Annual Progress Report—2014
Facility-Specific Work

405 National Avenue
Mountain View, California

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TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

ANNUAL PROGRESS REPORT—2014
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1.0 INTRODUCTION

This progress report is submitted by Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 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 in 2014 on behalf of Vishay and SUMCO and the work activities associated with wells GSF-1A, GSF-1B1, and GSF-1B2 performed in 2014 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 2013 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 (ft) south of U.S. Highway 101, approximately midway between Ellis Street and Whisman Road. The site measures approximately 290 ft by 170 ft 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 ft by 100 ft 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. The current owner purchased the 425 National Avenue property in August 2006 and completed interior renovation of the building in April 2008. For purposes of reporting Vishay and SUMCO's facility-specific work activities required by the Order, the site will be referred to as 405 National Avenue.

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 ft thick. The shallow aquifer system is generally less than 160 ft below ground surface (bgs) south of U.S. Highway 101 and generally less than 100 ft 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 U.S. Environmental Protection Agency's (U.S. EPA's) Comments on Revised FSCRD dated June 30, 1995; (3) letter to U.S. 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 U.S. EPA (U.S. 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 eight wells (Figure 4a) in the A, B1 and B2 aquifers, five of which extract groundwater from underneath the site and three of which extract groundwater from an area north of the site. Groundwater is extracted using one vertical well on the south side of the former 405 National Avenue property (SIL15A) and four inclined groundwater extraction wells (EX-1, EX-2, EX-3, and EX-4) which have wellheads located on the 401 National Avenue property and extend under the 405 National Avenue property. The four inclined wells used for the GETS are the same four inclined wells that were formerly used for the VES. Three groundwater extraction wells (GSF-1A, GSF-1B1, and GSF-1B2) are located about 200 ft 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 all eight 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). By mid-year of 2015, it is anticipated that the UV-H_2O_2 oxidation unit will be replaced with a HiPOx treatment system. 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—2014

Actions taken to comply with the Order during 2014 included operation and maintenance of the groundwater extraction and treatment system; monitoring of system performance and permit compliance; reporting; site-specific optimization efforts; 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, continued full-time throughout the reporting period. The system operated continuously during 2014 with the exception of minor unscheduled shutdowns. A summary of GETS performance is included in the 2014 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. Please refer to quarterly NPDES Self-Monitoring Reports for further information regarding permit-required sampling events. 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, 2014 effluent water samples were analyzed for: (1) halogenated VOCs on a monthly basis by U.S. EPA Method 8260B using a reduced analyte list from U.S. EPA Method 8010; (2) turbidity using U.S. EPA Method 180.1 on March 12, 2014; (3) a fish bioassay using U.S. EPA Method 821/R-02/012 on October 9, 2014; (4) total cyanide by U.S. EPA Method 335.2 on October 9, 2014 (as well as November 5, 2014 and December 16, 2014 by SM20-4500) as required by the Permit every three years; (5) 1,4-dioxane by EPA Method 8270-SIM on July 15, 2014 as required by the Permit every three years; (6) and semivolatile organic compounds (SVOCs) by EPA Method 8270C on August 12, 2014, as required by the Permit every three years. The next three year sampling event for total cyanide, 1,4-dioxane and SVOCs will be in 2017. In addition, three year sampling and analysis for metals will be in 2016, as required by the Permit.

During the October 2014 sampling event, total cyanide was detected at a concentration of 10 µg/L in the effluent sample, which exceeded the Permit's trigger concentration of 2.9 µg/L.

Further details for the total cyanide trigger exceedance are provided in Section 4.0. No other analytes exceeded the Permit trigger levels in 2014.

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. The sample analyzed for total cyanide was collected in a 500-ml plastic bottle preserved with sodium hydroxide. The sample analyzed for 1,4-dioxane and SVOCs were collected in unpreserved 1-liter glass amber bottles. Samples were placed in ice-cooled chests and transported under Amec Foster Wheeler 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 of Berkeley, California, Pacific EcoRisk of Fairfield, California, Caltest Analytical Laboratory of Napa, California, and TestAmerica Laboratories, Inc. of Pleasanton, California.

Based on the data obtained to meet NPDES requirements, the groundwater extraction and treatment system operated in compliance with the site's NPDES permit effluent limitations, except the detection of cyanide, which is discussed in further detail in Section 4.0. 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 2014, Amec Foster Wheeler submitted Water Production Statements to the Santa Clara Valley Water District.
- On March 20 and September 18, 2014, Amec Foster Wheeler collected water level measurements as part of the MEW-area semiannual monitoring program.
- On October 21 and 22, 2014, Amec Foster Wheeler 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 February 14, 2014, Amec Foster Wheeler submitted the NPDES Self-Monitoring Report Combined 2013 Annual Summary and Calendar Quarter October-December 2013.

On April 15, 2014, Amec Foster Wheeler submitted the 2013 Annual Progress Report to U.S. EPA in accordance with Section XV.D of the Order.

On May 14, 2014, Amec Foster Wheeler submitted the First Quarter NPDES Self-Monitoring Report for the period from January to March 2014.

On July 16, 2014, Amec Foster Wheeler submitted the Environmental Investigation Work Plan for Former 405 National Avenue, which described investigation activities in support of optimization efforts for VOC mass removal in groundwater.

On August 12, 2014, Amec Foster Wheeler submitted the Second Quarter NPDES Self-Monitoring Report for the period from April to June 2014.

On November 11, 2014, Amec Foster Wheeler submitted the Third Quarter NPDES Self-Monitoring Report for the period from July to September 2014.

On February 11, 2015, Amec Foster Wheeler submitted the NPDES Self-Monitoring Report Combined 2014 Annual and Fourth Quarter Report.

The capture zone analysis, based on March and September 2014 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 U.S. EPA (U.S. EPA, 2004).

1.4.4 "All-Parties" Meetings

On behalf of Vishay and SUMCO, Amec Foster Wheeler attended three "All-Parties" meetings on March 6, May 6 and September 8, 2014. The objectives of the meetings were to discuss vapor intrusion, groundwater, and redevelopment work activities at the site; sanitary sewer investigation activities; and site-specific work progress updates.

1.4.5 Data Generated—January to December 2014

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 extraction well network and GETS operating parameters is provided in Table 2. A summary of GETS extraction rates and volatile organic mass removed for the 2014 calendar year is provided in Table 3 and discussed in Section 2.1.

Water levels were measured by Amec Foster Wheeler on behalf of Vishay and SUMCO on March 20 and September 18, 2014, 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 October 21 and 22, 2014. 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.

2.0 GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

2.1 GETS PERFORMANCE, OPERATIONS AND MAINTENANCE DURING 2014

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. Trichloroethene (TCE); 1,1,2-trichlorotrifluoroethane (Freon 113); cis-1,2-dichloroethene (cis-1,2-DCE) were detected in the influent samples collected monthly throughout the calendar year 2014, and the results are consistent with historical influent concentrations. Please refer to quarterly and annual NPDES Self-Monitoring Reports for further information regarding GETS sampling results. No target VOCs were detected in effluent samples during the calendar year 2014 (Table 2). Groundwater samples were also analyzed for cyanide, 1,4-dioxane and SVOCs in accordance with Permit requirements.

Throughout the 2014 calendar year, monthly influent, midstream, and effluent water samples were collected to meet the requirements of the Permit and track GETS performance. Duplicate influent samples were collected every quarter during the 2014 calendar year, except during the fourth quarter, and submitted to Curtis and Tompkins for chemical analyses. Amec Foster Wheeler 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 U.S. EPA for the MEW site on February 3, 1993.

Further discussion of data validation procedures in accordance with the U.S. EPA National Functional Guidelines for Organic Compounds (U.S. EPA, 1999a) is provided in Appendix C.

A summary of monthly averaged extraction rates from eight groundwater extraction wells and groundwater treatment system operating parameters is provided in Table 2. Measurements of water quality parameters (pH and temperature), required annually by the Permit, were collected from influent and effluent sampling ports throughout the calendar year. 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 2014 and cumulative groundwater treated since 1996 are approximately 8,950,140 gallons and 189,545,980 gallons, respectively. The total mass of VOCs removed in 2014 and cumulative mass of VOCs removed since 1996 is approximately 128.1 pounds and 8,306 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 2014

From January to December 2014, the GETS operated continuously, except for scheduled shutdowns (all of less than five hours) to maintain or improve the operation or efficiency of the system and minor unscheduled shutdowns. No spills or equipment malfunctions occurred in 2014.

2.3 HYDRAULIC CONTROL AND CAPTURE ZONE ANALYSES

2.3.1 Methodology

The U.S. 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 (U.S. 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 2014

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.

Groundwater extraction from five wells (EX-1, EX-2, EX-3, EX-4, SIL15A) provides on-site source control for the 405 National Avenue site., Three groundwater extraction wells (GSF-1A, GSF-1B1, GSF-1B2, screened in the A, B1 and B2 aquifers) are located hydraulically downgradient of areas where chemicals that likely originated from both 401 and 405 National Avenue are believed to have commingled (Geomatrix, 2004a). Vishay, SUMCO and Schlumberger jointly operate the off-site GSF wells as part of the source control measures for both the 401 and 405 National Avenue sites. Well locations in the A-aquifer and the B1 and B2-aquifers are shown on Figure 3.

In 2014, the average annual extraction well pumping rate for GSF-1B2 was 0.06 gallons per minute (gpm), significantly lower than the originally anticipated design flow rate of 2 gpm (Geomatrix, 1997), but similar to historic flow rates from the well. 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 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 401 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 areas in the downgradient A, B1 and B2-aquifers where chemicals that likely originated from both 401 and 405 National Avenue are believed to have commingled (Geomatrix, 2004a). Accordingly, the target capture zone for the GSF extraction wells is the area at 401 National Avenue between the eastern portion of the slurry wall at 401 National Avenue and the property line between 401 and 405 National Avenue, to a depth of approximately 90 ft, as shown on Figure 3 (Geomatrix 1995a, 2004a).

Step 3: Interpretation of Water Levels:

Historically, potentiometric surface contour maps and estimated capture zones were submitted to U.S. EPA on a quarterly basis. On December 9, 2004, U.S. 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. However, the cones of depression of pumping wells are estimated in developing the estimated zones of hydraulic capture.

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

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, hydraulic model results, and a factor of safety mentioned above. 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 is expected to be 10 ft at design extraction rate:

$$(10\text{ ft}) \times \frac{Q_{EX\,4\_avg}\,(gpm)}{1.5 gpm}$$

GSF-1A downgradient extent of capture is expected to be 45 ft at design extraction rate:

$$(45\text{ ft}) \times \frac{Q_{GSF-1Aavg}\,(gpm)}{5\,gpm}$$

GSF-1B1 and GSF-1B2 downgradient extent of capture is expected to be 90 ft at design extraction rate:

$$(90\text{ ft}) \times \frac{Q_{GSF-1B1avg}\,(gpm)}{10\,gpm}$$

The average pumping rates for January through December 2014 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. The location of the stagnation points in the B1 and B2-aquifers are about 59 ft downgradient from GSF-1B1 and GSF-1B2, 11 ft downgradient from well GSF-1A, and about 15 ft downgradient from well EX-4.

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 September 2014. Figures 8a through 8c show the estimated extent of capture using stagnation points from Table 2 and discrete groundwater levels and flow rates observed during the March 2014 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 September 2014 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 ft 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 several 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 and once again in 2010 into 2011, but inward gradients were reestablished after conveyance line cleaning events and 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 ft 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, 2010 and 2014 when the operational flow rates in off-site extraction wells decreased because of the conveyance pipe blockage. Hydraulic gradient increases are observed in all three aquifers after conveyance line cleaning events in 2008, 2011, 2014 except for GSF-1A in the September 2014 water level event, when the measured groundwater elevation at REG-MW-1A was less than one foot below the measured groundwater elevation at GSF-1A. However, extraction rates at GSF-1A are still sufficient to provide hydraulic containment of the off-site source area as shown in Figures 8d, 9a and 9d.

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, the design target width of containment, w_t is 100 ft, the conservatively high estimate of transmissivity is 900 square ft 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 September 2014 water level measurement events are 8.9 and 10.1 gpm, respectively, 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 8.9 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 design target width of containment, w_t is 400 ft. 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 September 2014 water level measurement events were approximately 10.6 gpm and 10.8 gpm. The March and September 2014 pumping rate is 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 10.2 gpm, which is within the range necessary to reach the target aquifer width of containment of 400 ft.

The calculated widths (w_c) of containment during the March 2014 water level measurement event are approximately 637 ft and 382 ft for hydraulic gradients of 0.003 and 0.005, transmissivity of 900 ft^2/day, and the March on-site extraction rate of 8.9 gpm. During the September 2014 monitoring event, the calculated w_c are approximately 721 ft and 433 ft for the hydraulic gradient values of 0.003 and 0.005, respectively and transmissivity value of 900 ft^2/day, with the September on-site extraction rate of 10.1 gpm. The estimated cumulative width of the combined on-site A-aquifer zone pumping is approximately 250 ft, in March 2014, and 315 ft, in September 2014, based on the potentiometric surface maps. These values are greater than the target width of containment of 100 ft.

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 (10.6 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 452 ft to 323 ft for the March 2014 event. For the September event, the w_c in the A-aquifer is approximately 464 ft to 331 ft at a total extraction rate of 10.8 gpm. The estimated cumulative width of the combined on-site and off-site A-aquifer zone pumping is approximately 460 ft, in March 2014, and 540 ft, in September 2014, based on the potentiometric surface maps. The March and September 2014 values meet the target width of containment of 400 ft. The annual average flow rate of 10.2 gpm satisfies the target width of containment of 400 ft.

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 combined average pumping rate from the GSF-1B1 and GSF-1B2 extraction wells for the March and September 2014 sampling events are approximately 6.8 gpm and 6.8 gpm, which is within the required range of estimated flow rates 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 800 ft and 400 ft for hydraulic gradients of 0.004 and 0.008, transmissivity of 406 ft^2/day, and average extraction rate of 6.8 gpm for the March 2014 reporting period. For the September 2014 reporting period, the w_c of containment for the combined B-aquifers provided by extraction from GSF-1B1 and GSF-1B2 are approximately 800 ft and 400 ft for an extraction rate of 6.8 gpm. These values indicate the extraction rates capture a width greater than the desired width of containment of 400 ft.

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, which reduces the ambient groundwater flow from the upgradient direction, also contributes to an increase in 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 9f depict the modeled extent of hydraulic containment for the A, B1 and B2 aquifers based on the specific conditions observed during the March 2014 and September 2014 water level measurement events. Figures 9a through 9c are based on pumping rates of 1.7 gpm from GSF-1A and 6.9 gpm from GSF-1B1, as observed on March 20, 2014. Figures 9d through 9f are based on pumping rates of 1.5 gpm from GSF-1A and 5.5 gpm from GSF-1B1, as observed on September 18, 2014. Though GSF-1B2 was pumping during both events, the pumping rate was minimal, and the model therefore omits pumping from GSF-1B2; 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:

Figures 11a through 11d show TCE, PCE, cis-1,2-DCE and vinyl chloride concentrations detected in monitoring wells screened in the A-aquifer in October 2014. Elevated chemical detections are contained in the area of the onsite extractions wells and in the vicinity of monitoring well 116A. Wells downgradient of the source area have significantly lower or non-detected chemical concentrations.

Table 6 provides historical chemical data measured in extraction and monitoring wells. Figures 12a through 12f provide graphical representation of TCE, PCE, cis-1,2-DCE and vinyl chloride concentration trends. Generally, concentrations of all VOCs have decreased significantly since the start of the GETS operation and have remained consistent in the past few years.

Extraction wells EX-1, EX-2, EX-3 and EX-4 (Figure 12a) show chemical concentrations have decreased since GETS operations began and remained generally consistent since about 2009. In extractions wells GSF-1A, GSF-1B1 and SIL15A (Figure 12b), TCE concentrations

have decreased exponentially. In monitoring wells 108A, 104B1 and 108B2 (Figure 12c), TCE and cis-1,2-DCE concentrations have remained consistent since about 2004. In monitoring wells 109B1 and 107B2 (Figure 12d), TCE concentrations have remained consistent since about 2009. Monitoring well 116A (Figure 12d) shows an initial reduction and stabilization of TCE concentrations; however, TCE concentrations increased from 2008 through 2013 and decreased in 2014. Amec Foster Wheeler will continue to closely monitor and assess TCE concentrations at monitoring well 116A. Monitoring well SIL14A (Figure 12e) shows an increase of cis-1,2-DCE in 2008 followed by a decrease in concentrations through 2014. Monitoring well SIL1A (Figure 12e) shows increases in cis-1,2-DCE and TCE from 2008 through 2013 followed by a significant decrease in concentrations in 2014. The decrease in SIL1A concentrations is discussed further in Section 2.4.2, and future SIL1A sample results will be analyzed closely in relation to historical results. Chemical concentrations in monitoring wells 25B1 and 42B2 (Figure 12f) have remained consistent.

Historical TCE concentration data were also compiled for monitoring wells 147A, 77B1 and 143B1, which are approximately 200 ft downgradient of the GSF extraction wells. The 2014 sampling event shows a slight increase of TCE concentrations in monitoring well 147A and a decrease of TCE concentrations in monitoring wells 143B1 and 77B1 (Figure 13).

The results of the capture zone analysis presented above and historic decreasing trends of chemical concentrations at GSF-1A and GSF-1B1 indicate effective remediation and hydraulic isolation of the upgradient source 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. Figure 5a shows 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 trend of decreasing water levels over the last ten years. These data show that the saturated thickness of the A-aquifer has varied by about less than 20 percent.

Regional hydraulic gradient influences the rate and direction of groundwater flow through the aquifer system. The numerical modeling uses regional gradients based on water level data removed from the 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 and off-site groundwater extraction meet the target capture zones. Average flow rates for the

system over the course of the full calendar year indicate that target capture zones are hydraulically contained by the groundwater extraction well network. 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.

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.

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 September 2014 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 September 2014 for off-site extraction well cluster Group III (GSF-1A, GSF-1B1 and GSF-1B2).

Figure 15 includes graphs illustrating vertical gradients over 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 2014. 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 2014 Groundwater Extraction and Treatment System

Operating parameters of the GETS between January and December 2014 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 2014 Groundwater Monitoring Event Results

Low flow sampling was conducted during the October 2014 sampling event in accordance with U.S. EPA guidance (U.S. EPA, 1996). Groundwater samples were collected from on and off-site monitoring wells in accordance with the annual groundwater monitoring program for the site. The analytical results from the October 2014 sampling event are summarized in Table 5. The chemical analytical result reports are included in Appendix B.

Concentrations of VOCs detected during the October 2014 sampling event were consistent with historical concentration trends observed at the site with the exception of sample results from monitoring well SIL1A. October 2014 VOC detections at monitoring well SIL1A are significantly lower than historical values (Table 6), which may be a result of the SIL1A sampling intake depth having been raised from 24.5 ft bgs to 16 ft bgs in response to accumulation of a large volume of silt in the well. The well will be redeveloped in the future to remove accumulated silt.

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 2014 were summarized in a quality assurance report submitted as Appendix C.

2.4.3 Isoconcentration Maps and Chemical Concentration Trends

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

3.0 OTHER 2014 ACTIVITIES

3.1 NPDES SAMPLING PROGRAM

On September 14, 2004, Amec Foster Wheeler 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 CAG912002. 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. R2-2012-0012 adopted by the RWQCB on February 8, 2012.

In accordance with the NPDES Permit, Amec Foster Wheeler prepared a detailed summary table of the NPDES sampling, reporting, and compliance requirements for the NPDES Permit (See Appendix D). Amec Foster Wheeler also prepared an 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,
- RWQCB Discharge Authorization Letter,
- Copies of NPDES Permit Order No. R2-2012-0012, Self-Monitoring Program for NPDES Permit Order No. R2-2012-0012, and Notice of Intent for NPDES Permit Order No. R2-2012-0012,
- Ultra Clean Sampling Technique (U.S. EPA Method 1669) Protocols, and
- NPDES sampling field form.

On February 17, 2006, Amec Foster Wheeler 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 U.S. EPA Method 8260B from the full list to the halogenated VOC list (formerly U.S. EPA Method 8010).
- SVOCs: Reduction in effluent monitoring frequency for SVOCs to once every three years, with the next event to be performed in 2017.
- 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 2017.
- Total cyanide: Reduction in effluent monitoring frequency for total cyanide to once every three years, with the next event to be performed in 2017.
- Total metals: Reduction in effluent monitoring frequency for total metals to once every three years, with the next event to be performed in 2016.

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 2014, there were several minor unscheduled activities on the GETS related to both (1) operation and maintenance and (2) NPDES monitoring and reporting.

Total cyanide was detected above the Permit's trigger concentration of 2.9 µg/L in the effluent sample at 10 µg/L (J-flagged result) during the October 2014 sampling event. In accordance with the Permit, Provision VI.C.6, three additional samples (three influent and three effluent) for cyanide were collected on November 5, 2014, December 16, 2014 and January 13, 2015. Cyanide effluent results from the November, December and January sampling events were all below the Permit trigger concentration and are as follows: 1.2 µg/L, <1.0 µg/L and <1.0 µg/L. In accordance with the Permit's Provision VI.C.7, Amec Foster Wheeler will report the results of trigger non-exceedances in the first quarter 2015 NPDES Self-Monitoring Report and will resume the sampling and analysis plan per the Permit. The source of the total cyanide detection in October 2014 was not identified.

4.1 UNSCHEDULED OPERATION AND MAINTENANCE

As described in Section 2.2, several unscheduled shutdown events occurred in 2014 that cumulatively shut the system down for a period of approximately 5 days. No spills or equipment malfunctions occurred in 2014.

5.0 TECHNICAL ASSESSMENT

In 2014, the GETS treated impacted groundwater at flow rates ranging from approximately 16.2 to 19.5 gpm, with an average flow rate of 18.2 gpm. 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 2014. 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 September 2014 water level events is discussed in Section 2.3.2. Multiple lines of evidence indicate that the extent of hydraulic

containment provided by on-site and off-site extraction meets the target capture zones, and is attained with a margin of safety.

6.0 OPTIMIZATION PROGRESS

In February 2013, the U.S. EPA requested that all MEW parties accelerate the removal of VOC mass from groundwater. In response, Amec Foster Wheeler prepared recommendations for mass removal activities at the former 405 National Avenue property (on-site) and the shared well area located downgradient of the 401 and 405 National Avenue sites (off-site).

6.1 On-Site Area

In July 2014, Amec Foster Wheeler prepared a work plan to: (1) further delineate areas of the site where high concentrations of VOCs are present in groundwater, and (2) obtain additional subsurface lithologic data. Once performed, the information obtained from this investigation will be used to evaluate remedial options that will target and remove a significant mass of VOCs from the on-site area. It is anticipated that the work plan will be implemented in 2015.

6.2 Off-Site Shared Well Area

In 2014, an agreement was reached among Vishay, SUMCO and Schlumberger to implement the conversion of monitoring well 116A into an extraction well and have the extracted groundwater treated by the GETS. In late 2014, implementation planning was initiated for the conversion of 116A and updating the GETS to receive and treat the additional flow. It is anticipated that the conversion of 116A will take place mid-year 2015, to be followed by connection of extraction well 116A to the updated GETS network.

7.0 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 U.S. EPA, Amec Foster Wheeler submitted an Optimization Evaluation Report (Amec Foster Wheeler, 2008) that presented potential methods to optimize the groundwater extraction and treatment system in September 2008. Opportunities for treatment system optimization may include: (1) implementing an optimized pumping program to remove VOCs more efficiently, and (2) evaluating and implementing remedial treatment technologies that are capable of decreasing VOC groundwater concentrations in groundwater underlying the site.

GETS operation and remedial optimization measures will continue with coordination between responsible parties, U.S. EPA and property owners.

8.0 WORK PLANNED FOR 2015

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

- Continued planning and coordination for implementation of on-site area environmental investigation.
- Continued planning and coordination for conversion of monitoring well 116A into an extraction well and updating the GETS to receive and treat additional VOC concentrations.
- Continued planning and coordination to replace the current UV-oxidation treatment unit with a HiPOx treatment unit.
- Continued planning and coordination for treatment system relocation and conveyance line network updates.
- 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 September 2015 in accordance with the semiannual monitoring schedule.
- Attend "All-Parties" meetings (dates to be determined).
- Prepare and submit quarterly NPDES Self Monitoring Reports in May, August, and November in accordance with the requirements of the NPDES Permit.
- Prepare and submit a Santa Clara Valley Water District Water Production Statement in July 2015.
- Prepare and submit a Bay Area Air Quality Management District update form in August 2015.
- Collect and analyze groundwater samples from extraction and monitoring wells in October of 2015 in accordance with the regional groundwater monitoring program.

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TABLES

TABLE 1

MONITORING AND REPORTING SCHEDULE
JANUARY–DECEMBER 2014
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	February, May, August, and November 2014
Santa Clara Valley Water District Water Production Statement and Fees	January and July 2014
Bay Area Air Quality Management District (BAAQMD) Permit Annual Data Update	August 2014
BAAQMD Permit Annual Fee	September 2014
Reporting	**Submitted**
Annual Progress Report for 2013	April 2014
Annual Capture Zone Analyses—2013	April 2014
Meetings	**Attended**
All Parties Meeting	

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 2014 [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 2014	1.82	1.24	1.71	1.25	1.57	0.74	6.92	0.06
February 2014	2.21	1.16	2.05	1.49	2.11	1.74	7.11	0.07
March 2014	2.17	1.00	2.07	1.45	2.24	1.64	6.68	0.07
April 2014	2.23	0.87	2.21	1.53	2.28	1.62	6.56	0.07
May 2014	1.91	0.67	1.80	1.17	1.97	1.25	5.20	0.06
June 2014	2.03	0.77	1.71	1.03	2.21	1.15	5.03	0.06
July 2014	2.35	0.76	2.15	0.69	2.56	1.42	6.42	0.06
August 2014	2.35	0.52	2.11	1.59	2.43	0.11	6.95	0.05
September 2014	2.24	0.66	2.10	2.28	2.83	0.72	6.75	0.05
October 2014	2.21	0.74	1.93	2.49	2.45	1.51	6.54	0.05
November 2014	2.22	0.57	1.91	2.47	2.50	1.58	6.90	0.04
December 2014	2.17	0.52	1.94	2.47	2.66	1.62	7.13	0.07
Annual Average Flow Rate	2.2	0.8	2.0	1.7	2.3	1.3	6.5	0.1
Stagnation Point (ft) [2]	-- [3]	--	--	--	15	11	59	59

Groundwater Treatment System Parameter	Influent			Effluent		
	Min	Max	Avg	Min	Max	Avg
Flow Rate (gpm) [4]	16.2	19.5	18.2	16.2	19.5	18.2
pH	6.4	7.3	6.9	7.8	8.4	8.1
Temperature °C [4]	17	21.7	19.8	18	23.7	21.5
Total VOCs (mg/l) [4]	1.45	2.14	1.72	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 2014
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]
1/9/2014	262,380	18.2	2,140	0.45
1/14/2014	128,360	18.0		
1/22/2014	95,290	8.1 [7]		
1/29/2014	166,250	16.9		
2/6/2014	221,740	19.1	1,750	0.39
2/11/2014	137,860	18.9		
2/19/2014	215,540	18.7		
2/25/2014	145,039	16.7		
3/3/2014	156,271	18.4	1,850	0.39
3/12/2014	206,660	15.7		
3/20/2014	202,730	18.1		
3/26/2014	162,550	18.4		
3/31/2014	129,590	18.2		
4/10/2014	259,130	17.95	1,452	0.31
4/17/2014	179,270	17.73		
4/21/2014	101,130	17.64		
5/1/2014	249,270	17.41	1,659	0.33
5/6/2014	125,350	17.16		
5/14/2014	54,080	4.66 [8]		
5/22/2014	198,710	17.65		
5/28/2014	129,350	14.88		
6/4/2014	183,300	18.05	1,569	0.32
6/10/2014	100,680	11.63 [8]		
6/17/2014	160,420	16.03		
6/25/2014	132,900	11.44 [8]		
7/2/2014	168,440	16.70	1,547	0.31
7/10/2014	183,960	16.00		
7/15/2014	115,270	16.10		
7/23/2014	202,990	17.43		
7/28/2014	124,550	17.55		
8/5/2014	200,520	17.32	1,660	0.33
8/12/2014	168,200	16.90		
8/19/2014	156,520	15.38		
8/28/2014	219,500	16.81		
9/3/2014	146,230	17.20	1,730	0.38
9/11/2014	213,630	18.35		
9/18/2014	184,010	18.56		
9/26/2014	214,900	18.55		

TABLE 3

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM (GETS)
VOLUME AND VOC MASS REMOVAL
JANUARY–DECEMBER 2014
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]
10/2/2014	161,447	18.65	1,750	0.38
10/9/2014	186,813	18.65		
10/15/2014	138,510	15.96		
10/22/2014	188,630	18.85		
10/31/2014	242,930	18.82		
11/5/2014	140,100	18.89	1,539	0.34
11/10/2014	132,650	18.75		
11/20/2014	248,340	17.24		
11/25/2014	136,580	18.92		
12/4/2014	240,060	18.52	1,950	0.44
12/9/2014	138,240	18.98		
12/16/2014	189,100	18.91		
12/23/2014	190,560	18.85		
12/31/2014	213,610	18.43		
Annual Cumulative Flow for 2014 (gallons) [9]				8,950,140
Historical Cumulative Flow from 1996 to present (gallons) [9]				189,545,980
Annual Cumulative VOC Mass Removed for 2014 (lbs) [10]				128.1
Historical Cumulative VOC Mass Removed from 1996 to present (lbs) [10]				8,306

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. Low flow rate during the 1/22/2014 weekly inspection is a result of a two day GETS shutdown due to a UV oxidation system malfunction.
8. Low flow rate is a result of a various GETS shutdown periods, less than 72 hours, due to UV oxidation system malfunction.
9. Calculated from flow meter readings. Flow measurements averaged over time period between weekly measurements.
10. lbs = pounds.

