			COMPANY: CTT		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 12

SAMPLING COMMENTS:

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 210652 Date Received 3/13/09 Number of coolers 1
Client Anec Project New

Date Opened 3/13/09 By (print) Zhuang (sign) [illegible]
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) _____ YES NO
   Shipping info _____

2A. Were custody seals present? ... ☑ YES (circle) on cooler on samples ☐ ~~NO~~
   How many 1 Name Unreadable Date 3/13/09
2B. Were custody seals intact upon arrival? _____ YES NO N/A
3. Were custody papers dry and intact when received? _____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ YES NO
6. Indicate the packing in cooler: (if other, describe) _____

   ☐ Bubble Wrap ☑ Foam blocks ☑ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

   Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) _____

   ☑ Samples Received on ice & cold without a temperature blank

   ☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES NO
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ YES NO
10. Are samples in the appropriate containers for indicated tests? _____ YES NO
11. Are sample labels present, in good condition and complete? _____ YES NO
12. Do the sample labels agree with custody papers? _____ YES NO
13. Was sufficient amount of sample sent for tests requested? _____ YES NO
14. Are the samples appropriately preserved? _____ YES NO N/A
15. Are bubbles > 6mm absent in VOA samples? _____ YES NO N/A
16. Was the client contacted concerning this sample delivery? _____ YES NO
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	MID-031209	Batch#:	148974
Lab ID:	210652-003	Sampled:	03/12/09
Matrix:	Water	Received:	03/13/09
Units:	ug/L	Analyzed:	03/19/09
Diln Fac:	2.000		

Analyte	Result	RL	MDL
Chloromethane	ND	2.0	
Vinyl Chloride	ND	1.0	
Bromomethane	ND	2.0	
Chloroethane	ND	2.0	
Trichlorofluoromethane	ND	2.0	
Freon 113	170	2.0	
1,1-Dichloroethene	ND	1.0	
Methylene Chloride	ND	40	2.0
trans-1,2-Dichloroethene	ND	1.0	
1,1-Dichloroethane	3.8	1.0	
cis-1,2-Dichloroethene	2.8	1.0	
Chloroform	ND	2.0	
1,1,1-Trichloroethane	4.7	1.0	
Carbon Tetrachloride	ND	1.0	
1,2-Dichloroethane	ND	1.0	
Trichloroethene	47	1.0	
1,2-Dichloropropane	ND	1.0	
Bromodichloromethane	ND	1.0	
cis-1,3-Dichloropropene	ND	1.0	
trans-1,3-Dichloropropene	ND	1.0	
1,1,2-Trichloroethane	ND	1.0	
Tetrachloroethene	ND	1.0	
Dibromochloromethane	ND	1.0	
Chlorobenzene	ND	1.0	
Bromoform	ND	1.0	
1,1,2,2-Tetrachloroethane	ND	1.0	
1,3-Dichlorobenzene	ND	1.0	
1,4-Dichlorobenzene	ND	1.0	
1,2-Dichlorobenzene	ND	1.0	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	111	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	101	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	INF-031209	Batch#:	148974
Lab ID:	210652-004	Sampled:	03/12/09
Matrix:	Water	Received:	03/13/09
Units:	ug/L	Analyzed:	03/19/09
Diln Fac:	20.00		

Analyte	Result	RL	MDL
Chloromethane	ND	20	
Vinyl Chloride	ND	10	
Bromomethane	ND	20	
Chloroethane	ND	20	
Trichlorofluoromethane	ND	20	
Freon 113	160	20	
1,1-Dichloroethene	ND	10	
Methylene Chloride	ND	400	20
trans-1,2-Dichloroethene	ND	10	
1,1-Dichloroethane	ND	10	
cis-1,2-Dichloroethene	160	10	
Chloroform	ND	20	
1,1,1-Trichloroethane	ND	10	
Carbon Tetrachloride	ND	10	
1,2-Dichloroethane	ND	10	
Trichloroethene	1,500	10	
1,2-Dichloropropane	ND	10	
Bromodichloromethane	ND	10	
cis-1,3-Dichloropropene	ND	10	
trans-1,3-Dichloropropene	ND	10	
1,1,2-Trichloroethane	ND	10	
Tetrachloroethene	ND	10	
Dibromochloromethane	ND	10	
Chlorobenzene	ND	10	
Bromoform	ND	10	
1,1,2,2-Tetrachloroethane	ND	10	
1,3-Dichlorobenzene	ND	10	
1,4-Dichlorobenzene	ND	10	
1,2-Dichlorobenzene	ND	10	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	77-137
Toluene-d8	97	80-120
Bromofluorobenzene	101	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC487751	Batch#:	148974
Matrix:	Water	Analyzed:	03/18/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	1.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	ND	10	1.0
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	0.5	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	113	77-137
Toluene-d8	97	80-120
Bromofluorobenzene	100	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	148974
Units:	ug/L	Analyzed:	03/18/09
Diln Fac:	1.000		

Type: BS Lab ID: QC487752

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	20.00	21.32	107	80-120
Trichloroethene	20.00	18.27	91	80-120
Chlorobenzene	20.00	23.49	117	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	77-137
Toluene-d8	97	80-120
Bromofluorobenzene	100	80-125

Type: BSD Lab ID: QC487753

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	20.00	20.95	105	80-120	2	35
Trichloroethene	20.00	17.92	90	80-120	2	35
Chlorobenzene	20.00	23.30	117	80-120	1	35

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	105	77-137
Toluene-d8	96	80-120
Bromofluorobenzene	100	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	108B2-031609	Batch#:	148974
MSS Lab ID:	210676-004	Sampled:	03/16/09
Matrix:	Water	Received:	03/16/09
Units:	ug/L	Analyzed:	03/19/09
Diln Fac:	7.143		

Type: MS Lab ID: QC487833

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.8616	178.6	185.1	104	40-150
Trichloroethene	478.7	178.6	632.3	86	40-150
Chlorobenzene	<0.7143	178.6	208.2	117	40-150

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	101	80-125

Type: MSD Lab ID: QC487834

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	178.6	179.8	101	40-150	3	35
Trichloroethene	178.6	600.1	68	40-150	5	35
Chlorobenzene	178.6	202.1	113	40-150	3	35

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	105	77-137
Toluene-d8	97	80-120
Bromofluorobenzene	102	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	EFF-031209	Batch#:	148972
Lab ID:	210652-001	Sampled:	03/12/09
Matrix:	Water	Received:	03/13/09
Units:	ug/L	Analyzed:	03/18/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Acetone	2.3 J	10	1.0
Freon 113	ND	5.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	ND	10	1.0
Carbon Disulfide	ND	0.5	
MTBE	ND	0.5	
trans-1,2-Dichloroethene	ND	0.5	
Vinyl Acetate	ND	10	2.0
1,1-Dichloroethane	ND	0.5	
2-Butanone	ND	10	2.0
cis-1,2-Dichloroethene	ND	0.5	
2,2-Dichloropropane	ND	0.5	
Chloroform	ND	0.5	
Bromochloromethane	ND	0.5	
1,1,1-Trichloroethane	ND	0.5	
1,1-Dichloropropene	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Benzene	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
Dibromomethane	ND	0.5	
4-Methyl-2-Pentanone	ND	10	2.0
cis-1,3-Dichloropropene	ND	0.5	
Toluene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
2-Hexanone	ND	10	2.0
1,3-Dichloropropane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
1,2-Dibromoethane	ND	0.5	
Chlorobenzene	ND	0.5	
1,1,1,2-Tetrachloroethane	ND	0.5	
Ethylbenzene	ND	0.5	
m,p-Xylenes	ND	0.5	
o-Xylene	ND	0.5	
Styrene	ND	0.5	
Bromoform	ND	1.0	
Isopropylbenzene	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,2,3-Trichloropropane	ND	0.5	
Propylbenzene	ND	0.5	
Bromobenzene	ND	0.5	
1,3,5-Trimethylbenzene	ND	0.5	

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	EFF-031209	Batch#:	148972
Lab ID:	210652-001	Sampled:	03/12/09
Matrix:	Water	Received:	03/13/09
Units:	ug/L	Analyzed:	03/18/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	0.5	
4-Chlorotoluene	ND	0.5	
tert-Butylbenzene	ND	0.5	
1,2,4-Trimethylbenzene	ND	0.5	
sec-Butylbenzene	ND	0.5	
para-Isopropyl Toluene	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
n-Butylbenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	
1,2-Dibromo-3-Chloropropane	ND	0.5	
1,2,4-Trichlorobenzene	ND	0.5	
Hexachlorobutadiene	ND	0.5	
Naphthalene	ND	2.0	0.4
1,2,3-Trichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-122
1,2-Dichloroethane-d4	109	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	99	80-125

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	FB-031209	Batch#:	148972
Lab ID:	210652-002	Sampled:	03/12/09
Matrix:	Water	Received:	03/13/09
Units:	ug/L	Analyzed:	03/18/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Acetone	ND	10	1.0
Freon 113	ND	5.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	ND	10	1.0
Carbon Disulfide	ND	0.5	
MTBE	ND	0.5	
trans-1,2-Dichloroethene	ND	0.5	
Vinyl Acetate	ND	10	2.0
1,1-Dichloroethane	ND	0.5	
2-Butanone	ND	10	2.0
cis-1,2-Dichloroethene	ND	0.5	
2,2-Dichloropropane	ND	0.5	
Chloroform	ND	0.5	
Bromochloromethane	ND	0.5	
1,1,1-Trichloroethane	ND	0.5	
1,1-Dichloropropene	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Benzene	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
Dibromomethane	ND	0.5	
4-Methyl-2-Pentanone	ND	10	2.0
cis-1,3-Dichloropropene	ND	0.5	
Toluene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
2-Hexanone	ND	10	2.0
1,3-Dichloropropane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
1,2-Dibromoethane	ND	0.5	
Chlorobenzene	ND	0.5	
1,1,1,2-Tetrachloroethane	ND	0.5	
Ethylbenzene	ND	0.5	
m,p-Xylenes	ND	0.5	
o-Xylene	ND	0.5	
Styrene	ND	0.5	
Bromoform	ND	1.0	
Isopropylbenzene	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,2,3-Trichloropropane	ND	0.5	
Propylbenzene	ND	0.5	
Bromobenzene	ND	0.5	
1,3,5-Trimethylbenzene	ND	0.5	
2-Chlorotoluene	ND	0.5	

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	FB-031209	Batch#:	148972
Lab ID:	210652-002	Sampled:	03/12/09
Matrix:	Water	Received:	03/13/09
Units:	ug/L	Analyzed:	03/18/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	0.5	
tert-Butylbenzene	ND	0.5	
1,2,4-Trimethylbenzene	ND	0.5	
sec-Butylbenzene	ND	0.5	
para-Isopropyl Toluene	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
n-Butylbenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	
1,2-Dibromo-3-Chloropropane	ND	0.5	
1,2,4-Trichlorobenzene	ND	0.5	
Hexachlorobutadiene	ND	0.5	
Naphthalene	ND	2.0	0.4
1,2,3-Trichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
Dibromofluoromethane	99	80-122
1,2-Dichloroethane-d4	110	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	101	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC487740	Batch#:	148972
Matrix:	Water	Analyzed:	03/18/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	20.00	18.31	92	80-120
Benzene	20.00	18.92	95	80-120
Trichloroethene	20.00	18.61	93	80-120
Toluene	20.00	18.33	92	80-120
Chlorobenzene	20.00	19.07	95	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-122
1,2-Dichloroethane-d4	105	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	97	80-125

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	148972
MSS Lab ID:	210655-001	Sampled:	03/13/09
Matrix:	Water	Received:	03/13/09
Units:	ug/L	Analyzed:	03/19/09
Diln Fac:	1.000		

Type: MS Lab ID: QC487742

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.1379	25.00	23.72	95	40-150
Benzene	<0.1000	25.00	23.86	95	40-150
Trichloroethene	0.1763	25.00	24.23	96	40-150
Toluene	<0.1000	25.00	23.93	96	40-150
Chlorobenzene	<0.1000	25.00	24.28	97	40-150

Surrogate	%REC	Limits
Dibromofluoromethane	98	80-122
1,2-Dichloroethane-d4	107	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	96	80-125

Type: MSD Lab ID: QC487743

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	23.70	95	40-150	0	35
Benzene	25.00	23.22	93	40-150	3	35
Trichloroethene	25.00	23.71	94	40-150	2	35
Toluene	25.00	23.42	94	40-150	2	35
Chlorobenzene	25.00	24.60	98	40-150	1	35

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-122
1,2-Dichloroethane-d4	103	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	97	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC487744	Batch#:	148972
Matrix:	Water	Analyzed:	03/18/09
Units:	ug/L		

Analyte	Result	RL	MDL
Freon 12	ND	1.0	
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Acetone	ND	10	1.0
Freon 113	ND	1.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	ND	10	1.0
Carbon Disulfide	ND	0.5	
MTBE	ND	0.5	
trans-1,2-Dichloroethene	ND	0.5	
Vinyl Acetate	ND	10	2.0
1,1-Dichloroethane	ND	0.5	
2-Butanone	ND	10	2.0
cis-1,2-Dichloroethene	ND	0.5	
2,2-Dichloropropane	ND	0.5	
Chloroform	ND	0.5	
Bromochloromethane	ND	0.5	
1,1,1-Trichloroethane	ND	0.5	
1,1-Dichloropropene	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Benzene	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
Dibromomethane	ND	0.5	
4-Methyl-2-Pentanone	ND	10	2.0
cis-1,3-Dichloropropene	ND	0.5	
Toluene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
2-Hexanone	ND	10	2.0
1,3-Dichloropropane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
1,2-Dibromoethane	ND	0.5	
Chlorobenzene	ND	0.5	
1,1,1,2-Tetrachloroethane	ND	0.5	
Ethylbenzene	ND	0.5	
m,p-Xylenes	ND	0.5	
o-Xylene	ND	0.5	
Styrene	ND	0.5	
Bromoform	ND	0.5	
Isopropylbenzene	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,2,3-Trichloropropane	ND	0.5	
Propylbenzene	ND	0.5	
Bromobenzene	ND	0.5	
1,3,5-Trimethylbenzene	ND	0.5	
2-Chlorotoluene	ND	0.5	

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC487744	Batch#:	148972
Matrix:	Water	Analyzed:	03/18/09
Units:	ug/L		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	0.5	
tert-Butylbenzene	ND	0.5	
1,2,4-Trimethylbenzene	ND	0.5	
sec-Butylbenzene	ND	0.5	
para-Isopropyl Toluene	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
n-Butylbenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	
1,2-Dibromo-3-Chloropropane	ND	0.5	
1,2,4-Trichlorobenzene	ND	0.5	
Hexachlorobutadiene	ND	0.5	
Naphthalene	ND	2.0	0.4
1,2,3-Trichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-122
1,2-Dichloroethane-d4	107	77-137
Toluene-d8	100	80-120
Bromofluorobenzene	100	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Turbidity

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Analysis:	SM2130B
Project#:	1486.002		
Analyte:	Turbidity	Diln Fac:	1.000
Field ID:	EFF-031209	Batch#:	148870
Lab ID:	210652-001	Sampled:	03/12/09 10:40
Matrix:	Water	Received:	03/13/09
Units:	NTU	Analyzed:	03/13/09 20:20

Result	RL
0.20	0.02

RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Turbidity

Lab #:	210652	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Analysis:	SM2130B
Project#:	1486.002		
Analyte:	Turbidity	Units:	NTU
Field ID:	EFF-031209	Diln Fac:	1.000
Type:	SDUP	Batch#:	148870
MSS Lab ID:	210652-001	Sampled:	03/12/09 10:40
Lab ID:	QC487316	Received:	03/13/09
Matrix:	Water	Analyzed:	03/13/09 20:20

MSS Result	Result	RL	RPD	Lim
0.2000	0.2100	0.02000	4	20

RL= Reporting Limit
RPD= Relative Percent Difference

CHAIN-OF-CUSTODY RECORD 210652 OAK 15168

PROJECT NAME: MKW		DATE: 3-12-09	PAGE 1 OF 1
PROJECT NUMBER: 1486.002	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jennifer Bennett	LABORATORY ADDRESS:		
TURNAROUND TIME: standard			
SAMPLE SHIPMENT METHOD: lab pick up	LABORATORY CONTACT:		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): R David Pearson

	DATE	TIME	SAMPLE NUMBER	8260B	8010 8260B List	Turbidity	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
1	3/12/09	1040	EFF-031209	X		X		W		HCl	X		3	
2		1050	FB-031209	X				W			X		3	
3		1105	MID-031209		X			W			X		3	
4		1110	INF-031209		X			W			X		3	
5														

RDP

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: R David Pearson	3/12/09	1500	SIGNATURE:		
PRINTED NAME: R David Pearson			PRINTED NAME: Aaron Green		
COMPANY: AMEC			COMPANY: C&T		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 12

SAMPLING COMMENTS:

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 210652 Date Received 3/13/09 Number of coolers 1
Client AMEC Project New

Date Opened 3/13/09 By (print) Zhuang (sign) [illegible]
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) _____ YES NO
   Shipping info _____

2A. Were custody seals present? ... ☑ YES (circle) on cooler on samples ~~☐ NO~~
   How many 1 Name Unreadable Date 3/13/09
2B. Were custody seals intact upon arrival? _____ YES NO N/A
3. Were custody papers dry and intact when received? _____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) _____ YES NO
6. Indicate the packing in cooler: (if other, describe) _____

   ☐ Bubble Wrap ☑ Foam blocks ☑ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

   Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) _____

   ☑ Samples Received on ice & cold without a temperature blank

   ☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES NO
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ YES NO
10. Are samples in the appropriate containers for indicated tests? _____ YES NO
11. Are sample labels present, in good condition and complete? _____ YES NO
12. Do the sample labels agree with custody papers? _____ YES NO
13. Was sufficient amount of sample sent for tests requested? _____ YES NO
14. Are the samples appropriately preserved? _____ YES NO N/A
15. Are bubbles > 6mm absent in VOA samples? _____ YES NO N/A
16. Was the client contacted concerning this sample delivery? _____ YES NO
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 211189
ANALYTICAL REPORT

AMEC Geomatrix, Inc.	Project : 1486
2101 Webster Street	Location : MEW
Oakland, CA 94612	Level : II

Sample ID	Lab ID
EFF-040609	211189-001
MID-040609	211189-002
INF-040609	211189-003
EX5-040609	211189-004
TRIP BLANK	211189-005

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 04/14/2009
Project Manager

Signature: _____ Date: 04/14/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**211189**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486**
Location:	**MEW**
Request Date:	**04/07/09**
Samples Received:	**04/07/09**

This data package contains sample and QC results for five water samples, requested for the above referenced project on 04/07/09. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
Matrix spikes were not performed for this analysis in batch 149822 due to insufficient sample amount. Matrix spikes were not performed for this analysis in batch 149823 due to insufficient sample amount. No other analytical problems were encountered.