TABLE 4

SEMIANNUAL WATER LEVEL MEASUREMENTS
MARCH AND SEPTEMBER 2014
405 National Avenue
Mountain View, California

Well Name	Date Measured	Depth to Water [1]	Measuring Point Elevation [2]	Water Level Elevation [2]
SIL1A	3/20/2014	13.33	44.01	30.68
	9/18/2014	14.84	44.01	29.17
SIL2A	3/20/2014	12.80	43.42	30.62
	9/18/2014	14.34	43.42	29.08
SIL4A	3/20/2014	12.94	44.15	31.21
	9/18/2014	14.45	44.15	29.70
SIL5A	3/20/2014	12.26	45.15	32.89
	9/18/2014	13.75	45.15	31.40
SIL8A	3/20/2014	13.32	44.41	31.09
	9/18/2014	14.82	44.41	29.59
SIL9A	3/20/2014	11.61	41.21	29.60
	9/18/2014	13.16	41.21	28.05
SIL10A	3/20/2014	11.82	41.99	30.17
	9/18/2014	13.35	41.99	28.64
SIL11A	3/20/2014	12.07	42.66	30.59
	9/18/2014	13.58	42.66	29.08
SIL12A	3/20/2014	12.73	43.25	30.52
	9/18/2014	14.26	43.25	28.99
SIL13A	3/20/2014	13.52	43.50	29.98
	9/18/2014	15.11	43.50	28.39
SIL14A [3]	3/20/2014	--	43.07	--
	9/18/2014	--	43.07	--
SIL15A [4]	3/20/2014	12.06	42.17	30.11
	9/18/2014	13.59	42.17	28.58
SIL16A	3/20/2014	13.06	43.51	30.45
	9/18/2014	14.57	43.51	28.94
SIL17A	3/20/2014	13.04	43.43	30.39
	9/18/2014	14.53	43.43	28.90
EX-1 [4,5]	3/20/2014	19.38	41.61	27.91
	9/18/2014	20.21	41.61	27.32
EX-2 [4,5]	3/20/2014	17.05	41.50	29.44
	9/18/2014	19.22	41.50	27.91
EX-3 [4,5]	3/20/2014	16.77	41.47	29.61
	9/18/2014	19.29	41.47	27.83

TABLE 4

SEMIANNUAL WATER LEVEL MEASUREMENTS
MARCH AND SEPTEMBER 2014
405 National Avenue
Mountain View, California

Well Name	Date Measured	Depth to Water [1]	Measuring Point Elevation [2]	Water Level Elevation [2]
EX-4 [4,5]	3/20/2014	16.10	41.07	29.69
	9/18/2014	18.33	41.07	28.11
GSF-1A [4]	3/20/2014	11.55	39.57	28.02
	9/18/2014	13.02	39.57	26.55
GSF-1B1 [4]	3/20/2014	24.04	39.61	15.57
	9/18/2014	26.68	39.61	12.93
GSF-1B2 [4]	3/20/2014	16.13	39.61	23.48
	9/18/2014	17.01	39.61	22.60

Notes

1. Depth to water in feet below top of casing.
2. Elevations are expressed in feet above mean sea level.
3. Unable to access well
4. Extraction well water level measurements may vary depending on cycle of well pump.
5. 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]
OCTOBER 2014
405 National Avenue
Mountain View, California

Results reported in micrograms per liter (µg/l) [2,3]

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	10/22/14	<25	<25	<1000	**920**	<25	<25	**3,100**	**200**	**68**	**45**
EX-1 (Dup)			<25	<25	<25	**840**	<25	<25	**3,000**	**180**	**59**	**40**
EX-2			<6.3	<6.3	<250	**380**	<6.3	<6.3	**980**	<25	**15**	<6.3
EX-3			<3.6	<3.6	<140	**68**	<3.6	<3.6	**570**	**15**	<3.6	<3.6
EX-4			<2.5	**3.8**	<100	**110**	**3.1**	<2.5	**800**	**23**	<2.5	<2.5
SIL15A			**4.5**	**6.2**	<140	**200**	**3.8**	**4.3**	**360**	**20**	<3.6	<3.6
GSF-1A			<4.2	**6.8**	<170	**220**	**14**	<4.2	**640**	**8.5**	<4.2	<4.2
GSF-1B1			<20	<20	<800	**37**	<20	<20	**2,700**	**230**	<20	<20
GSF-1B2			<31	<31	<1300	<31	<31	<31	**3,700**	**160**	<31	<31
Monitoring Wells												
108A	Low Flow	10/21/14	<0.5	**0.6**	<20	**8.1**	<0.5	**1.1**	**99**	<2.0	<0.5	**1.1**
116A			<360	<360	<14000	**3,700**	<360	<360	**33,000**	<1400	<360	<360
104B1			<1.7	**2**	<67	**8.5**	<1.7	<1.7	**180**	<6.7	<1.7	<1.7
109B1			<3.6	<3.6	<140	**9.7**	<3.6	<3.6	**510**	**24**	<3.6	<3.6
25B1			<1.7	**2.6**	<67	**21**	<1.7	<1.7	**220**	<6.7	<1.7	<1.7
42B2			<0.5	<0.5	<20	**0.6**	<0.5	<0.5	**29 J**	<2.0	<0.5	<0.5
108B2			<4.2	<4.2	<170	<4.2	<4.2	<4.2	**570**	<17	<4.2	<4.2
107B2			<0.5	<0.5	<20	**0.9**	<0.5	<0.5	**57**	<2.0	<0.5	<0.5
SIL1A			<0.5	<0.5	<20	**6.1**	<0.5	**0.9**	**54**	<2.0	<0.5	<0.5
SIL9A			<2.5	<2.5	<100	**29**	<2.5	<2.5	**470**	<10	<2.5	<2.5
SIL9A (Dup)			<2.5	<2.5	<100	**28**	<2.5	<2.5	**490**	<10	<2.5	<2.5
SIL13A			<2.5	<2.5	<100	**41**	<2.5	<2.5	**370**	<10	<2.5	<2.5
SIL14A			<25	<25	<1000	**4,700**	<25	<25	**110**	<100	**2,000**	<25

TABLE 5

GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS SUMMARY [1]
OCTOBER 2014
405 National Avenue
Mountain View, California

Notes

1. Groundwater samples analyzed by U.S. Environmental Protection Agency Method 8260B, including 1,1-DCE and Freon 113, by Curtis & Tompkins, Ltd., of Berkeley, California.
2. Detections are shown in bold.
3. "<" = not detected at or above Reporting Limits (RLs) as shown.
4. "J" = detection is an estimated value.

Abbreviations

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

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014
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	12/7/1995	<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)	12/7/1995	<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	12/4/2000	<36	<36	**1,200**	<36	**54**	**8,500**	<36	**230**	**47**		
EX-1 (Dup)	12/4/2000	<31	<31	**1,400**	<31	**40**	**10,000**	<31	**230**	**35**		
EX-1	12/5/2001	<25	<25	**1,200**	**51**	**27**	**8,100**	<25	**200**	**36**		
EX-1 (Dup)	12/5/2001	<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-1	12/16/2010	< 20	**< 20**	**840**	**< 20**	< 20	**2,500**	**120**	**71**	**45**		
EX-1 (Dup)	12/16/2010	**6.3**	**8.6**	**850**	28	**5.9**	**2,400**	**130**	**71**	**48**		
EX-1	10/6/2011	<20	<20	**690**	<20	<20	**2,700**	**130**	**69**	**38**		
EX-1 (Dup)	10/6/2011	<10	<10	**850**	<10	<10	**2,400**	**140**	**60**	**33**		
EX-1	10/16/2012	<17	<17	**870**	<17	<17	**2500**	**150**	**67**	**49**		
EX-1 (Dup)	10/16/2012	<13	<13	**850**	<13	<13	**2300**	**140**	**68**	**49**		
EX-1	10/15/2013	<17	<13	**710**	**19**	<13	**2600**	**170**	**74**	**34**		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014
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-1 (Dup)	10/15/2013	<17	<17	**710**	<17	<17	**2800**	**170**	**69**	**33**		
EX-1	10/22/14	<25	<25	**920**	<25	<25	**3,100**	**200**	**68**	**45**		
EX-1 (Dup)	10/22/14	<25	<25	**840**	<25	<25	**3,000**	**180**	**59**	**40**		
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 1,2,4-TMB 1,3,5-TMB xylenes	**1.02** **1.42** **0.9** **0.77**
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-2	12/16/2010	**6.8**	**8.4**	**560**	21	**6.7**	**590**	**< 20**	31	< 5		
EX-2	10/6/2011	**6.4**	**6.4**	**480**	<4.2	**7**	**690**	**25**	**14**	<4.2		
EX-2	10/16/2012	**6.1**	**8.7**	**460**	**6.1**	**6.7**	**730**	**25**	**18**	<4.2		
EX-2	10/15/2013	<4.2	**7.4**	**430**	**7.7**	**4.8**	**820**	**23**	**18**	<4.2		
EX-2	10/22/14	<6.3	<6.3	**380**	<6.3	<6.3	**980**	<25	**15**	<6.3		
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**

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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 (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		
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-3	12/16/2010	**4**	**4**	**83**	5.1	**4**	**370**	**< 13**	< 3.1	< 3.1		
EX-3	10/6/2011	**2.7**	**3.6**	**54**	<2.5	**3**	**330**	<10	<2.5	<2.5		
EX-3	10/16/2012	<2.5	<2.5	**100**	<2.5	<2.5	**380**	<10	<2.5	<2.5		
EX-3	10/15/2013	<2.5	<2.5	**50**	<2.5	<2.5	**320**	<10	<2.5	<2.5		
EX-3	10/22/14	<3.6	<3.6	**68**	<3.6	<3.6	**570**	**15**	<3.6	<3.6		
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	--		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014
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-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		
EX-4	12/16/2010	**6.4**	**8.2**	**220**	**6.4**	**6.6**	**750**	**28**	< 5	< 5		
EX-4	10/6/2011	<5	<5	**220**	<5	**5**	**890**	**24**	<5	<5		
EX-4	10/16/2012	<3.1	<3.1	**68**	<3.1	<3.1	**430**	<13	<3.1	<3.1		
EX-4	10/15/2013	<3.1	**3.8**	**100**	<3.1	<3.1	**530**	**15**	<3.1	<3.1		
EX-4	10/22/14	<2.5	**3.8**	**110**	**3.1**	<2.5	**800**	**23**	<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		
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**

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014
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	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-1A	12/16/2010	**4.8**	**6**	**190**	**8.9**	<4.2	**580**	<17	<4.2	<4.2		
GSF-1A	10/6/2011	<5	<5	**240**	**6.8**	<5	**700**	<20	<5	<5		
GSF-1A	10/16/2012	<5.0	<5.0	**190**	**7.4**	<5.0	**500**	**20**	<5.0	<5.0		
GSF-1A	10/15/2013	<4.2	**6.1**	**270**	**12**	<4.2	**700**	<17	<4.2	<4.2		
GSF-1A	10/22/14	<4.2	**6.8**	**220**	**14**	<4.2	**640**	**8.5**	<4.2	<4.2		
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		
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		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014
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	12/2/2009	<20	<20	**43**	<20	<20	**2,400**	**370**	<20	<20		
GSF-1B1	12/16/2010	< 20	< 20	**44**	< 20	**< 20**	**2,500**	**250**	< 20	< 20		
GSF-1B1	10/6/2011	<17	<17	**34**	<17	<17	**2500**	**280**	<17	<17		
GSF-1B1	10/16/2012	<17	<17	**29**	<17	<17	**1900**	**280**	<17	<17		
GSF-1B1	10/15/2013	<13	<13	**32**	<13	<13	**2600**	**200**	<13	<13		
GSF-1B1	10/22/14	<20	<20	**37**	<20	<20	**2,700**	**230**	<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		
GSF-1B2	12/16/2010	< 71	< 71	< 71	< 71	< 71	**6,600**	< 290	< 71	< 71		
GSF-1B2	10/6/2011	<36	<36	<36	<36	<36	**6900**	**350**	<36	<36		
GSF-1B2	10/16/2012	<36	<36	<36	<36	<36	**4300**	**190**	<36	<36		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014
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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	
GSF-1B2	10/15/2013	<25	<25	<25	<25	<25	**5000**	**210**	<25	<25		
GSF-1B2	10/22/14	<31	<31	<31	<31	<31	**3,700**	**160**	<31	<31		
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**	--		
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		
SIL15A	12/16/2010	**7.1**	**8.3**	**210**	2.6	**7**	**350**	**22**	< 2.5	< 2.5		
SIL15A	10/6/2011	**6.7**	**8.9**	**190**	**3.2**	**7**	**360**	**21**	<2.5	<2.5		
SIL15A	10/16/2012	**6.7**	**7.7**	**210**	**3.1**	**6.6**	**350**	**21**	<2.5	<2.5		
SIL15A	10/15/2013	**6.1**	**10**	**180**	**3.6**	**6.7**	**350**	**35**	**1.8**	**1.1**		
SIL15A	10/22/14	**4.5**	**6.2**	**200**	**3.8**	**4.3**	**360**	**20**	<3.6	<3.6		
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		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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	12/30/1987	<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**		
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**		
108A	12/16/2010	< 1.3	< 1.3	**16**	< 1.3	< 1.3	**150**	< 5	< 1.3	< 1.3		
108A	10/6/2011	<1.3	<1.3	**9.5**	<1.3	<1.3	**120**	<5	<1.3	<1.3		
108A	10/16/2012	<1.0	<1.0	**3**	<1.0	<1.0	**630**	<4.0	<1.0	<1.0		
108A	10/15/2013	<1.0	<1.0	**8.9**	<1.0	<1.0	**95**	<4.0	<1.0	<1.0		
108A	10/21/14	<0.5	**0.6**	**8.1**	<0.5	**1.1**	**99**	<2.0	<0.5	**1.1**		
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		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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	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		
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		
116A	12/16/2010	< 50	**65**	**4600**	59	**57**	**38,000**	**1200**	180	< 50		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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	10/6/2011	<310	<310	**7600**	<310	<310	**56000**	**2600**	<310	<310		
116A	10/16/2012	<310	<310	**4900**	<310	<310	**53000**	**1600**	<310	<310		
116A	10/15/2013	**46**	**150**	**5500**	**67**	**220**	**57000**	**2900**	**170**	<31		
116A	10/21/14	<360	<360	**3,700**	<360	<360	**33,000**	<1400	<360	<360		
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		
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		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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	12/10/2007	<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		
104B1	12/16/2010	< 1	< 1	**8.4**	< 1	**< 1**	**120**	**< 4**	< 1	< 1		
104B1	10/6/2011	<1	**1.4**	**8.1**	<1	<1	**330**	**5**	<1	<1		
104B1	10/16/2012	<1.0	**1.5**	**10**	<1.0	<1.0	**110**	<4.0	<1.0	<1.0		
104B1	10/15/2013	<1.0	**1.9**	**6.5**	<1.0	<1.0	**220**	**8.4**	<1.0	<1.0		
104B1	10/21/14	<1.7	**2**	**8.5**	<1.7	<1.7	**180**	<6.7	<1.7	<1.7		
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		
109B1	10/28/1997	<10	<10	**50**	<10	<10	**1,800**	<40	<40	<10	1,1,2-TCA	**30**

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014
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	
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		
109B1	12/16/2010	< 5	< 5	**12**	< 5	**< 5**	**570**	**27**	< 5	< 5		
109B1	10/6/2011	<5	<5	**12**	<5	<5	**530**	**25**	<5	<5		
109B1	10/16/2012	<4.2	<4.2	**10**	<4.2	<4.2	**1100**	**25**	<4.2	<4.2		
109B1	10/15/2013	<4.2	<4.2	**14**	<4.2	<4.2	**550**	**28**	<4.2	<4.2		
109B1	10/21/14	<3.6	<3.6	**9.7**	<3.6	<3.6	**510**	**24**	<3.6	<3.6		
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		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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	
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		
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		
25B1	12/16/2010	< 1.7	**3**	**37**	< 1.7	**< 1.7**	**300**	**< 6.7**	< 1.7	< 1.7		
25B1	10/6/2011	**2.2**	**5.1**	**50**	<1.3	**1.4**	**370**	<5	<1.3	<1.3		
25B1	10/16/2012	<2.5	**2.5**	**35**	<2.5	<2.5	**280**	<10	<2.5	<2.5		
25B1	10/15/2013	<2.5	<2.5	**35**	<2.5	<2.5	**270**	<10	<2.5	<2.5		
25B1	10/21/14	<1.7	**2.6**	**21**	<1.7	<1.7	**220**	<6.7	<1.7	<1.7		
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		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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	
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		
42B2	12/16/2010	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**15**	< 2	< 0.5	< 0.5		
42B2	10/6/2011	<0.5	<0.5	<0.5	<0.5	<0.5	**16**	<2	<0.5	<0.5		
42B2	10/16/2012	<0.5	<0.5	**0.5**	<0.5	<0.5	**24**	<2.0	<0.5	<0.5		
42B2	10/15/2013	<0.5	<0.5	**0.5**	<0.5	<0.5	**27**	<2.0	<0.5	<0.5		
42B2	10/21/14	<0.5	<0.5	**0.6**	<0.5	<0.5	**29**	<2.0	<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		
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		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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	3/16/2009	<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		
108B2	12/16/2010	**< 5**	**< 5**	< 5	< 5	< 5	**640**	< 20	< 5	< 5		
108B2	10/6/2011	<3.6	<3.6	<3.6	<3.6	<3.6	**620**	<14	<3.6	<3.6		
108B2	10/16/2012	<5.0	<5.0	<5.0	<5.0	<5.0	**680**	<20	<5.0	<5.0		
108B2	10/15/2013	<5.0	<5.0	<5.0	<5.0	<5.0	**610**	<20	<5.0	<5.0		
108B2	10/21/14	<4.2	<4.2	<4.2	<4.2	<4.2	**570**	<17	<4.2	<4.2		
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		
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		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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	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		
107B2	12/16/2010	**< 0.5**	**< 0.5**	**2.3**	< 0.5	**< 0.5**	**74**	**< 2**	< 0.5	< 0.5		
107B2	10/6/2011	<0.5	<0.5	**2.2**	<0.5	<0.5	**69**	<2	<0.5	<0.5		
107B2	10/16/2012	<0.5	<0.5	**1.8**	<0.5	<0.5	**61**	<2.0	<0.5	<0.5		
107B2	10/15/2013	<0.5	<0.5	**0.7**	<0.5	<0.5	**52**	<2.0	<0.5	<0.5		
107B2	10/21/14	<0.5	<0.5	**0.9**	<0.5	<0.5	**57**	<2.0	<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 toluene	**47,000** **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**		
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		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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	
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		
SIL1A	12/17/2010	< 17	< 17	**2500**	**23**	< 17	**810**	< 67	< 17	25		
SIL1A	10/7/2011	<13	**14**	**1700**	**14**	<13	**940**	<50	<13	**19**		
SIL1A	10/16/2012	<13	<13	**1200**	**15**	<13	**1100**	<50	<13	**25**		
SIL1A	10/15/2013	<10	<10	**1300**	<10	<10	**1100**	<40	<10	**22**		
SIL1A	10/21/14	<0.5	<0.5	**6.1**	<0.5	**0.9**	**54**	<2.0	<0.5	<0.5		
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		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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	
SIL9A	8/31/1988	<250	<250	--	--	<250	**6,000**	--	<250	<250	MC	**4600**
SIL9A	10/16/1988	<50	<50	--	--	<50	**8,300**	--	<50	<50		
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 1,2-DCB	**18** **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		
SIL9A	12/17/2010	< 3	< 3	**46**	< 3	< 3	**470**	< 13	< 3	< 3		
SIL9A (Dup)	12/17/2010	< 3	< 3	**46**	< 3	< 3	**450**	< 14	< 3	< 3		
SIL9A	10/7/2011	<3.6	<3.6	**48**	<3.6	<3.6	**400**	<14	<3.6	<3.6		
SIL9A (Dup)	10/7/2011	<3.6	<3.6	**48**	<3.6	<3.6	**400**	<14	<3.6	<3.6		
SIL9A	10/17/2012	<3.1	<3.1	**45**	<3.1	<3.1	**370**	<13	<3.1	<3.1		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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	
SIL9A (Dup)	10/17/2012	<3.1	<3.1	**48**	<3.1	<3.1	**380**	<13	<3.1	<3.1		
SIL9A	10/15/2013	<2.5	<2.5	**39**	<2.5	<2.5	**430**	<10	<2.5	<2.5		
SIL9A (Dup)	10/15/2013	<2.5	<2.5	**41**	<2.5	<2.5	**430**	<10	<2.5	<2.5		
SIL9A	10/21/14	<2.5	<2.5	**29**	<2.5	<2.5	**470**	<10	<2.5	<2.5		
SIL9A (Dup)	10/21/14	<2.5	<2.5	**28**	<2.5	<2.5	**490**	<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		
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		
SIL13A	12/16/2010	**2.7**	**2.6**	**37**	< 2.5	**< 2.5**	**310**	< 10	< 2.5	< 2.5		
SIL13A	10/6/2011	**2.5**	<2.5	**41**	<2.5	<2.5	**300**	<10	<2.5	<2.5		
SIL13A	10/17/2012	<2.5	<2.5	**49**	<2.5	<2.5	**280**	<10	<2.5	**2.6**		
SIL13A	10/15/2013	<2.5	<2.5	**55**	<2.5	<2.5	**360**	<10	<2.5	<2.5		
SIL13A	10/21/14	<2.5	<2.5	**41**	<2.5	<2.5	**370**	<10	<2.5	<2.5		
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		

TABLE 6

HISTORICAL GROUNDWATER SAMPLING CHEMICAL ANALYTICAL RESULTS [1]
OCTOBER 1985–OCTOBER 2014

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	
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		
SIL14A	12/16/2010	< 100	< 100	**17,000**	< 100	< 100	**6,600**	< 400	**4,300**	< 100		
SIL14A	10/6/2011	<36	<36	**4,800**	<36	<36	**1,800**	<140	**1,900**	<36		
SIL14A	10/16/2012	<31	<31	**4500**	<31	<31	**1400**	<130	**1700**	<31		
SIL14A	10/15/2013	<31	<31	**5900**	**51**	<31	**660**	<130	**2400**	<31		
SIL14A	10/21/14	<25	<25	**4,700**	<25	<25	**110**	<100	**2,000**	<25		

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 resumed in 2008.
4. The EPA approved the removal of this well from all monitoring, starting with the November/December 2007 sampling event. Sampling of this 108B2 resumed in 2009 for continued monitoring as a part of the Regional Groundwater Remediation Program.

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	Yes	• Target capture extents met for the A- and B1/B2-aquifers.
Water level pairs	CWC[1] (with exception)	• Inward gradient in A-aquifer toward on-site extraction wells. • Inward gradient from REG-MW1 towards GSF extraction wells in B1, and B2-aquifer intervals. During September 2014, GSF-1A elevation is higher than REG-MW-1A elevation. However, GSF-1A extraction rates are sufficient to provide hydraulic containment of the off-site source area.
Calculations:		
Flow budget (Darcy flux)	Yes	• Extraction rate exceeds Darcy Flux
Capture zone width calculations	Yes	• Calculated containment width exceeds target capture zone width in Aquifers A and B1/B2.
Numerical modeling	Yes	• Model width exceeds target capture zone width for Aquifers A and B1/B2.
Concentration Trends:		
Downgradient of on-site	CWC	• Decreasing chemical concentrations between on-site and off-site extraction wells is consistent with on-site source control.
Downgradient of GSF	CWC	• 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) meets target zones for Aquifers A and B1/B2.		

Note

1. CWC = Consistent with capture

TABLE 8

GROUNDWATER ELEVATIONS AND VERTICAL GRADIENT IN WELL PAIRS [1]
FEBRUARY 1996–SEPTEMBER 2014
405 National Avenue
Mountain View, California

	Vertical Gradient Between Aquifer Zones [2,3]											
	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 [4]		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 [1]		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
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

TABLE 8

GROUNDWATER ELEVATIONS AND VERTICAL GRADIENT IN WELL PAIRS [1]
FEBRUARY 1996–SEPTEMBER 2014
405 National Avenue
Mountain View, California

	Vertical Gradient Between Aquifer Zones [2,3]											
	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 [4]		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 [1]		Gradient	Water Levels		Gradient	Water Levels		Gradient	Water Levels		Gradient
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
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

TABLE 8

GROUNDWATER ELEVATIONS AND VERTICAL GRADIENT IN WELL PAIRS [1]
FEBRUARY 1996–SEPTEMBER 2014
405 National Avenue
Mountain View, California

	Vertical Gradient Between Aquifer Zones [2,3]											
	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 [4]		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 [1]		Gradient	Water Levels		Gradient	Water Levels		Gradient	Water Levels		Gradient
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
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	29.90	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
03/27/10	29.48	31.68	-0.10	30.54	29.48	0.03	29.45	31.86	-0.16	30.82	29.45	0.03

TABLE 8

GROUNDWATER ELEVATIONS AND VERTICAL GRADIENT IN WELL PAIRS [1]
FEBRUARY 1996–SEPTEMBER 2014
405 National Avenue
Mountain View, California

	Vertical Gradient Between Aquifer Zones [2,3]											
	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 [4]		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 [1]		Gradient	Water Levels		Gradient	Water Levels		Gradient	Water Levels		Gradient
11/18/10	28.36	30.7	-0.11	29.50	28.36	0.03	28.33	30.91	-0.17	29.80	28.33	0.04
03/24/11	30.26	32.74	-0.11	31.13	30.26	0.03	30.24	32.98	-0.18	31.33	30.24	0.03
09/15/11	28.1	31.15	-0.14	29.80	28.1	0.05	28.05	31.41	-0.22	29.98	28.05	0.05
03/15/12	27.82	30.87	-0.14	29.50	27.82	0.05	27.75	31.02	-0.22	29.69	27.75	0.05
09/20/12	27.76	30.78	-0.14	29.38	27.76	0.05	27.70	30.88	-0.21	29.53	27.7	0.04
03/21/13	28.59	32.07	-0.16	29.95	28.59	0.04	28.55	32.07	-0.23	30.07	28.55	0.04
09/09/13	28.02	31.13	-0.14	29.48	28.02	0.04	27.97	31.18	-0.21	29.61	27.97	0.04
03/20/14	27.69	30.9	-0.15	29.01	27.69	0.04	27.84	30.84	-0.20	29.14	27.84	0.03
09/18/14	26.53	29.27	-0.13	27.47	26.53	0.03	26.48	29.31	-0.19	27.61	26.48	0.03
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 108B2 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, monitoring at 108B2 has continued since 2008.

TABLE 9

VERTICAL GRADIENT DATA IN VICINITY OF OFF-SITE EXTRACTION WELLS[1]
SEPTEMBER 1996 to SEPTEMBER 2014
Shared Off-Site Source Control Wells
405 National Avenue
Mountain View, California

	Vertical Gradient Between Aquifer Zones[2,3]					
	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 [1]		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
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

TABLE 9

VERTICAL GRADIENT DATA IN VICINITY OF OFF-SITE EXTRACTION WELLS[1]
SEPTEMBER 1996 to SEPTEMBER 2014
Shared Off-Site Source Control Wells
405 National Avenue
Mountain View, California

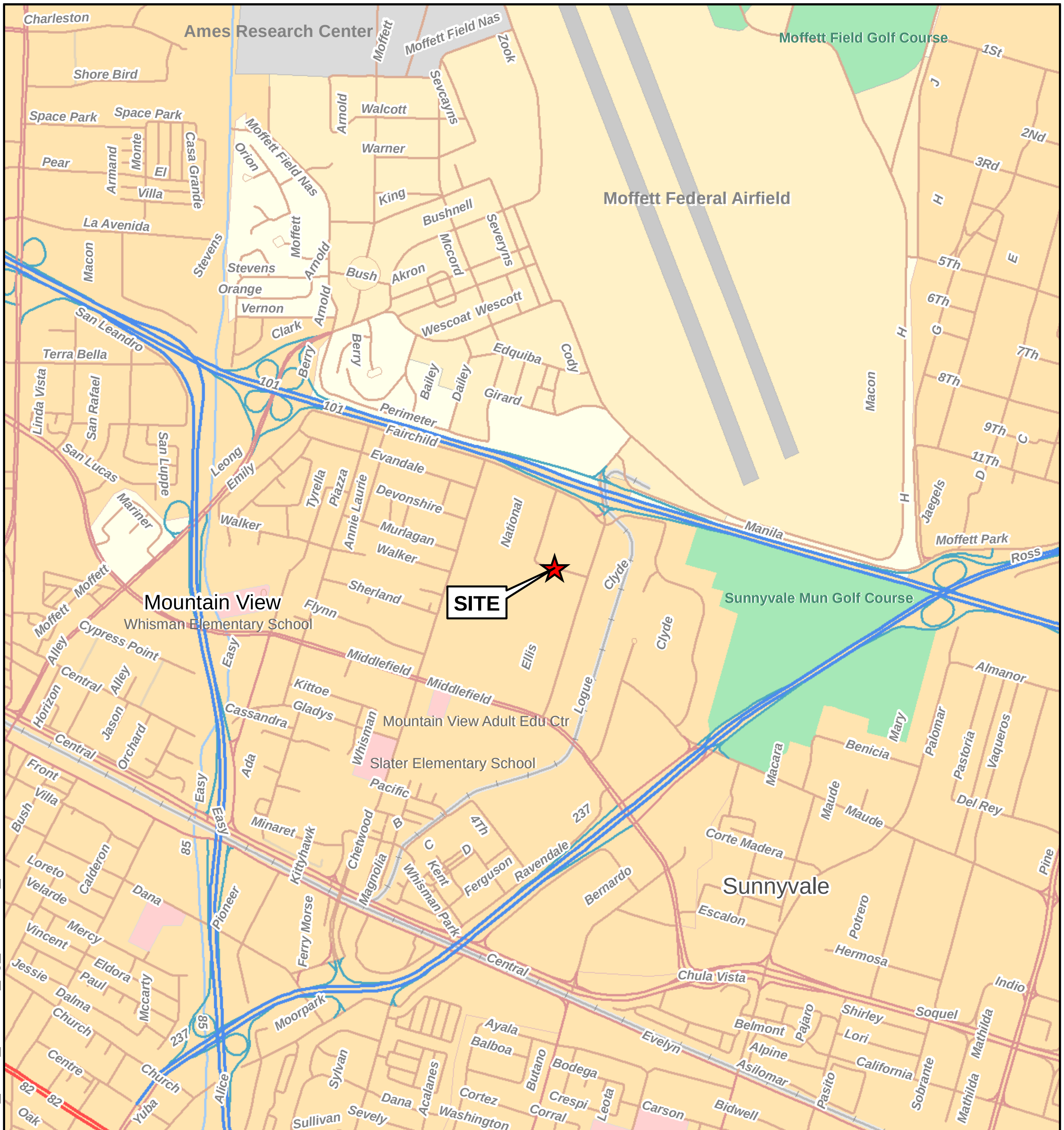
	Vertical Gradient Between Aquifer Zones[2,3]					
	Nested Well Group III (GSF-1A, GSF-1B1, GSF-1B2)					
	B1 to B2			A to B1		
	GSF-1B1	GSF-1B2		GSF-1A	GSF-1B1	
	Well Screen Mid-Point			Well Screen Mid-Point		
	-28.39	-37.89	Vertical	15.07	-28.39	Vertical
Date	Water Levels [1]		Gradient	Water Levels		Gradient
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	28.24	-4.64	0.76
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
3/27/2010	3.03	24.81	-2.29	28.89	3.03	0.60
11/18/2010	-3.64	24.63	-2.98	27.91	-3.64	0.73
3/24/2011	-2.9	24.77	-2.91	29.50	-2.9	0.75
9/15/2011	20.07	24.98	-0.52	39.57	20.07	0.45
3/15/2012	15.95	23.6	-0.81	28.10	15.95	0.28
9/20/2012	15.63	23.6	-0.84	28.22	15.63	0.29
3/21/2013	15.77	23.07	-0.77	28.86	15.77	0.30
9/19/2013	14.39	23.75	-0.99	28.43	14.39	0.32
3/20/2014	15.57	23.48	-0.83	28.02	15.57	0.29
9/18/2014	12.93	22.6	-1.02	26.55	12.93	0.31
Average Vertical Gradient Values			**-1.16**			**0.37**

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.

amec
foster
wheeler

FIGURES



Basemap from StreetMapPro 2007 (EnvironmentalSystems Research Institute, Inc. [ESRI], 2007).

SITE LOCATION MAP
405 National Avenue
Mountain View, California

Date: 03/10/2015 | Project No. 0014860014.02

amec foster wheeler

Figure
1

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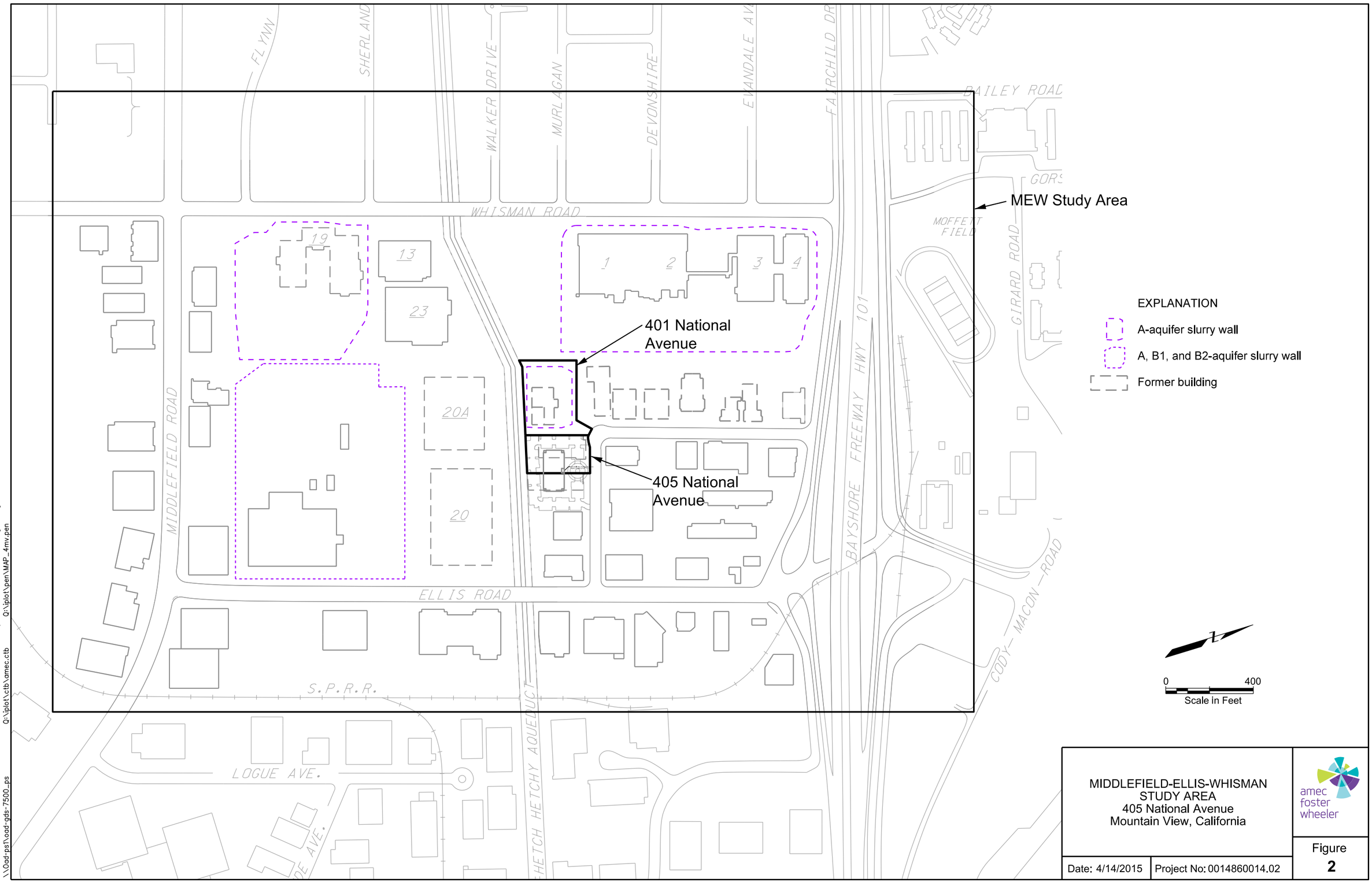

MIDDLEFIELD-ELLIS-WHISMAN
STUDY AREA
405 National Avenue
Mountain View, California

amec foster wheeler

Date: 4/14/2015 | Project No: 0014860014.02

Figure
2

irene.skolnik
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126A
620 NATIONAL AVENUE BUILDING DEMOLISHED 2014
151A
RW-25A
35A
RW-21A
AE/RW-9-1
630 NATIONAL AVENUE BUILDING DEMOLISHED 2014
640 NATIONAL AVENUE BUILDING DEMOLISHED 2014
REG-MW2B1
152A
BUILDINGS DEMOLISHED 2014
54A
36A
69B1
123A
122A
9
37A
401 NATIONAL AVENUE BUILDING DEMOLISHED 2014
77B1
80A
REG-12A
REG-1B1
REG-1B2
58A
RW-20A
AE/RW-9-2
BLDG. 9
401 NATIONAL AVENUE
41A
69A
REG-MW1B2
REG-MW1B1
REG-MW1A
147A
143B1
42A
116A
107B2
GSF1B1
GSF1A
GSF1B2
On-Site A-aquifer Target Width of Containment
137A
39A
109B1
31A
138A
40A
43A
44A
25B1
108B2
104B1
SIL1A
EX1
EX2
EX3
EX4
SIL17A
SIL14A
108A
SIL9A
83A
SIL16A
SIL13A
SIL15A
405 NATIONAL AVENUE BUILDING DEMOLISHED 2000
Combined On- and Off-Site A-aquifer Target Width of Containment
SIL12A
SIL2A
42B2
SIL3A
109A
SIL4A
SIL6A
423 NATIONAL AVENUE BUILDING DEMOLISHED 2000
50A
110A
105B1
SIL10A
56A
28A
SIL7A
NEW PARKING/LANDSCAPING FOR 425 NATIONAL AVENUE
SIL5A
SIL8A
SIL11A
45A

EXPLANATION

- Groundwater extraction well
- Groundwater monitoring well
- Groundwater monitoring well destroyed November 16, 2000
- Groundwater monitoring well to be destroyed and relocated by the end of 2015
- Approximate property boundary
- Former building
- Target capture zone

Well pairs include:
116A & 109B1, 109B1 & 107B2 and
108A &104B1, 104B1 & 108B2

0 80
Scale in Feet

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

Date: 4/14/2015 | Project No: 0014860014.02

amec foster wheeler

Figure 3

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irene.skolnik

LEGEND

- GROUNDWATER MONITORING WELL
- GROUNDWATER EXTRACTION WELL
- GROUNDWATER MONITORING WELL DESTOYED
- SOIL VAPOR MONITORING WELL DESTROYED
- SOIL VAPOR EXTRACTION WELL DESTROYED
- TRENCHES
- CONCRETE ACCESS VAULT
- ELECTRICAL PULL BOX

401 National Avenue

616-620 National Avenue

626-630 National Avenue

425 National Avenue

VAPOR TREATMENT SYSTEM PIPING CAPPED IN PLACE SEPTEMBER 1999

GROUNDWATER TREATMENT SYSTEM

PUMPS POWER & SIGNAL AND PULL BOX

MAIN ELECTRICAL PULL BOX

TREATED GROUNDWATER DISCHARGE PIPING

TELEPHONE PULL BOX

FLOWMETER REMOTE READOUT CURBED FEBRUARY 2005

PG&E UTILITY POLE

PG&E PULL BOX

EXISTING 1¼" GAS LINE

ALL UNDERGROUND UTILITIY LINES ON 401 NATIONAL AVENUE LOCATED BY PAINT MARKS ON PAVEMENT MADE BY CRUZ BROTHERS ACCURACY NOT VERIFIED

10' P.U.E.
5' W.C.E.

PG&E METER PANEL

BOLLARDS

TRANSFORMER PAD

2" PVC TELEPHONE CONDUIT

TELEPHONE PULL BOX

PUMPS POWER & SIGNAL PULL BOX

MAIN ELECTRICAL PULL BOX

VAPOR TREATMENT SYSTEM PIPING REMOVED IN MAY 2001

405 NATIONAL AVENUE BUILDING DEMOLISHED NOVEMBER 2000

425 NATIONAL AVENUE PARKING/LANDSCAPING COMPLETED IN 2001

425 NATIONAL AVENUE BUILDING COMPLETED IN 2001

Hetch Hetchy Aqueduct

A.C. PAVING

CONC. SLAB WITH WATER VALVES & BACK FLOW PREVENTER

EXISTING GAS LINE

NATIONAL AVENUE

341' 8" VCP

308' 15" RCP

0 40
Scale in Feet

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

amec foster wheeler

Date: 3/10/2015 | Project No: 0014860014.02

Figure 4a

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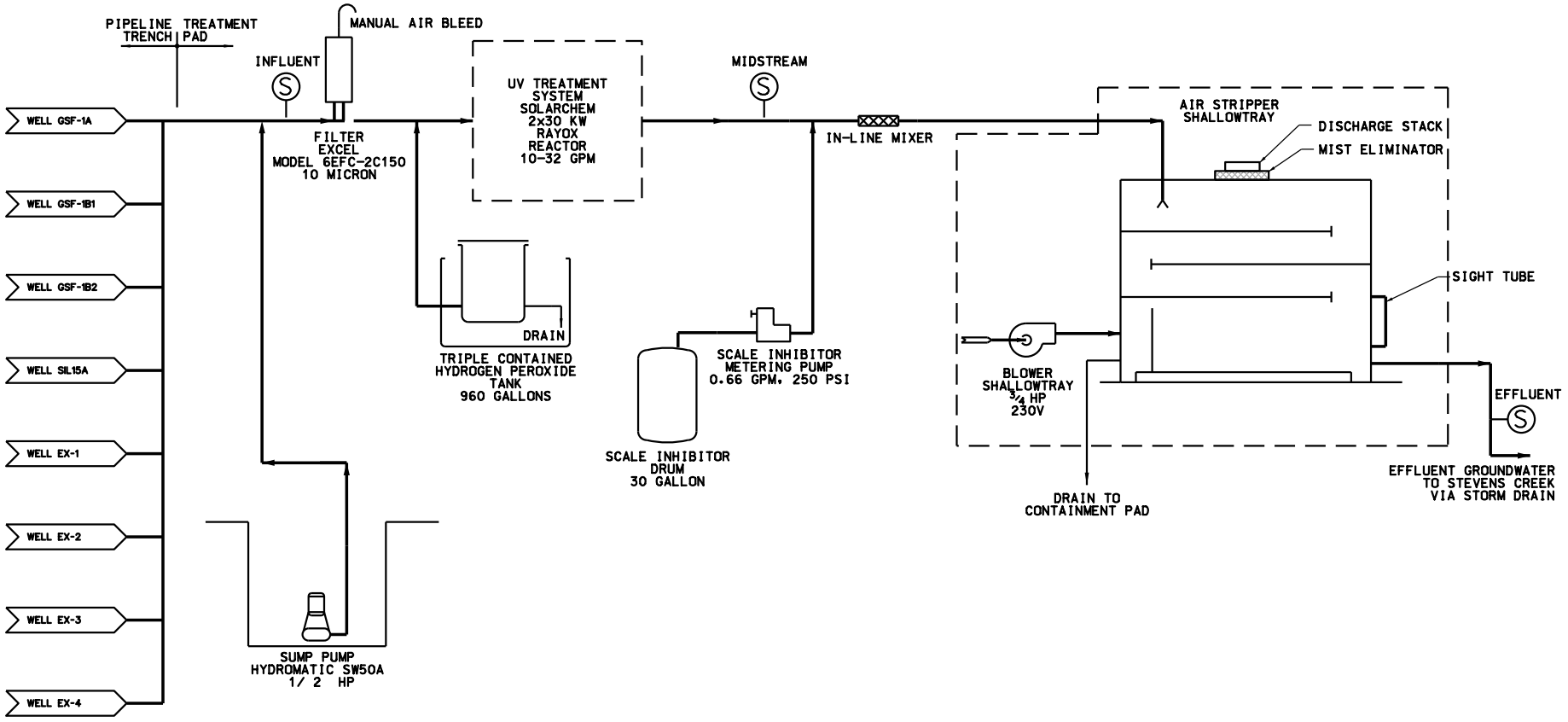


LEGEND

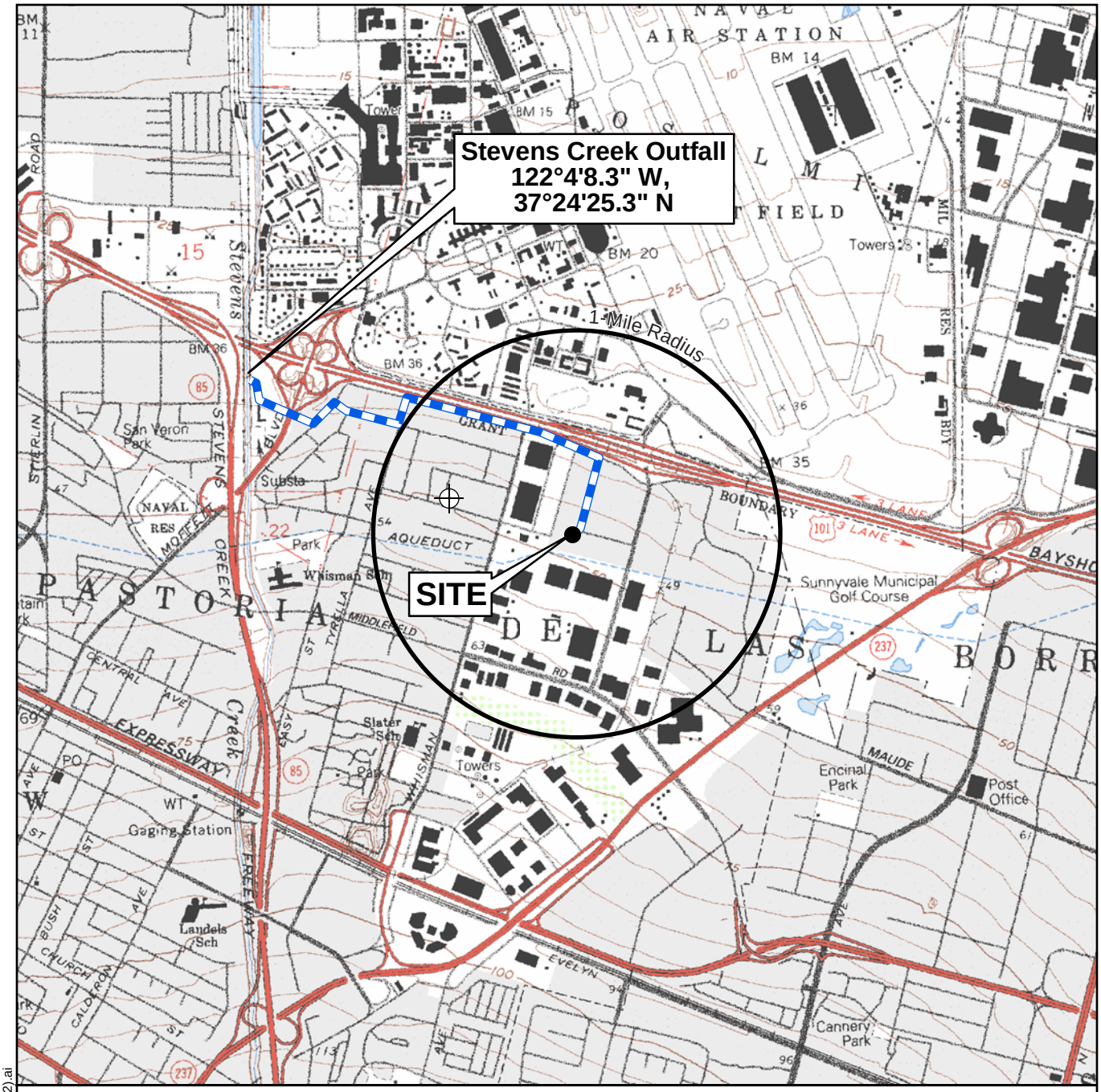
- BLOWER
- METERING PUMP
- SUBMERSIBLE PUMP
- SAMPLE PORT

PROCESS FLOW SCHEMATIC
405 National Avenue
Mountain View, California

amec foster wheeler

Date: 3/10/2015 | Project No: 001486014.02

Figure **4b**



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

EXPLANATION

- Domestic well (not in operation)
- Storm drain alignment

N

0 2,000 Feet

DISCHARGE LOCATION MAP
405 National Avenue
Mountain View, California

amec foster wheeler

Date: 03/10/2015 | Project No. 0014860014.02

Figure **4c**

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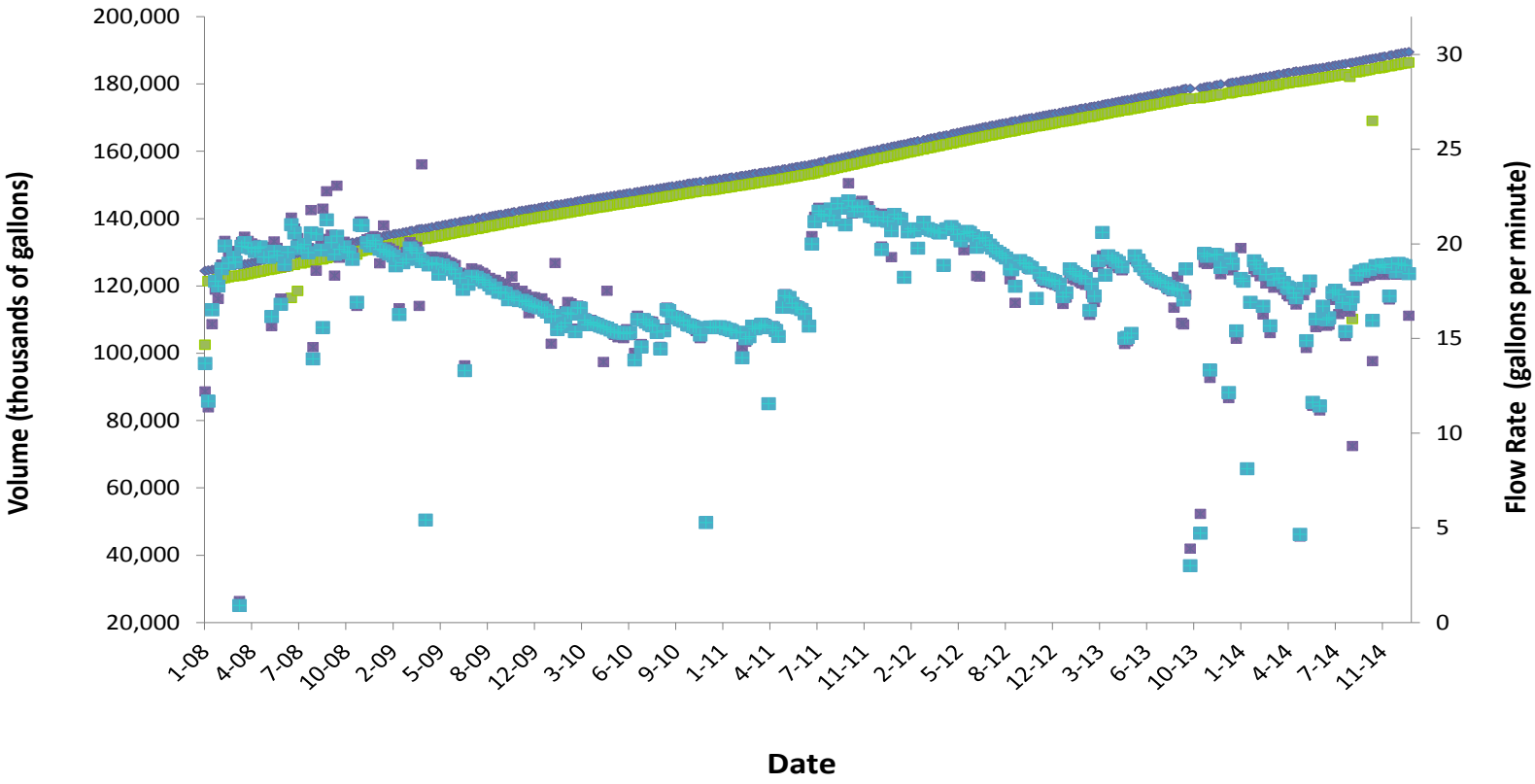
Total Volume of Treated Groundwater and System Flow Rates



CUMULATIVE VOLUME OF EXTRACTED GROUNDWATER AND AVERAGE MONTHLY GROUNDWATER TREATMENT SYSTEM FLOW RATES
January 2008 through December 2014
405 National Avenue
Mountain View, California

amec foster wheeler

Date: 03/19/2015 | Project No. 0014860014.02

Figure **5a**

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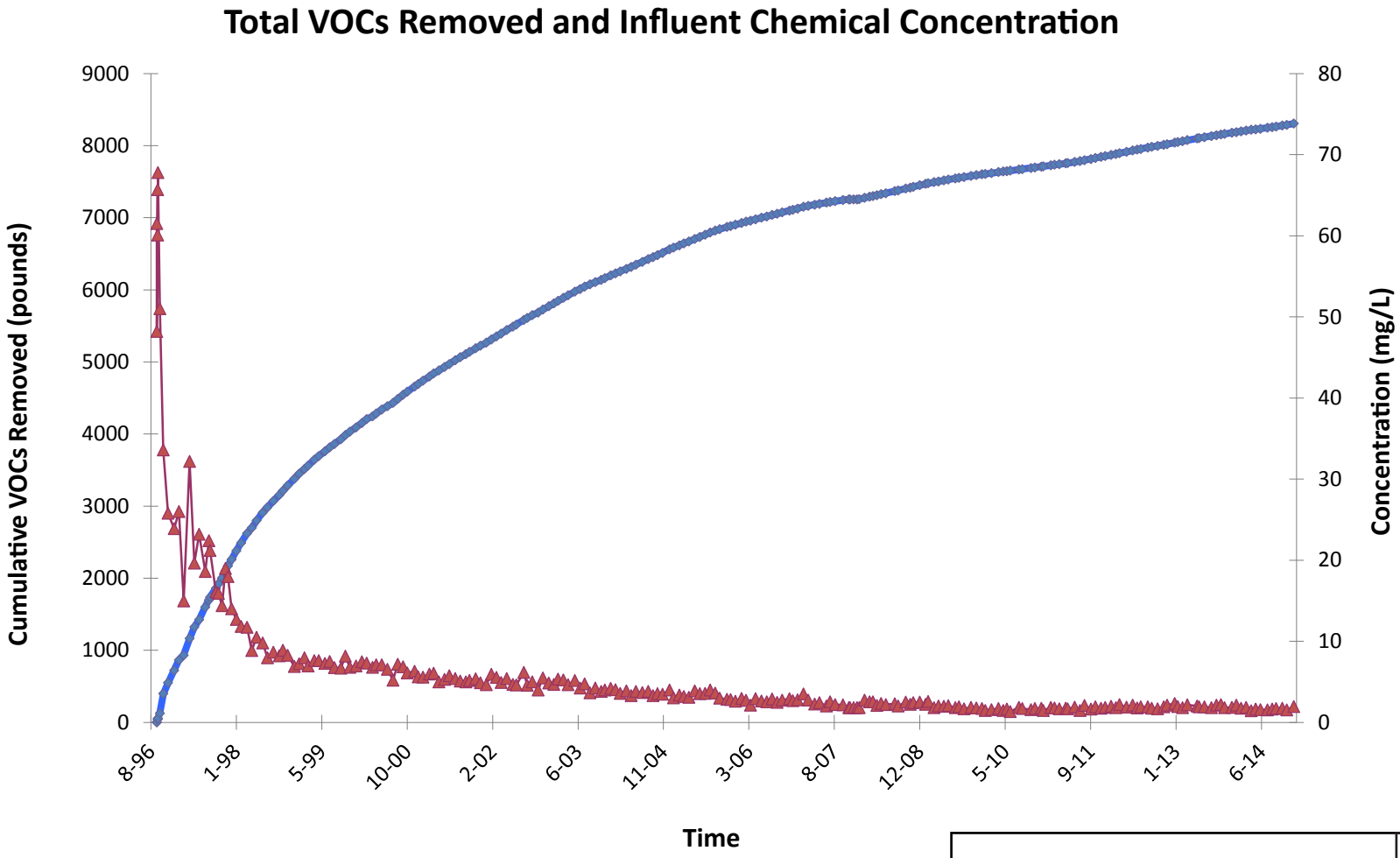


REMOVAL OF INFLUENT VOCs AND INFLUENT CHEMICAL CONCENTRATIONS
August 1996 through December 2014
405 National Avenue
Mountain View, California