CHAIN-OF-CUSTODY RECORD 211189 OAK 15185

PROJECT NAME: MEW		DATE: 4/6/09	PAGE 1 OF 1
PROJECT NUMBER: 1486.002 EE	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jen Bennett	LABORATORY ADDRESS:		
TURNAROUND TIME: standard			
SAMPLE SHIPMENT METHOD: Lab pick up	LABORATORY CONTACT:		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): R David Pearson

ANALYSES: * 8260B

DATE	TIME	SAMPLE NUMBER	8260B	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
4/6/09	1215	EFF-040609	X	40ml VOA	W		HCl	X		3	*8010 List
	1222	MID-040609	X		W			X		3	
	1230	INF-040609	X		W			X		3	
	1243	EXS-040609	X		W			X		3	
		trip blank	X					X		2	

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: R David Pearson	4/7/09	0750	SIGNATURE:	4/7/9	11:30
PRINTED NAME: R David Pearson			PRINTED NAME: S. Evans		
COMPANY: AMEC			COMPANY: C&T		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 14

SAMPLING COMMENTS:

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 211189 Date Received 4-7-9 Number of coolers 1
Client AMEC Project MEW

Date Opened 4-7-9 By (print) S. EVANS (sign) [illegible]
Date Logged in / By (print) / (sign) /

1. Did cooler come with a shipping slip (airbill, etc) _____ YES NO
   Shipping info _____

2A. Were custody seals present? ☒ YES (circle) on cooler on samples ☐ NO
   How many 1 Name RDAVID Date 4-7-9
2B. Were custody seals intact upon arrival? _____ YES NO N/A
3. Were custody papers dry and intact when received? _____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO
6. Indicate the packing in cooler: (if other, describe) _____

   ☒ Bubble Wrap ☒ Foam blocks ☒ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

   Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 4.3

   ☐ Samples Received on ice & cold without a temperature blank

   ☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES NO
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ YES NO
10. Are samples in the appropriate containers for indicated tests? _____ YES NO
11. Are sample labels present, in good condition and complete? _____ YES NO
12. Do the sample labels agree with custody papers? _____ YES NO
13. Was sufficient amount of sample sent for tests requested? _____ YES NO
14. Are the samples appropriately preserved? _____ YES NO N/A
15. Are bubbles > 6mm absent in VOA samples? _____ YES NO N/A
16. Was the client contacted concerning this sample delivery? _____ YES NO
    If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	211189	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	EFF-040609	Batch#:	149822
Lab ID:	211189-001	Sampled:	04/06/09
Matrix:	Water	Received:	04/07/09
Units:	ug/L	Analyzed:	04/10/09
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	112	77-137
Toluene-d8	100	80-120
Bromofluorobenzene	92	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	211189	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	MID-040609	Batch#:	149822
Lab ID:	211189-002	Sampled:	04/06/09
Matrix:	Water	Received:	04/07/09
Units:	ug/L	Analyzed:	04/10/09
Diln Fac:	2.000		

Analyte	Result	RL
Chloromethane	ND	2.0
Vinyl Chloride	ND	1.0
Bromomethane	ND	2.0
Chloroethane	ND	2.0
Trichlorofluoromethane	ND	2.0
Freon 113	120	4.0
1,1-Dichloroethene	ND	1.0
Methylene Chloride	ND	40
trans-1,2-Dichloroethene	ND	1.0
1,1-Dichloroethane	2.2	1.0
cis-1,2-Dichloroethene	ND	1.0
Chloroform	ND	2.0
1,1,1-Trichloroethane	5.6	1.0
Carbon Tetrachloride	ND	1.0
1,2-Dichloroethane	ND	1.0
Trichloroethene	ND	1.0
1,2-Dichloropropane	ND	1.0
Bromodichloromethane	ND	1.0
cis-1,3-Dichloropropene	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
1,1,2-Trichloroethane	ND	1.0
Tetrachloroethene	ND	1.0
Dibromochloromethane	ND	1.0
Chlorobenzene	ND	1.0
Bromoform	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	111	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	211189	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	INF-040609	Batch#:	149822
Lab ID:	211189-003	Sampled:	04/06/09
Matrix:	Water	Received:	04/07/09
Units:	ug/L	Analyzed:	04/10/09
Diln Fac:	20.00		

Analyte	Result	RL
Chloromethane	ND	20
Vinyl Chloride	ND	10
Bromomethane	ND	20
Chloroethane	ND	20
Trichlorofluoromethane	ND	20
Freon 113	130	40
1,1-Dichloroethene	ND	10
Methylene Chloride	ND	400
trans-1,2-Dichloroethene	ND	10
1,1-Dichloroethane	ND	10
cis-1,2-Dichloroethene	180	10
Chloroform	ND	20
1,1,1-Trichloroethane	ND	10
Carbon Tetrachloride	ND	10
1,2-Dichloroethane	ND	10
Trichloroethene	1,700	10
1,2-Dichloropropane	ND	10
Bromodichloromethane	ND	10
cis-1,3-Dichloropropene	ND	10
trans-1,3-Dichloropropene	ND	10
1,1,2-Trichloroethane	ND	10
Tetrachloroethene	11	10
Dibromochloromethane	ND	10
Chlorobenzene	ND	10
Bromoform	ND	10
1,1,2,2-Tetrachloroethane	ND	10
1,3-Dichlorobenzene	ND	10
1,4-Dichlorobenzene	ND	10
1,2-Dichlorobenzene	ND	10

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	113	77-137
Toluene-d8	100	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	211189	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	EX5-040609	Batch#:	149822
Lab ID:	211189-004	Sampled:	04/06/09
Matrix:	Water	Received:	04/07/09
Units:	ug/L	Analyzed:	04/10/09
Diln Fac:	33.33		

Analyte	Result	RL
Chloromethane	ND	33
Vinyl Chloride	ND	17
Bromomethane	ND	33
Chloroethane	ND	33
Trichlorofluoromethane	ND	33
Freon 113	140	67
1,1-Dichloroethene	ND	17
Methylene Chloride	ND	670
trans-1,2-Dichloroethene	ND	17
1,1-Dichloroethane	ND	17
cis-1,2-Dichloroethene	160	17
Chloroform	ND	33
1,1,1-Trichloroethane	ND	17
Carbon Tetrachloride	ND	17
1,2-Dichloroethane	ND	17
Trichloroethene	2,200	17
1,2-Dichloropropane	ND	17
Bromodichloromethane	ND	17
cis-1,3-Dichloropropene	ND	17
trans-1,3-Dichloropropene	ND	17
1,1,2-Trichloroethane	ND	17
Tetrachloroethene	ND	17
Dibromochloromethane	ND	17
Chlorobenzene	ND	17
Bromoform	ND	17
1,1,2,2-Tetrachloroethane	ND	17
1,3-Dichlorobenzene	ND	17
1,4-Dichlorobenzene	ND	17
1,2-Dichlorobenzene	ND	17

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	111	77-137
Toluene-d8	100	80-120
Bromofluorobenzene	95	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	211189	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	149823
Lab ID:	211189-005	Sampled:	04/06/09
Matrix:	Water	Received:	04/07/09
Units:	ug/L	Analyzed:	04/10/09
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	105	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	95	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	211189	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	149822
Units:	ug/L	Analyzed:	04/10/09
Diln Fac:	1.000		

Type: BS Lab ID: QC491220

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	20.00	17.65	88	74-132
Trichloroethene	20.00	20.19	101	80-120
Chlorobenzene	20.00	19.65	98	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	93	80-125

Type: BSD Lab ID: QC491221

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	20.00	17.16	86	74-132	3	20
Trichloroethene	20.00	19.76	99	80-120	2	20
Chlorobenzene	20.00	19.79	99	80-120	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	92	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	211189	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC491222	Batch#:	149822
Matrix:	Water	Analyzed:	04/10/09
Units:	ug/L		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	113	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	211189	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	149823
Units:	ug/L	Analyzed:	04/10/09
Diln Fac:	1.000		

Type: BS Lab ID: QC491223

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	29.47	118	74-132
Trichloroethene	25.00	28.85	115	80-120
Chlorobenzene	25.00	26.84	107	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	95	80-125

Type: BSD Lab ID: QC491224

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	27.88	112	74-132	6	20
Trichloroethene	25.00	27.17	109	80-120	6	20
Chlorobenzene	25.00	26.05	104	80-120	3	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	107	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	96	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	211189	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC491225	Batch#:	149823
Matrix:	Water	Analyzed:	04/10/09
Units:	ug/L		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	107	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	95	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 212018
ANALYTICAL REPORT

AMEC Geomatrix, Inc. 2101 Webster Street Oakland, CA 94612	Project : 1486.002 Location : MEW Level : II

Sample ID	Lab ID
EFF-050709	212018-001
MID-050709	212018-002
INF-050709	212018-003
EX5-050709	212018-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 05/26/2009
Project Manager

Signature: _____ Date: 05/27/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**212018**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486.002**
Location:	**MEW**
Request Date:	**05/08/09**
Samples Received:	**05/08/09**

This data package contains sample and QC results for four water samples, requested for the above referenced project on 05/08/09. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

212018

OAK 15199

CHAIN-OF-CUSTODY RECORD

PROJECT NAME: MEW		DATE: 5/7/09	PAGE 1 OF 1
PROJECT NUMBER: 14860.002	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jen Bennett	LABORATORY ADDRESS:		
TURNAROUND TIME: standard			
SAMPLE SHIPMENT METHOD: Lab pick up	LABORATORY CONTACT:		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): R David Pearson

ANALYSES: 8260B*

DATE	TIME	SAMPLE NUMBER	8260B*	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
5/7/09	1106	EFF-050709	X	40 ml VOA	W		HCl	X		3	*8010 List
	1112	MID-050709	X		W			X		3	
	1120	INF-050709	X		W			X		3	
	1130	EX5-050709	X		W			X		3	
		trip blank	X		W			X		1	

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: R David Pearson	5/8/09	0645	SIGNATURE: Phuong Le	5/8/09	14:00
PRINTED NAME: R David Pearson			PRINTED NAME:		
COMPANY: AMEC			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 13

SAMPLING COMMENTS:

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd

Login # 212018 Date Received 5/8/09 Number of coolers 1
Client AMEC Project MEW

Date Opened 5/8/09 By (print) D Khuong (sign) [signature]
Date Logged in By (print) (sign)

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
   Shipping info

2A. Were custody seals present? [x] YES (circle) on cooler on samples [ ] NO
   How many 1 Name unruda Le Date 5/8/09
2B. Were custody seals intact upon arrival? (YES) NO N/A
3. Were custody papers dry and intact when received? (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe)

   [ ] Bubble Wrap [ ] Foam blocks [x] Bags [ ] None
   [ ] Cloth material [ ] Cardboard [ ] Styrofoam [ ] Paper towels

7. Temperature documentation:

   Type of ice used: [x] Wet [ ] Blue/Gel [ ] None Temp(°C)

   [x] Samples Received on ice & cold without a temperature blank

   [ ] Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? YES (NO)
   If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are samples in the appropriate containers for indicated tests? (YES) NO
11. Are sample labels present, in good condition and complete? (YES) NO
12. Do the sample labels agree with custody papers? (YES) NO
13. Was sufficient amount of sample sent for tests requested? (YES) NO
14. Are the samples appropriately preserved? (YES) NO N/A
15. Are bubbles > 6mm absent in VOA samples? (YES) NO N/A
16. Was the client contacted concerning this sample delivery? YES NO
    If YES, Who was called? By Date:

COMMENTS

NO TRIP BLANK

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	212018	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	EFF-050709	Batch#:	151155
Lab ID:	212018-001	Sampled:	05/07/09
Matrix:	Water	Received:	05/08/09
Units:	ug/L	Analyzed:	05/20/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	1.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	113	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	212018	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	MID-050709	Batch#:	151155
Lab ID:	212018-002	Sampled:	05/07/09
Matrix:	Water	Received:	05/08/09
Units:	ug/L	Analyzed:	05/20/09
Diln Fac:	2.000		

Analyte	Result	RL	MDL
Chloromethane	ND	2.0	
Vinyl Chloride	ND	1.0	
Bromomethane	ND	2.0	
Chloroethane	ND	2.0	
Trichlorofluoromethane	ND	2.0	
Freon 113	110	2.0	
1,1-Dichloroethene	ND	1.0	
Methylene Chloride	ND	40	2.0
trans-1,2-Dichloroethene	ND	1.0	
1,1-Dichloroethane	2.3	1.0	
cis-1,2-Dichloroethene	ND	1.0	
Chloroform	ND	2.0	
1,1,1-Trichloroethane	6.2	1.0	
Carbon Tetrachloride	ND	1.0	
1,2-Dichloroethane	ND	1.0	
Trichloroethene	2.1	1.0	
1,2-Dichloropropane	ND	1.0	
Bromodichloromethane	ND	1.0	
cis-1,3-Dichloropropene	ND	1.0	
trans-1,3-Dichloropropene	ND	1.0	
1,1,2-Trichloroethane	ND	1.0	
Tetrachloroethene	ND	1.0	
Dibromochloromethane	ND	1.0	
Chlorobenzene	ND	1.0	
Bromoform	ND	1.0	
1,1,2,2-Tetrachloroethane	ND	1.0	
1,3-Dichlorobenzene	ND	1.0	
1,4-Dichlorobenzene	ND	1.0	
1,2-Dichlorobenzene	ND	1.0	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	115	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	212018	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	INF-050709	Batch#:	151155
Lab ID:	212018-003	Sampled:	05/07/09
Matrix:	Water	Received:	05/08/09
Units:	ug/L	Analyzed:	05/20/09
Diln Fac:	20.00		

Analyte	Result	RL	MDL
Chloromethane	ND	20	
Vinyl Chloride	ND	10	
Bromomethane	ND	20	
Chloroethane	ND	20	
Trichlorofluoromethane	ND	20	
Freon 113	130	20	
1,1-Dichloroethene	ND	10	
Methylene Chloride	ND	400	20
trans-1,2-Dichloroethene	ND	10	
1,1-Dichloroethane	ND	10	
cis-1,2-Dichloroethene	180	10	
Chloroform	ND	20	
1,1,1-Trichloroethane	ND	10	
Carbon Tetrachloride	ND	10	
1,2-Dichloroethane	ND	10	
Trichloroethene	1,700	10	
1,2-Dichloropropane	ND	10	
Bromodichloromethane	ND	10	
cis-1,3-Dichloropropene	ND	10	
trans-1,3-Dichloropropene	ND	10	
1,1,2-Trichloroethane	ND	10	
Tetrachloroethene	ND	10	
Dibromochloromethane	ND	10	
Chlorobenzene	ND	10	
Bromoform	ND	10	
1,1,2,2-Tetrachloroethane	ND	10	
1,3-Dichlorobenzene	ND	10	
1,4-Dichlorobenzene	ND	10	
1,2-Dichlorobenzene	ND	10	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	115	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	97	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	212018	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	EX5-050709	Batch#:	151155
Lab ID:	212018-004	Sampled:	05/07/09
Matrix:	Water	Received:	05/08/09
Units:	ug/L	Analyzed:	05/20/09
Diln Fac:	33.33		

Analyte	Result	RL	MDL
Chloromethane	ND	33	
Vinyl Chloride	ND	17	
Bromomethane	ND	33	
Chloroethane	ND	33	
Trichlorofluoromethane	ND	33	
Freon 113	130	33	
1,1-Dichloroethene	ND	17	
Methylene Chloride	ND	670	33
trans-1,2-Dichloroethene	ND	17	
1,1-Dichloroethane	ND	17	
cis-1,2-Dichloroethene	170	17	
Chloroform	ND	33	
1,1,1-Trichloroethane	ND	17	
Carbon Tetrachloride	ND	17	
1,2-Dichloroethane	ND	17	
Trichloroethene	1,600	17	
1,2-Dichloropropane	ND	17	
Bromodichloromethane	ND	17	
cis-1,3-Dichloropropene	ND	17	
trans-1,3-Dichloropropene	ND	17	
1,1,2-Trichloroethane	ND	17	
Tetrachloroethene	ND	17	
Dibromochloromethane	ND	17	
Chlorobenzene	ND	17	
Bromoform	ND	17	
1,1,2,2-Tetrachloroethane	ND	17	
1,3-Dichlorobenzene	ND	17	
1,4-Dichlorobenzene	ND	17	
1,2-Dichlorobenzene	ND	17	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	116	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	95	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	212018	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	151155
Units:	ug/L	Analyzed:	05/19/09
Diln Fac:	1.000		

Type: BS Lab ID: QC496601

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	22.50	21.71	96	80-120
Trichloroethene	22.50	24.21	108	80-120
Chlorobenzene	22.50	22.51	100	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	111	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	96	80-125

Type: BSD Lab ID: QC496602

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	22.50	21.03	93	80-120	3	35
Trichloroethene	22.50	23.53	105	80-120	3	35
Chlorobenzene	22.50	22.19	99	80-120	1	35

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	110	77-137
Toluene-d8	100	80-120
Bromofluorobenzene	96	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	212018	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	151155
MSS Lab ID:	212110-001	Sampled:	05/11/09
Matrix:	Water	Received:	05/13/09
Units:	ug/L	Analyzed:	05/20/09
Diln Fac:	1.000		

Type: MS Lab ID: QC496658

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.1040	25.00	24.13	97	40-150
Trichloroethene	<0.1466	25.00	27.29	109	40-150
Chlorobenzene	<0.1291	25.00	25.12	100	40-150

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	77-137
Toluene-d8	100	80-120
Bromofluorobenzene	94	80-125

Type: MSD Lab ID: QC496659

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	23.41	94	40-150	3	35
Trichloroethene	25.00	26.37	105	40-150	3	35
Chlorobenzene	25.00	24.76	99	40-150	1	35

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	77-137
Toluene-d8	100	80-120
Bromofluorobenzene	96	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	212018	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC496660	Batch#:	151155
Matrix:	Water	Analyzed:	05/19/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	1.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	110	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	97	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 212601
ANALYTICAL REPORT

AMEC Geomatrix, Inc. 2101 Webster Street Oakland, CA 94612	Project : 1486.002 EE Location : MEW Level : II

Sample ID	Lab ID
EFF-060309	212601-001
FB-060309	212601-002
MID-060309	212601-003
INF-060309	212601-004
TRIP BLANK	212601-005

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Anna Pagunto Date: 06/11/2009
Project Manager

Signature: Troy Baker Date: 06/11/2009
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**212601**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486.002 EE**
Location:	**MEW**
Request Date:	**06/04/09**
Samples Received:	**06/04/09**

This data package contains sample and QC results for five water samples, requested for the above referenced project on 06/04/09. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):

1,4-dichlorobenzene and tetrachloroethene were detected between the MDL and the RL in the method blank for batch 151710; these analytes were not detected in samples at or above the RL. No other analytical problems were encountered.