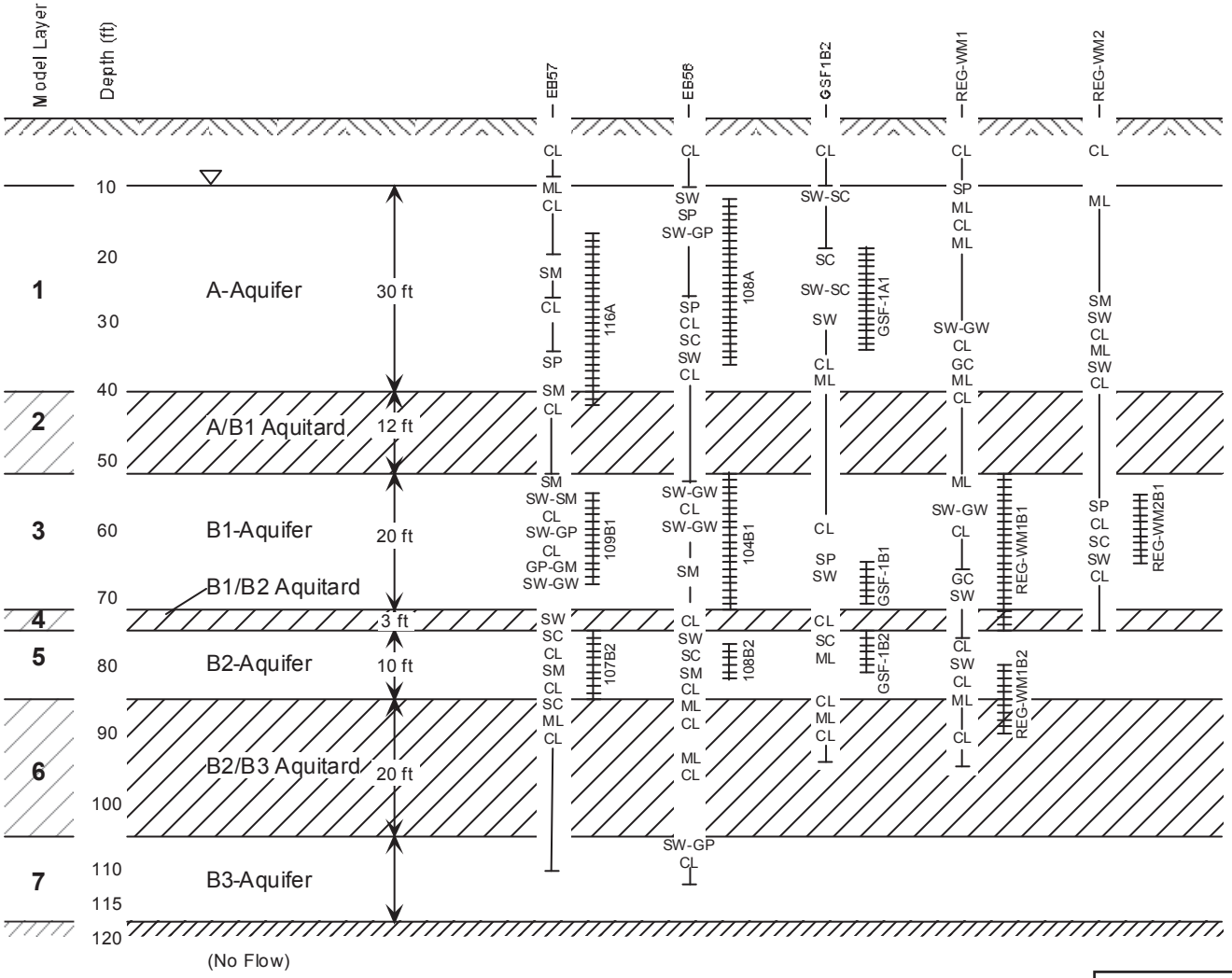
amec foster wheeler

Date: 03/19/2015

Project No. 0014860014.02

Figure
5b

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_06.ai



Assigned Properties		
Hydraulic Conductivity (ft/d)		
Horizontal	Vertical	Storage
30	3	0.1 (Specific Yield)
0.015	0.015	Specific Storage (1/ft) 1×10^{-10}
20	2	1×10^{-5}
0.015	0.015	1×10^{-10}
0.6	0.3	1×10^{-5}
0.2	0.2	1×10^{-10}
40	4	1×10^{-5}

Explanation

Well screen interval

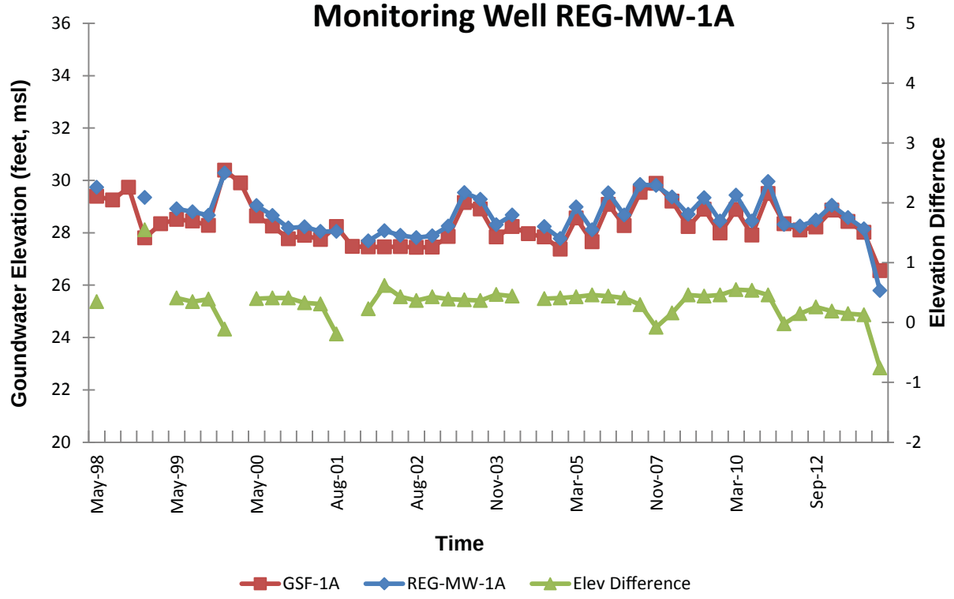
CONCEPTUAL CROSS SECTION
405 National Avenue
Mountain View, California

amec foster wheeler

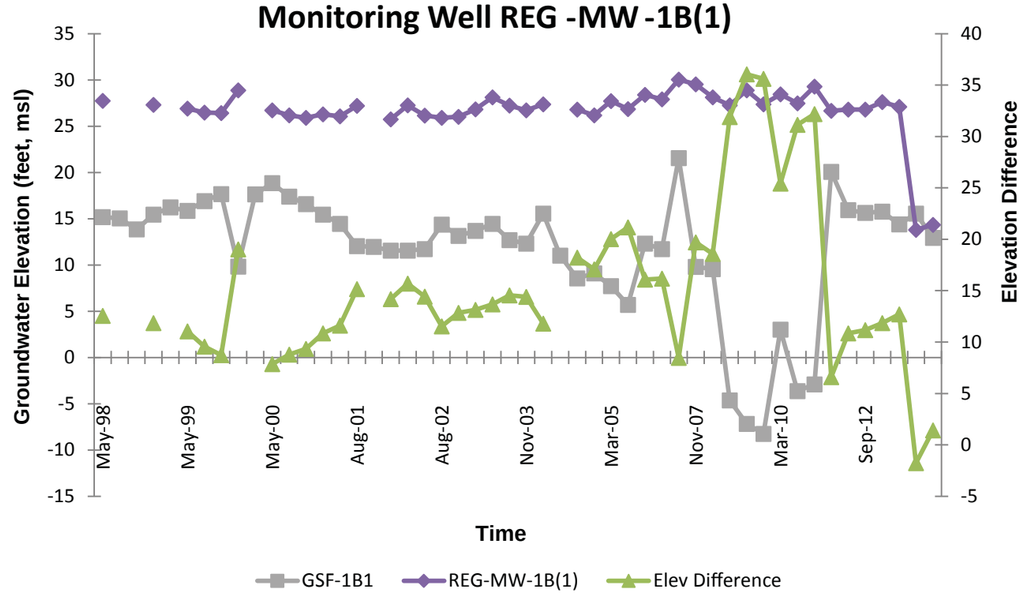
Date: 03/16/2015 | Project No. 0014860014.02

Figure 6

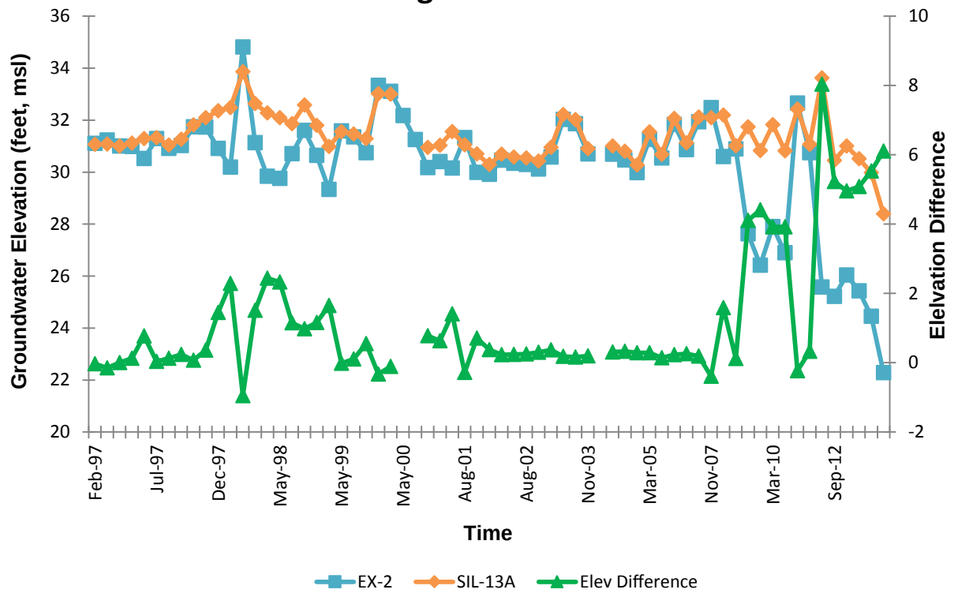
Hydrograph for Extraction Well GSF-1A and Monitoring Well REG-MW-1A



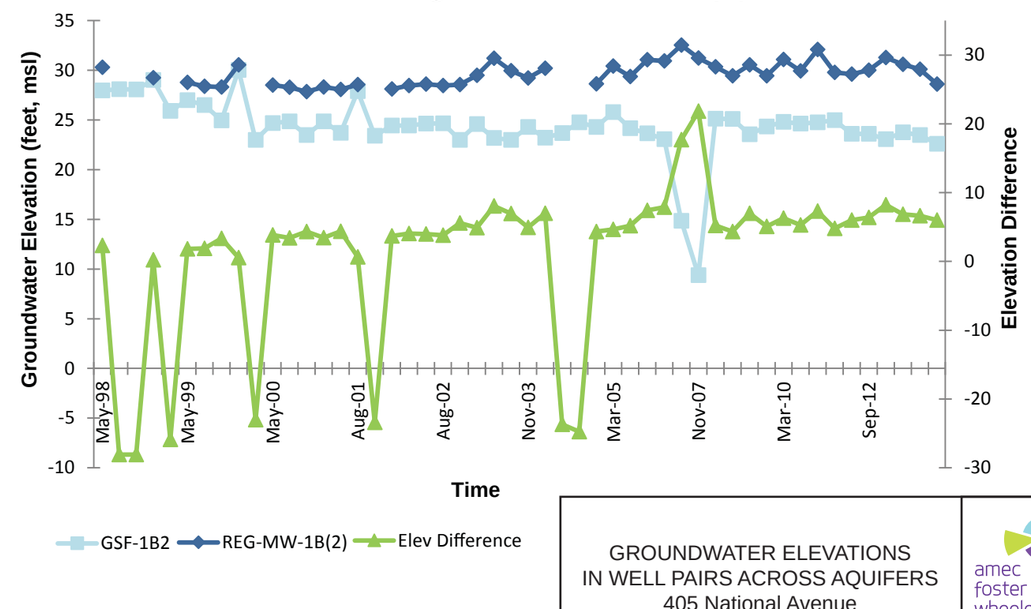
Hydrograph for Extraction Well GSF -1B1 and Monitoring Well REG -MW -1B(1)



Hydrograph for Extraction Well EX -2 and Monitoring Well SIL -13A



Hydrograph for Extraction Well GSF -1B2 and Monitoring well REG -MW -1B(2)



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.

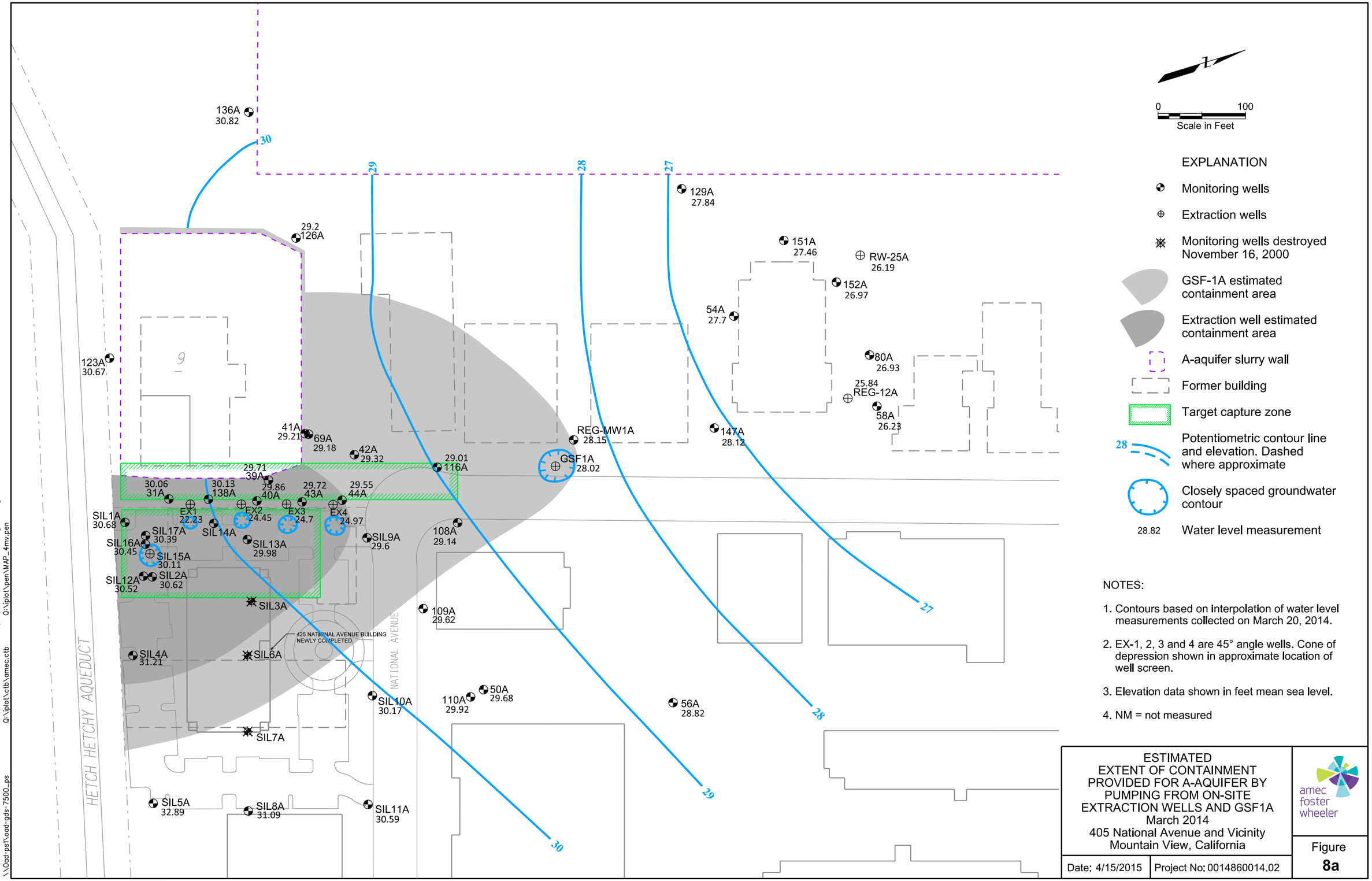
GROUNDWATER ELEVATIONS
IN WELL PAIRS ACROSS AQUIFERS
405 National Avenue
Mountain View, California

amec foster wheeler

Date: 04/10/2015 | Project No. 0014860014.02

Figure 7

\\oad-gis1\r_1-2000s$\t1000-1900s\t1486\t1486.002\t1486.002cc\2014rpts\t15_0302_ar2014:_fig_07.ai



NOTES:

1. Contours based on interpolation of water level measurements collected on March 20, 2014.
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 feet mean sea level.
4. NM = not measured

ESTIMATED
EXTENT OF CONTAINMENT
PROVIDED FOR A-AQUIFER BY
PUMPING FROM ON-SITE
EXTRACTION WELLS AND GSF1A
March 2014
405 National Avenue and Vicinity
Mountain View, California

Date: 4/15/2015 | Project No: 0014860014.02

amec foster wheeler

Figure
8a

irene.skolnik
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WHISMAN ROAD

RW-2(B1) 34.44
20B1 31.91
RW-3(B1) 31.63
RW-4(B1) 27.52
RW-5(B1) 25.38
147B1 25.44
21B1 24.93
RW-11(B1) 30.75
RW-7(B1) 2.7
RW-12(B1) 18.59
30.92 119B1
2B1 27.8
115B1 25.1
5.24 3B1
60B1 22.13
RW-9(B1)R 3.19
R1B1 38.27
91B1 32.5
REG-MW2B1 27.44
69B1 29.92
77B1 27.23
24.82 32B1
REG-MW1B1 27.02
143B1 26.52
REG-1B1 21.27
REG-11B1 24.79
13B1 24.84
7B1 32.61
99B1 32.66
25B1 31.89
109B1 27.9
GSF1B1 15.57
104B1 27.76
97B1 32.7
RAY-1B1 31.4
92B1 32.44
30.8 105B1
R5B1 32.79
94B1 33.49
REG-2B1 27.79
14B1 28.14
112B1 33.5
8B1 31.4
R3B1 33.4
114B1 33.71
REG-4B1 19.88

31 30 29 28 27 26

HETCH HETCHY AQUEDUCT
NATIONAL AVENUE BUILDING NEVER COMPLETED
BAYSHORE FREEWAY HWY 101
ELLIS ROAD

0 200
Scale in Feet

EXPLANATION

- Monitoring wells
- Extraction wells
- GSF-1B1 estimated containment area
- B1-aquifer slurry wall
- Former building
- Target capture zone
- 28 Potentiometric contour line and elevation. Dashed where estimated
- Closely spaced groundwater contour
- 30.83 Water level measurement

NOTES:

1. Contours based on interpolation of water level measurements collected on March 20, 2014.
2. Elevation data shown in feet mean sea level.
3. NM = not measured

ESTIMATED EXTENT OF CONTAINMENT PROVIDED FOR B1-AQUIFER BY PUMPING FROM GSF1B1
March 2014
405 National Avenue and Vicinity
Mountain View, California

Date: 4/15/2015 | Project No: 0014860014.02

amec foster wheeler

Figure 8b

WHISMAN ROAD

-6.32
RW-4(B2)

10B2
34.36

23B2
31.23

RW-3(B2)
34.28

RW-5(B2)
29.25

148B2
28.84

11B2
28.64

RW-2(B2)
30.28

RW-7(B2)
26.58

33.42
118B2

33

32

31

30

-1.76
24B2

RW-9(B2)
-20.49

113B2
25

89B2
34.1

24.57
36B2

REG-1B2
-37.62

REG-MW1B2
30.11

23.48
GSF1B2

GSF1B1
15.57

107B2
30.9

62B2
27.44

108B2
30.8

132B2
33.45

42B2
40.36

R58B2
43.59

134B2
35.7

16B2
35.69

17.8
REG-3B2

64B2(R)
27.71

HETCH HETCHY AQUEDUCT

NATIONAL AVENUE

405 NATIONAL AVENUE BUILDING DEMOLITION NEARLY COMPLETE

BAYSHORE FREEWAY HWY 101

ELLIS ROAD

0 200
Scale in Feet

EXPLANATION

- Monitoring wells
- Extraction wells
- GSF-1B2 estimated containment area
- B2-aquifer slurry wall
- Former building
- Target capture zone
- 35 Potentiometric contour line and elevation. Dashed where estimated
- Closely spaced groundwater contour
- 27.71 Water level measurement

NOTES:

1. Contours based on interpolation of water level measurements collected on March 20, 2014.
2. Elevation data shown in feet mean sea level.
3. NM = not measured

ESTIMATED
EXTENT OF CONTAINMENT
PROVIDED FOR B2-AQUIFER BY
PUMPING FROM GSF1B1
March 2014
405 National Avenue and Vicinity
Mountain View, California

amec foster wheeler

Figure
8c

Date: 4/15/2015 | Project No: 0014860014.02

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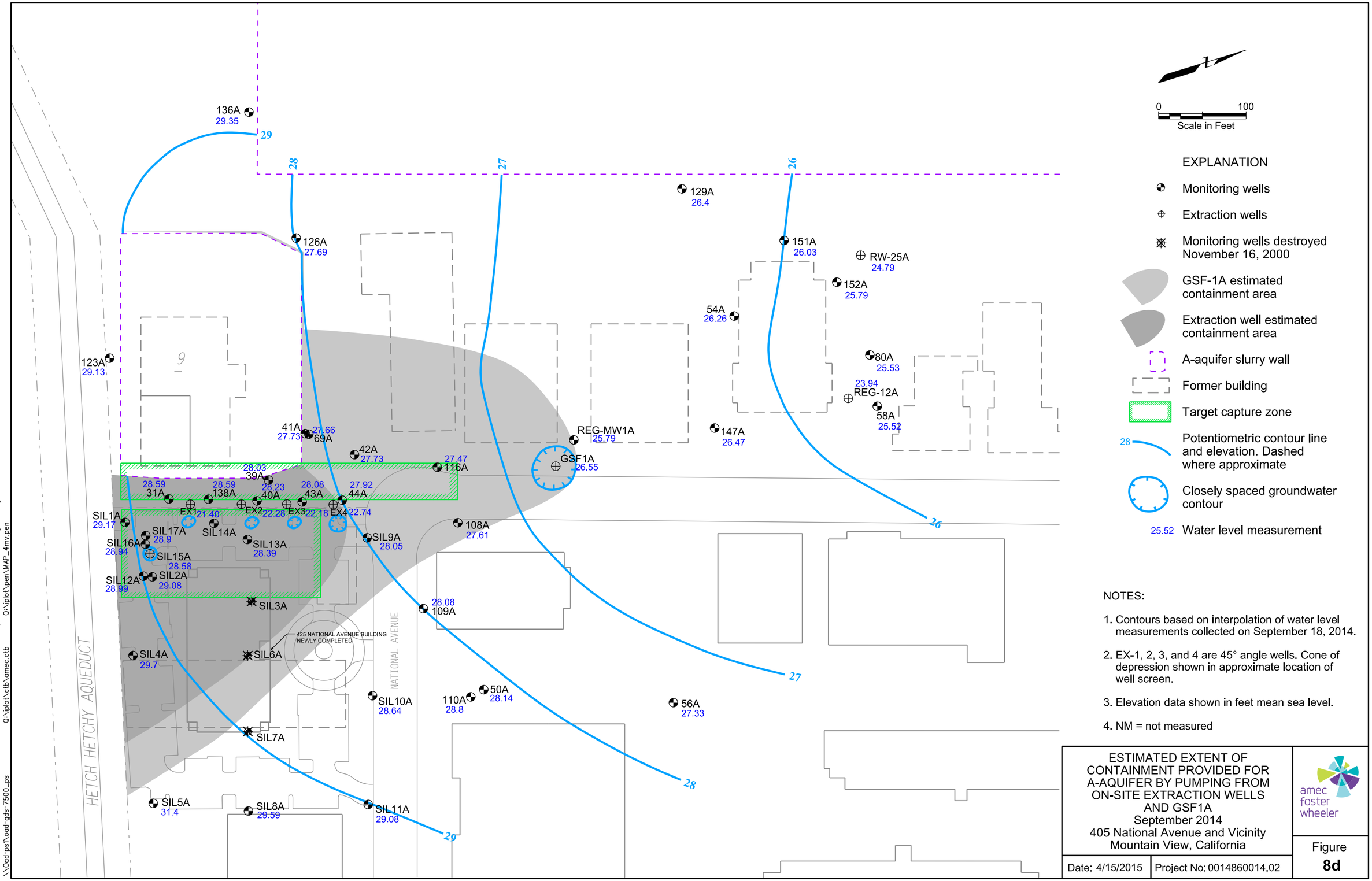

NOTES:

1. Contours based on interpolation of water level measurements collected on September 18, 2014.
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 feet mean sea level.
4. NM = not measured

ESTIMATED EXTENT OF CONTAINMENT PROVIDED FOR A-AQUIFER BY PUMPING FROM ON-SITE EXTRACTION WELLS AND GSF1A
September 2014
405 National Avenue and Vicinity
Mountain View, California

Date: 4/15/2015 | Project No: 0014860014.02

amec foster wheeler

Figure 8d

WHISMAN ROAD

RW-2(B1) 32.67
20B1 30.33
RW-3(B1) 30.04
RW-4(B1) 25.85
RW-5(B1) 23.62
147B1 23.93
21B1 23.27
RW-11(B1) 28.7
RW-7(B1) -1.4
RW-12(B1) 17.19
29.6 119B1
2B1 26.39
115B1 23.33
-0.48 3B1
60B1 19.74
RW-9(B1)R -7.72
R1B1 36.50[4]
91B1 31.04
REG-MW2B1 26.02
69B1 28.53
23.55 32B1
77B1 25.98
26.46 REG-MW1B1
143B1 24.64
REG-1B1 19.97
REG-11B1 23.05
13B1 23.05
109B1 26.53
GSF1B1 12.93
104B1 26.48
7B1 31.31
99B1 31.31
25B1 30.71
97B1 31.39
RAY-1B1 30.73[4]
92B1 31.11
105B1 29.5
R5B1 31.36
94B1 32.23
REG-2B1 7.74
27.21 14B1
112B1 31.98
8B1 30.17
R3B1 32.05[4]
114B1 32.5
REG-4B1 18.51

30 29 28 27 26 25 24

HETCH HETCHY AQUEDUCT
NORTH BAYSHORE AVENUE
BAYSHORE FREEWAY HWY 101
ELLIS ROAD

0 200
Scale in Feet

EXPLANATION

- Monitoring wells
- Extraction wells
- GSF-1B1 estimated containment area
- B1-aquifer slurry wall
- Former building
- Target capture zone
- 28 Potentiometric contour line and elevation. Dashed where estimated
- Closely spaced groundwater contour
- 23.05 Water level measurement

NOTES:

1. Contours based on interpolation of water level measurements collected on September 18, 2014.
2. Elevation data shown in feet mean sea level.
3. NM = not measured
4. Pumps were not operating on September 18, 2014. Water levels were measured on October 9, 2014, while pumps were operating.

ESTIMATED
EXTENT OF CONTAINMENT
PROVIDED FOR B1-AQUIFER BY
PUMPING FROM GSF1B1
September 2014
405 National Avenue and Vicinity
Mountain View, California

Date: 4/15/2015 | Project No: 0014860014.02

amec foster wheeler

Figure
8e

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WHISMAN ROAD

5.47
RW-4(B2)

10B2
32.56

23B2
29.63

RW-3 (B2)
32.51

148B2
27.02

11B2
26.93

RW-5(B2)
27.53

RW-2(B2)
27.09

RW-7(B2)
24.58

30
29
28
27
26

118B2
31.71

RW-9(B2)
-33.44

24B2
-9.4

113B2
23.28

89B2
31.51

22.6
36B2

-37.5
REG-1B2

REG-MW1B2
28.6

22.6
GSF1B2

GSF1B1
12.93

107B2
29.27

62B2
25.83

108B2
29.31

132B2
31.89

42B2
38.4

R58B2
40.13[4]

134B2
34.37

16B2
34.38

15.41
REG-3B2

64B2(R)
26.44

HETCH HETCHY AQUEDUCT

NATIONAL AVENUE

405 NATIONAL AVENUE BUILDING
NEWLY CONSTRUCTED

BAYSHORE FREEWAY HWY 101

ELLIS ROAD

0 200
Scale in Feet

EXPLANATION

- Monitoring wells
- Extraction wells
- GSF-1B2 estimated containment area
- B2-aquifer slurry wall
- Former building
- Target capture zone
- 34 Potentiometric contour line and elevation. Dashed where estimated
- Closely spaced groundwater contour
- 25.83 Water level measurement

NOTES:

1. Contours based on interpolation of water level measurements collected on September 18, 2014.
2. Elevation data shown in feet mean sea level.
3. NM = not measured

ESTIMATED
EXTENT OF CONTAINMENT
PROVIDED FOR B2-AQUIFER BY
PUMPING FROM GSF1B1
September 2014
405 National Avenue and Vicinity
Mountain View, California

amec foster wheeler

Figure
8f

Date: 4/15/2015 | Project No: 0014860014.02

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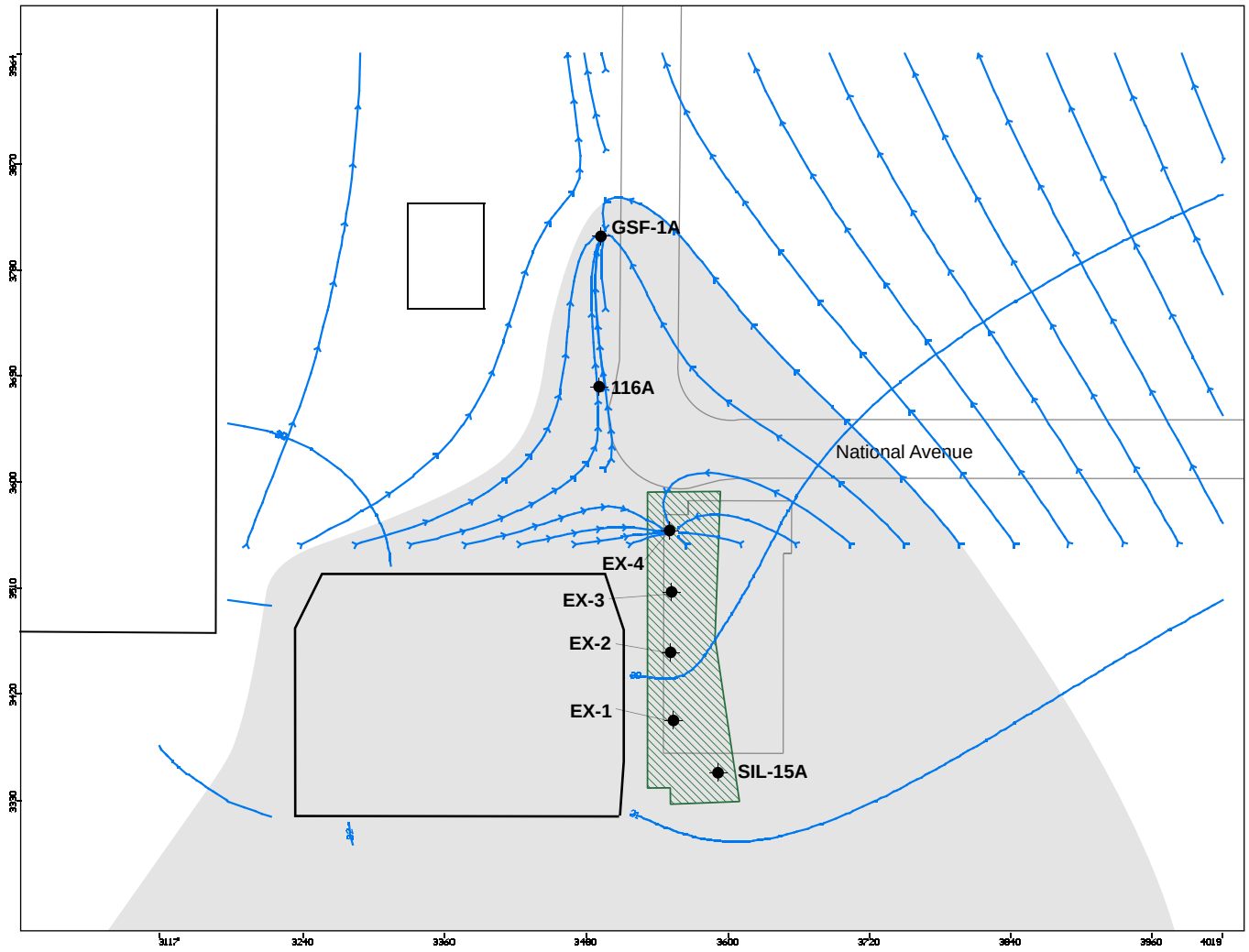

Explanation

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.
5. Extraction rates used from the March 20, 2014 groundwater monitoring event.

0 150 Feet

(Approximate)

ESTIMATED EXTENT OF CONTAINMENT A-AQUIFER
MARCH 2014
405 National Avenue
Mountain View, California

amec foster wheeler

Date: 03/16/2015

Project No. 14860013.02.CC

Figure **9a**

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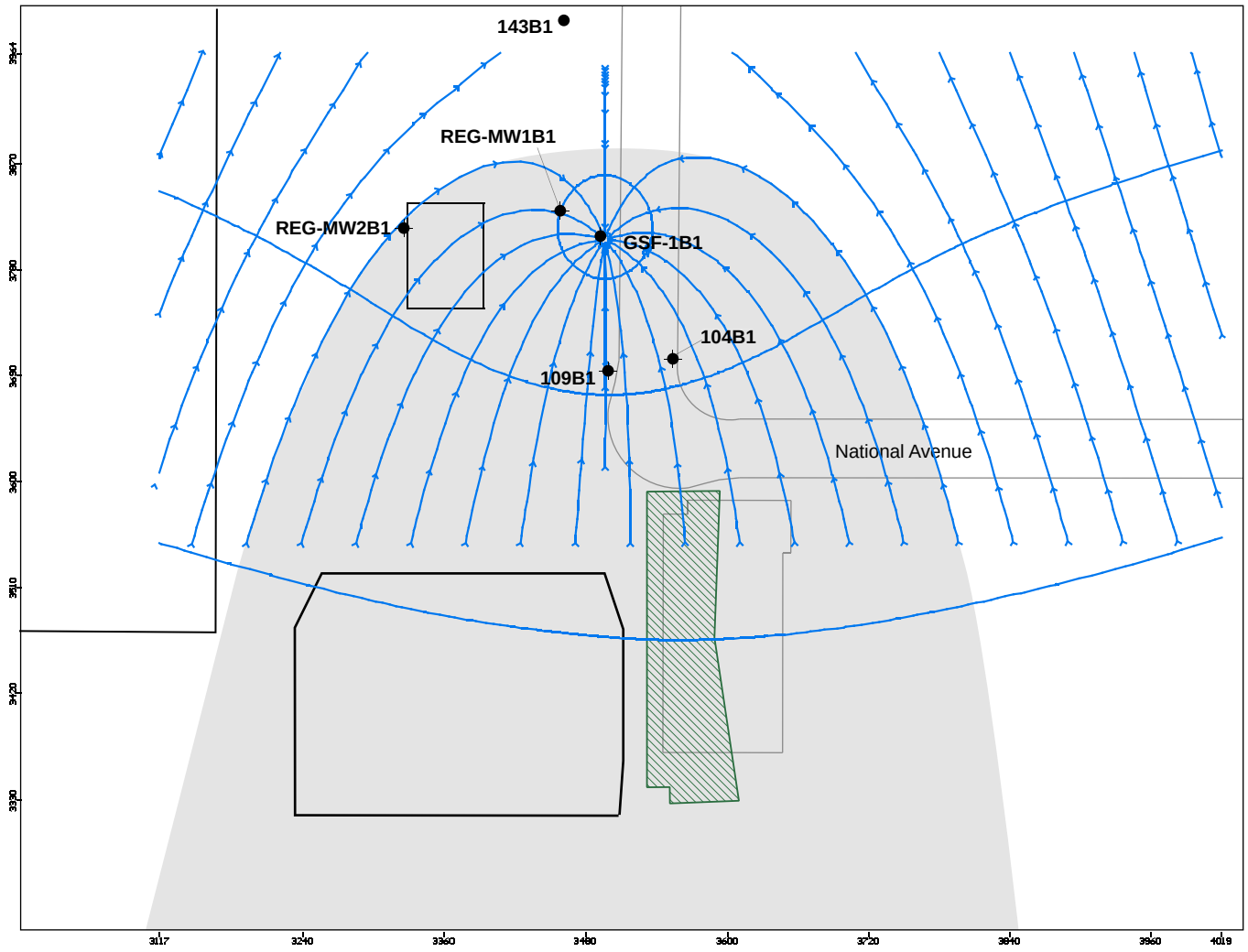


Explanation

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.
5. Extraction rates used from the March 20, 2014 groundwater monitoring event.

0 150 Feet

(Approximate)

ESTIMATED EXTENT OF CONTAINMENT B1-AQUIFER
MARCH 2014
405 National Avenue
Mountain View, California

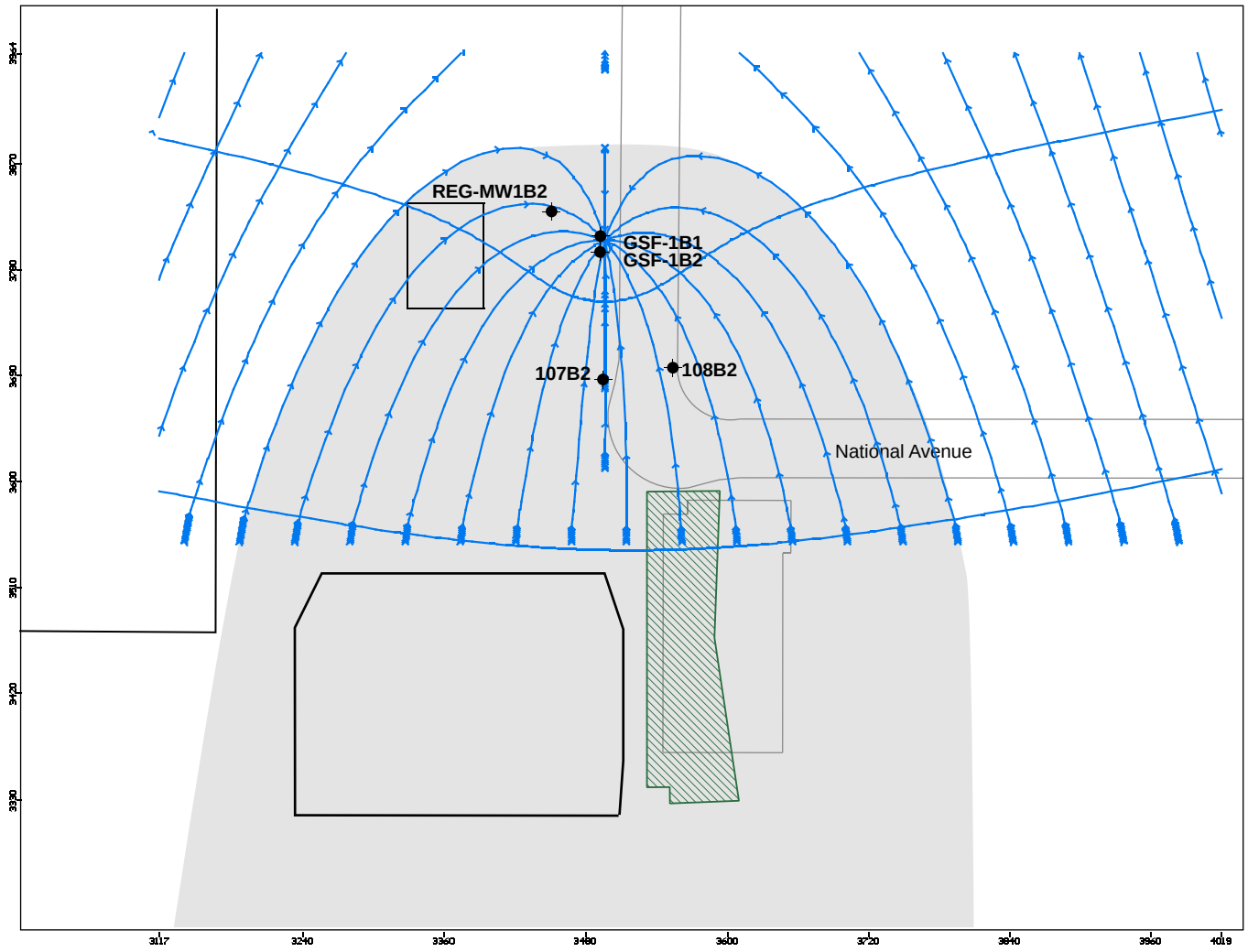
amec foster wheeler

Date: 04/14/2015

Project No. 14860013.02.CC

Figure **9b**

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_09c.ai



Explanation

Extent of hydraulic containment

Area of remediation

Notes:

1. Model groundwater flow pathlines originate at middle of the B2-aquifer.
2. Distance between arrows on pathlines represents 6-month travel time.
3. 1-foot interval for equipotential contours.
4. Well locations approximate.
5. Extraction rates used from the March 20, 2014 groundwater monitoring event.

0 150 Feet
(Approximate)

ESTIMATED EXTENT OF CONTAINMENT B2-AQUIFER
MARCH 2014
405 National Avenue
Mountain View, California

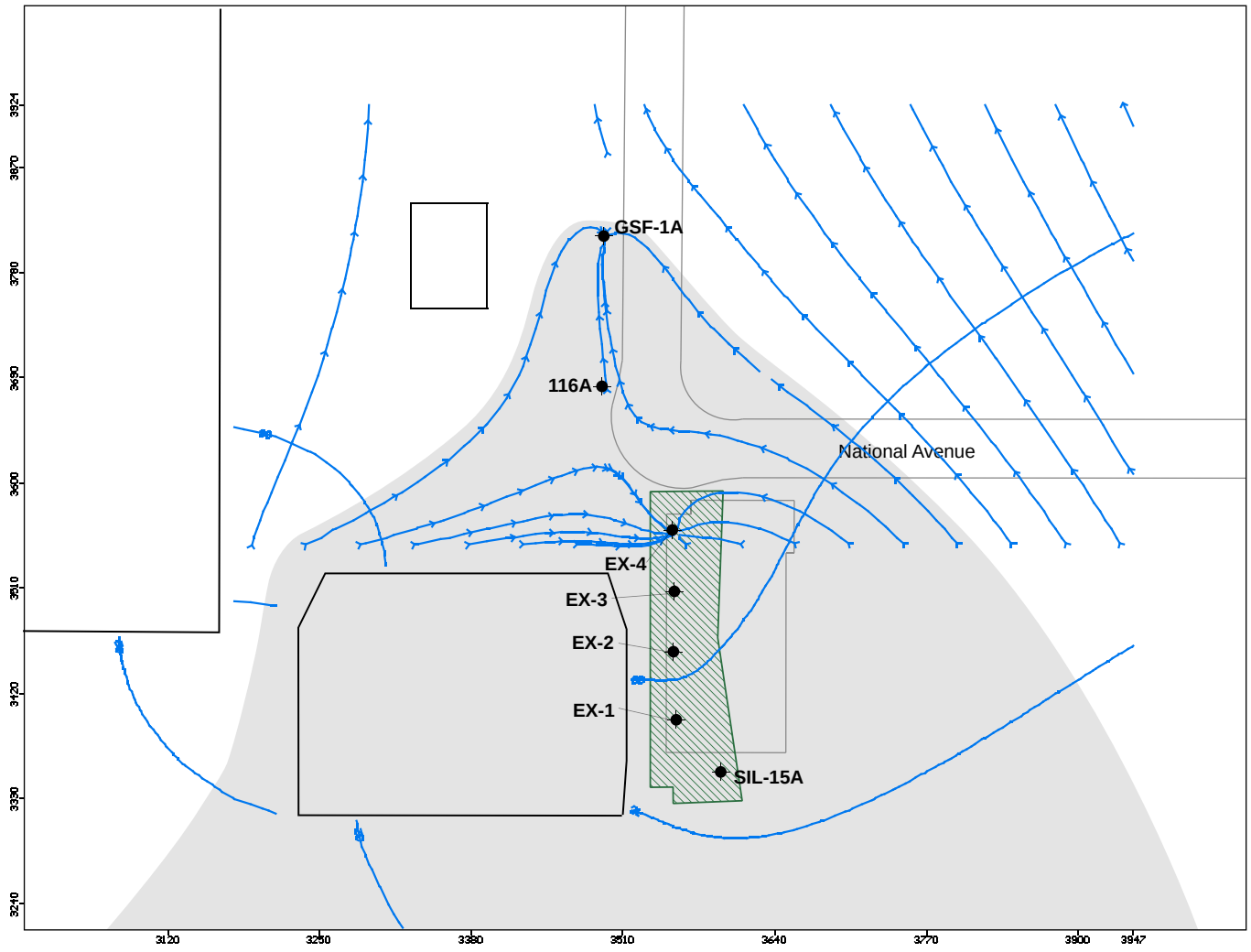
amec foster wheeler

Date: 04/14/2015

Project No. 14860013.02.CC

Figure **9c**

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_09d.ai



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.
5. Extraction rates used from the September 18, 2014 groundwater monitoring event.

0 150 Feet

(Approximate)

ESTIMATED EXTENT OF CONTAINMENT A-AQUIFER
SEPTEMBER 2014
405 National Avenue
Mountain View, California

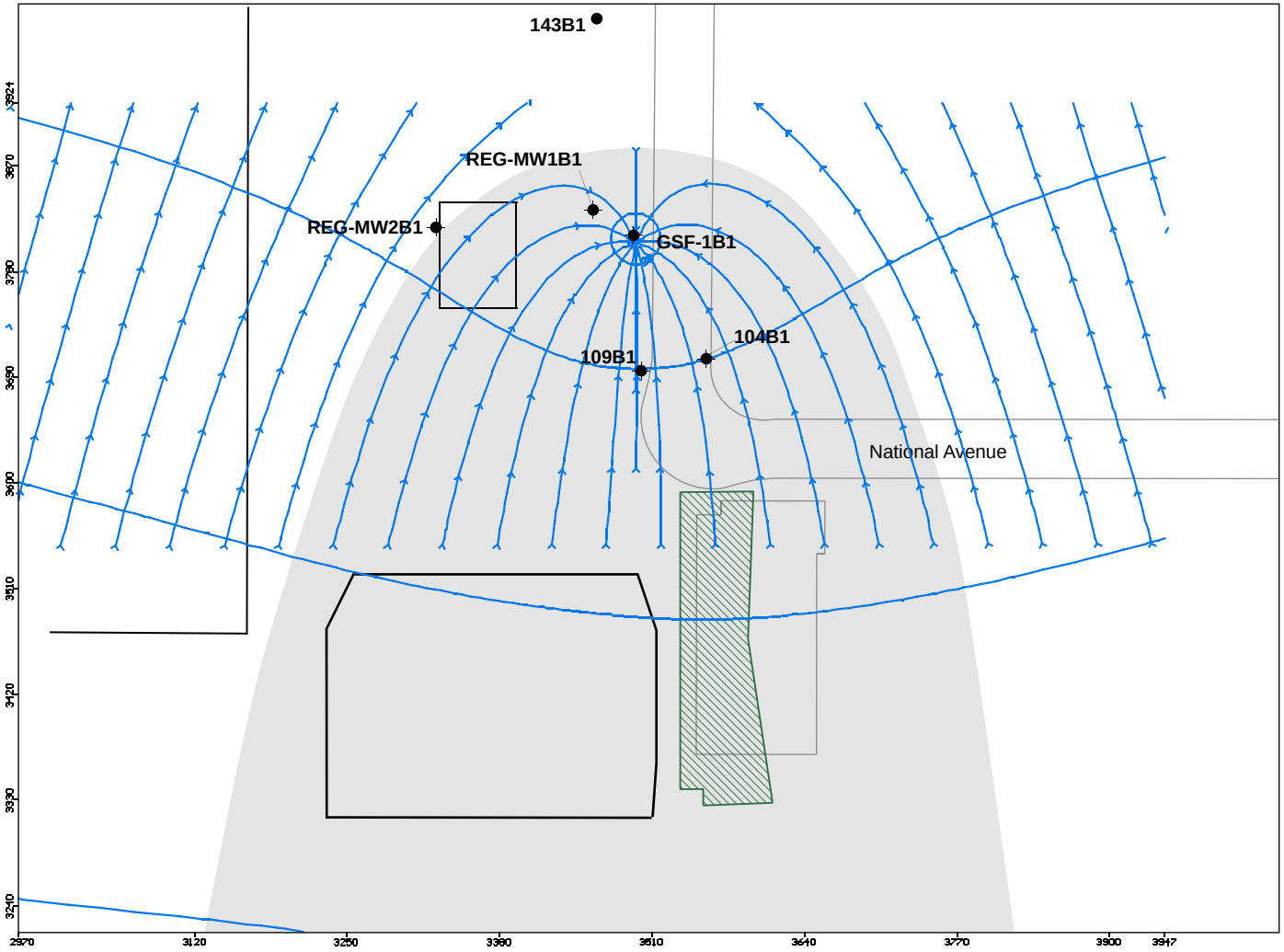
amec foster wheeler

Date: 04/14/2015

Project No. 14860013.02.CC

Figure **9d**

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_09e.ai



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.
5. Extraction rates used from the September 18, 2014 groundwater monitoring event.

0 150 Feet

(Approximate)

ESTIMATED EXTENT OF CONTAINMENT B1-AQUIFER SEPTEMBER 2014 405 National Avenue Mountain View, California

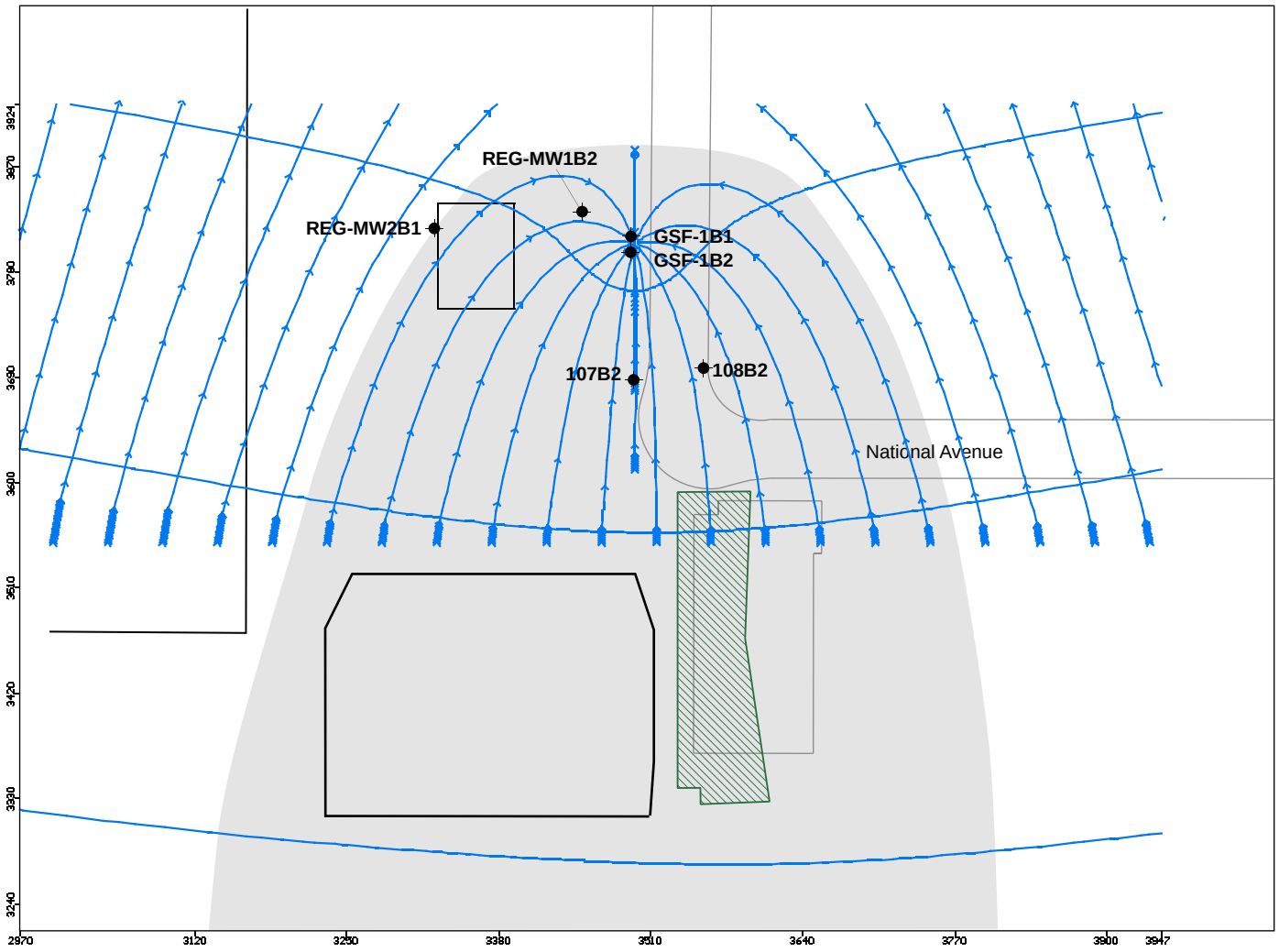
amec foster wheeler

Date: 04/14/2015

Project No. 14860013.02.CC

Figure **9e**

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_09f.ai



Explanation

Extent of hydraulic containment

Area of remediation

Notes:

1. Model groundwater flow pathlines originate at middle of the B2-aquifer.
2. Distance between arrows on pathlines represents 6-month travel time.
3. 1-foot interval for equipotential contours.
4. Well locations approximate.
5. Extraction rates used from the September 18, 2014 groundwater monitoring event.

0 150 Feet
(Approximate)

ESTIMATED EXTENT OF CONTAINMENT B2-AQUIFER SEPTEMBER 2014
405 National Avenue
Mountain View, California

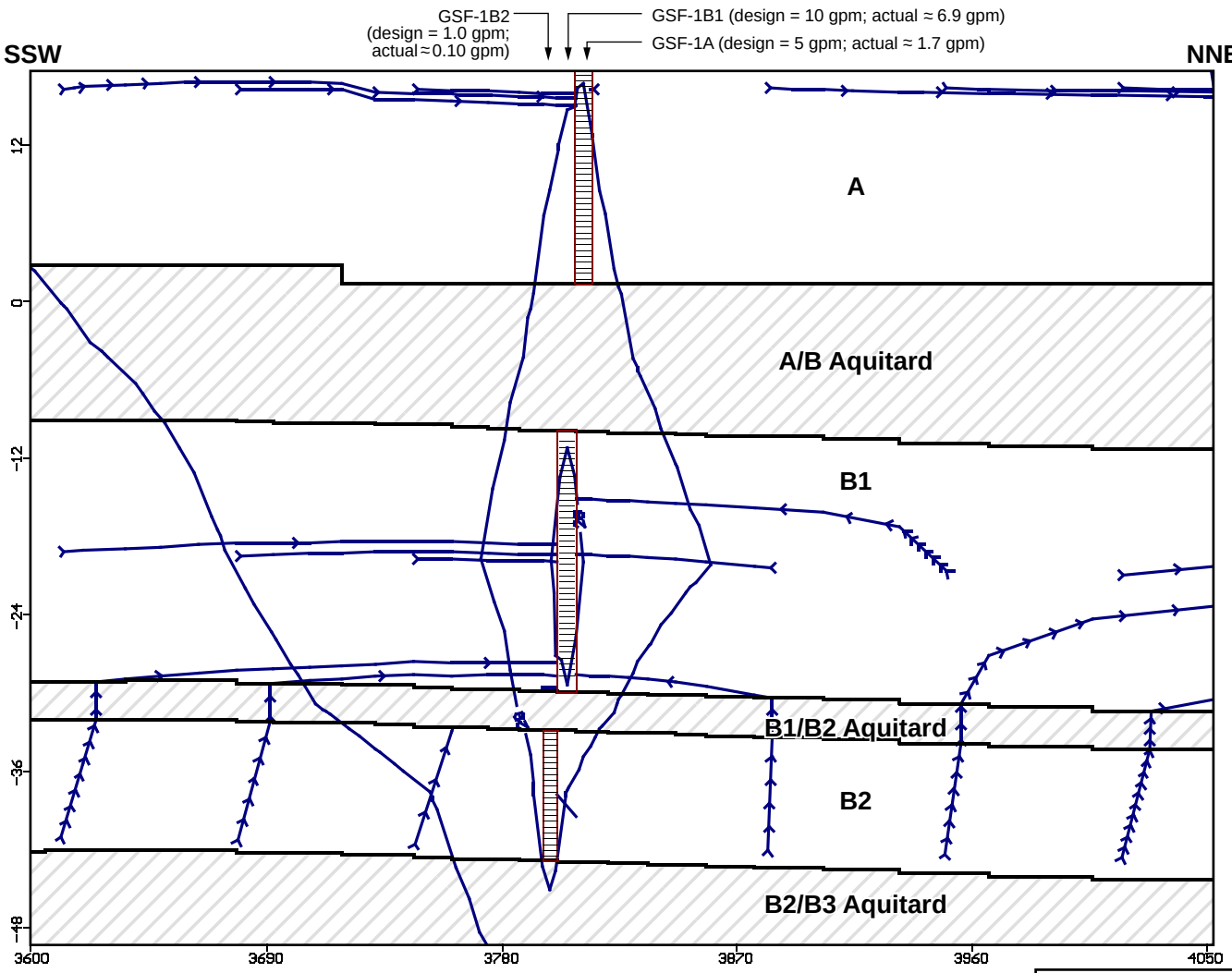
amec foster wheeler

Date: 04/14/2015

Project No. 14860013.02.CC

Figure **9f**

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_10a.ai



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-1B1.
5) No pumping from GSF-1B2 for this simulation. Actual average extraction rate from GSF-1B2 is approx 0.10 gpm.
6. Extraction rates used from the March 20, 2014 groundwater monitoring event.