CHAIN-OF-CUSTODY RECORD

212601 OAK 15216

PROJECT NAME: MEW		DATE: 6-3-09	PAGE 1 OF 1
PROJECT NUMBER: 1486.002/EE	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jen Bennett	LABORATORY ADDRESS:		
TURNAROUND TIME: standard			
SAMPLE SHIPMENT METHOD: Lab pick up	LABORATORY CONTACT:		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): RDavid P

ANALYSES

	DATE	TIME	SAMPLE NUMBER	* 8260B	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
1	6-3-09	1253	EFF-060309	X	40ml VOA	W		HCl	X		3	* 8010 List
2		1300	FB-060309	X		W			X		3	
3		1310	MID-060309	X		W			X		3	
4		1318	INF-060309	X		W			X		3	
5			trip blank	X							1	

RDP

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: RDavid Pearson	6-3-09	1600	SIGNATURE:	6/4/09	
PRINTED NAME: RDavid Pearson			PRINTED NAME: A. Villanueva		
COMPANY: Amec			COMPANY: C&T		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 13

SAMPLING COMMENTS:

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 212601 Date Received 6/4/09 Number of coolers 1
Client AMEC Project MBW

Date Opened 6/4/09 By (print) M. VILLANUEVA (sign) [signature]
Date Logged in 6/5/09 By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) ____ YES (NO)
   Shipping info ____
2A. Were custody seals present? ... ☑ YES (circle) on cooler on samples ☐ NO
   How many 1 Name UNREADABLE Date 6/3/09
2B. Were custody seals intact upon arrival? ____ YES NO N/A
3. Were custody papers dry and intact when received? ____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? ____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ____ YES NO
6. Indicate the packing in cooler: (if other, describe) ____

☑ Bubble Wrap ☐ Foam blocks ☑ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) ____

☑ Samples Received on ice & cold without a temperature blank

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? ____ YES (NO)
   If YES, what time were they transferred to freezer? ____
9. Did all bottles arrive unbroken/unopened? ____ YES NO
10. Are samples in the appropriate containers for indicated tests? ____ YES NO
11. Are sample labels present, in good condition and complete? ____ YES NO
12. Do the sample labels agree with custody papers? ____ YES NO
13. Was sufficient amount of sample sent for tests requested? ____ YES NO
14. Are the samples appropriately preserved? ____ YES NO N/A
15. Are bubbles > 6mm absent in VOA samples? ____ YES NO N/A
16. Was the client contacted concerning this sample delivery? ____ YES NO
   If YES, Who was called? ____ By ____ Date: ____

COMMENTS

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	212601	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	EFF-060309	Batch#:	151710
Lab ID:	212601-001	Sampled:	06/03/09
Matrix:	Water	Received:	06/04/09
Units:	ug/L	Analyzed:	06/05/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	104	80-125

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	212601	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	FB-060309	Batch#:	151710
Lab ID:	212601-002	Sampled:	06/03/09
Matrix:	Water	Received:	06/04/09
Units:	ug/L	Analyzed:	06/05/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	77-137
Toluene-d8	104	80-120
Bromofluorobenzene	104	80-125

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	212601	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	MID-060309	Units:	ug/L
Lab ID:	212601-003	Sampled:	06/03/09
Matrix:	Water	Received:	06/04/09

Analyte	Result	RL	MDL	Diln Fac	Batch#	Analyzed
Chloromethane	ND	1.0	0.2	1.000	151761	06/08/09
Vinyl Chloride	ND	0.5	0.1	1.000	151761	06/08/09
Bromomethane	ND	1.0	0.2	1.000	151761	06/08/09
Chloroethane	ND	1.0	0.2	1.000	151761	06/08/09
Trichlorofluoromethane	ND	1.0	0.2	1.000	151761	06/08/09
Freon 113	140	10	2.0	5.000	151710	06/05/09
1,1-Dichloroethene	ND	0.5	0.1	1.000	151761	06/08/09
Methylene Chloride	ND	20	1.0	1.000	151761	06/08/09
trans-1,2-Dichloroethene	ND	0.5	0.1	1.000	151761	06/08/09
1,1-Dichloroethane	3.7	0.5	0.1	1.000	151761	06/08/09
cis-1,2-Dichloroethene	ND	0.5	0.1	1.000	151761	06/08/09
Chloroform	<1.0 U ~~0.4 J~~	1.0	0.1	1.000	151761	06/08/09
1,1,1-Trichloroethane	7.9	0.5	0.1	1.000	151761	06/08/09
Carbon Tetrachloride	ND	0.5	0.1	1.000	151761	06/08/09
1,2-Dichloroethane	ND	0.5	0.1	1.000	151761	06/08/09
Trichloroethene	ND	0.5	0.1	1.000	151761	06/08/09
1,2-Dichloropropane	ND	0.5	0.1	1.000	151761	06/08/09
Bromodichloromethane	ND	0.5	0.1	1.000	151761	06/08/09
cis-1,3-Dichloropropene	ND	0.5	0.1	1.000	151761	06/08/09
trans-1,3-Dichloropropene	ND	0.5	0.1	1.000	151761	06/08/09
1,1,2-Trichloroethane	ND	0.5	0.1	1.000	151761	06/08/09
Tetrachloroethene	ND	0.5	0.1	1.000	151761	06/08/09
Dibromochloromethane	ND	0.5	0.1	1.000	151761	06/08/09
Chlorobenzene	ND	0.5	0.1	1.000	151761	06/08/09
Bromoform	ND	0.5	0.2	1.000	151761	06/08/09
1,1,2,2-Tetrachloroethane	ND	0.5	0.1	1.000	151761	06/08/09
1,3-Dichlorobenzene	ND	0.5	0.1	1.000	151761	06/08/09
1,4-Dichlorobenzene	ND	0.5	0.1	1.000	151761	06/08/09
1,2-Dichlorobenzene	ND	0.5	0.1	1.000	151761	06/08/09

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
1,2-Dichloroethane-d4	115	77-137	1.000	151761	06/08/09
Toluene-d8	105	80-120	1.000	151761	06/08/09
Bromofluorobenzene	103	80-125	1.000	151761	06/08/09

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	212601	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	INF-060309	Batch#:	151761
Lab ID:	212601-004	Sampled:	06/03/09
Matrix:	Water	Received:	06/04/09
Units:	ug/L	Analyzed:	06/08/09
Diln Fac:	25.00		

Analyte	Result	RL	MDL
Chloromethane	ND	25	5.0
Vinyl Chloride	4.8 J	13	2.5
Bromomethane	ND	25	5.9
Chloroethane	ND	25	5.0
Trichlorofluoromethane	ND	25	5.0
Freon 113	130	50	10
1,1-Dichloroethene	5.4 J	13	3.4
Methylene Chloride	ND	500	25
trans-1,2-Dichloroethene	2.6 J	13	2.5
1,1-Dichloroethane	5.2 J	13	2.6
cis-1,2-Dichloroethene	200	13	3.1
Chloroform	ND	25	2.5
1,1,1-Trichloroethane	6.0 J	13	2.5
Carbon Tetrachloride	ND	13	2.5
1,2-Dichloroethane	ND	13	2.6
Trichloroethene	1,700	13	3.5
1,2-Dichloropropane	ND	13	3.0
Bromodichloromethane	ND	13	2.5
cis-1,3-Dichloropropene	ND	13	2.5
trans-1,3-Dichloropropene	ND	13	2.5
1,1,2-Trichloroethane	ND	13	3.3
Tetrachloroethene	9.7 J	13	3.7
Dibromochloromethane	ND	13	2.5
Chlorobenzene	ND	13	2.5
Bromoform	ND	13	5.0
1,1,2,2-Tetrachloroethane	ND	13	3.0
1,3-Dichlorobenzene	ND	13	2.9
1,4-Dichlorobenzene	ND	13	2.9
1,2-Dichlorobenzene	ND	13	2.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	77-137
Toluene-d8	105	80-120
Bromofluorobenzene	106	80-125

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	212601	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	151710
Lab ID:	212601-005	Sampled:	06/03/09
Matrix:	Water	Received:	06/04/09
Units:	ug/L	Analyzed:	06/05/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	0.9 J	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	107	80-125

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	212601	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC498863	Batch#:	151710
Matrix:	Water	Analyzed:	06/05/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	0.3 J	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	0.1 J	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	97	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	101	80-125

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	212601	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	151710
Units:	ug/L	Analyzed:	06/05/09
Diln Fac:	1.000		

Type: BS Lab ID: QC498864

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	28.95	116	74-132
Trichloroethene	25.00	27.24	109	80-120
Chlorobenzene	25.00	27.93	112	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	97	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	100	80-125

Type: BSD Lab ID: QC498865

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	26.72	107	74-132	8	20
Trichloroethene	25.00	25.70	103	80-120	6	20
Chlorobenzene	25.00	25.52	102	80-120	9	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	96	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	98	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	212601	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC499061	Batch#:	151761
Matrix:	Water	Analyzed:	06/08/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	101	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	105	80-125

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	212601	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	151761
Units:	ug/L	Analyzed:	06/08/09
Diln Fac:	1.000		

Type: BS Lab ID: QC499062

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	27.68	111	74-132
Trichloroethene	25.00	26.71	107	80-120
Chlorobenzene	25.00	26.61	106	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	97	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	100	80-125

Type: BSD Lab ID: QC499063

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	27.40	110	74-132	1	20
Trichloroethene	25.00	26.99	108	80-120	1	20
Chlorobenzene	25.00	27.26	109	80-120	2	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	98	77-137
Toluene-d8	104	80-120
Bromofluorobenzene	96	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 213499
ANALYTICAL REPORT

AMEC Geomatrix, Inc. 2101 Webster Street Oakland, CA 94612	Project : 1486.002 EE Location : MEW Level : II

Sample ID	Lab ID
EFF-071409	213499-001
MID-071409	213499-002
INF-071409	213499-003
F.B-071409	213499-004
TRIP BLANK	213499-005

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Troy Bolger Date: 07/22/2009
Project Manager

Signature: Anna Pagunto Date: 07/22/2009
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**213499**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486.002 EE**
Location:	**MEW**
Request Date:	**07/15/09**
Samples Received:	**07/15/09**

This data package contains sample and QC results for five water samples, requested for the above referenced project on 07/15/09. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
Methylene chloride was detected between the MDL and the RL in F.B-071409 (lab # 213499-004); this analyte is a common laboratory contaminant. No other analytical problems were encountered.

CHAIN-OF-CUSTODY RECORD

213499 OAK 16062

PROJECT NAME: MEW

PROJECT NUMBER: 1486.002 / EE

RESULTS TO: Jan Bennett

TURNAROUND TIME: standard

SAMPLE SHIPMENT METHOD: Lab pick up

LABORATORY NAME: Curtis & Tompkins

LABORATORY ADDRESS:

LABORATORY CONTACT:

LABORATORY PHONE NUMBER:

CLIENT INFORMATION:

DATE: 7-14-09 PAGE 1 OF 1

REPORTING REQUIREMENTS:

GEOTRACKER REQUIRED YES NO

SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE):

ANALYSES

DATE	TIME	SAMPLE NUMBER		CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
7/14		EFF-071409	X	40 ml VOA	W		HCl	X		3	*8010 List
		MID-071409	X							3	
		INF-071409	X							3	
		F.B-071409	X							3	
		trip blank	X							2	

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: R David Pearson	7/14/09	1530	SIGNATURE:	7/15/09	
PRINTED NAME: R. David Pearson			PRINTED NAME: H. Villanueva		
COMPANY: Amec			COMPANY: C&T		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 14

SAMPLING COMMENTS:

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 213499 Date Received 7/15/09 Number of coolers 1
Client AMBC Project MBW

Date Opened 7/15/09 By (print) M. VILLONUEVA (sign) [signature]
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) _____ YES (NO)
   Shipping info _____

2A. Were custody seals present? ☑ YES (circle) (on cooler) on samples ☐ NO
   How many 1 Name UNREADABLE Date 7/14/09
2B. Were custody seals intact upon arrival? _____ (YES) NO N/A
3. Were custody papers dry and intact when received? _____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ (YES) NO
6. Indicate the packing in cooler: (if other, describe) _____

   ☑ Bubble Wrap ☐ Foam blocks ☑ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

   Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) 0.9

   ☐ Samples Received on ice & cold without a temperature blank

   ☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES (NO)
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO
10. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
11. Are sample labels present, in good condition and complete? _____ (YES) NO
12. Do the sample labels agree with custody papers? _____ (YES) NO
13. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
14. Are the samples appropriately preserved? _____ (YES) NO N/A
15. Are bubbles > 6mm absent in VOA samples? _____ (YES) NO N/A
16. Was the client contacted concerning this sample delivery? _____ YES NO
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	213499	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	EFF-071409	Batch#:	152955
Lab ID:	213499-001	Sampled:	07/14/09
Matrix:	Water	Received:	07/15/09
Units:	ug/L	Analyzed:	07/17/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	77-137
Toluene-d8	93	80-120
Bromofluorobenzene	106	80-125

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	213499	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	MID-071409	Batch#:	152999
Lab ID:	213499-002	Sampled:	07/14/09
Matrix:	Water	Received:	07/15/09
Units:	ug/L	Analyzed:	07/20/09
Diln Fac:	1.429		

Analyte	Result	RL	MDL
Chloromethane	ND	1.4	0.3
Vinyl Chloride	ND	0.7	0.1
Bromomethane	ND	1.4	0.3
Chloroethane	ND	1.4	0.3
Trichlorofluoromethane	ND	1.4	0.3
Freon 113	130	2.9	0.6
1,1-Dichloroethene	ND	0.7	0.1
Methylene Chloride	ND	29	1.4
trans-1,2-Dichloroethene	ND	0.7	0.1
1,1-Dichloroethane	2.2	0.7	0.2
cis-1,2-Dichloroethene	ND	0.7	0.1
Chloroform	0.3 J	1.4	0.1
1,1,1-Trichloroethane	5.9	0.7	0.1
Carbon Tetrachloride	ND	0.7	0.2
1,2-Dichloroethane	ND	0.7	0.1
Trichloroethene	ND	0.7	0.1
1,2-Dichloropropane	ND	0.7	0.1
Bromodichloromethane	ND	0.7	0.1
cis-1,3-Dichloropropene	ND	0.7	0.1
trans-1,3-Dichloropropene	ND	0.7	0.1
1,1,2-Trichloroethane	ND	0.7	0.2
Tetrachloroethene	ND	0.7	0.2
Dibromochloromethane	ND	0.7	0.1
Chlorobenzene	ND	0.7	0.1
Bromoform	ND	0.7	0.3
1,1,2,2-Tetrachloroethane	ND	0.7	0.1
1,3-Dichlorobenzene	ND	0.7	0.2
1,4-Dichlorobenzene	ND	0.7	0.1
1,2-Dichlorobenzene	ND	0.7	0.2

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	115	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	111	80-125

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	213499	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	INF-071409	Batch#:	152999
Lab ID:	213499-003	Sampled:	07/14/09
Matrix:	Water	Received:	07/15/09
Units:	ug/L	Analyzed:	07/20/09
Diln Fac:	16.67		

Analyte	Result	RL	MDL
Chloromethane	ND	17	3.3
Vinyl Chloride	3.6 J	8.3	1.7
Bromomethane	ND	17	3.3
Chloroethane	ND	17	3.3
Trichlorofluoromethane	ND	17	3.3
Freon 113	120	33	6.7
1,1-Dichloroethene	5.3 J	8.3	1.7
Methylene Chloride	ND	330	17
trans-1,2-Dichloroethene	3.1 J	8.3	1.7
1,1-Dichloroethane	4.3 J	8.3	2.1
cis-1,2-Dichloroethene	170	8.3	1.7
Chloroform	ND	17	1.7
1,1,1-Trichloroethane	6.2 J	8.3	1.7
Carbon Tetrachloride	ND	8.3	2.0
1,2-Dichloroethane	ND	8.3	1.7
Trichloroethene	1,500	8.3	1.7
1,2-Dichloropropane	ND	8.3	1.7
Bromodichloromethane	ND	8.3	1.7
cis-1,3-Dichloropropene	ND	8.3	1.7
trans-1,3-Dichloropropene	ND	8.3	1.7
1,1,2-Trichloroethane	ND	8.3	2.1
Tetrachloroethene	4.4 J	8.3	2.2
Dibromochloromethane	ND	8.3	1.7
Chlorobenzene	ND	8.3	1.7
Bromoform	ND	8.3	3.3
1,1,2,2-Tetrachloroethane	ND	8.3	1.7
1,3-Dichlorobenzene	ND	8.3	1.8
1,4-Dichlorobenzene	ND	8.3	1.7
1,2-Dichlorobenzene	ND	8.3	2.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	77-137
Toluene-d8	94	80-120
Bromofluorobenzene	114	80-125