0 70
0
Approximate Scale in Feet
5 times Vertical Exaggeration
14

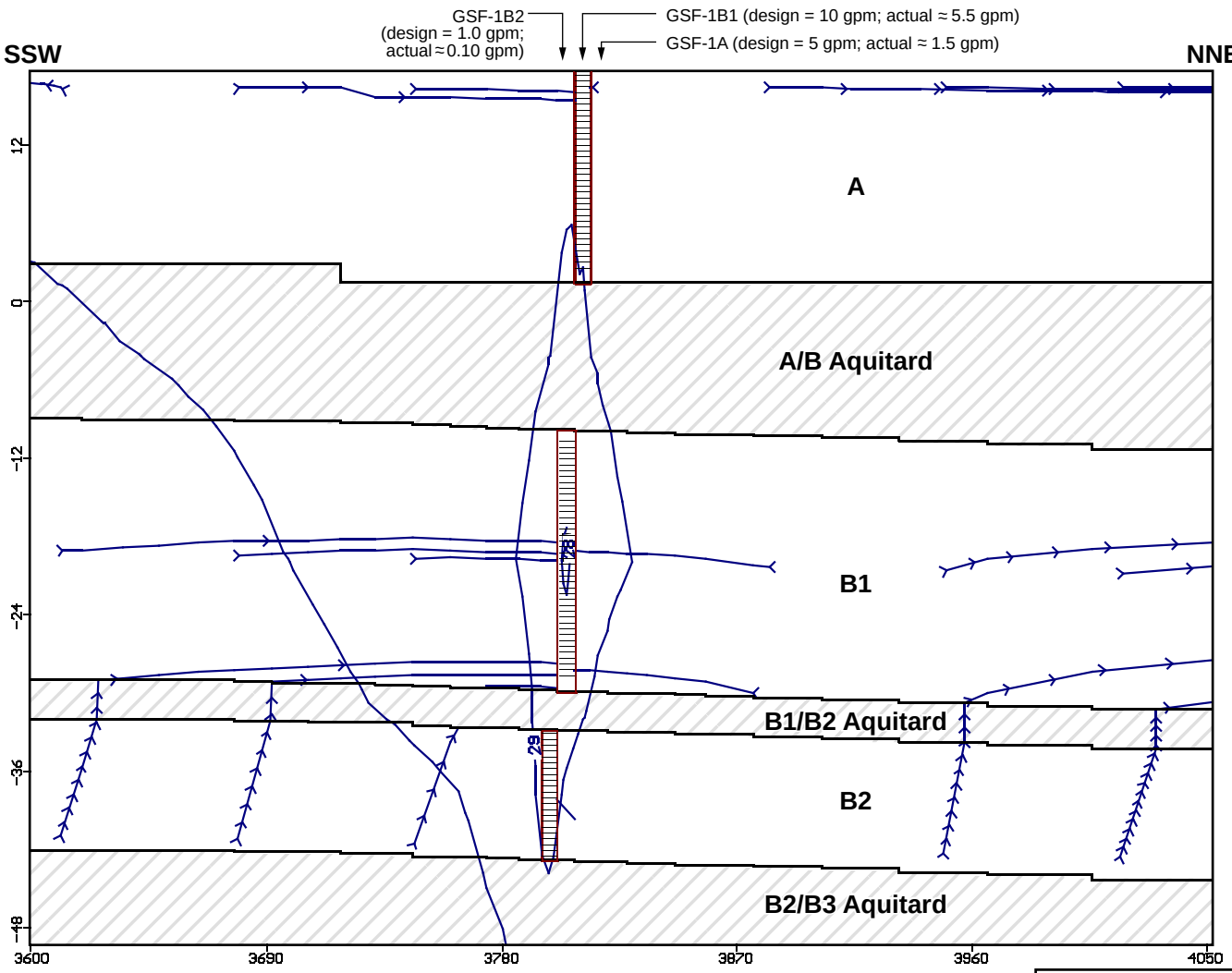
CROSS SECTIONAL VIEW OF MODEL FLOW BETWEEN B1 AND B2-AQUIFERS
405 National Avenue
Mountain View, California

amec foster wheeler

Date: 03/17/2015 | Project No. 14860013.02.CC

Figure **10a**

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_10b.ai



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-1B1.
5) No pumping from GSF-1B2 for this simulation. Actual average extraction rate from GSF-1B2 is approx 0.10 gpm.
6. Extraction rates used from the September 18, 2014 groundwater monitoring event.

0 70
0
Approximate Scale in Feet
5 times Vertical Exaggeration
14

CROSS SECTIONAL VIEW OF MODEL FLOW BETWEEN B1 AND B2-AQUIFERS
SEPTEMBER 2014
405 National Avenue
Mountain View, California

amec foster wheeler

Date: 03/17/2015 | Project No. 14860013.02.CC

Figure **10b**

136A

129A

126A

151A

RW-25A
640

152A
320

54A
280

123A
590

80A
240

130

REG-12A

58A

41A
360

69A

10,000

20,000

REG-MW1A
190

147A
130/130

42A
400/390

33,000

116A

GSF1A
640

1,000

500

39A

360

31A

EX1

138A

40A
730

43A
310

44A
240

EX2
980

EX3
570

EX4
800

3,100/3,000

SIL1A
54

SIL17A

SIL14A
110

SIL16A
360

SIL15A

SIL13A
370

SIL9A
490/470

108A
99

SIL12A
470/480

SIL2A

SIL3A

109A
130

425 NATIONAL AVENUE BUILDING
NEWLY COMPLETED

SIL4A
100

SIL6A

NATIONAL AVENUE

HETCH HETCHY AQUEDUCT

SIL10A

110A

50A

56A

SIL7A

SIL5A

SIL8A

SIL11A

0 100
Scale in Feet

EXPLANATION

- Monitoring wells
- Extraction wells
- Monitoring wells destroyed November 16, 2000
- A-aquifer slurry wall
- Former building
- Target capture zone
- 500 TCE concentration in groundwater samples collected from A-zone monitoring wells in µg/L
- 10,000 A-zone TCE iso-concentration line in µg/L Dashed line indicates an estimate

NOTES:

1. Contours based on interpolation of data collected from the October 2014 groundwater sampling events.
2. Groundwater concentration data in micrograms per liter µg/L.
3. TCE = trichloroethene.
4. SIL1A - sample intake depth above screen interval due to silt accumulation in well. SIL1A data not incorporated into iso-concentration delineation.

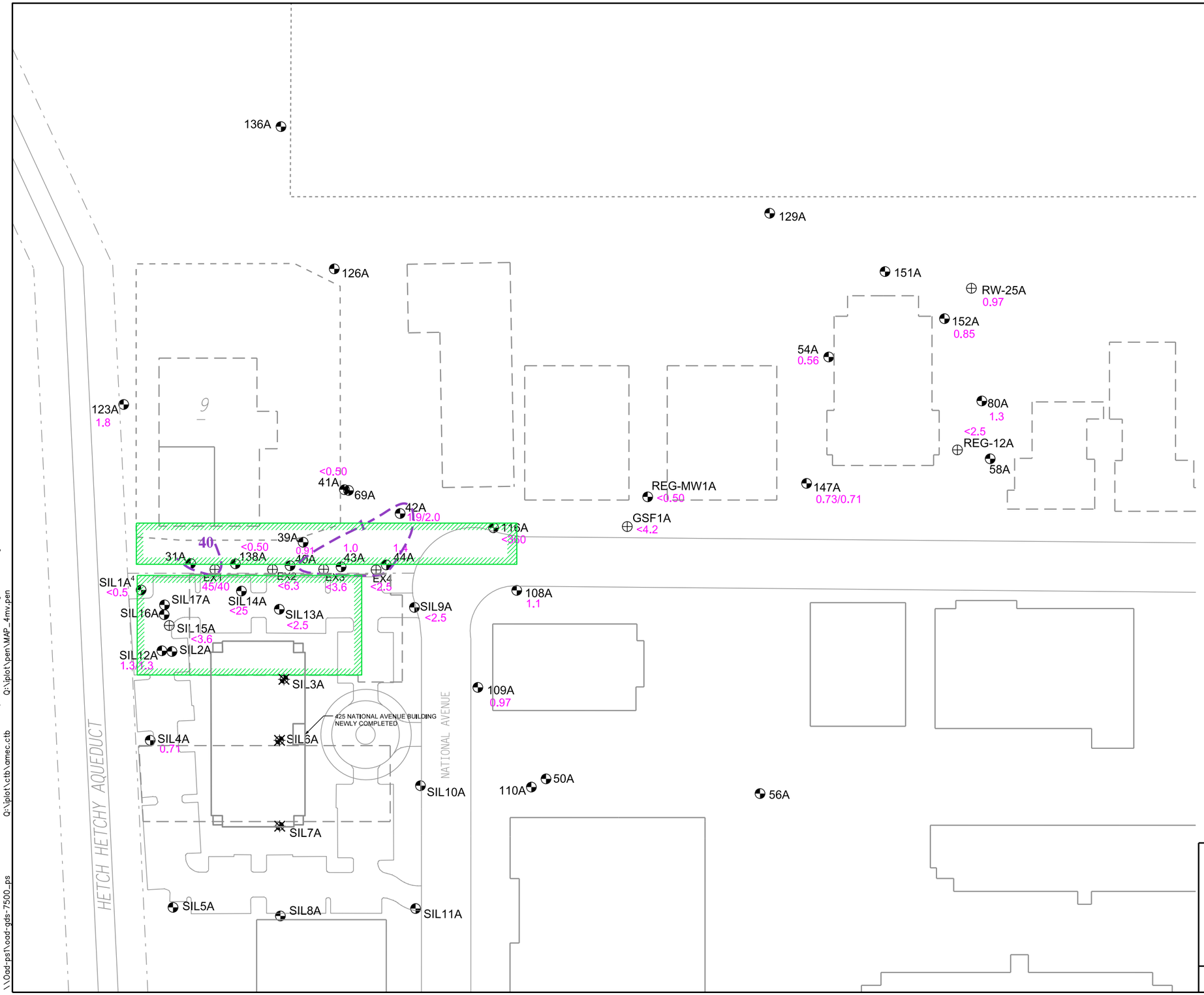
TCE CONCENTRATION MAP
FOR A-AQUIFER
2014
405 National Avenue and Vicinity
Mountain View, California

amec foster wheeler

Date: 4/14/2015 | Project No: 0014860014.02

Figure
11a

irene.skolnik R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_gr2014\14_fig_11a_TCE.dgn
\\Oad-ps1\oad-gds-7500_ps Q:\plot\ctb\amec.ctb Q:\plot\pen\MAP_4mv.pen



NOTES:

1. Contours based on interpolation of data collected from the October 2014 groundwater sampling events.
2. Groundwater concentration data in micrograms per liter (µg/L).
3. PCE = tetrachloroethene.
4. SIL1A - sample intake depth above screen interval due to silt accumulation in well. SIL1A data not incorporated into iso-concentration delineation.

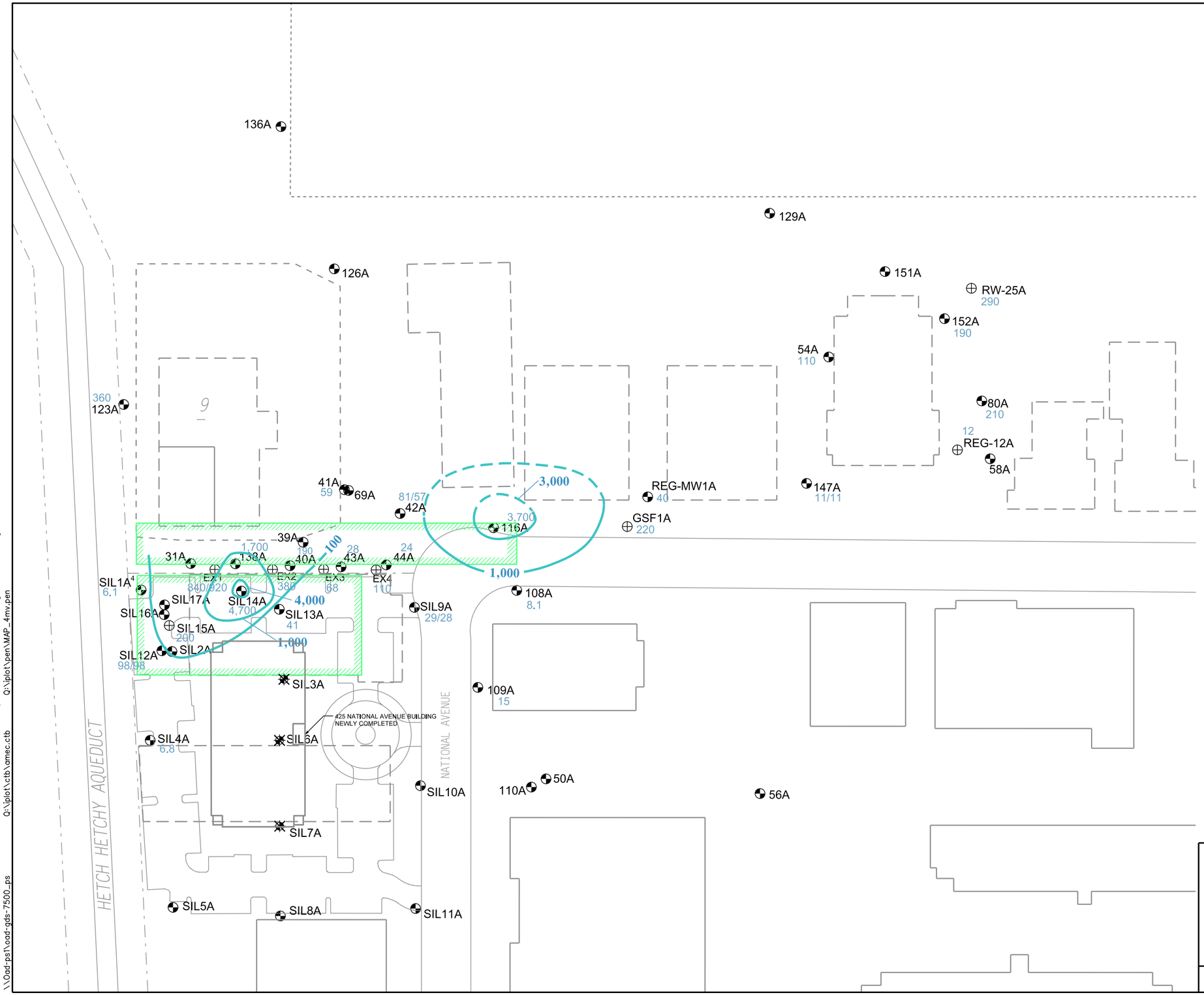
PCE CONCENTRATION MAP FOR A-AQUIFER 2014

405 National Avenue and Vicinity
Mountain View, California

Date: 4/14/2015 | Project No: 0014860014.02

amec foster wheeler

Figure **11b**



NOTES:

1. Contours based on interpolation of data collected from the October 2014 groundwater sampling events.
2. Groundwater concentration data in micrograms per liter (µg/L).
3. CIS-1,2-DCE = CIS-1,2 Dichloroethene.
4. SIL1A - sample intake depth above screen interval due to silt accumulation in well. SIL1A data not incorporated into iso-concentration delineation.

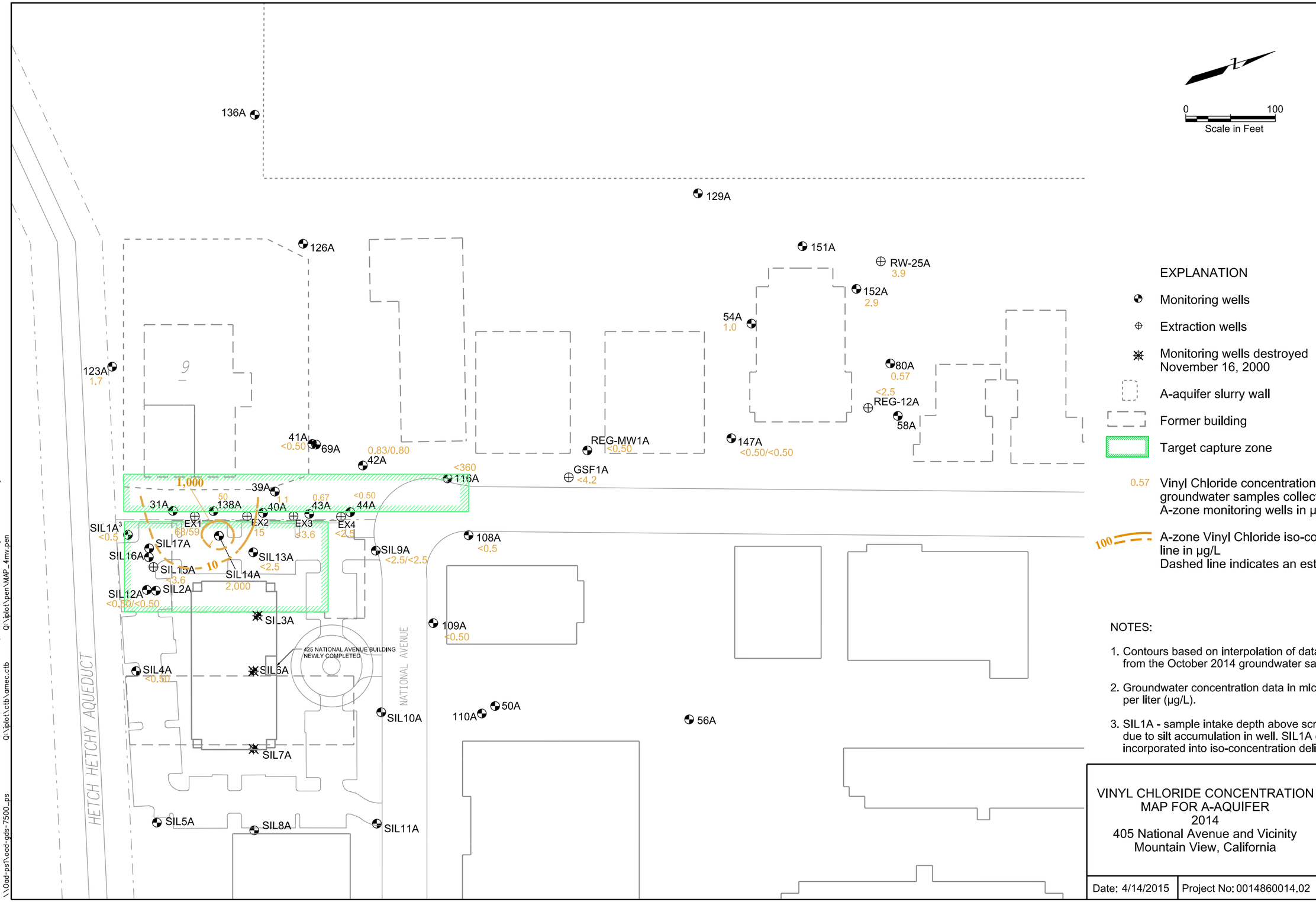
CIS-1,2-DCE CONCENTRATION MAP FOR A-AQUIFER 2014

405 National Avenue and Vicinity
Mountain View, California

Date: 4/14/2015 | Project No: 0014860014.02

amec foster wheeler

Figure **11c**



NOTES:

1. Contours based on interpolation of data collected from the October 2014 groundwater sampling events.
2. Groundwater concentration data in micrograms per liter (µg/L).
3. SIL1A - sample intake depth above screen interval due to silt accumulation in well. SIL1A data not incorporated into iso-concentration delineation.

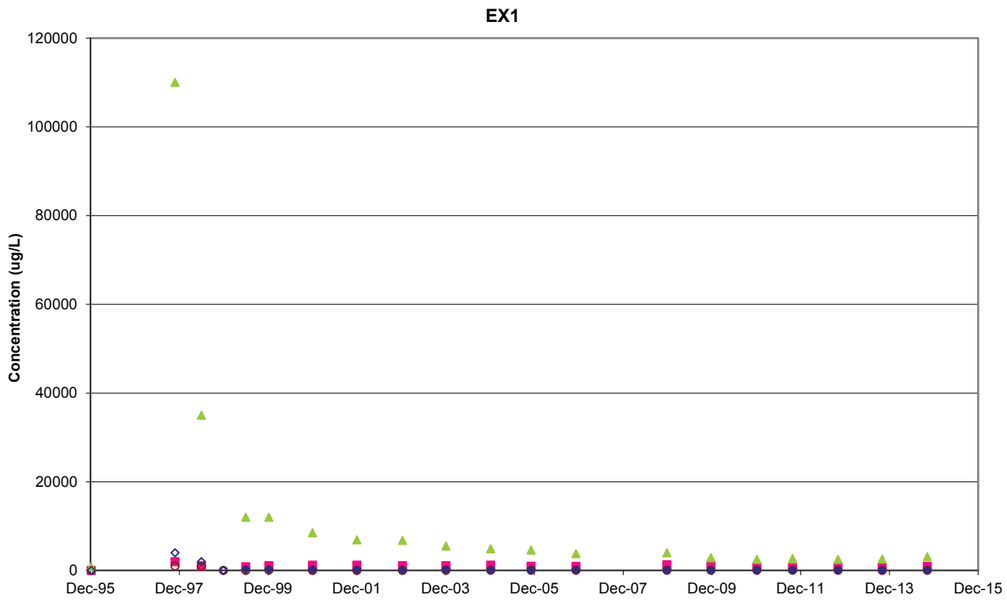
VINYL CHLORIDE CONCENTRATION MAP FOR A-AQUIFER 2014

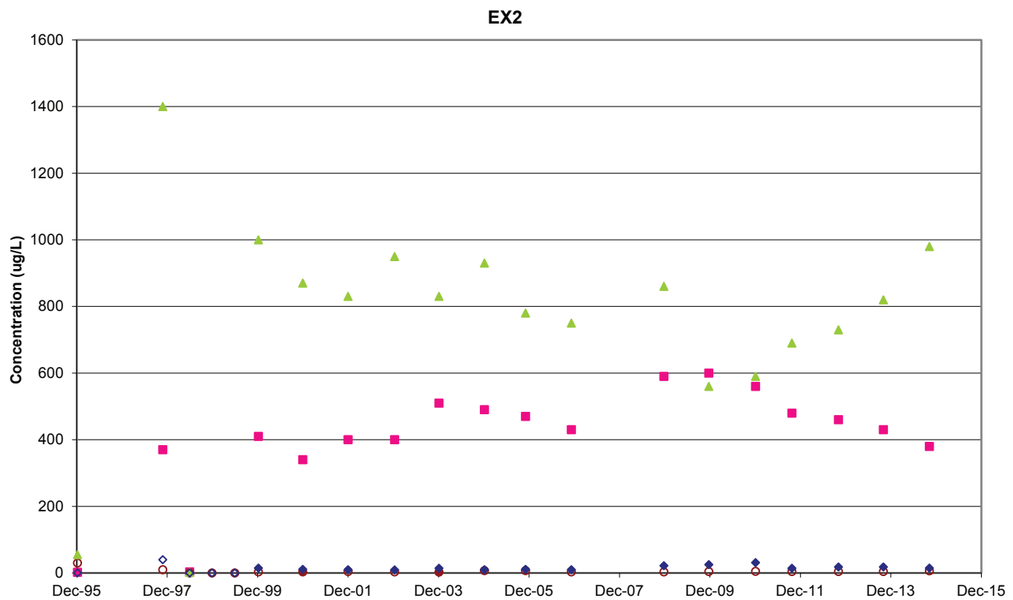
405 National Avenue and Vicinity
Mountain View, California

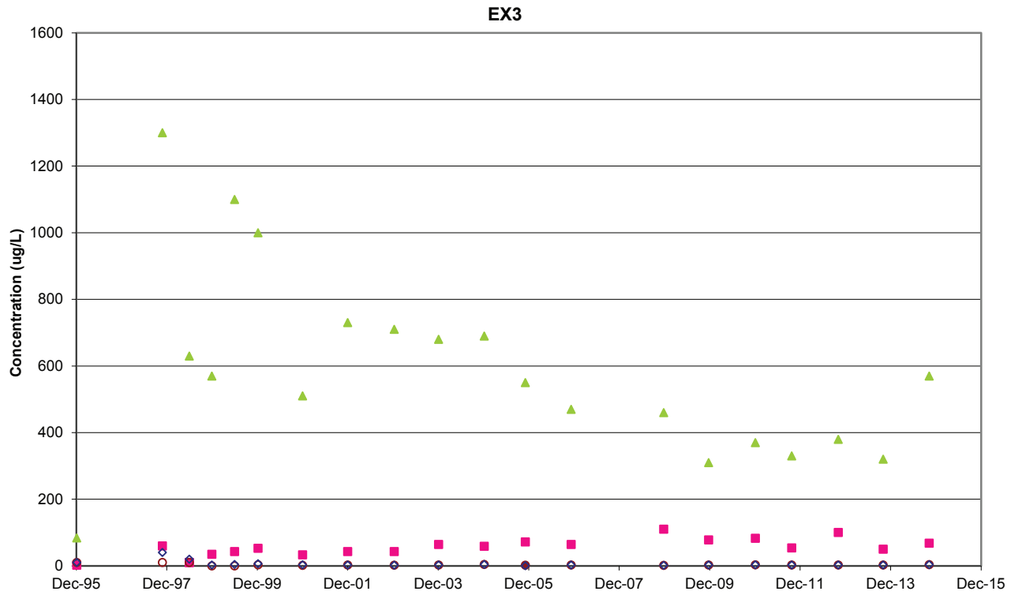
Date: 4/14/2015 | Project No: 0014860014.02

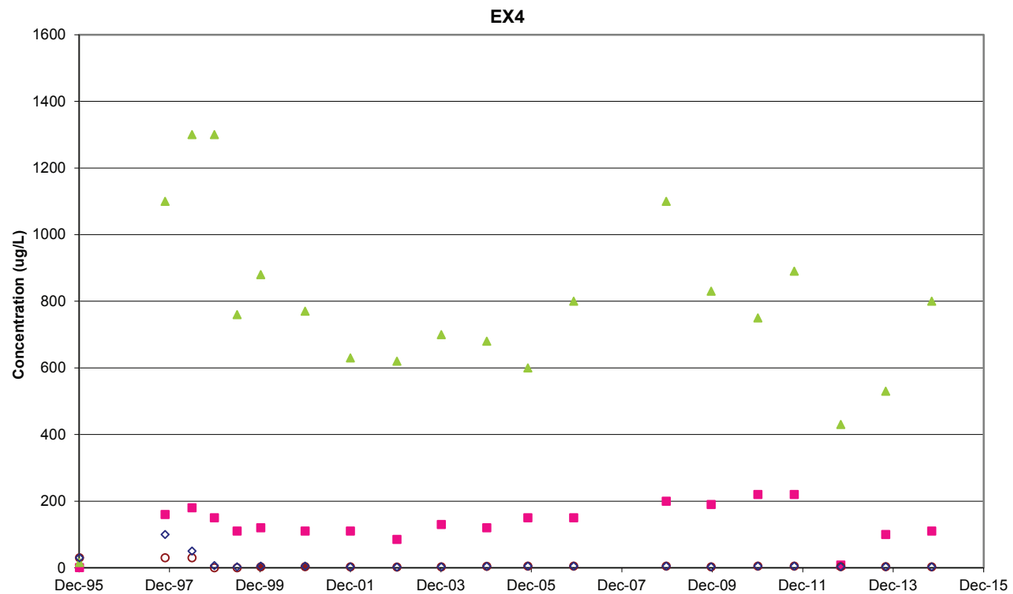
amec foster wheeler

Figure **11d**









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

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.