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	213499	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	F.B-071409	Batch#:	152956
Lab ID:	213499-004	Sampled:	07/14/09
Matrix:	Water	Received:	07/15/09
Units:	ug/L	Analyzed:	07/17/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	1.1 J	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	102	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	102	80-125

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	213499	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	152956
Lab ID:	213499-005	Sampled:	07/14/09
Matrix:	Water	Received:	07/15/09
Units:	ug/L	Analyzed:	07/17/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	100	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	104	80-125

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	213499	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	152955
Units:	ug/L	Analyzed:	07/17/09
Diln Fac:	1.000		

Type: BS Lab ID: QC503824

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	15.00	13.46	90	74-132
Trichloroethene	15.00	14.50	97	80-120
Chlorobenzene	15.00	15.25	102	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	77-137
Toluene-d8	94	80-120
Bromofluorobenzene	100	80-125

Type: BSD Lab ID: QC503825

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	15.00	12.61	84	74-132	6	20
Trichloroethene	15.00	13.92	93	80-120	4	20
Chlorobenzene	15.00	14.82	99	80-120	3	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	101	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	98	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	213499	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC503826	Batch#:	152955
Matrix:	Water	Analyzed:	07/17/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	105	77-137
Toluene-d8	91	80-120
Bromofluorobenzene	111	80-125

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	213499	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	152956
Units:	ug/L	Analyzed:	07/17/09
Diln Fac:	1.000		

Type: BS Lab ID: QC503827

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	15.00	15.46	103	74-132
Trichloroethene	15.00	15.78	105	80-120
Chlorobenzene	15.00	15.90	106	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	97	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	100	80-125

Type: BSD Lab ID: QC503828

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	15.00	14.94	100	74-132	3	20
Trichloroethene	15.00	14.68	98	80-120	7	20
Chlorobenzene	15.00	15.81	105	80-120	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	97	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	100	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	213499	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC503829	Batch#:	152956
Matrix:	Water	Analyzed:	07/17/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	101	77-137
Toluene-d8	97	80-120
Bromofluorobenzene	102	80-125

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	213499	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC503993	Batch#:	152999
Matrix:	Water	Analyzed:	07/20/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.2
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.4
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	1.0	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.2
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	112	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	107	80-125

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	213499	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	152999
MSS Lab ID:	213607-002	Sampled:	07/14/09
Matrix:	Water	Received:	07/17/09
Units:	ug/L	Analyzed:	07/20/09
Diln Fac:	1.000		

Type: MS Lab ID: QC503994

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.1026	25.00	23.86	95	77-134
Trichloroethene	41.15	25.00	62.42	85	75-130
Chlorobenzene	<0.1000	25.00	25.05	100	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	113	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	107	80-125

Type: MSD Lab ID: QC504035

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	23.95	96	77-134	0	20
Trichloroethene	25.00	62.12	84	75-130	0	20
Chlorobenzene	25.00	24.14	97	80-120	4	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	114	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	98	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	213499	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	152999
Units:	ug/L	Analyzed:	07/20/09
Diln Fac:	1.000		

Type: BS Lab ID: QC504394

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	15.00	15.22	101	74-132
Trichloroethene	15.00	15.80	105	80-120
Chlorobenzene	15.00	15.40	103	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	107	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	105	80-125

Type: BSD Lab ID: QC504395

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	15.00	14.44	96	74-132	5	20
Trichloroethene	15.00	15.48	103	80-120	2	20
Chlorobenzene	15.00	15.17	101	80-120	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	111	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	105	80-125

RPD= Relative Percent Difference

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2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 213938
ANALYTICAL REPORT

AMEC Geomatrix, Inc. 2101 Webster Street Oakland, CA 94612	Project : 1486.002 Location : MEW Level : II

Sample ID	Lab ID
EFF-080409	213938-001
MID-080409	213938-002
INF-080409	213938-003
TRIP BLANK	213938-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Troy Bobier
Project Manager

Date: 08/11/2009

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**213938**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486.002**
Location:	**MEW**
Request Date:	**08/04/09**
Samples Received:	**08/04/09**

This data package contains sample and QC results for four water samples, requested for the above referenced project on 08/04/09. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
Methylene chloride was detected between the MDL and the RL in the method blank for batch 153563; this analyte was not detected in samples at or above the RL. Methylene chloride was detected between the MDL and the RL in MID-080409 (lab # 213938-002); this analyte is a common laboratory contaminant. TRIP BLANK (lab # 213938-004) was analyzed with more than 1 mL of headspace in the VOA vial. No other analytical problems were encountered.

213938 1 of 1 OAK 16067

CHAIN-OF-CUSTODY RECORD

PROJECT NAME: MEW			DATE: 8-4-09 PAGE 1 OF 1
PROJECT NUMBER: 14860.002	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jen Bennett	LABORATORY ADDRESS:		
TURNAROUND TIME: standard			
SAMPLE SHIPMENT METHOD: hand	LABORATORY CONTACT:		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): R David Pearson

ANALYSES: 8260B *

	DATE	TIME	SAMPLE NUMBER	8260B *	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
1	8-4-09	1215	EFF-080409	X	40 ml VOA	W		HCl	X		3	*8010 List
2		1225	MID-080409	X		W			X		3	
3		1235	INF-080409	X		W			X		3	
4			Trip Blank	X		W			X		1	

RDP

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: R David Pearson	8/4/09	1430	SIGNATURE: [illegible]	8/4/09	1430
PRINTED NAME: David Pearson			PRINTED NAME: [illegible]		
COMPANY: AMEC			COMPANY: C&T		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 10

SAMPLING COMMENTS: Cold start

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # Z13938 Date Received 8/4/09 Number of coolers 1
Client AMEC Project MIEW

Date Opened 8/4/09 By (print) M. VILLANUEVA (sign) [signature]
Date Logged in ↓ By (print) ↓ (sign)

1. Did cooler come with a shipping slip (airbill, etc) ____ YES (NO)
   Shipping info ____

2A. Were custody seals present? ... ☐ YES (circle) on cooler on samples ☐ (NO)
   How many ____ Name ____ Date ____
2B. Were custody seals intact upon arrival? ____ YES NO (N/A)
3. Were custody papers dry and intact when received? ____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? ____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ____ (YES) NO
6. Indicate the packing in cooler: (if other, describe) ____

   ☑ Bubble Wrap ☑ Foam blocks ☑ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

   Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) 11.2

   ☐ Samples Received on ice & cold without a temperature blank

   ☑ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? ____ YES (NO)
   If YES, what time were they transferred to freezer? ____
9. Did all bottles arrive unbroken/unopened? ____ (YES) NO
10. Are samples in the appropriate containers for indicated tests? ____ (YES) NO
11. Are sample labels present, in good condition and complete? ____ (YES) NO
12. Do the sample labels agree with custody papers? ____ (YES) NO
13. Was sufficient amount of sample sent for tests requested? ____ (YES) NO
14. Are the samples appropriately preserved? ____ (YES) NO N/A
15. Are bubbles > 6mm absent in VOA samples? ____ (YES) NO N/A
16. Was the client contacted concerning this sample delivery? ____ YES NO
   If YES, Who was called? ____ By ____ Date: ____

COMMENTS

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	213938	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	EFF-080409	Batch#:	153593
Lab ID:	213938-001	Sampled:	08/04/09
Matrix:	Water	Received:	08/04/09
Units:	ug/L	Analyzed:	08/06/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	1.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	80	77-137
Toluene-d8	104	80-120
Bromofluorobenzene	111	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	213938	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	MID-080409	Sampled:	08/04/09
Lab ID:	213938-002	Received:	08/04/09
Matrix:	Water	Analyzed:	08/06/09
Units:	ug/L		

Analyte	Result	RL	MDL	Diln Fac	Batch#
Chloromethane	ND	2.0		2.000	153563
Vinyl Chloride	ND	1.0		2.000	153563
Bromomethane	ND	2.0		2.000	153563
Chloroethane	ND	2.0		2.000	153563
Trichlorofluoromethane	ND	2.0		2.000	153563
Freon 113	130	5.0		5.000	153593
1,1-Dichloroethene	ND	1.0		2.000	153563
Methylene Chloride	<40 U 0.8 J	40	0.1	2.000	153563
trans-1,2-Dichloroethene	ND	1.0		2.000	153563
1,1-Dichloroethane	2.9	1.0		2.000	153563
cis-1,2-Dichloroethene	ND	1.0		2.000	153563
Chloroform	ND	2.0		2.000	153563
1,1,1-Trichloroethane	6.7	1.0		2.000	153563
Carbon Tetrachloride	ND	1.0		2.000	153563
1,2-Dichloroethane	ND	1.0		2.000	153563
Trichloroethene	ND	1.0		2.000	153563
1,2-Dichloropropane	ND	1.0		2.000	153563
Bromodichloromethane	ND	1.0		2.000	153563
cis-1,3-Dichloropropene	ND	1.0		2.000	153563
trans-1,3-Dichloropropene	ND	1.0		2.000	153563
1,1,2-Trichloroethane	ND	1.0		2.000	153563
Tetrachloroethene	ND	1.0		2.000	153563
Dibromochloromethane	ND	1.0		2.000	153563
Chlorobenzene	ND	1.0		2.000	153563
Bromoform	ND	1.0		2.000	153563
1,1,2,2-Tetrachloroethane	ND	1.0		2.000	153563
1,3-Dichlorobenzene	ND	1.0		2.000	153563
1,4-Dichlorobenzene	ND	1.0		2.000	153563
1,2-Dichlorobenzene	ND	1.0		2.000	153563

Surrogate	%REC	Limits	Diln Fac	Batch#
1,2-Dichloroethane-d4	112	77-137	2.000	153563
Toluene-d8	101	80-120	2.000	153563
Bromofluorobenzene	108	80-125	2.000	153563

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	213938	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	INF-080409	Batch#:	153593
Lab ID:	213938-003	Sampled:	08/04/09
Matrix:	Water	Received:	08/04/09
Units:	ug/L	Analyzed:	08/06/09
Diln Fac:	20.00		

Analyte	Result	RL	MDL
Chloromethane	ND	20	
Vinyl Chloride	ND	10	
Bromomethane	ND	20	
Chloroethane	ND	20	
Trichlorofluoromethane	ND	20	
Freon 113	140	20	
1,1-Dichloroethene	ND	10	
Methylene Chloride	ND	400	20
trans-1,2-Dichloroethene	ND	10	
1,1-Dichloroethane	ND	10	
cis-1,2-Dichloroethene	200	10	
Chloroform	ND	20	
1,1,1-Trichloroethane	ND	10	
Carbon Tetrachloride	ND	10	
1,2-Dichloroethane	ND	10	
Trichloroethene	1,600	10	
1,2-Dichloropropane	ND	10	
Bromodichloromethane	ND	10	
cis-1,3-Dichloropropene	ND	10	
trans-1,3-Dichloropropene	ND	10	
1,1,2-Trichloroethane	ND	10	
Tetrachloroethene	ND	10	
Dibromochloromethane	ND	10	
Chlorobenzene	ND	10	
Bromoform	ND	10	
1,1,2,2-Tetrachloroethane	ND	10	
1,3-Dichlorobenzene	ND	10	
1,4-Dichlorobenzene	ND	10	
1,2-Dichlorobenzene	ND	10	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	81	77-137
Toluene-d8	105	80-120
Bromofluorobenzene	110	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	213938	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Diln Fac:	1.000
Lab ID:	213938-004	Sampled:	08/04/09
Matrix:	Water	Received:	08/04/09
Units:	ug/L		

Analyte	Result	RL	MDL	Batch#	Analyzed
Chloromethane	ND	1.0		153563	08/05/09
Vinyl Chloride	ND	0.5		153563	08/05/09
Bromomethane	ND	1.0		153563	08/05/09
Chloroethane	ND	1.0		153563	08/05/09
Trichlorofluoromethane	ND	1.0		153563	08/05/09
Freon 113	ND	1.0		153593	08/06/09
1,1-Dichloroethene	ND	0.5		153563	08/05/09
Methylene Chloride	ND	20	0.07	153563	08/05/09
trans-1,2-Dichloroethene	ND	0.5		153563	08/05/09
1,1-Dichloroethane	ND	0.5		153563	08/05/09
cis-1,2-Dichloroethene	ND	0.5		153563	08/05/09
Chloroform	ND	1.0		153563	08/05/09
1,1,1-Trichloroethane	ND	0.5		153563	08/05/09
Carbon Tetrachloride	ND	0.5		153563	08/05/09
1,2-Dichloroethane	ND	0.5		153563	08/05/09
Trichloroethene	ND	0.5		153563	08/05/09
1,2-Dichloropropane	ND	0.5		153563	08/05/09
Bromodichloromethane	ND	0.5		153563	08/05/09
cis-1,3-Dichloropropene	ND	0.5		153563	08/05/09
trans-1,3-Dichloropropene	ND	0.5		153563	08/05/09
1,1,2-Trichloroethane	ND	0.5		153563	08/05/09
Tetrachloroethene	ND	0.5		153563	08/05/09
Dibromochloromethane	ND	0.5		153563	08/05/09
Chlorobenzene	ND	0.5		153563	08/05/09
Bromoform	ND	0.5		153563	08/05/09
1,1,2,2-Tetrachloroethane	ND	0.5		153563	08/05/09
1,3-Dichlorobenzene	ND	0.5		153563	08/05/09
1,4-Dichlorobenzene	ND	0.5		153563	08/05/09
1,2-Dichlorobenzene	ND	0.5		153563	08/05/09

Surrogate	%REC	Limits	Batch#	Analyzed
1,2-Dichloroethane-d4	109	77-137	153563	08/05/09
Toluene-d8	102	80-120	153563	08/05/09
Bromofluorobenzene	109	80-125	153563	08/05/09

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	213938	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	153563
Units:	ug/L	Analyzed:	08/05/09
Diln Fac:	1.000		

Type: BS Lab ID: QC506311

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	29.89	120	80-120
Trichloroethene	25.00	25.29	101	80-120
Chlorobenzene	25.00	23.80	95	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	110	77-137
Toluene-d8	106	80-120
Bromofluorobenzene	101	80-125

Type: BSD Lab ID: QC506312

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	29.60	118	80-120	1	35
Trichloroethene	25.00	24.68	99	80-120	2	35
Chlorobenzene	25.00	23.23	93	80-120	2	35

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	110	77-137
Toluene-d8	104	80-120
Bromofluorobenzene	102	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	213938	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC506313	Batch#:	153563
Matrix:	Water	Analyzed:	08/05/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	2.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	0.08 J	20	0.07
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	108	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	109	80-125

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	213938	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC506428	Batch#:	153593
Matrix:	Water	Analyzed:	08/06/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	1.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	79	77-137
Toluene-d8	105	80-120
Bromofluorobenzene	116	80-125

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	213938	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	153593
Units:	ug/L	Analyzed:	08/06/09
Diln Fac:	1.000		

Type: BS Lab ID: QC506429

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	26.15	105	80-120
Trichloroethene	25.00	25.69	103	80-120
Chlorobenzene	25.00	24.97	100	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	78	77-137
Toluene-d8	104	80-120
Bromofluorobenzene	107	80-125

Type: BSD Lab ID: QC506430

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	25.78	103	80-120	1	35
Trichloroethene	25.00	25.10	100	80-120	2	35
Chlorobenzene	25.00	24.42	98	80-120	2	35

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	79	77-137
Toluene-d8	105	80-120
Bromofluorobenzene	110	80-125

RPD= Relative Percent Difference

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Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 214672
ANALYTICAL REPORT

AMEC Geomatrix, Inc. 2101 Webster Street Oakland, CA 94612	Project : 1486.002 Location : MEW Level : II

Sample ID	Lab ID
EFF-090309	214672-001
MID-090309	214672-002
FB-090309	214672-003
EX5-090309	214672-004
INF-090309	214672-005
TRIP BLANK	214672-006

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Troy Bobier
Project Manager

Date: 09/16/2009

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**214672**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486.002**
Location:	**MEW**
Request Date:	**09/03/09**
Samples Received:	**09/03/09**

This data package contains sample and QC results for six water samples, requested for the above referenced project on 09/03/09. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
Methylene chloride was detected between the MDL and the RL in the method blank for batch 154911; this analyte was not detected in samples at or above the RL. Methylene chloride was detected between the MDL and the RL in a number of samples; this analyte is a common laboratory contaminant. TRIP BLANK (lab # 214672-006) was analyzed with more than 1 mL of headspace in the VOA vial. No other analytical problems were encountered.

CHAIN-OF-CUSTODY RECORD 214672 OAK 16085

PROJECT NAME: MEW		DATE: 9-3-09	PAGE 1 OF 1
PROJECT NUMBER: 1486.002	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jen Bennett	LABORATORY ADDRESS:		
TURNAROUND TIME: standard			
SAMPLE SHIPMENT METHOD: hand	LABORATORY CONTACT:		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): R. David Pearson

ANALYSES: 8260 B 8010 List

	DATE	TIME	SAMPLE NUMBER	8260 B	8010 List	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
1	9-3-09	1320	EFF-090309	X			W			X		3	
2		1330	MID-090309	X			W			X		3	
3		1340	FB-090309	X			W			X		3	
4		1350	EX5-090309	X			W			X		3	
5		1400	INF-090309	X			W			X		3	
6		trip	blank	X						X		1	

RDP

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: R. David Pearson	9/3/09	1510	SIGNATURE: [illegible]	9/3	1510
PRINTED NAME: R. David Pearson			PRINTED NAME: Fed Bob 9		
COMPANY: AMEC			COMPANY: C&T		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 16

SAMPLING COMMENTS: iced & intact.