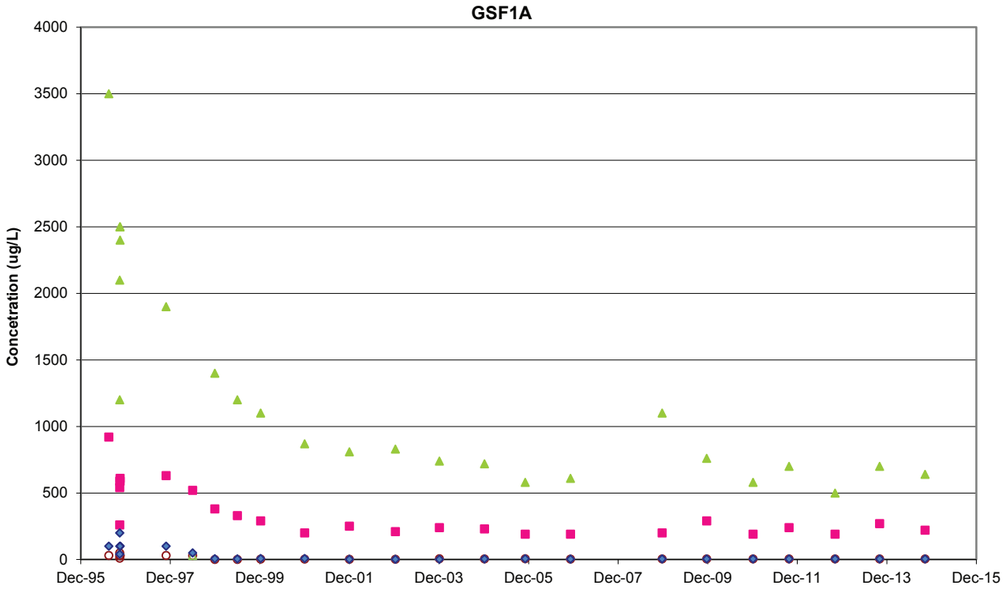
VOC CONCENTRATIONS VS. TIME
EXTRACTION WELLS EX-1, EX-2, EX-3, AND EX-4
405 National Avenue
Mountain View, California

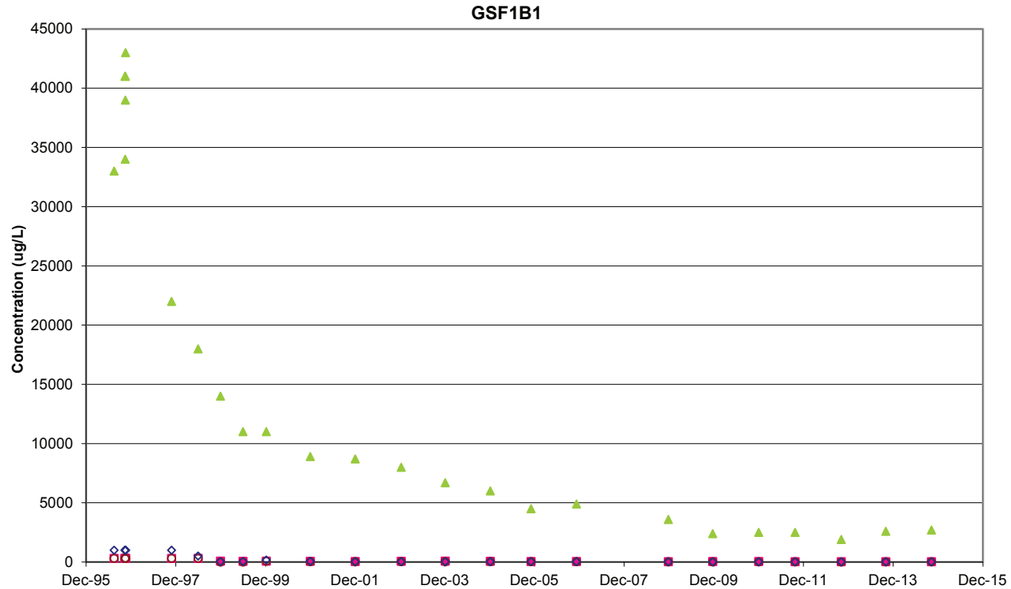
Date: 03/16/2015 | Project No. 14860014.02.CC

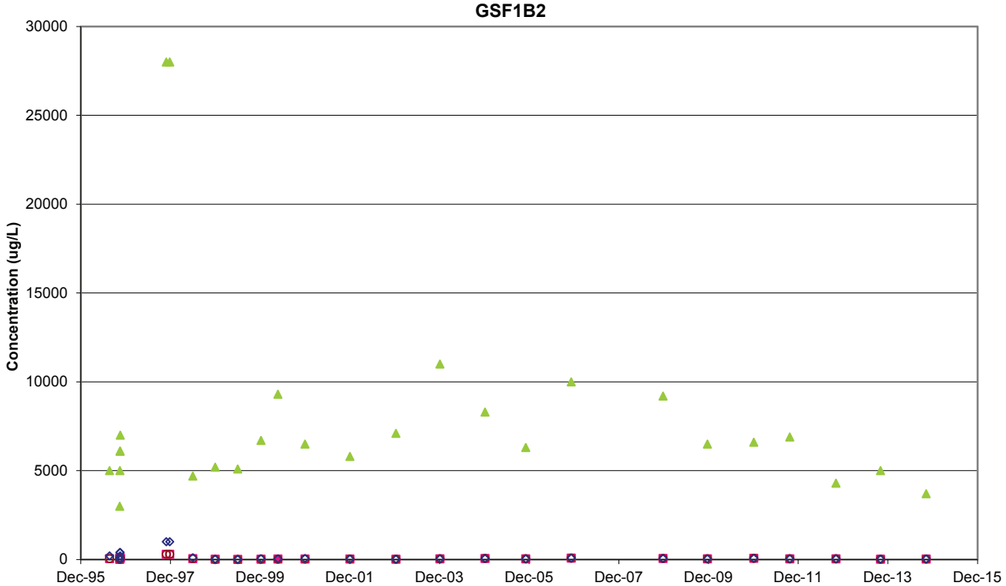
amec foster wheeler

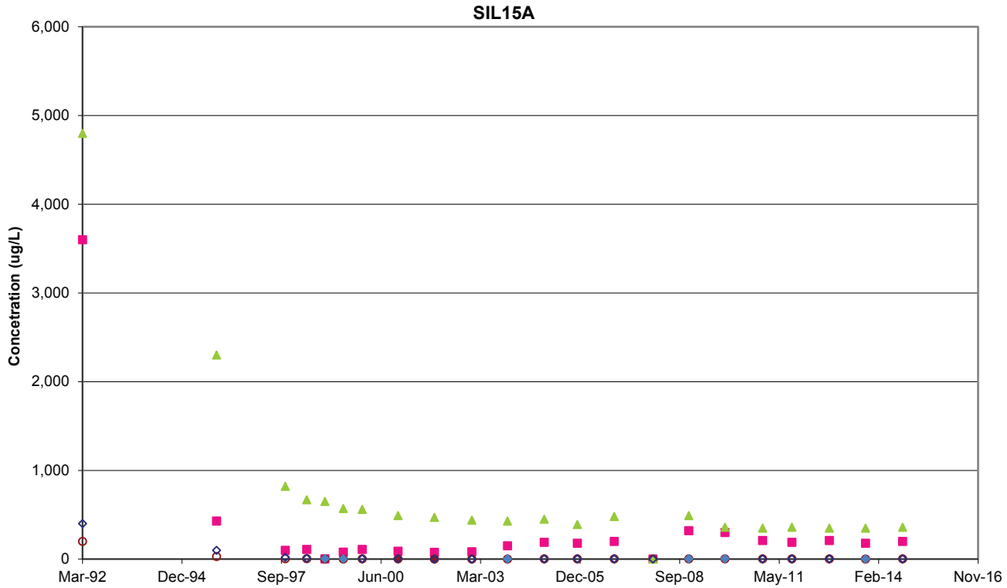
Figure **12a**

R:\1000-1900s\1486\1486.002\1486.002cc\2014plts\15_0302_ar2014_fig_12a.ai









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

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.

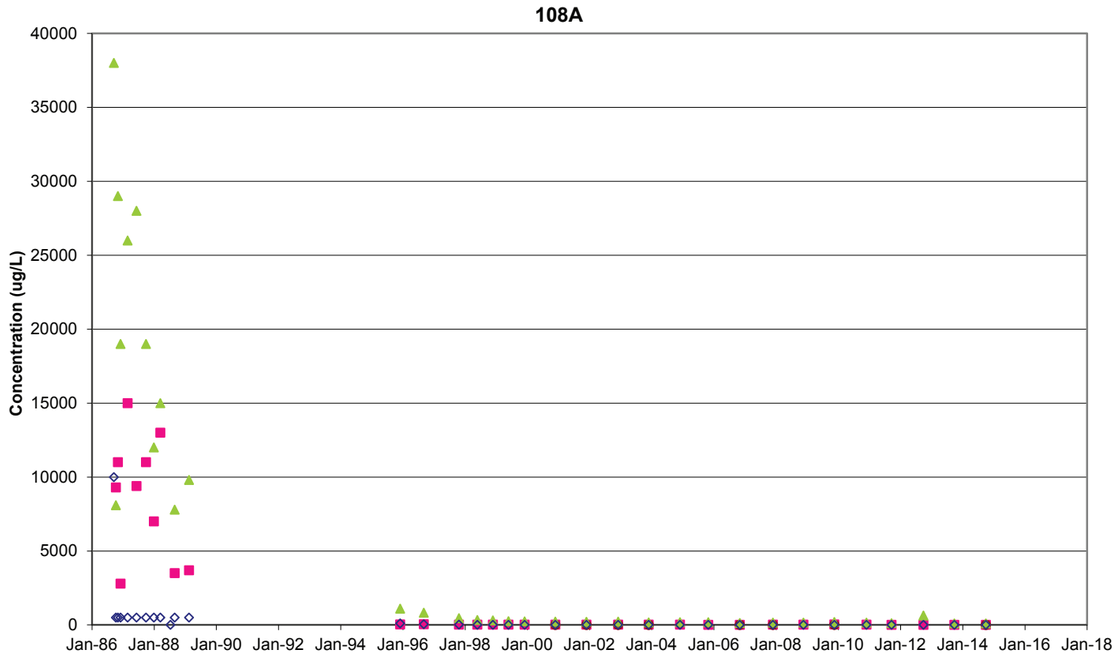
VOC CONCENTRATIONS VS. TIME
EXTRACTION WELLS GSF-1A,
GSF-1B1, GSF-1B2, AND SIL-15A
405 National Avenue
Mountain View, California

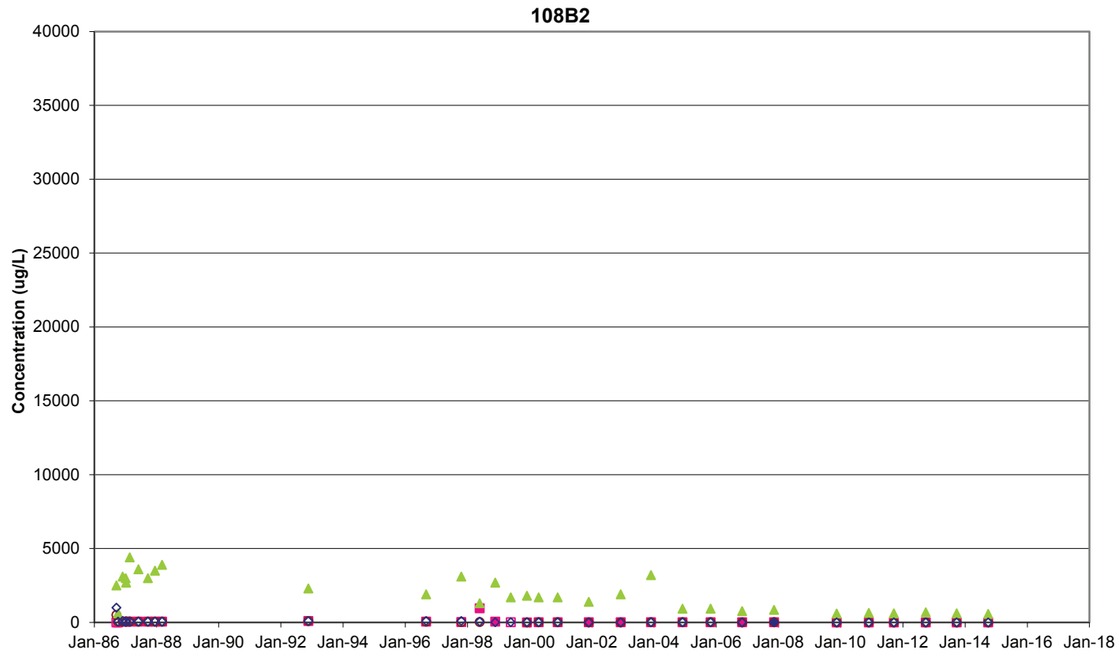
amec foster wheeler

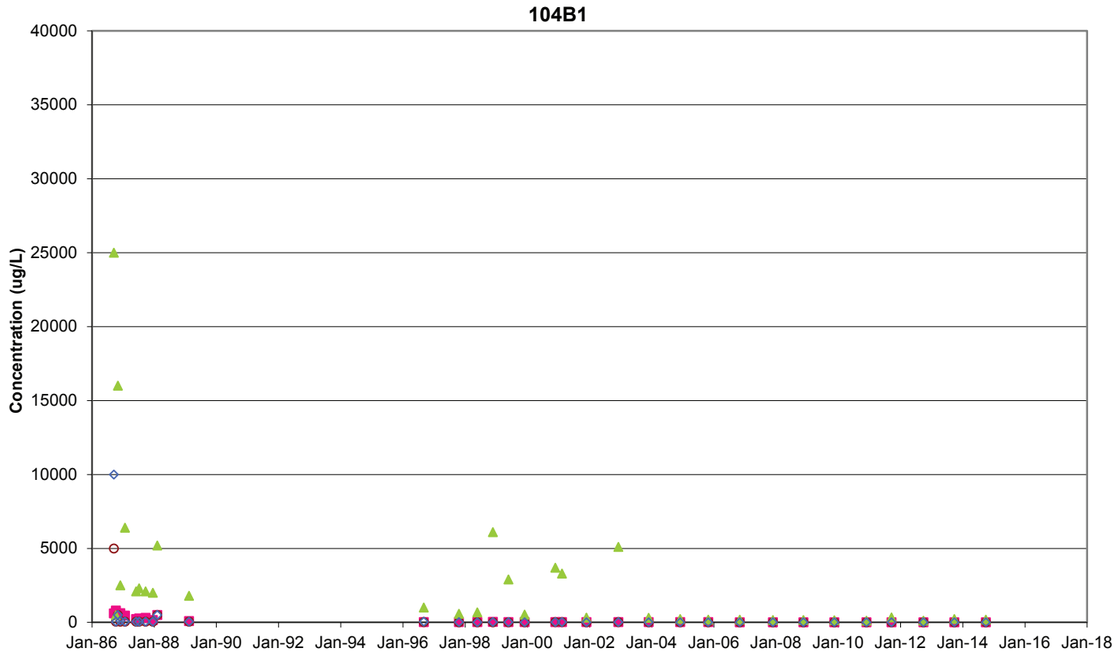
Date: 03/16/2015 | Project No. 14860014.02.CC

Figure
12b

R:\1000-1900s\1486\1486.002\1486.002cc\2014\pts\15_0302_ar2014_fig_12b.ai







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

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.

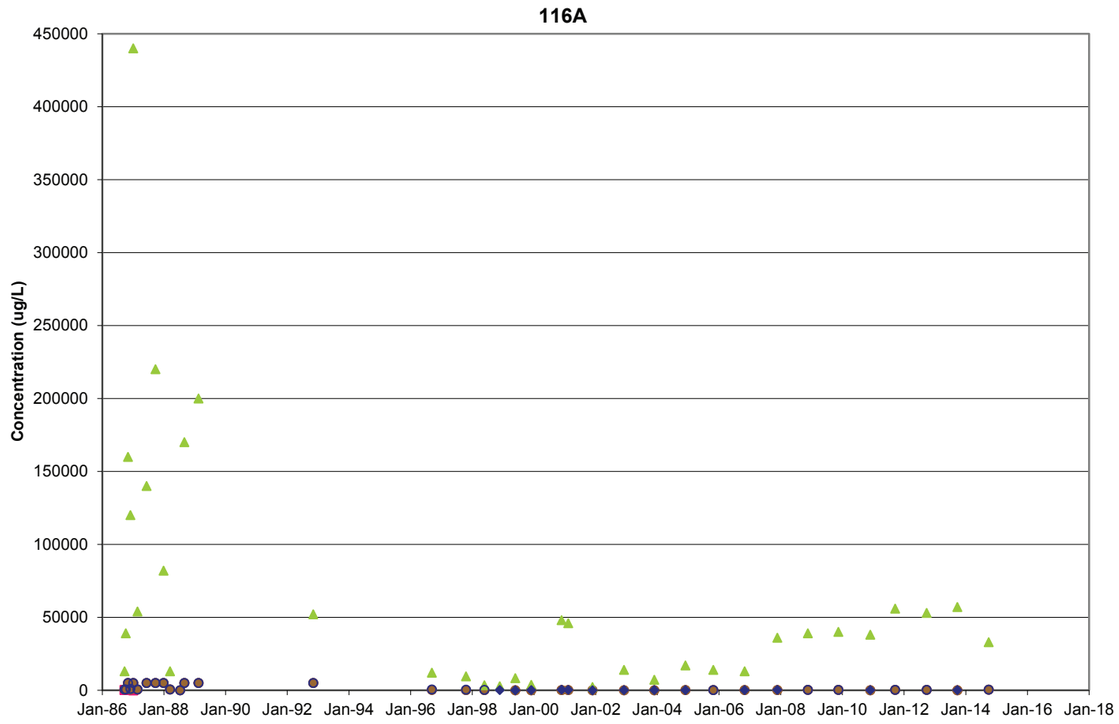
VOC CONCENTRATIONS VS. TIME
MONITORING WELLS 108A, 108B2
AND 104B1
405 National Avenue
Mountain View, California

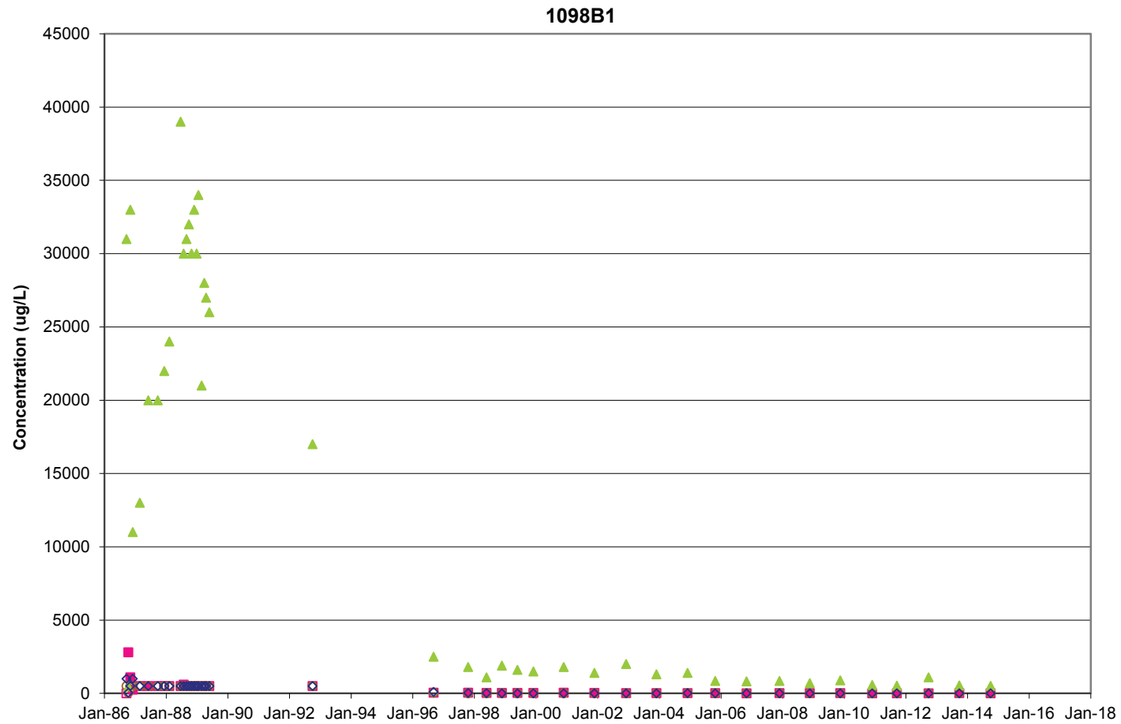
Date: 03/16/2015 | Project No. 14860014.02.CC

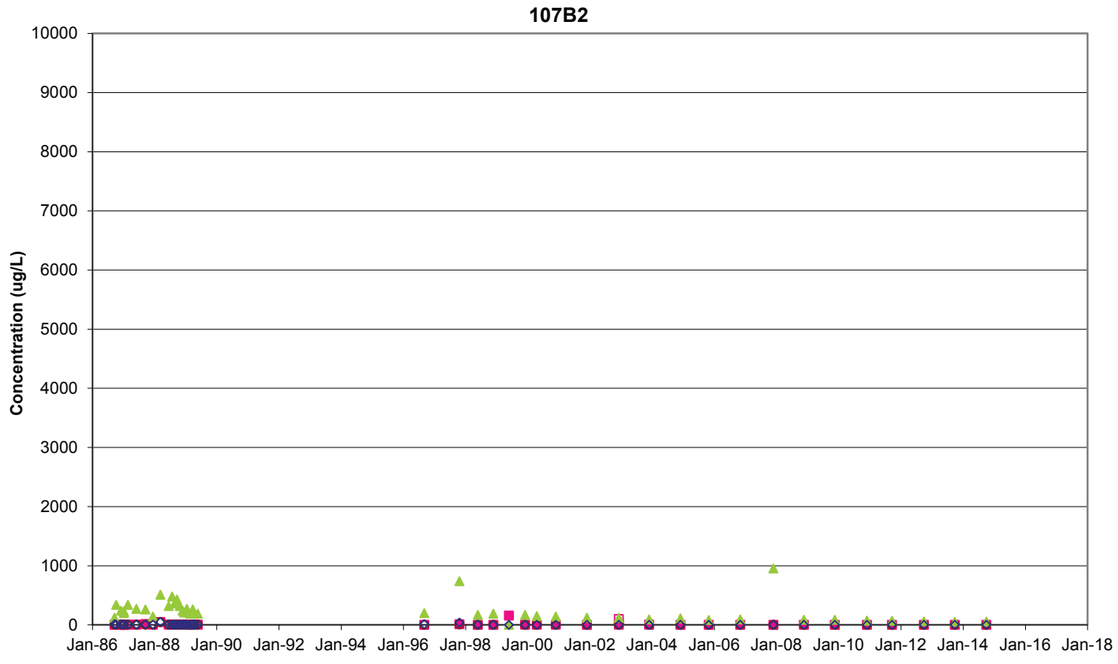
amec foster wheeler

Figure
12c

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014\ fig_12c.ai







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

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).

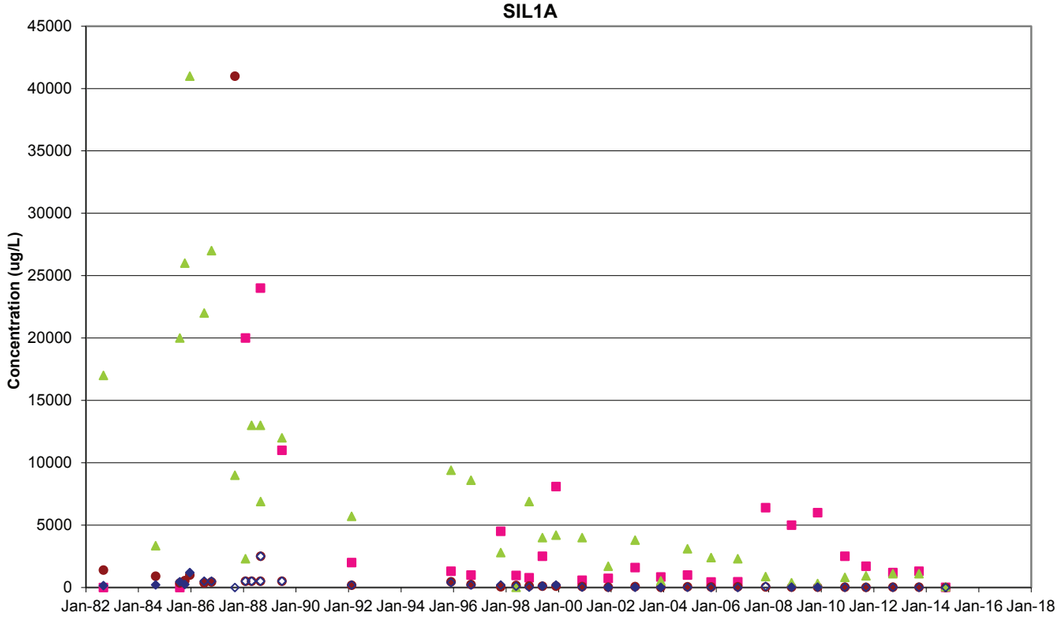
VOC CONCENTRATIONS VS. TIME
MONITORING WELLS 116A, 109B1, and 107B2
405 National Avenue
Mountain View, California

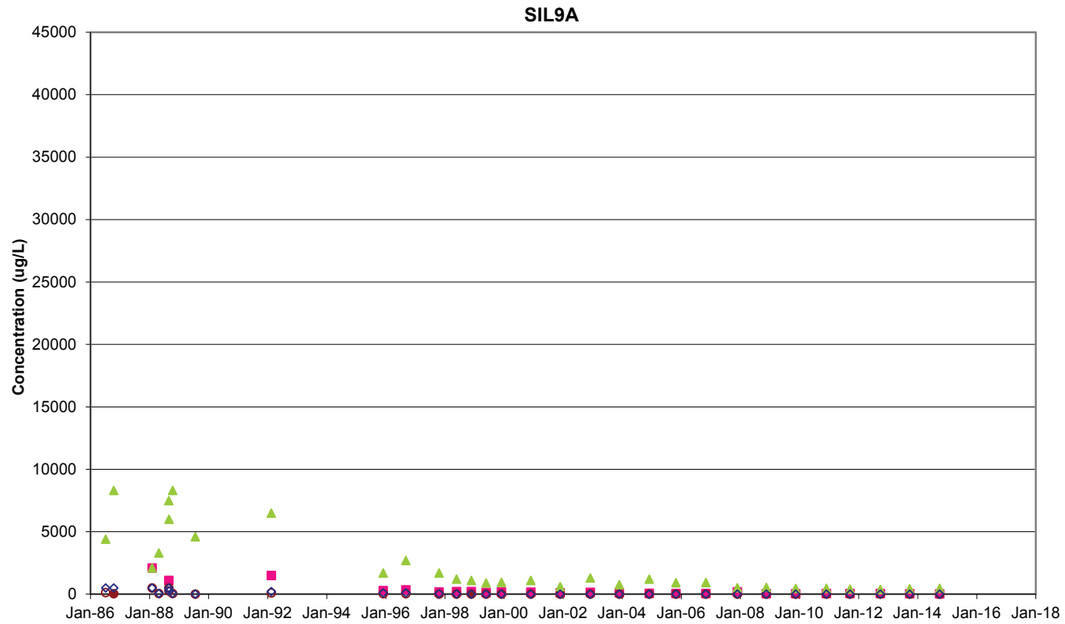
Date: 03/16/2015 | Project No. 14860014.02.CC

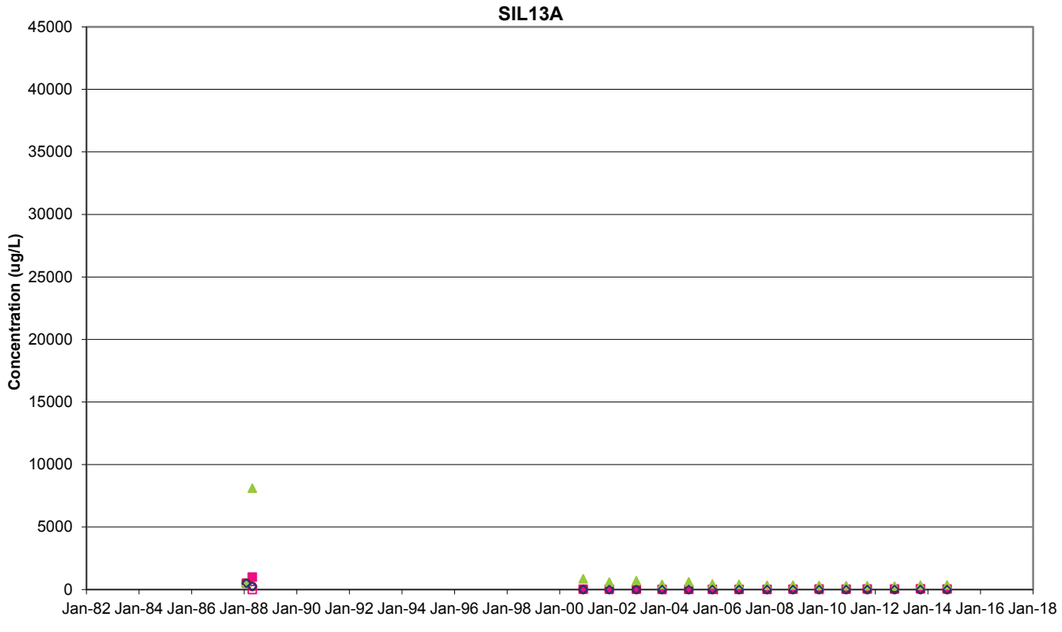
amec foster wheeler

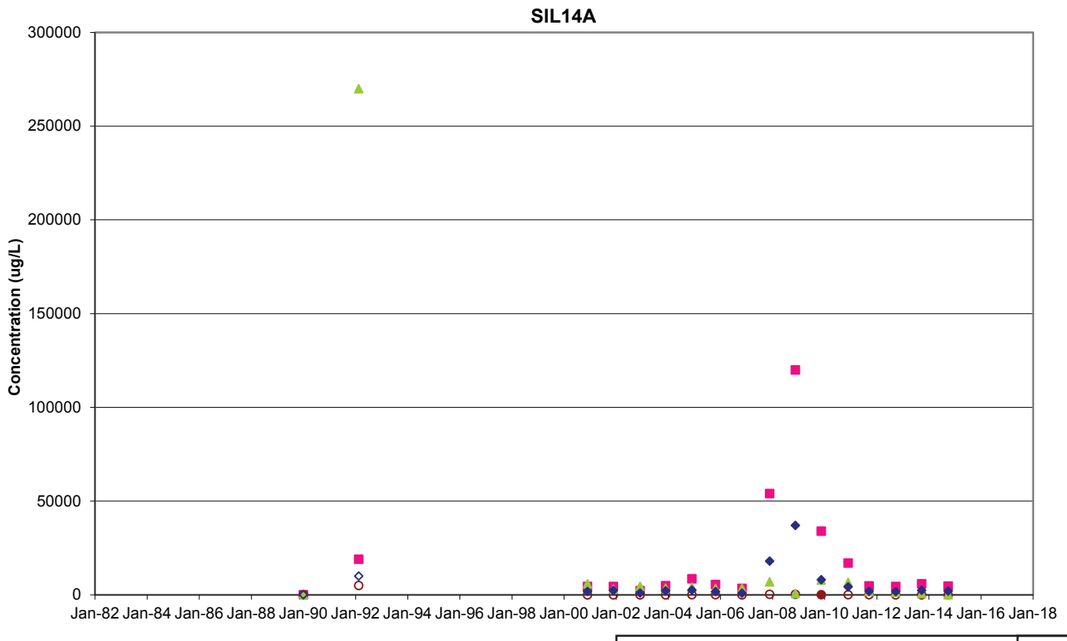
Figure **12d**

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_12d.ai









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

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. October 2014 sample from SIL1A was collected at an intake depth above its screen interval due to silt accumulation in well.