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

Tracy Babjar

From: "Rush, Harold" <Harold.Rush@amec.com>
To: "Bennett, Jennifer" <Jennifer.Bennett@amec.com>; <tracy.babjar@ctberk.com>
Sent: Wednesday, September 16, 2009 11:40 AM
Subject: RE: 1486.002 - C&T Login Summary (214672)

Tracy,

As we discussed today, the effluent limitation for Freon 113 under the new VOC General NPDES Permit is 5 ug/L. Therefore, a reporting limit of 2 ug/L is acceptable.

Regards,

Harold C. Rush | Project Engineer
AMEC Geomatrix, Inc. | 2101 Webster St., 12th Flr | Oakland, CA 94612
510.663.4234 (direct) | 510.663.4141 (fax) | harold.rush@amec.com

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You may have heard that AMEC has acquired Geomatrix. Our physical address and phone numbers will remain the same, but I have a new email address harold.rush@amec.com. Emails sent to hrush@geomatrix.com will be active until the end of the year. You can still reply to this email address or use my new email address. Please update your address book with my new email address. Thanks.

-----Original Message-----
From: Bennett, Jennifer
Sent: Tuesday, September 15, 2009 12:40 PM
To: Rush, Harold
Subject: Fw: 1486.002 - C&T Login Summary (214672)

Harold, do you have time to check the permit to see if this ok?

Thanks, Jennifer

From: Tracy Babjar
To: Bennett, Jennifer
Sent: Tue Sep 15 15:11:49 2009
Subject: 1486.002 - C&T Login Summary (214672)

Hi Jenifer, I left you a voice mail about Freon 113. Would it be ok for us to report it at 2.0 ug/L instead of 1.0ug/L? Please respond by email or phone call 510-204-2226. Thank you. Tracy

C&T Login Summary for 214672

Project: 1486.002 **Site:** MEW **Lab Login #:** 214672 **Report Due:** 09/11/09	**Report To:** AMEC Geomatrix, Inc. 2101 Webster Street 12th Floor Oakland, CA 94612	**Bill To:** AMEC Geomatri 2101 Webster Str 12th Floor Oakland, CA 946

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 214672 Date Received 9-3-9 Number of coolers 1
Client AMEC Project AMEC

Date Opened 9-3-9 By (print) SKWAZS (sign) [signature]
Date Logged in 9/4/4 By (print) [illegible] (sign) [illegible]

1. Did cooler come with a shipping slip (airbill, etc) ____ YES NO
   Shipping info ____
2A. Were custody seals present? ... ☐ YES (circle) on cooler on samples ☒ NO
   How many ____ Name ____ Date ____
2B. Were custody seals intact upon arrival? ____ YES NO N/A
3. Were custody papers dry and intact when received? ____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? ____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ____ YES NO
6. Indicate the packing in cooler: (if other, describe) ____

   ☐ Bubble Wrap ☒ Foam blocks ☒ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels
7. Temperature documentation:

   Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) ____

   ☒ Samples Received on ice & cold without a temperature blank

   ☐ Samples received on ice directly from the field. Cooling process had begun
8. Were Method 5035 sampling containers present? ____ YES NO
   If YES, what time were they transferred to freezer? ____
9. Did all bottles arrive unbroken/unopened? ____ YES NO
10. Are samples in the appropriate containers for indicated tests? ____ YES NO
11. Are sample labels present, in good condition and complete? ____ YES NO
12. Do the sample labels agree with custody papers? ____ YES NO
13. Was sufficient amount of sample sent for tests requested? ____ YES NO
14. Are the samples appropriately preserved? ____ YES NO N/A
15. Are bubbles > 6mm absent in VOA samples? ____ YES NO N/A
16. Was the client contacted concerning this sample delivery? ____ YES NO
    If YES, Who was called? ____ By ____ Date: ____

COMMENTS

TB HAS BUBBLE

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	214672	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	EFF-090309	Batch#:	154911
Lab ID:	214672-001	Sampled:	09/03/09
Matrix:	Water	Received:	09/03/09
Units:	ug/L	Analyzed:	09/15/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	2.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	<20 U ~~0.3 J~~	20	0.07
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	102	75-137
Toluene-d8	101	90-111
Bromofluorobenzene	107	83-123

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	214672	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	MID-090309	Batch#:	154911
Lab ID:	214672-002	Sampled:	09/03/09
Matrix:	Water	Received:	09/03/09
Units:	ug/L	Analyzed:	09/15/09
Diln Fac:	2.000		

Analyte	Result	RL	MDL
Chloromethane	ND	2.0	
Vinyl Chloride	ND	1.0	
Bromomethane	ND	2.0	
Chloroethane	ND	2.0	
Trichlorofluoromethane	ND	2.0	
Freon 113	130	4.0	
1,1-Dichloroethene	ND	1.0	
Methylene Chloride	<40 U ~~1.0 J~~	40	0.1
trans-1,2-Dichloroethene	ND	1.0	
1,1-Dichloroethane	2.5	1.0	
cis-1,2-Dichloroethene	ND	1.0	
Chloroform	ND	2.0	
1,1,1-Trichloroethane	5.7	1.0	
Carbon Tetrachloride	ND	1.0	
1,2-Dichloroethane	ND	1.0	
Trichloroethene	ND	1.0	
1,2-Dichloropropane	ND	1.0	
Bromodichloromethane	ND	1.0	
cis-1,3-Dichloropropene	ND	1.0	
trans-1,3-Dichloropropene	ND	1.0	
1,1,2-Trichloroethane	ND	1.0	
Tetrachloroethene	ND	1.0	
Dibromochloromethane	ND	1.0	
Chlorobenzene	ND	1.0	
Bromoform	ND	1.0	
1,1,2,2-Tetrachloroethane	ND	1.0	
1,3-Dichlorobenzene	ND	1.0	
1,4-Dichlorobenzene	ND	1.0	
1,2-Dichlorobenzene	ND	1.0	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	75-137
Toluene-d8	102	90-111
Bromofluorobenzene	107	83-123

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	214672	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	FB-090309	Batch#:	154911
Lab ID:	214672-003	Sampled:	09/03/09
Matrix:	Water	Received:	09/03/09
Units:	ug/L	Analyzed:	09/15/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	2.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	0.4 J	20	0.07
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	102	75-137
Toluene-d8	102	90-111
Bromofluorobenzene	113	83-123

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	214672	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	EX5-090309	Batch#:	154911
Lab ID:	214672-004	Sampled:	09/03/09
Matrix:	Water	Received:	09/03/09
Units:	ug/L	Analyzed:	09/15/09
Diln Fac:	20.00		

Analyte	Result	RL	MDL
Chloromethane	ND	20	
Vinyl Chloride	ND	10	
Bromomethane	ND	20	
Chloroethane	ND	20	
Trichlorofluoromethane	ND	20	
Freon 113	130	40	
1,1-Dichloroethene	ND	10	
Methylene Chloride	<400 U ~~6.8~~ ~~J~~-	400	1.4
trans-1,2-Dichloroethene	ND	10	
1,1-Dichloroethane	ND	10	
cis-1,2-Dichloroethene	190	10	
Chloroform	ND	20	
1,1,1-Trichloroethane	ND	10	
Carbon Tetrachloride	ND	10	
1,2-Dichloroethane	ND	10	
Trichloroethene	1,400	10	
1,2-Dichloropropane	ND	10	
Bromodichloromethane	ND	10	
cis-1,3-Dichloropropene	ND	10	
trans-1,3-Dichloropropene	ND	10	
1,1,2-Trichloroethane	ND	10	
Tetrachloroethene	ND	10	
Dibromochloromethane	ND	10	
Chlorobenzene	ND	10	
Bromoform	ND	10	
1,1,2,2-Tetrachloroethane	ND	10	
1,3-Dichlorobenzene	ND	10	
1,4-Dichlorobenzene	ND	10	
1,2-Dichlorobenzene	ND	10	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	75-137
Toluene-d8	102	90-111
Bromofluorobenzene	111	83-123

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	214672	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	INF-090309	Batch#:	154690
Lab ID:	214672-005	Sampled:	09/03/09
Matrix:	Water	Received:	09/03/09
Units:	ug/L	Analyzed:	09/09/09
Diln Fac:	20.00		

Analyte	Result	RL	MDL
Chloromethane	ND	20	
Vinyl Chloride	ND	10	
Bromomethane	ND	20	
Chloroethane	ND	20	
Trichlorofluoromethane	ND	20	
Freon 113	110	40	
1,1-Dichloroethene	ND	10	
Methylene Chloride	ND	400	20
trans-1,2-Dichloroethene	ND	10	
1,1-Dichloroethane	ND	10	
cis-1,2-Dichloroethene	170	10	
Chloroform	ND	20	
1,1,1-Trichloroethane	ND	10	
Carbon Tetrachloride	ND	10	
1,2-Dichloroethane	ND	10	
Trichloroethene	1,400	10	
1,2-Dichloropropane	ND	10	
Bromodichloromethane	ND	10	
cis-1,3-Dichloropropene	ND	10	
trans-1,3-Dichloropropene	ND	10	
1,1,2-Trichloroethane	ND	10	
Tetrachloroethene	ND	10	
Dibromochloromethane	ND	10	
Chlorobenzene	ND	10	
Bromoform	ND	10	
1,1,2,2-Tetrachloroethane	ND	10	
1,3-Dichlorobenzene	ND	10	
1,4-Dichlorobenzene	ND	10	
1,2-Dichlorobenzene	ND	10	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	96	75-137
Toluene-d8	97	90-111
Bromofluorobenzene	95	83-123

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	214672	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	154911
Lab ID:	214672-006	Sampled:	09/03/09
Matrix:	Water	Received:	09/03/09
Units:	ug/L	Analyzed:	09/15/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	2.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	7.2 J	20	0.07
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	100	75-137
Toluene-d8	101	90-111
Bromofluorobenzene	107	83-123

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	214672	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC511198	Batch#:	154690
Matrix:	Water	Analyzed:	09/09/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	2.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	ND	20	1.0
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	94	75-137
Toluene-d8	95	90-111
Bromofluorobenzene	96	83-123

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	214672	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	154690
Units:	ug/L	Analyzed:	09/09/09
Diln Fac:	1.000		

Type: BS Lab ID: QC511199

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	15.00	14.26	95	80-120
Trichloroethene	15.00	14.40	96	80-120
Chlorobenzene	15.00	14.14	94	85-115

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	95	75-137
Toluene-d8	95	90-111
Bromofluorobenzene	94	83-123

Type: BSD Lab ID: QC511200

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	15.00	14.72	98	80-120	3	35
Trichloroethene	15.00	14.72	98	80-120	2	35
Chlorobenzene	15.00	14.43	96	85-115	2	35

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	94	75-137
Toluene-d8	94	90-111
Bromofluorobenzene	93	83-123

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	214672	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	154911
Units:	ug/L	Analyzed:	09/15/09
Diln Fac:	1.000		

Type: BS Lab ID: QC512042

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	25.93	104	80-120
Trichloroethene	25.00	25.87	103	80-120
Chlorobenzene	25.00	25.58	102	85-115

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	100	75-137
Toluene-d8	100	90-111
Bromofluorobenzene	97	83-123

Type: BSD Lab ID: QC512043

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	25.09	100	80-120	3	35
Trichloroethene	25.00	24.94	100	80-120	4	35
Chlorobenzene	25.00	24.67	99	85-115	4	35

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	75-137
Toluene-d8	100	90-111
Bromofluorobenzene	103	83-123

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	214672	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC512044	Batch#:	154911
Matrix:	Water	Analyzed:	09/15/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	2.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	0.1 J	20	0.07
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	75-137
Toluene-d8	101	90-111
Bromofluorobenzene	107	83-123

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 215764
ANALYTICAL REPORT

AMEC Geomatrix, Inc. 2101 Webster Street Oakland, CA 94612	Project : 1486.002 Location : MEW Level : II

Sample ID	Lab ID
EFF-101409	215764-001
MID-101409	215764-002
INF-101409	215764-003
TRIP BLANK	215764-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Troy Baker
Project Manager

Date: 10/21/2009

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**215764**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486.002**
Location:	**MEW**
Request Date:	**10/15/09**
Samples Received:	**10/15/09**

This data package contains sample and QC results for four water samples, requested for the above referenced project on 10/15/09. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):
Methylene chloride was detected between the MDL and the RL in MID-101409 (lab # 215764-002), INF-101409 (lab # 215764-003), and TRIP BLANK (lab # 215764-004); this analyte is a common laboratory contaminant. No other analytical problems were encountered.

CHAIN-OF-CUSTODY RECORD 215764 OAK 16010

PROJECT NAME: MEW			DATE: 10-14-09 PAGE 1 OF 1
PROJECT NUMBER: 1486.002	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jen Bennett	LABORATORY ADDRESS:		
TURNAROUND TIME: standard			
SAMPLE SHIPMENT METHOD: Lab pick up	LABORATORY CONTACT:		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): R David Pearson

ANALYSES

	DATE	TIME	SAMPLE NUMBER	8260B 8010 List	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
1	10/14/09	1200	EFF-101409	X	40 ml VOA	W		HCl	X		3	
2		1210	MID-101409	X		W			X		3	
3		1220	INF-101409	X		W			X		3	
4			trip blank	X		W			X		1	

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: R David Pearson	10/14/09	1330	SIGNATURE: Elias Tsadik		
PRINTED NAME: R David Pearson			PRINTED NAME: Elias Tsadik		
COMPANY: AMEC			COMPANY: C+T		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 10

SAMPLING COMMENTS:

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 215764 Date Received 10-15 Number of coolers 1
Client AMEC Project MEW

Date Opened 10-15 By (print) Elias (sign) Elias Tsadik
Date Logged in 10-15 By (print) Elias T. (sign) Elias Tsadik

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
   Shipping info_____

2A. Were custody seals present? ... ☒ YES (circle) (on cooler) on samples ☐ NO
   How many 1 Name Daniel P. Date 10-14
2B. Were custody seals intact upon arrival? _____ (YES) NO N/A
3. Were custody papers dry and intact when received? _____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☒ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.0

☐ Samples Received on ice & cold without a temperature blank

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES (NO)
   If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO
10. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
11. Are sample labels present, in good condition and complete? _____ (YES) NO
12. Do the sample labels agree with custody papers? _____ (YES) NO
13. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
14. Are the samples appropriately preserved? _____ (YES) NO N/A
15. Are bubbles > 6mm absent in VOA samples? _____ (YES) NO N/A
16. Was the client contacted concerning this sample delivery? _____ YES NO
   If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	215764	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	EFF-101409	Batch#:	156194
Lab ID:	215764-001	Sampled:	10/14/09
Matrix:	Water	Received:	10/15/09
Units:	ug/L	Analyzed:	10/19/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	2.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	ND	20	0.3
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	96	73-140
Toluene-d8	104	88-113
Bromofluorobenzene	105	80-127

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	215764	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	MID-101409	Batch#:	156194
Lab ID:	215764-002	Sampled:	10/14/09
Matrix:	Water	Received:	10/15/09
Units:	ug/L	Analyzed:	10/19/09
Diln Fac:	2.000		

Analyte	Result	RL	MDL
Chloromethane	ND	2.0	
Vinyl Chloride	ND	1.0	
Bromomethane	ND	2.0	
Chloroethane	ND	2.0	
Trichlorofluoromethane	ND	2.0	
Freon 113	120	4.0	
1,1-Dichloroethene	ND	1.0	
Methylene Chloride	<40 U ~~4.3 J~~	40	0.6
trans-1,2-Dichloroethene	ND	1.0	
1,1-Dichloroethane	2.2	1.0	
cis-1,2-Dichloroethene	ND	1.0	
Chloroform	ND	2.0	
1,1,1-Trichloroethane	4.5	1.0	
Carbon Tetrachloride	ND	1.0	
1,2-Dichloroethane	ND	1.0	
Trichloroethene	ND	1.0	
1,2-Dichloropropane	ND	1.0	
Bromodichloromethane	ND	1.0	
cis-1,3-Dichloropropene	ND	1.0	
trans-1,3-Dichloropropene	ND	1.0	
1,1,2-Trichloroethane	ND	1.0	
Tetrachloroethene	ND	1.0	
Dibromochloromethane	ND	1.0	
Chlorobenzene	ND	1.0	
Bromoform	ND	1.0	
1,1,2,2-Tetrachloroethane	ND	1.0	
1,3-Dichlorobenzene	ND	1.0	
1,4-Dichlorobenzene	ND	1.0	
1,2-Dichlorobenzene	ND	1.0	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	87	73-140
Toluene-d8	101	88-113
Bromofluorobenzene	105	80-127

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	215764	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	INF-101409	Batch#:	156194
Lab ID:	215764-003	Sampled:	10/14/09
Matrix:	Water	Received:	10/15/09
Units:	ug/L	Analyzed:	10/19/09
Diln Fac:	20.00		

Analyte	Result	RL	MDL
Chloromethane	ND	20	
Vinyl Chloride	ND	10	
Bromomethane	ND	20	
Chloroethane	ND	20	
Trichlorofluoromethane	ND	20	
Freon 113	120	40	
1,1-Dichloroethene	11	10	
Methylene Chloride	<400 U ~~41 J~~	400	6.0
trans-1,2-Dichloroethene	ND	10	
1,1-Dichloroethane	ND	10	
cis-1,2-Dichloroethene	180	10	
Chloroform	ND	20	
1,1,1-Trichloroethane	ND	10	
Carbon Tetrachloride	ND	10	
1,2-Dichloroethane	ND	10	
Trichloroethene	1,500	10	
1,2-Dichloropropane	ND	10	
Bromodichloromethane	ND	10	
cis-1,3-Dichloropropene	ND	10	
trans-1,3-Dichloropropene	ND	10	
1,1,2-Trichloroethane	ND	10	
Tetrachloroethene	ND	10	
Dibromochloromethane	ND	10	
Chlorobenzene	ND	10	
Bromoform	ND	10	
1,1,2,2-Tetrachloroethane	ND	10	
1,3-Dichlorobenzene	ND	10	
1,4-Dichlorobenzene	ND	10	
1,2-Dichlorobenzene	ND	10	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	91	73-140
Toluene-d8	103	88-113
Bromofluorobenzene	104	80-127

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	215764	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	156194
Lab ID:	215764-004	Sampled:	10/14/09
Matrix:	Water	Received:	10/15/09
Units:	ug/L	Analyzed:	10/19/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	2.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	0.4 J	20	0.3
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	93	73-140
Toluene-d8	104	88-113
Bromofluorobenzene	108	80-127

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	215764	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC517165	Batch#:	156194
Matrix:	Water	Analyzed:	10/19/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	21.89	88	80-120
Trichloroethene	25.00	24.71	99	80-120
Chlorobenzene	25.00	25.83	103	84-118

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	96	73-140
Toluene-d8	104	88-113
Bromofluorobenzene	100	80-127

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	215764	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC517166	Batch#:	156194
Matrix:	Water	Analyzed:	10/19/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	2.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	ND	20	0.3
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	96	73-140
Toluene-d8	103	88-113
Bromofluorobenzene	104	80-127

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	215764	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	156194
MSS Lab ID:	215451-003	Sampled:	10/05/09
Matrix:	Water	Received:	10/06/09
Units:	ug/L	Analyzed:	10/19/09
Diln Fac:	1.000		

Type: MS Lab ID: QC517197

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	5.698	25.00	29.40	95	40-150
Trichloroethene	39.86	25.00	62.37	90	40-150
Chlorobenzene	<0.1006	25.00	27.07	108	40-150

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	94	73-140
Toluene-d8	103	88-113
Bromofluorobenzene	103	80-127

Type: MSD Lab ID: QC517198

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	28.61	92	40-150	3	35
Trichloroethene	25.00	60.31	82	40-150	3	35
Chlorobenzene	25.00	25.98	104	40-150	4	35

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	96	73-140
Toluene-d8	104	88-113
Bromofluorobenzene	98	80-127

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 216538
ANALYTICAL REPORT

AMEC Geomatrix, Inc. 2101 Webster Street Oakland, CA 94612	Project : 1486.002 EE Location : MEW Level : II

Sample ID	Lab ID
FB-111309	216538-001
EFF-111309	216538-002
MID-111309	216538-003
INF-111309	216538-004
EX5-111309	216538-005
TRIP BLANK	216538-006

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/24/2009
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**216538**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486.002 EE**
Location:	**MEW**
Request Date:	**11/13/09**
Samples Received:	**11/13/09**

This data package contains sample and QC results for six water samples, requested for the above referenced project on 11/13/09. The samples were received on ice and intact, directly from the field.

Volatile Organics by GC/MS (EPA 8260B):
Methylene chloride was detected between the MDL and the RL in a number of samples; this analyte is a common laboratory contaminant. TRIP BLANK (lab # 216538-006) was analyzed with more than 1 mL of headspace in the VOA vial. No other analytical problems were encountered.

CHAIN-OF-CUSTODY RECORD

216538

OAK 16056

PROJECT NAME: MEW			DATE: 11/13/09 PAGE 1 OF 1
PROJECT NUMBER: 1486.002.EE	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION: AMEC Geomatrix	REPORTING REQUIREMENTS: n/a
RESULTS TO: Jennifer Bennett	LABORATORY ADDRESS: 2323 Fifth St		
TURNAROUND TIME: standard	Berkeley, CA 94710		
SAMPLE SHIPMENT METHOD: lab dropoff	LABORATORY CONTACT: Tracy Babjar		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): J Bennett

ANALYSES: 8260B

	DATE	TIME	SAMPLE NUMBER	8260B	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
1	11/13/09	1214	FB-111309	X	40mL VOAs		N	HCl	Y	N	3	—
2		1220	EFF-111309	X			N	HCl	Y	N	3	—
3		1225	MID-111309	X			N	HCl	Y	N	3	—
4		1232	INF-111309	X			N	HCl	Y	N	3	—
5		1239	EX5-111309	X			N	HCl	Y	N	3	—
6		1245	TRIP BLANK	X			N	HCl	Y	N	1	—

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: J Bennett	11/13/09	1530	SIGNATURE: Pat Gonzalez	11/13/09	1530
PRINTED NAME: J. R. Bennett			PRINTED NAME: Pat Gonzalez		
COMPANY: AMEC Geomatrix			COMPANY: Curtis & Tompkins		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 16

SAMPLING COMMENTS: (*) method 8260B (VOCs) with 8010 list

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 216538 Date Received 11/13/09 Number of coolers 1
Client AMEC Project MEW

Date Opened 11/13/09 By (print) M. VILLANUEVA (sign) [signature]
Date Logged in ✓ By (print) ✓ (sign) ✓

1. Did cooler come with a shipping slip (airbill, etc) _____ YES NO
   Shipping info _____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☑ NO
   How many _____ Name _____ Date _____
2B. Were custody seals intact upon arrival? _____ YES NO N/A
3. Were custody papers dry and intact when received? _____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ YES NO
6. Indicate the packing in cooler: (if other, describe) _____

   ☑ Bubble Wrap ☐ Foam blocks ☑ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

   Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) 9.1

   ☐ Samples Received on ice & cold without a temperature blank

   ☑ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES NO
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ YES NO
10. Are samples in the appropriate containers for indicated tests? _____ YES NO
11. Are sample labels present, in good condition and complete? _____ YES NO
12. Do the sample labels agree with custody papers? _____ YES NO
13. Was sufficient amount of sample sent for tests requested? _____ YES NO
14. Are the samples appropriately preserved? _____ YES NO N/A
15. Are bubbles > 6mm absent in VOA samples? _____ YES NO N/A
16. Was the client contacted concerning this sample delivery? _____ YES NO
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____
_____
_____
_____
_____
_____
_____
_____

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	216538	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	FB-111309	Batch#:	157474
Lab ID:	216538-001	Sampled:	11/13/09
Matrix:	Water	Received:	11/13/09
Units:	ug/L	Analyzed:	11/20/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.1
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	0.6 J	20	0.2
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	0.5	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.1
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	91	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	90	80-127

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	216538	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	EFF-111309	Batch#:	157474
Lab ID:	216538-002	Sampled:	11/13/09
Matrix:	Water	Received:	11/13/09
Units:	ug/L	Analyzed:	11/20/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.1
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	<20 U ~~0.6 J~~	20	0.2
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	0.5	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.1
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	94	73-140
Toluene-d8	94	88-113
Bromofluorobenzene	89	80-127

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	216538	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	MID-111309	Batch#:	157474
Lab ID:	216538-003	Sampled:	11/13/09
Matrix:	Water	Received:	11/13/09
Units:	ug/L	Analyzed:	11/20/09
Diln Fac:	2.000		

Analyte	Result	RL	MDL
Chloromethane	ND	2.0	0.5
Vinyl Chloride	ND	1.0	0.2
Bromomethane	ND	2.0	0.4
Chloroethane	ND	2.0	0.4
Trichlorofluoromethane	ND	2.0	0.4
Freon 113	140	4.0	0.2
1,1-Dichloroethene	0.7 J	1.0	0.3
Methylene Chloride	<40 U ~~0.8 J~~	40	0.3
trans-1,2-Dichloroethene	ND	1.0	0.3
1,1-Dichloroethane	2.8	1.0	0.2
cis-1,2-Dichloroethene	ND	1.0	0.3
Chloroform	0.4 J	1.0	0.3
1,1,1-Trichloroethane	5.8	1.0	0.3
Carbon Tetrachloride	ND	1.0	0.2
1,2-Dichloroethane	ND	1.0	0.2
Trichloroethene	ND	1.0	0.3
1,2-Dichloropropane	ND	1.0	0.3
Bromodichloromethane	ND	1.0	0.2
cis-1,3-Dichloropropene	ND	1.0	0.2
trans-1,3-Dichloropropene	ND	1.0	0.2
1,1,2-Trichloroethane	ND	1.0	0.2
Tetrachloroethene	ND	1.0	0.3
Dibromochloromethane	ND	1.0	0.2
Chlorobenzene	ND	1.0	0.2
Bromoform	ND	1.0	0.3
1,1,2,2-Tetrachloroethane	ND	1.0	0.2
1,3-Dichlorobenzene	ND	1.0	0.2
1,4-Dichlorobenzene	ND	1.0	0.2
1,2-Dichlorobenzene	ND	1.0	0.2

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	94	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	88	80-127

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	216538	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	INF-111309	Batch#:	157474
Lab ID:	216538-004	Sampled:	11/13/09
Matrix:	Water	Received:	11/13/09
Units:	ug/L	Analyzed:	11/20/09
Diln Fac:	25.00		

Analyte	Result	RL	MDL
Chloromethane	ND	25	6.7
Vinyl Chloride	2.8 J	13	2.5
Bromomethane	ND	25	5.0
Chloroethane	ND	25	5.0
Trichlorofluoromethane	ND	25	5.0
Freon 113	130	50	2.5
1,1-Dichloroethene	8.2 J	13	3.4
Methylene Chloride	<500 U 4.0 J	500	3.8
trans-1,2-Dichloroethene	4.9 J	13	3.5
1,1-Dichloroethane	5.0 J	13	2.5
cis-1,2-Dichloroethene	210	13	3.7
Chloroform	ND	13	3.6
1,1,1-Trichloroethane	7.7 J	13	3.5
Carbon Tetrachloride	ND	13	2.7
1,2-Dichloroethane	ND	13	2.5
Trichloroethene	1,400	13	3.3
1,2-Dichloropropane	ND	13	3.4
Bromodichloromethane	ND	13	2.5
cis-1,3-Dichloropropene	ND	13	2.6
trans-1,3-Dichloropropene	ND	13	2.5
1,1,2-Trichloroethane	ND	13	2.5
Tetrachloroethene	5.3 J	13	3.3
Dibromochloromethane	ND	13	2.5
Chlorobenzene	ND	13	2.5
Bromoform	ND	13	3.5
1,1,2,2-Tetrachloroethane	ND	13	2.5
1,3-Dichlorobenzene	ND	13	2.8
1,4-Dichlorobenzene	ND	13	2.5
1,2-Dichlorobenzene	ND	13	2.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	94	73-140
Toluene-d8	94	88-113
Bromofluorobenzene	88	80-127

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	216538	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	EX5-111309	Batch#:	157474
Lab ID:	216538-005	Sampled:	11/13/09
Matrix:	Water	Received:	11/13/09
Units:	ug/L	Analyzed:	11/20/09
Diln Fac:	25.00		

Analyte	Result	RL	MDL
Chloromethane	ND	25	6.7
Vinyl Chloride	3.5 J	13	2.5
Bromomethane	ND	25	5.0
Chloroethane	ND	25	5.0
Trichlorofluoromethane	ND	25	5.0
Freon 113	140	50	2.5
1,1-Dichloroethene	8.8 J	13	3.4
Methylene Chloride	ND	500	3.8
trans-1,2-Dichloroethene	ND	13	3.5
1,1-Dichloroethane	5.1 J	13	2.5
cis-1,2-Dichloroethene	230	13	3.7
Chloroform	ND	13	3.6
1,1,1-Trichloroethane	5.7 J	13	3.5
Carbon Tetrachloride	ND	13	2.7
1,2-Dichloroethane	ND	13	2.5
Trichloroethene	1,400	13	3.3
1,2-Dichloropropane	ND	13	3.4
Bromodichloromethane	ND	13	2.5
cis-1,3-Dichloropropene	ND	13	2.6
trans-1,3-Dichloropropene	ND	13	2.5
1,1,2-Trichloroethane	ND	13	2.5
Tetrachloroethene	4.8 J	13	3.3
Dibromochloromethane	ND	13	2.5
Chlorobenzene	ND	13	2.5
Bromoform	ND	13	3.5
1,1,2,2-Tetrachloroethane	ND	13	2.5
1,3-Dichlorobenzene	ND	13	2.8
1,4-Dichlorobenzene	ND	13	2.5
1,2-Dichlorobenzene	ND	13	2.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	93	73-140
Toluene-d8	96	88-113
Bromofluorobenzene	89	80-127

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	216538	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	157474
Lab ID:	216538-006	Sampled:	11/13/09
Matrix:	Water	Received:	11/13/09
Units:	ug/L	Analyzed:	11/20/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.1
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	0.3 J	20	0.2
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	0.5	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.1
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	92	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	88	80-127

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	216538	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	157474
Units:	ug/L	Analyzed:	11/20/09
Diln Fac:	1.000		

Type: BS Lab ID: QC522411

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	28.92	116	71-136
Trichloroethene	25.00	27.28	109	80-124
Chlorobenzene	25.00	27.33	109	84-118

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	92	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	85	80-127

Type: BSD Lab ID: QC522412

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	27.45	110	71-136	5	15
Trichloroethene	25.00	26.32	105	80-124	4	13
Chlorobenzene	25.00	26.41	106	84-118	3	11

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	94	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	86	80-127

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	216538	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002 EE	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC522413	Batch#:	157474
Matrix:	Water	Analyzed:	11/20/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	0.3
Vinyl Chloride	ND	0.5	0.1
Bromomethane	ND	1.0	0.2
Chloroethane	ND	1.0	0.2
Trichlorofluoromethane	ND	1.0	0.2
Freon 113	ND	2.0	0.1
1,1-Dichloroethene	ND	0.5	0.1
Methylene Chloride	ND	20	0.2
trans-1,2-Dichloroethene	ND	0.5	0.1
1,1-Dichloroethane	ND	0.5	0.1
cis-1,2-Dichloroethene	ND	0.5	0.1
Chloroform	ND	0.5	0.1
1,1,1-Trichloroethane	ND	0.5	0.1
Carbon Tetrachloride	ND	0.5	0.1
1,2-Dichloroethane	ND	0.5	0.1
Trichloroethene	ND	0.5	0.1
1,2-Dichloropropane	ND	0.5	0.1
Bromodichloromethane	ND	0.5	0.1
cis-1,3-Dichloropropene	ND	0.5	0.1
trans-1,3-Dichloropropene	ND	0.5	0.1
1,1,2-Trichloroethane	ND	0.5	0.1
Tetrachloroethene	ND	0.5	0.1
Dibromochloromethane	ND	0.5	0.1
Chlorobenzene	ND	0.5	0.1
Bromoform	ND	0.5	0.1
1,1,2,2-Tetrachloroethane	ND	0.5	0.1
1,3-Dichlorobenzene	ND	0.5	0.1
1,4-Dichlorobenzene	ND	0.5	0.1
1,2-Dichlorobenzene	ND	0.5	0.1

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	94	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	89	80-127

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 217375
ANALYTICAL REPORT

AMEC Geomatrix, Inc.	Project : 1486.002
2101 Webster Street	Location : MEW
Oakland, CA 94612	Level : II

Sample ID	Lab ID
EFF-121709	217375-001
MID-121709	217375-002
INF-121709	217375-003
TRIP BLANK	217375-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Troy Baker
Project Manager

Date: 12/30/2009

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**217375**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486.002**
Location:	**MEW**
Request Date:	**12/18/09**
Samples Received:	**12/18/09**

This data package contains sample and QC results for four water samples, requested for the above referenced project on 12/18/09. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 8260B):

Methylene chloride was detected between the MDL and the RL in EFF-121709 (lab # 217375-001) and TRIP BLANK (lab # 217375-004); this analyte is a common laboratory contaminant. No other analytical problems were encountered.

CHAIN-OF-CUSTODY RECORD

217375

OAK 16165

PROJECT NAME: MEW		DATE: 12-17-09	PAGE 1 OF 1
PROJECT NUMBER: 1480.002 EE	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jen Bennett	LABORATORY ADDRESS:		
TURNAROUND TIME: standard			
SAMPLE SHIPMENT METHOD: Lab pick up	LABORATORY CONTACT:		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE):

ANALYSES

DATE	TIME	SAMPLE NUMBER	8260B*	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
12/17/09	1120	EFF-121709	X		W			X		3	*8010 List
	1130	MID-121709	X		W			X		3	
	1138	INF-121709	X		W			X		3	
		trip blank	X		W			X		1	

RDP

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	TOTAL NUMBER OF CONTAINERS: 10
SIGNATURE: R. David Pearson	12/17/09	1530	SIGNATURE:			SAMPLING COMMENTS:
PRINTED NAME: R David Pearson			PRINTED NAME:			
COMPANY: AMEC-OAK			COMPANY:			
SIGNATURE:			SIGNATURE:			
PRINTED NAME:			PRINTED NAME:			
COMPANY:			COMPANY:			
SIGNATURE:			SIGNATURE:			
PRINTED NAME:			PRINTED NAME:			
COMPANY:			COMPANY:			

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 217375 Date Received 12-18 Number of coolers 1
Client AMEC Project MEW

Date Opened 12-18 By (print) Elias Tsadik (sign) Elias Tsadik
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) ____ YES (NO)
   Shipping info ____
2A. Were custody seals present? ... ☒ YES (circle) (on cooler) on samples ET ☒ NO
   How many 1 Name R. David Date 12-17
2B. Were custody seals intact upon arrival? ____ YES NO (N/A)
3. Were custody papers dry and intact when received? ____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? ____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ____ (YES) NO
6. Indicate the packing in cooler: (if other, describe) ____

   ☐ Bubble Wrap ☒ Foam blocks ☒ Bags ☐ None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels
7. Temperature documentation:

   Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 2-7

   ET ☒ Samples Received on ice & cold without a temperature blank

   ☐ Samples received on ice directly from the field. Cooling process had begun
8. Were Method 5035 sampling containers present? ____ YES (NO)
   If YES, what time were they transferred to freezer? ____
9. Did all bottles arrive unbroken/unopened? ____ (YES) NO
10. Are samples in the appropriate containers for indicated tests? ____ (YES) NO
11. Are sample labels present, in good condition and complete? ____ (YES) NO
12. Do the sample labels agree with custody papers? ____ (YES) NO
13. Was sufficient amount of sample sent for tests requested? ____ (YES) NO
14. Are the samples appropriately preserved? ____ (YES) NO N/A
15. Are bubbles > 6mm absent in VOA samples? ____ (YES) NO N/A
16. Was the client contacted concerning this sample delivery? ____ YES NO
   If YES, Who was called? ____ By ____ Date: ____

COMMENTS

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	217375	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	EFF-121709	Batch#:	158657
Lab ID:	217375-001	Sampled:	12/17/09
Matrix:	Water	Received:	12/18/09
Units:	ug/L	Analyzed:	12/28/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	2.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	<20 U ~~0.3 J~~	20	0.2
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	109	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	99	80-127

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	217375	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	MID-121709	Batch#:	158657
Lab ID:	217375-002	Sampled:	12/17/09
Matrix:	Water	Received:	12/18/09
Units:	ug/L	Analyzed:	12/28/09
Diln Fac:	2.000		

Analyte	Result	RL	MDL
Chloromethane	ND	2.0	
Vinyl Chloride	ND	1.0	
Bromomethane	ND	2.0	
Chloroethane	ND	2.0	
Trichlorofluoromethane	ND	2.0	
Freon 113	120	4.0	
1,1-Dichloroethene	ND	1.0	
Methylene Chloride	ND	40	0.3
trans-1,2-Dichloroethene	ND	1.0	
1,1-Dichloroethane	2.9	1.0	
cis-1,2-Dichloroethene	ND	1.0	
Chloroform	ND	2.0	
1,1,1-Trichloroethane	6.6	1.0	
Carbon Tetrachloride	ND	1.0	
1,2-Dichloroethane	ND	1.0	
Trichloroethene	ND	1.0	
1,2-Dichloropropane	ND	1.0	
Bromodichloromethane	ND	1.0	
cis-1,3-Dichloropropene	ND	1.0	
trans-1,3-Dichloropropene	ND	1.0	
1,1,2-Trichloroethane	ND	1.0	
Tetrachloroethene	ND	1.0	
Dibromochloromethane	ND	1.0	
Chlorobenzene	ND	1.0	
Bromoform	ND	1.0	
1,1,2,2-Tetrachloroethane	ND	1.0	
1,3-Dichlorobenzene	ND	1.0	
1,4-Dichlorobenzene	ND	1.0	
1,2-Dichlorobenzene	ND	1.0	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	110	73-140
Toluene-d8	96	88-113
Bromofluorobenzene	95	80-127

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	217375	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	INF-121709	Batch#:	158657
Lab ID:	217375-003	Sampled:	12/17/09
Matrix:	Water	Received:	12/18/09
Units:	ug/L	Analyzed:	12/28/09
Diln Fac:	20.00		

Analyte	Result	RL	MDL
Chloromethane	ND	20	
Vinyl Chloride	ND	10	
Bromomethane	ND	20	
Chloroethane	ND	20	
Trichlorofluoromethane	ND	20	
Freon 113	110	40	
1,1-Dichloroethene	ND	10	
Methylene Chloride	ND	400	3.0
trans-1,2-Dichloroethene	ND	10	
1,1-Dichloroethane	ND	10	
cis-1,2-Dichloroethene	210	10	
Chloroform	ND	20	
1,1,1-Trichloroethane	ND	10	
Carbon Tetrachloride	ND	10	
1,2-Dichloroethane	ND	10	
Trichloroethene	1,400	10	
1,2-Dichloropropane	ND	10	
Bromodichloromethane	ND	10	
cis-1,3-Dichloropropene	ND	10	
trans-1,3-Dichloropropene	ND	10	
1,1,2-Trichloroethane	ND	10	
Tetrachloroethene	ND	10	
Dibromochloromethane	ND	10	
Chlorobenzene	ND	10	
Bromoform	ND	10	
1,1,2,2-Tetrachloroethane	ND	10	
1,3-Dichlorobenzene	ND	10	
1,4-Dichlorobenzene	ND	10	
1,2-Dichlorobenzene	ND	10	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	110	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	97	80-127

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	217375	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	158657
Lab ID:	217375-004	Sampled:	12/17/09
Matrix:	Water	Received:	12/18/09
Units:	ug/L	Analyzed:	12/28/09
Diln Fac:	1.000		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	2.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	0.3 J	20	0.2
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	109	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	96	80-127

J= Estimated value
ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	217375	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	158657
Units:	ug/L	Analyzed:	12/28/09
Diln Fac:	1.000		

Type: BS Lab ID: QC527258

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	29.64	119	80-120
Trichloroethene	25.00	29.40	118	80-120
Chlorobenzene	25.00	29.04	116	84-118

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	105	73-140
Toluene-d8	96	88-113
Bromofluorobenzene	93	80-127

Type: BSD Lab ID: QC527259

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	28.56	114	80-120	4	35
Trichloroethene	25.00	28.97	116	80-120	1	35
Chlorobenzene	25.00	28.48	114	84-118	2	35

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	105	73-140
Toluene-d8	96	88-113
Bromofluorobenzene	93	80-127

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Halocarbons by GC/MS

Lab #:	217375	Location:	MEW
Client:	AMEC Geomatrix, Inc.	Prep:	EPA 5030B
Project#:	1486.002	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC527260	Batch#:	158657
Matrix:	Water	Analyzed:	12/28/09
Units:	ug/L		

Analyte	Result	RL	MDL
Chloromethane	ND	1.0	
Vinyl Chloride	ND	0.5	
Bromomethane	ND	1.0	
Chloroethane	ND	1.0	
Trichlorofluoromethane	ND	1.0	
Freon 113	ND	2.0	
1,1-Dichloroethene	ND	0.5	
Methylene Chloride	ND	20	0.2
trans-1,2-Dichloroethene	ND	0.5	
1,1-Dichloroethane	ND	0.5	
cis-1,2-Dichloroethene	ND	0.5	
Chloroform	ND	1.0	
1,1,1-Trichloroethane	ND	0.5	
Carbon Tetrachloride	ND	0.5	
1,2-Dichloroethane	ND	0.5	
Trichloroethene	ND	0.5	
1,2-Dichloropropane	ND	0.5	
Bromodichloromethane	ND	0.5	
cis-1,3-Dichloropropene	ND	0.5	
trans-1,3-Dichloropropene	ND	0.5	
1,1,2-Trichloroethane	ND	0.5	
Tetrachloroethene	ND	0.5	
Dibromochloromethane	ND	0.5	
Chlorobenzene	ND	0.5	
Bromoform	ND	0.5	
1,1,2,2-Tetrachloroethane	ND	0.5	
1,3-Dichlorobenzene	ND	0.5	
1,4-Dichlorobenzene	ND	0.5	
1,2-Dichlorobenzene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	110	73-140
Toluene-d8	96	88-113
Bromofluorobenzene	96	80-127

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 217472
ANALYTICAL REPORT

AMEC Geomatrix, Inc. 2101 Webster Street Oakland, CA 94612	Project : 1486 Location : MEW Level : II

Sample ID	Lab ID
EFF-122809	217472-001

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Troy Bebor
Project Manager

Date: 01/05/2010

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**217472**
Client:	**AMEC Geomatrix, Inc.**
Project:	**1486**
Location:	**MEW**
Request Date:	**12/28/09**
Samples Received:	**12/28/09**

This data package contains sample and QC results for one water sample, requested for the above referenced project on 12/28/09. The sample was received cold and intact.

Bioassay (EPA):
Block Environmental in Pleasant Hill, CA performed the analysis. Please see the Block Environmental case narrative.

CHAIN-OF-CUSTODY RECORD 217472 OAK 16173

PROJECT NAME: MEW		DATE: 12-28-09	PAGE 1 OF 1
PROJECT NUMBER: 1486.002	LABORATORY NAME: Curtis & Tompkins	CLIENT INFORMATION:	REPORTING REQUIREMENTS:
RESULTS TO: Jen Bennett	LABORATORY ADDRESS: (Block)		
TURNAROUND TIME: standard			
SAMPLE SHIPMENT METHOD: hand	LABORATORY CONTACT:		GEOTRACKER REQUIRED YES (NO)
	LABORATORY PHONE NUMBER:		SITE SPECIFIC GLOBAL ID NO.

SAMPLERS (SIGNATURE): RDP

ANALYSES

DATE	TIME	SAMPLE NUMBER	* Bioassay 96 hr	CONTAINER TYPE AND SIZE	Soil (S), Water (W), Vapor (V), or Other (O)	Filtered	Preservative Type	Cooled	MS/MSD	No. of Containers	ADDITIONAL COMMENTS
12-28-09	1200	EFF-122809	X		W			X		1	*EPA/821/R-02/01 96 hour with rainbow trout

RDP

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
SIGNATURE: R. Daniel Pearson	12/28/09	1255	SIGNATURE: Pat Gonzalez	12/28/09	1255
PRINTED NAME: R. Daniel Pearson			PRINTED NAME: Pat Gonzalez		
COMPANY: Amec			COMPANY: C&T		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		
SIGNATURE:			SIGNATURE:		
PRINTED NAME:			PRINTED NAME:		
COMPANY:			COMPANY:		

TOTAL NUMBER OF CONTAINERS: 1

SAMPLING COMMENTS:

2101 Webster Street, 12th Floor
Oakland, California 94612-3066
Tel 510.663.4100 Fax 510.663.4141

amec

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 217472 Date Received 12-28 Number of coolers 1
Client AMEC Project MEW

Date Opened 12-28 By (print) Elias Tsadik (sign) Elias Tsadik
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) ____ YES (NO)
   Shipping info ____

2A. Were custody seals present? ... ☐ YES (circle) on cooler on samples ☒ NO
   How many ____ Name ____ Date ____
2B. Were custody seals intact upon arrival? ____ YES NO (N/A)
3. Were custody papers dry and intact when received? ____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? ____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ____ (YES) NO
6. Indicate the packing in cooler: (if other, describe) ____

☐ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation:

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) ____

☒ Samples Received on ice & cold without a temperature blank

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? ____ YES (NO)
   If YES, what time were they transferred to freezer? ____
9. Did all bottles arrive unbroken/unopened? ____ (YES) NO
10. Are samples in the appropriate containers for indicated tests? ____ (YES) NO
11. Are sample labels present, in good condition and complete? ____ (YES) NO
12. Do the sample labels agree with custody papers? ____ (YES) NO
13. Was sufficient amount of sample sent for tests requested? ____ (YES) NO
14. Are the samples appropriately preserved? ____ YES NO (N/A)
15. Are bubbles > 6mm absent in VOA samples? ____ YES NO (N/A)
16. Was the client contacted concerning this sample delivery? ____ YES NO
   If YES, Who was called? ____ By ____ Date: ____

COMMENTS

Laboratory Job Number 217472

Subcontracted Products

Block Environmental

BES

BLOCK ENVIRONMENTAL SERVICES

2451 Estand Way
Pleasant Hill, CA 94523-3911
(925) 682-7200 FAX 686-0399

Static Percent Survival Aquatic Toxicity Screening Test Results for One Water Sample (Project #217472)

December 2009

Prepared For:
Tracy Babjar
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

BES Sample #26597

Prepared By:
Block Environmental Services, Inc.
2451 Estand Way
Pleasant Hill, CA 94523-3911
(925) 682-7200

January 5, 2010

N Bradbury
Nanette Bradbury
Laboratory Manager

David Block, Ph.D.
Laboratory Director

BES

1. INTRODUCTION

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500), the Clean Water Act (CWA) of 1977 (PL 95-217), and the Water Quality Act of 1987 (PL 100-4) explicitly state that it is the national policy that the discharge of toxic substances in toxic amounts be prohibited. Toxicity to aquatic life is one of the criteria used to gauge the hazardous potential of a discharged waste. The type of toxicity test and particular species used for testing of effluents is dictated under the framework of the National Pollutant Discharge Elimination System and falls under the jurisdiction of the local Regional Water Quality Control Board.

This report describes the procedures used and the results obtained for the static percent survival aquatic toxicity-screening test performed by Block Environmental Services (BES) for Curtis & Tompkins, Ltd.

BES is an Environmental Laboratory Accreditation Program certified laboratory (#1812).

2. MATERIALS AND METHODS

2.1 TEST ORGANISMS

- Rainbow Trout, *Oncorhynchus mykiss,* obtained from a commercial supplier.

2.2 TEST PROCEDURES

A detailed procedure for this test is outlined in DPHS-ELAP approved standard operating procedures (SOPs), which are on file at the BES laboratory. These SOPs are based upon the following references:

- Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Receiving Waters to Freshwater and Marine Organisms, 5th Edition (EPA/821/R-02/012)

2.3 DATA ANALYSIS

Toxicity testing results will be reported as the percent of surviving organisms during the exposure period.

BES

3. RESULTS

3.1 Sample Identification	3.2 BES Sample #	3.3 Sample Collection Date	3.4 Date Received	3.5 Testing Period
EFF - 122809	26597	12/28/09	12/29/09	12/29/09-01/02/10

3.6 SUMMARY OF SAMPLE WATER CHEMISTRY - These values represent the water quality of the sample as received at the BES laboratory.

Water Chemistry	26597
D.O. (mg/L)	12.5
pH	8.6
Conductivity (µS/cm)	1065
Salinity (ppt)	0.5
Temperature (°C)	3.9
Total Chlorine (mg/L)	0.06
Ammonia (ppm as N)	0.04
Alkalinity (mg/L as $CaCO_3$)	400
Hardness (mg/L as $CaCO_3$)	512

ND - Not Detected (Detection Limit = 0.03 mg/L)

3.7 *O.mykiss* TEST RESULTS

Treatment Concentration	96-Hour Percent Survival *O.mykiss*
	26597
Control	100
100%	100

3.8 Statistical Analysis

LC-50 (mg/L)	>100
95% Confidence Limits	NA
Method	NA

BES

3.9 NOTES

EPA Whole Effluent Testing Guidelines (EPA/821/R-02/012) requires that all effluent samples be cooled to 4 °C immediately upon collection in order to maintain sample integrity. The California Department of Health Services Environmental Laboratory Accreditation Program highly recommends that the temperature of all outgoing samples designated for subcontract analyses be documented on the chain of custody in order to assess the effect of transit on sample temperature.

For the present study, the temperature of the client's sample was less than 4 °C upon receipt at the BES Laboratory. The outgoing sample temperature for the sample was not recorded on the client chain of custody.

The photocopied data sheet and chain-of-custody for testing are attached. If you have any questions concerning this report please contact the BES laboratory, (925) 682 - 7200.

APPENDIX C

Quality Assurance and Quality Control

APPENDIX C

QUALITY ASSURANCE REPORT
JANUARY TO DECEMBER 2008

401 National Avenue
Mountain View, California

This quality assurance (QA) report was prepared by AMEC Geomatrix, on behalf of Vishay GSI, Inc. (Vishay), SUMCO Phoenix Corporation (SUMCO), Fairchild Semiconductor Corporation (Fairchild), and Schlumberger Technology Corporation (Schlumberger) in response to requirements set forth in Section XVI.C.7 of the U.S. Environmental Protection Agency (EPA) Section 106(a) Administrative Order for Remedial Design and Remedial Action Docket No. 91-4 (the Order) issued for the Middlefield-Ellis-Whisman (MEW) site in Mountain View, California. As required in the Order, this QA report summarizes the quality assurance and quality control (QA/QC) procedures used to collect and analyze data from January to December 2008.

This report covers activities for the semiannual water-level measurement events, annual groundwater sampling event, monthly groundwater extraction and treatment system (GETS) monitoring, and is submitted as part of the 2008 Annual Progress Report.

This QA report demonstrates that the work performed at the site complied with the standards and protocols specified in the Unified Quality Assurance Project Plan, Middlefield-Ellis-Whisman Site, Mountain View, California (UQAPP), as approved by the EPA on February 3, 1993. AMEC Geomatrix follows established procedures for work at the site, which generally follows the QA/QC goals and the analytical laboratory quality assurance manual included in the UQAPP. The data validation procedures are in accordance with the EPA National Functional Guidelines for Organic Compounds (EPA, October 1999).

1.0 FIELD PROCEDURES

The field methods specified in the UQAPP are intended to ensure that field measurements are consistent and reproducible when performed by different individuals. The protocols discussed below were followed during field activities performed at the site during this report period.

WATER-LEVEL MEASUREMENTS

Water-level measurements were collected by AMEC Geomatrix personnel using a water-level indicator. The water-level probe was inspected, calibrated and tested prior to operation. At each well location, water-level measurements were taken until at least two measurements

were in agreement to the nearest 0.01 foot. Data were then compared with previous measurements to provide an additional check on overall regional water-level trends. The water-level probe was decontaminated between measurements to prevent cross contaminating the wells. There were no unexplained discrepancies between the water-level measurements taken during this report period and measurements taken in previous report periods. The measurements were considered valid.

GROUNDWATER SAMPLING

Monthly groundwater samples were collected from stainless steel sampling ports at the influent of the groundwater extraction and treatment system (GETS), midstream between the UV-H_2O_2 oxidation unit and shallow tray air-stripper, and at the effluent of the GETS. The monthly samples were collected as part of the routine operation and maintenance of the system, and to meet the regulatory requirements of the NPDES Permit.

In accordance with the MEW Regional Groundwater Remediation Program (RGRP), the annual groundwater sampling event was performed on December 4, 2008. Field blank and equipment blank samples were collected at the start of each day of the sampling event. Field blanks are used to confirm that no compounds were introduced during preparation of the sample bottles or in the field during sampling activities. Equipment blanks are used to confirm that no compounds were introduced from the equipment used in collecting the samples. Prior to monitoring well sampling, the initial depth to water was recorded. Water samples were collected using low-flow sampling techniques after it was observed that indicator water quality parameter measurements were stable, specifically pH, temperature and electrical conductivity. The submersible pump used to collect water samples was decontaminated between wells, and new tubing was used for each sample collected.

Volatile organic compound (VOC) water samples were collected in 40-milliliter volatile organic analysis vials preserved with dilute hydrochloric acid. The hydrochloric acid preservative was used to facilitate EPA Method 8260B analyses, and was not specifically required by conditions of the UQAPP. Samples were labeled, placed in an ice-filled cooler for delivery, and transported to Curtis & Tompkins, Ltd. (Curtis & Tompkins), of Berkeley, California, a state-certified analytical laboratory. All sample containers were provided by the analytical laboratory. Chain-of-custody records were filled out for the groundwater samples, and the samples were delivered to Curtis & Tompkins for chemical analysis. An AMEC Geomatrix daily field record is used to record information pertinent to sampling activities.

2.0 ANALYTICAL RESULTS

The laboratory protocols specified in the UQAPP are intended to ensure that the laboratory results meet specified goals for precision, accuracy, and completeness. In accordance with the

UQAPP procedures for internal quality control checks for water samples, at a minimum, one Matrix Spike (MS)/Matrix Spike Duplicate (MSD) sample, a laboratory control sample (LCS), blank spike (BS)/blank spike duplicate (BSD) pairs, one field blank sample, one trip blank sample, and one blind duplicate sample were obtained for every 20 treatment system samples collected and analyzed. The laboratory analyzed method blanks and BS/BSD samples for each sampling event. Analytical holding times were met for all groundwater samples submitted to the analytical laboratory.

The results of the blind duplicate, MS/MSD, and BS/BSD samples were used to assess precision. The UQAPP does not specify a precision goal for blind duplicate or BS/BSD samples; therefore, the precision goal of 35 percent (%) Relative Percent Difference (RPD) for MS/MSD water samples was used. Table C-1 presents the RPDs of the BS/BSD, MS/MSD, and blind duplicate analyses. RPDs for the project sample pairs were within the QA/QC goals for precision specified in the UQAPP.

The results of the LCS, MS/MSD, and BS/BSD samples were used to assess accuracy. Table C-2 presents the percent recoveries of the LCS, MS/MSD, and BS/BSD analyses specified in the UQAPP. Percent recoveries of the MS/MSD compounds were within the QA/QC goals for accuracy specified in the UQAPP for aqueous MS/MSD samples (40 - 150%). Percent recoveries for the LCS compounds were within the QA/QC goals for accuracy specified in the UQAPP for aqueous LCS samples (80 - 120%).

The UQAPP does not specify an accuracy goal for BS/BSD samples; therefore, the accuracy goal for LCS water samples was used. The percent recoveries for the BS/BSD compounds were within the QA/QC goals for accuracy except for the following:

- Blank spike and blank spike duplicate for batch 136963 recoveries (121% and 121%) for 1,1-dichloroethene were higher than the upper limit at 121%. Relative percent difference = 0. No detections of analyte are found in any sample.

Constituents reported in influent samples collected from the GETS during this report period were tetrachloroethene (PCE), trichloroethene (TCE), 1,1,2-trichlorotrifluoroethane (Freon 113), cis-1,2-dichloroethene (cis-1,2-DCE), 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA), , 1,1,1-trichloroethane (1,1,1-TCA), trans-1,2-dichloroethene (trans-1,2-DCE), vinyl chloride (VC) and 1,2-dichlorobenzene (1,2-DCB). Target VOCs were not detected in any of the effluent samples.

The UQAPP specifies a maximum reporting limit of 2.0 micrograms per liter (µg/l) for compounds analyzed by EPA Method 8260B. Due to elevated TCE concentrations in the influent, the analytical laboratory is unable to achieve the maximum detection limits for all

VOCs within the influent sample analyzed by EPA Method 8260B. Dilutions performed by the laboratory on samples with high VOC concentrations are necessary for analysis and the corresponding elevated detection limits are considered valid. Detection limits below 2.0 µg/l are achieved for effluent samples, as VOCs are not detected above 0.5 µg/l and dilutions are not necessary. The maximum detection limit stated in the UQAPP is more applicable to samples with generally low concentrations of VOCs (e.g., less than 100 µg/l) than to samples with high concentrations that require dilution for analysis.

The field blank and equipment blank samples were analyzed by EPA Method 8260B for the halogenated VOCs list. Analyte results for field blanks and equipment blanks were non-detect for GETS monitoring and the annual groundwater sampling event except for the following:

- Equipment Blank (EB2-120408) detected cis-1,2-DCE = 0.5 µg/L (RL=0.5 µg/L) (10x detection = 5 µg/L); all detections of cis-1,2-DCE were greater than ten times the reported amount in the equipment blank. No validation of samples for the analyte was necessary.

To establish completeness, valid data must constitute 90% of the total data obtained. The analyses met precision and accuracy goals as specified in the UQAPP. All of the data obtained during this investigation are considered valid and are consistent with historical results. Therefore, the data generated during this report period were within the completeness goal specified in the UQAPP.

3.0 GENERAL QUALITY ASSURANCE ASSESSMENT

The water-level measurement data, annual groundwater sample analytical results, and GETS monitoring analytical results generated between January and December 2008 are considered to be representative of actual field conditions. No corrective actions are recommended or deemed necessary.

TABLE C-1

SUMMARY OF PRECISION DATA
QUALITY ASSURANCE REPORT
January to December 2009
401 National Avenue
Mountain View, California

Sample Description	Constituent	RPD (%)[1]	QA Goal (%)[2]
Blank Spike Duplicate	1,1-Dichloroethene Trichloroethene Chlorobenzene Benzene Toluene	0–11 0–10 0–8 2–5 1–4	35
Matrix Spike Duplicate	1,1-Dichloroethene Trichloroethene Chlorobenzene Benzene Toluene	1–7 2–4 1–3	35
Blind Duplicate	Freon 113 cis-1,2-Dichloroethene 1,1,1-Trichloroethane Trichloroethene trans-1,2-Dichloroethene Vinyl Chloride Tetrachloroethene 1,1-Dichloroethane 1,1-Dichloroethene	0–11 0–21 7–8 0–5 5–14 2–2 2–9 11–13 9–9	35

Notes

1. RPD = relative percent difference, $RPD = \frac{2(C_1 - C_2)}{(C_1 + C_2)} \times 100$,

   where C_1 = concentration in sample and C_2 = concentration in duplicate.
2. QA goal as specified in the UQAPP for MS/MSD water samples.

TABLE C-2

SUMMARY OF ACCURACY DATA
QUALITY ASSURANCE REPORT
January to December 2009
401 National Avenue
Mountain View, California

Sample Description	Constituent	% R[1]	QA Goal (%)[2]
Laboratory Control Samples	1,1-Dichloroethene Trichloroethene Chlorobenzene Benzene Toluene	91–105 96–117 91–97	80–120
Matrix Spike and Matrix Spike Duplicates	1,1-Dichloroethene Trichloroethene Chlorobenzene Benzene Toluene	80–121 94–120 92–104	40–150
Blank Spike and Blank Spike Duplicates	1,1-Dichloroethene Trichloroethene Chlorobenzene Benzene Toluene	87–121 94–120 92–118 96–102 99–103	80–120

Notes
1. % R = percent recovery.
2. QA goal as specified in the UQAPP.

APPENDIX D

Summary Table of General Waste Discharge Requirements for NPDES Permit

APPENDIX D

SUMMARY TABLE OF GENERAL WASTE DISCHARGE REQUIREMENTSFOR NPDES PERMIT

405 National Avenue
Mountain View, California

Action/Item of Concern	Requirement/Response	Reference[1] Number
Effluent and Receiving Water Discharge Requirements		
Maximum Daily Effluent Limitation (Discharge to Drinking Water Areas)	Trichlorotrifluoroethane (Freon 113): 5.0 µg/L	1: Section B, 1–3 (pages 6-7)
	Cis-1,2-dichlorethene: 5.0 µg/L	
	Trichloroethene: 5.0 µg/L	
	Tetrachloroethene: 1.6 µg/L (0.8 µg/L) [2]	
	1,1-dichloroethane: 0.11µg/L (0.057 µg/L) [3]	
	1,1,1-trichloroethane: 5.0 µg/L	
	For additional constituents of concern, see Reference 1, Table B.1	
	pH: <6.5 or >8.5	
	Toxicity: > 90% survival for 96-hour, static renewal fish bioassay	
Effluent Trigger Compounds	Reference 1, Table E.6 outlines trigger levels for metals, SVOCs, PAHs, PCBs, and Organochlorine Pesticides. If the trigger level for a particular constituent is exceed, a series of monitoring samples is required during the following quarter per Reference 1, E.6 through 9.	1. Sections E.6–9 (pages 10–14)
Maximum Flow Rate	Maximum flow rate through treatment system shall not exceed 30 gpm.	Groundwater Treatment System Constraint
	Average effluent flow rate to storm drain shall not exceed 32 gpm.	3. Authorization Letter
Receiving Water Limitations	Treated water shall be discharged through a storm drain to Stevens Creek.	1. Section C, 1–2 (pages 7–8)
	No floating, suspended, or deposited macroscopic particulate matter or foam	
	No bottom deposits or aquatic growths	
	No alteration of temperature, turbidity, taste, odor, or apparent color beyond present natural background levels	
	No visible, floating, suspended, or deposited oil or other products of petroleum origin	
	No toxic or other deleterious substances to be present in concentrations or quantities that will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration	

APPENDIX D

SUMMARY TABLE OF GENERAL WASTE DISCHARGE REQUIREMENTSFOR NPDES PERMIT

405 National Avenue
Mountain View, California

Action/Item of Concern	Requirement/Response	Reference[1] Number
	Dissolved Oxygen: 7.0 mg/L minimum (nontidal waters). For inland surface waters: The median of three consecutive months of monitoring shall be less than 80% saturation. If natural factors result in a dissolved oxygen saturation value less than 80%, the discharger shall not cause further reduction in the concentration of dissolved oxygen.	
	pH: No variation from natural ambient pH by more than 0.5 pH units	
General Discharge Limitations	Discharge limited to extracted and treated groundwater and those added treatment chemicals approved by the RWQCB Executive Officer.	1. Section A, 1–7 (pages 5–6)
	Discharge shall cause no scouring or erosion at the point where the storm drain discharges into the receiving waters.	
	No pollution, contamination, or nuisance per California Water Code § 13050.	
	No bypass or overflow of untreated or partially treated polluted groundwater to waters of the State either at the treatment system or from any of the collection or transport systems to the treatment system.	
Monitoring Requirements		
Monthly[4,5,6]		
Influent and Midfluent Sampling and Analysis	Sample influent MONTHLY and analyze for: pH Sample Influent and Midfluent MONTHLY and analyze for: VOCs (EPA Method 8260B (8010-list). These samples are performance based and not motivated by the NPDES monitoring requirements. If BTEX, MTBE, TPHg, or TPHd is believed to be present in the influent at a later date, then monitoring of petroleum constituents will be necessary in accordance with this permit.	2. Table A (pages 12–13)
Effluent Sampling and Analysis	Sample effluent MONTHLY and analyze for: All Applicable Standard Observations pH Temperature (deg. C) VOCs (EPA Method 8260B-full list)[7] If BTEX, MTBE, TPHg, or TPHd is believed to be present in the influent at a later date, then monitoring of petroleum constituents in the effluent will be necessary in accordance with this permit.	2. Table A. (pages 12–13)

APPENDIX D

SUMMARY TABLE OF GENERAL WASTE DISCHARGE REQUIREMENTSFOR NPDES PERMIT

405 National Avenue
Mountain View, California

Action/Item of Concern	Requirement/Response	Reference[1] Number
Receiving Water Monitoring	If effluent standards for pH, standard observations, or VOCs are exceeded, sampling of specific constituent exceeded and dissolved oxygen must be completed within 24 hours of known exceedance. If cadmium, chromium (total), copper, lead, nickel, silver, or zinc triggers are exceeded, sampling of hardness and salinity must be completed.	2. Table A (pages 12–13)
Annually, Semiannually, or Quarterly		
Influent Sampling and Analysis	Sample influent Semi-ANNUALLY and analyze for: VOCs (EPA Method 8260B-full list)[7] Sample influent ANNUALLY and analyze for: pH If PAHs, EDB, TAME, DIPE, ETBE, TBA, Ethanol, or are believed to be present in the influent at a later date, then monitoring of these constituents will be necessary in accordance with this permit.	2. Table A (pages 12–13)
Effluent Sampling and Analysis	Sample effluent Quarterly and analyze for: Fish Toxicity, 96-hr (% survival) Turbidity (NTU) Sample effluent Semi-ANNUALLY and analyze for: 1,4–Dioxane[8] SVOCs[8] If PAHs, EDB, TAME, DIPE, ETBE, TBA, Ethanol, or are believed to be present in the influent at a later date, then monitoring of these constituents will be necessary in accordance with this permit.	2. Table A (pages 12–13)
Every 3 Years		
Effluent Sampling and Analysis	Sample effluent EVERY THREE YEARS and analyze for: Antimony, Arsenic, Beryllium, Cadmium, Hexavalent Chromium or total Chromium, Copper, Cyanide, Lead, Mercury, Nickel, Selenium, Silver, Thallium, and Zinc	2. Table A (pages 12–13)

APPENDIX D

SUMMARY TABLE OF GENERAL WASTE DISCHARGE REQUIREMENTSFOR NPDES PERMIT

405 National Avenue
Mountain View, California

Reporting Requirements		
Daily		
Discharge Violation Report and Treatment System Bypass	RWQCB should be notified within 24 hours of finding that any discharge is in violation of the discharge specifications. Additionally, a written report shall be submitted to the RWQCB within 5 working days. The written report shall include time, date, duration, and estimated volume of waste bypassed, method used in estimating volume, and person notified of incident. The report should include an explanation for the noncompliance and indication of steps to prevent future reoccurrence.	2. Section H.4 and H.5 (pages 9–10)
Quarterly and Annually		
Annual Fees	$4,900 plus 18.5% = $5,806.50	1. Section 5 and CRR Title 23, Section 2200D.
Monitoring Reports	If discharging, submit report to RWQCB no later than 30 days following the end of the calendar quarter. Annual report required by January 30th of each year. See sampling memo or self-monitoring plan for summary of report content requirements.	2. Section H.2 and H.3 (pages 6–8)
Construction Projects	A written technical report shall be submitted at least 30 days prior to advertising for bid, or 60 days prior to construction, on any construction project which would cause or aggravate the discharge of waste in violation of requirements.	2. Section H.6 (page 10)
Chemical Additives	A report describing the need, method of chemical application, disposal, and toxicity data shall be submitted to the RWQCB at least 30 days before the use of any chemicals in the treatment, or operation and maintenance of the treatment units, is to begin.	2. Section H.7 (page 10)

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SUMMARY TABLE OF GENERAL WASTE DISCHARGE REQUIREMENTSFOR NPDES PERMIT

405 National Avenue
Mountain View, California

Records/Notifications		
Operational and Analytical Records	Maintain records of written reports, strip charts, calibration and maintenance records, and other records for a minimum of five years. Sample records should include: identity of sampling and observation stations by number; date and time of sampling observations, and analysis; sampling method including sample preservation type and amount; name of personnel performing analyses; calculations of results; and results of analyses and/or observations.	2. Section I.1 (page 10)
	Records of weekly discharge flow volume and totalized quarterly and annual flow.	2. Section I.2 (page11)
	Tabulation of treatment system bypasses and/or accidental waste spills.	2. Section I.3 (page 11)
	Copy of Order No. R2-2004-0055, Authorization Letter, and O&M Manual maintained at the site.	2. Section I.4 (page 11)
Changes in Self Monitoring Program	Following six months of implementation, a request to the RWQCB can be made to modify the Self-Monitoring Program to cover constituents of concern only.	1. Section E.5 (page 10)
Change in Discharge	Submit an amended Notice of Intent at least 60 days before making any material change in the character, location, or volume of discharge.	1. Section E.17 (page 15)
Renewal of Agreement	Order No. R2-2004-0055 expires on July 21, 2009. A renewal application must be submitted no later than January 21, 2009.	1. Section E.19 (page 16)

Notes

1. See Reference section below.
2. Concentration in parenthesis refers to average monthly effluent limitation applicable when three or more days of effluent monitoring results are available.
3. If reported detection limit is greater that effluent limit, then a non-detect result using a 0.5 g/L detection limit is deemed to be incompliance.
4. Influent and effluent pH and effluent temperature monitoring changes from monthly to quarterly after the first year and quarterly to annually after the second year of operation.
5. Effluent pH and temperature changes from monthly to quarterly after the first year of operation and annually thereafter.
6. Effluent turbidity and fish toxicity monitoring changes from quarterly to annually after the first year of operation.
7. Following six months of sampling, the self-monitoring program the VOC analyte list can be reduced by submitting an amended analyte list covering constituents of concern to the RWQCB for approval.
8. If not detected during first sampling round, with adequate laboratory detection limits, a request to reduce the monitoring schedule to every three years may be submitted to the RWQCB for approval.

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SUMMARY TABLE OF GENERAL WASTE DISCHARGE REQUIREMENTSFOR NPDES PERMIT

405 National Avenue
Mountain View, California

References

1. General Waste Discharge Requirements from California Regional Water Quality Control Board (RWQCB) Order No. R2-2004-0055 for Discharge or Reuse of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted Volatile Organic Compounds (National Pollutant Discharge Elimination System (NPDES) General Fuel Permit, Permit No. CAG912003).
2. Self Monitoring Program from California Regional Water Quality Control Board (RWQCB) Order No. R2-2004-0055 for Discharge or Reuse of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted Volatile Organic Compounds (National Pollutant Discharge Elimination System (NPDES) General Fuel Permit, Permit No. CAG912003).
3. Regional Water Quality Control Board (RWQCB), Letter to Bernard Yurash, SUMCO Oregon, Authorization to discharge treated groundwater under the requirements of Order No. R2-2004-0055, NPDES Permit No. CAG912003 (VOC) for the Groundwater Treatment System Located at 401 National Avenue, Mountain View, Santa Clara County, CA 94043, November 29, 2004.

Abbreviations

µg/L = micrograms per liter
BTEX = Benzene, Toluene, Ethylbenzene, and Total Xylenes
DIPE = disopropyl ether
EDB = ethylene dibromide
ETBE = ethyl tertiary-butyl ether
MTBE = methyl tertiary-butyl ether
PAH = Polynuclear Aromatic Hydrocarbons
Semi-VOC = Semi-Volatile Organic Compound
TAME = tertiary-amyl methyl ether
TBA = tertiary-butyl alcohol
TCE = Trichloroethylene
TPHd = total petroleum hydrocarbons as diesel
TPHg = total petroleum hydrocarbons as gasoline
VOC = Volatile Organic Compound