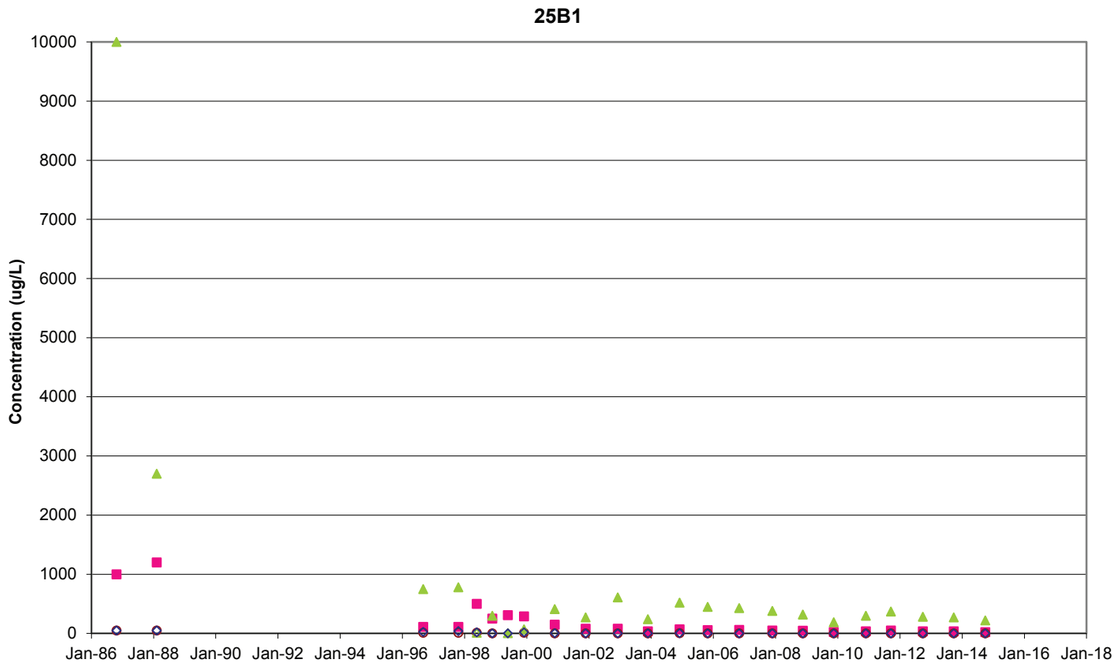
VOC CONCENTRATIONS VS. TIME
MONITORING WELLS SIL1A, SIL9A,
SIL13A, AND SIL14A
405 National Avenue
Mountain View, California

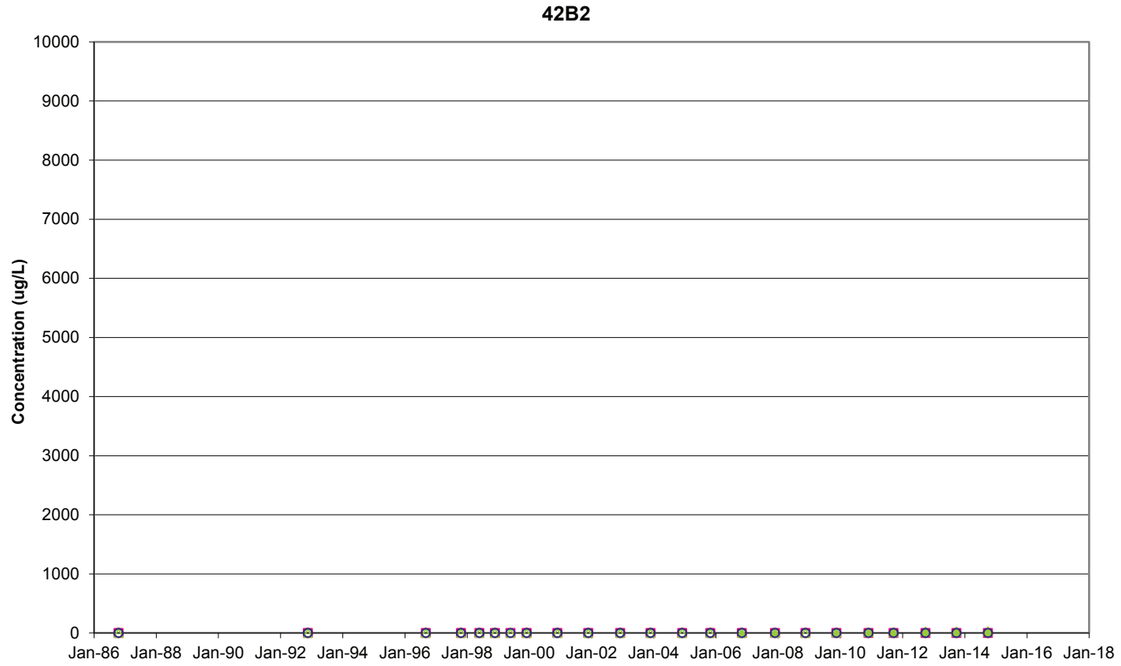
Date: 03/20/2015 | Project No. 14860014.02.CC

amec foster wheeler

Figure
12e

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_12e.ai





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

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

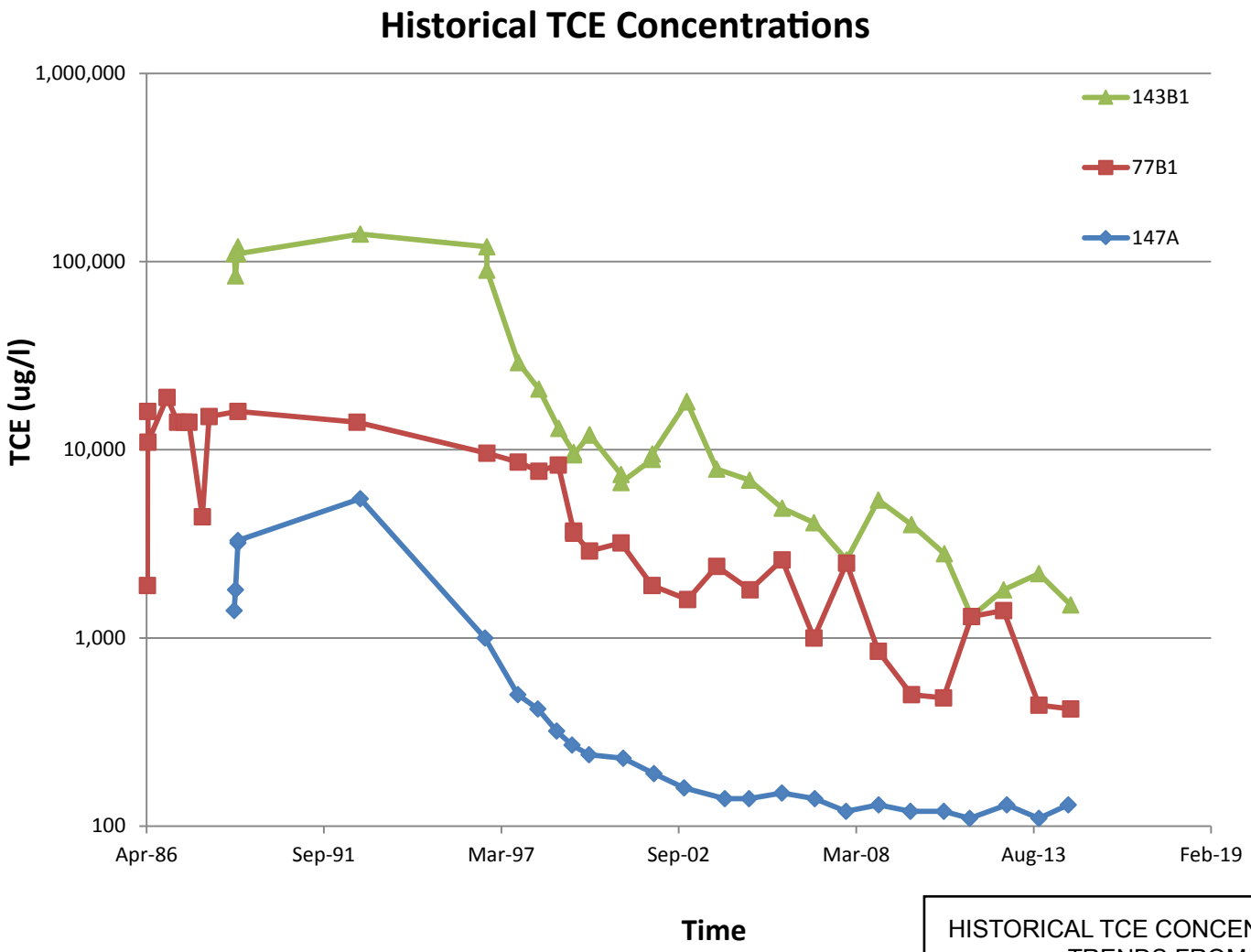
Date: 03/16/2015 | Project No. 14860014.02.CC

amec foster wheeler

Figure **12f**

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_12f.ai

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_13.ai



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

Date: 03/16/2015 | Project No. 14860014.02.CC

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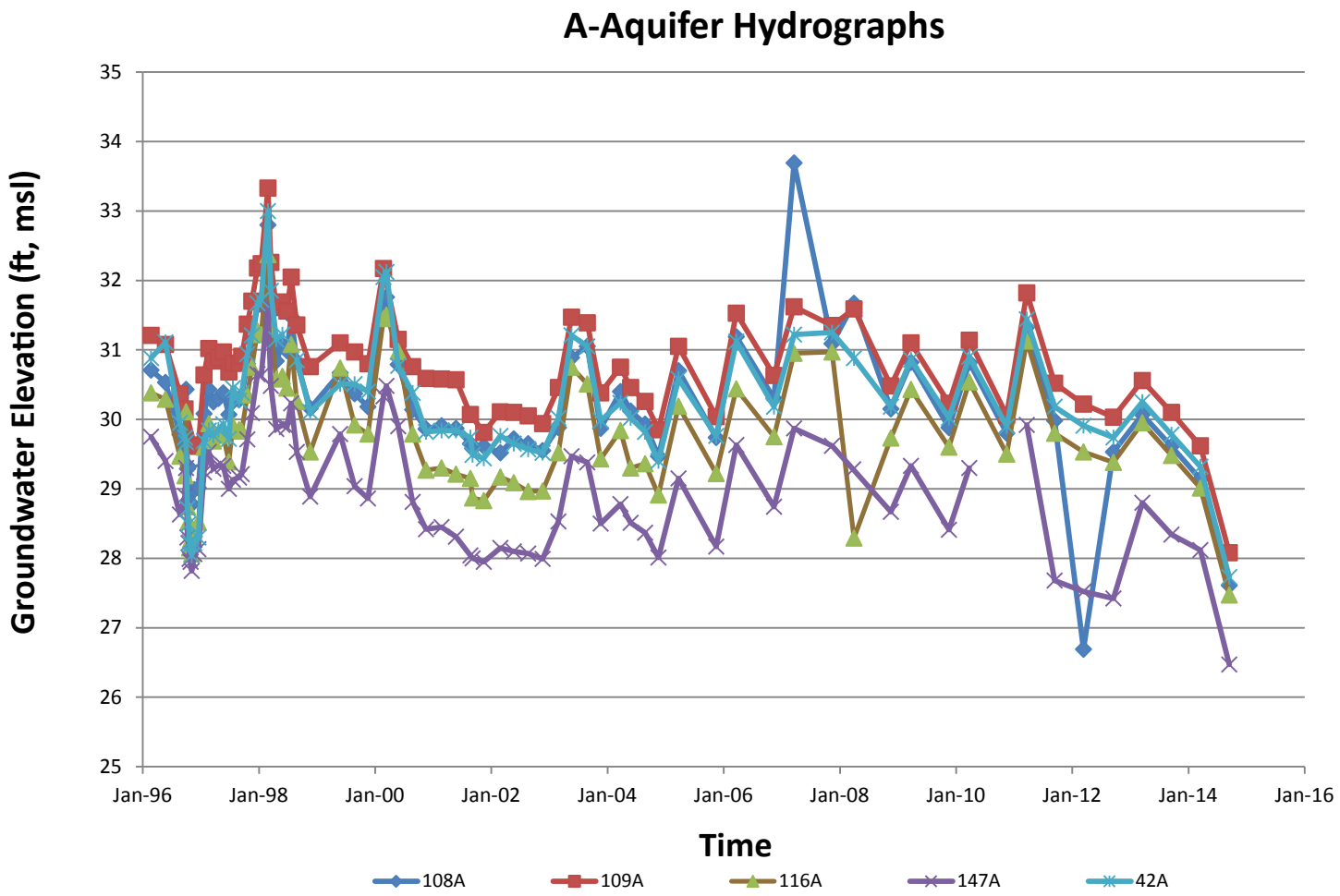
Figure **13**

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_14.ai



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

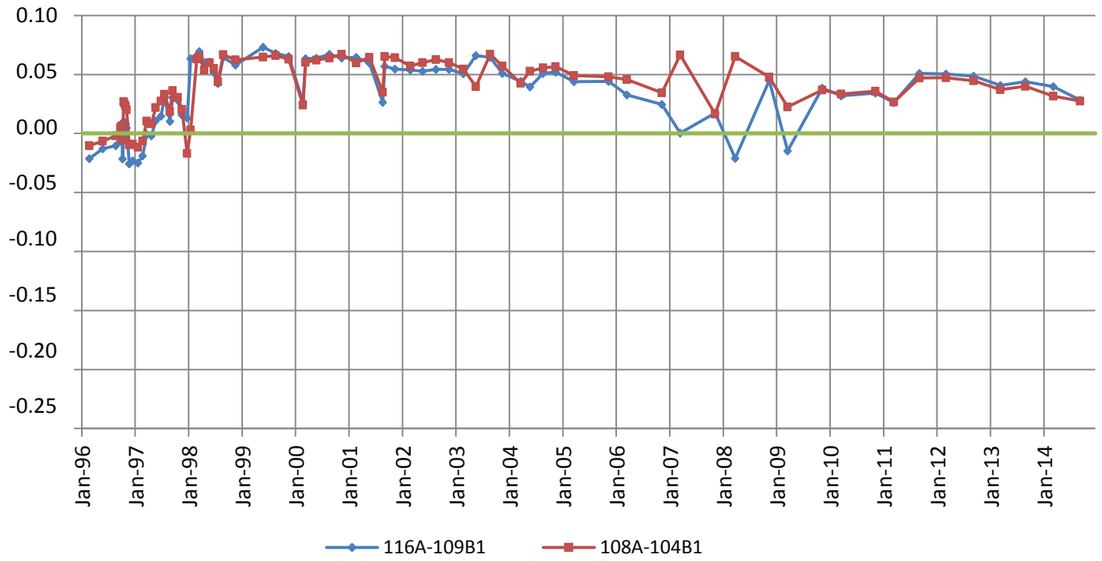
amec foster wheeler

Date: 03/16/2015

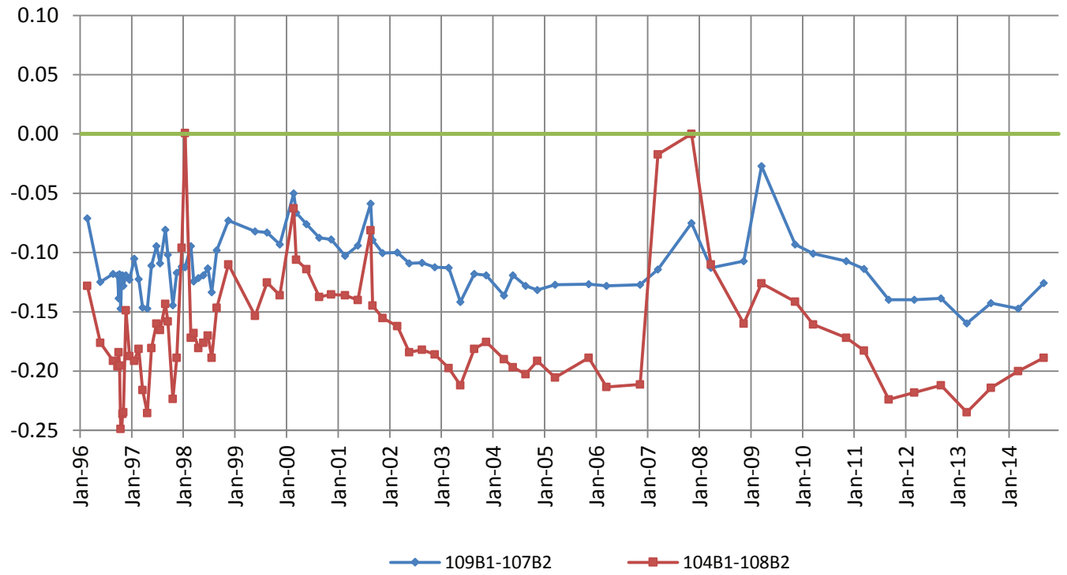
Project No. 14860014.02.CC

Figure
14

Vertical Gradient Between A and B1 Intervals



Vertical Gradient Between B1 and B2 Intervals



Notes:

1) 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.
2) Vertical Gradient = dH/dL
3) Positive vertical gradient indicates downward flow, while a negative value indicates upward flow.

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

amec foster wheeler

Date: 03/16/2015 | Project No. 14860014.02.CC

Figure **15**

R:\1000-1900s\1486\1486.002\1486.002cc\2014rpts\15_0302_ar2014_fig_15.ai

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APPENDIX A

Annual Remedy Performance Checklist

2014 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: March 19, 2015 | **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	Jeff Bradshaw SUMCO Phoenix Corporation EHS Director	(480) 473-6603	jeff.bradshaw@sumcousa.com
	Donald M. Clark Vishay GSI, Inc. Vice President, EHS	(919) 676-5324	donald.clark@vishay.com
PRP Contractor/ Consultant	Harold Rush AMEC Environment & Infrastructure Project Manager	(510) 663-4234	harold.rush@amec.com
O&M Contractor	NA		
Other	NA		

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):

Not applicable

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:

VI. SIGNIFICANT SITE EVENTS

Check all Significant Site events Since the Last Checklist that Affects or May Affect Remedy Performance

☐ Community Issues

2014 Annual Report Remedy Performance Checklist

☐ Vandalism
☐ Maintenance Issues
☐ Other:

Please elaborate on Significant Site Events:

Redevelopment of 401 and 620, 630, 640 National Avenue properties.

VII. REDEVELOPMENT

Is redevelopment on property planned ☑ Yes ☐ No

If yes, what is planned? Please describe below.

Construction of office and garage buildings, treatment equipment will be relocated.

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:

Treatment equipment will need to be relocated and treatment system will need to be shutoff for the duration of relocation.

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:

Historical groundwater monitoring tables; concentration trend plots for individual wells; isoconcentration maps; capture zone analyses and figures

What is the source report?

2014 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:

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

What is the source report?

2014 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:

Monthly influent, midfluent, and effluent concentration data; influent and effluent temperature and pH; flow rates

What is the source report?

2014 Annual Progress Report and Quarterly NPDES Self Monitoring Reports

☑ The system is in compliance with discharge permits.

Slurry Wall Data
Not applicable

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

Is slurry wall operating as designed? ☐ Yes ☐ No ☑ Not applicable

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

Elaborate on technical data and/or other comments

IX. AIR MONITORING/VAPOR INTRUSION PATHWAY EVALUATION (Include in Annual Progress Report and reference document)

Walk-through/Surveys:

2014 Annual Report Remedy Performance Checklist

See Pathway Sampling Report for 425 National Avenue, Mountain View, California (Geomatrix Consultants, Inc., 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. Confirmation air sampling was conducted on September 16, 2012.

Summary of Results:

Air monitoring results from the 2007, 2008, and 2012 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 ($\mu g/m^3$) for TCE.

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. The 2012 confirmation air sample results were submitted to EPA on February 21, 2013.

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—2014, Amec Foster Wheeler Environment & Infrastructure, Inc.)

(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)

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—2014, Amec Foster Wheeler Environment & Infrastructure, Inc.

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—2014, Amec Foster Wheeler Environment & Infrastructure, Inc.)

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 - 2014, Amec Foster Wheeler Environment & Infrastructure, Inc.

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 2014 Annual Progress Report.

2014 Annual Report Remedy Performance Checklist

XI. PROJECTIONS

Administrative Issues
Dates of next monitoring and sampling events for next annual reporting period: See Section 7.0 of 2014 Annual Progress Report.

A. Groundwater Remedies—Projections for the upcoming year and long-term (Check all that apply)

Remedy Projections for the upcoming year (2015)

☐ No significant changes projected.
☐ Groundwater remedy will be converted to monitored natural attenuation. Target date:
☑ Groundwater Pump & Treat will be shut down. Target date: May 2015 for treatment system relocation
☐ 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)? Monitoring well 116A will be converted into an extraction well. Target date: May 2015
☑ Modification on groundwater treatment? Elaborate below. Target date: May 2015
☐ 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).

Additionally, the Ultraviolet light-hydrogen peroxide treatment unit will be replaced with a HiPOx treatment unit.

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).

2014 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:

XII. RECOMMENDATIONS

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APPENDIX B

Analytical Results Report and Chain-of-Custody Documents

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APPENDIX C

Quality Assurance/Quality Control

APPENDIX C

QUALITY ASSURANCE REPORT
JANUARY TO DECEMBER 2014

401 National Avenue
Mountain View, California

This quality assurance (QA) report was prepared by Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 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 (U.S. 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 2014.

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 2014 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 U.S. EPA on February 3, 1993. Amec Foster Wheeler 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 U.S. EPA National Functional Guidelines for Organic Compounds (U.S. 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 Foster Wheeler 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 are discrepancies between the water-level measurements taken during this report period and measurements taken in previous report periods, however measurements are considered valid and may be a results of varying pumping rates from extraction wells and temporal climate changes (i.e. drought conditions and absence of rainfall).

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 October 21 and 22, 2014. Field blank and equipment blank samples were collected 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 peristaltic 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 U.S. 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, or TestAmerica Laboratories, Inc. (TestAmerica) of Pleasanton, California, both state-certified analytical laboratories. 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 or TestAmerica for chemical analysis. An Amec Foster Wheeler 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 for the annual groundwater sampling event. 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. Project sample MS/MSD percent recoveries were within the QA/QC goals for accuracy specified in the UQAPP for aqueous MS/MSD samples (75 to 133%), except for one instance described below. The MS/MSD of trichloroethene (TCE) for sample 42B2-102114 had a percent recovery of 61%, which is below the lower limit of the QA goal. The TCE detection within sample 42B2-102114 is qualified with a “J” to indicate the result is an estimated value. Percent recoveries for the LCS compounds were within the QA/QC goals for accuracy specified in the UQAPP for aqueous LCS samples (65 to 138%).

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.

Constituents reported in influent samples collected from the GETS during this report period were TCE, 1,1,2-trichlorotrifluoroethane (Freon 113) and cis-1,2-dichloroethene (cis-1,2-DCE). 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 U.S. 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 U.S. 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 U.S. 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 one instance described below. Equipment blank PB2-102114 was collected during the annual groundwater sampling event and had detections of 1,1-DCE, cis-1,2-DCE, 1,1,1-trichloroethane (1,1,1-TCA) and TCE. The detections within the equipment blank were caused by errors in sample collection. PB2-102113 was collected at the effluent of the YSI meter flow through cell instead of prior to entering the YSI meter flow through cell. Sample 107B2-102114, monitoring well 107B2 sample, was collected after PB2-102114. Monitoring well 107B2 sample results from 2014 are consistent with historical data, and as such are not qualified and are considered valid.

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 2014 are considered to be representative of actual field conditions. All data is considered valid and no corrective actions are recommended or deemed necessary, except as described above.

TABLE C-1

SUMMARY OF PRECISION DATA
QUALITY ASSURANCE REPORT
January to December 2014
405 National Avenue
Mountain View, California

Sample Description	Constituent	RPD (%)[1]	QA Goal (%)[2]
Blank Spike Duplicate	1,1-Dichloroethene Trichloroethene Chlorobenzene	3-9 1-12 1-9	35
Matrix Spike Duplicate	1,1-Dichloroethene Trichloroethene Chlorobenzene	1-5 0-2 1-2	35
Blind Duplicate	1,1-Dichloroethene 1,1-Dichloroethane trans-1,2-Dichloroethene cis-1,2-Dichloroethene 1,1,1-tetrachloroethane Trichloroethene Tetrachloroethene Freon 113 Vinyl chloride	4 0 2 0-9 0 2-4 0-12 4-11 14	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 2014
401 National Avenue
Mountain View, California

Sample Description	Constituent	% R[1]	QA Goal (%)[2]
Laboratory Control Samples	1,1-Dichloroethene Trichloroethene Chlorobenzene	87-89 102-106 95-105	65-138
Matrix Spike and Matrix Spike Duplicates	1,1-Dichloroethene Trichloroethene Chlorobenzene	82-121 61[3]-101 98-112	75-133
Blank Spike and Blank Spike Duplicates	1,1-Dichloroethene Trichloroethene Chlorobenzene	198131 93-112 98-114	65-138

Notes
1. % R = percent recovery.
2. QA goal as specified in the UQAPP.
3. Percent recovery below QA goal results in a qualified detection. Specifically, the sample result for 42B2-102114 of trichloroethene at 29 µg/L is flagged with a "J" to indicate an estimated value.

APPENDIX D

Summary Table of General Waste Discharge Requirements for NPDES Permit

APPENDIX D

SUMMARY TABLE OF GENERAL WASTE DISCHARGE REQUIREMENTS FOR NPDES PERMIT

405 National Avenue
Mountain View, California

Action/Item of Concern	Requirement/Response	Reference Number
Effluent and Receiving Water Discharge Requirements		
Effluent Limitations for Toxic Pollutants (Column B: Discharge to Other Surface Water Areas) Maximum Daily Effluent Limitation	Trichlorotrifluoroethane (Freon 113): 5.0 µg/L	Section IV. A. 1. Table 2
	Cis-1,2-dichlorethene: 5.0 µg/L	
	Trichloroethene: 5.0 µg/L	
	Tetrachloroethene: 5.0 µg/L	
	1,1-dichloroethane: 5.0 µg/L	
	1,1,1-trichloroethane: 5.0 µg/L	
	For additional constituents of concern, see Section IV.A.1. Table 2.	
	pH: <6.5 or >8.5	
	Toxicity: > 90% survival for 96-hour, static renewal fish bioassay	
Effluent Trigger Compounds	Section VI.C.6.Table 3 outlines trigger levels for metals, SVOCs, PAHs, PCBs, and Organochlorine Pesticides. If the trigger level for a particular constituent is exceeded, a series of monitoring samples is required during the following quarter per Section VI.C.7 and Section VI.C.8	Section VI.C.6. Table 3
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.	Section V
	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 REQUIREMENTS FOR NPDES PERMIT

405 National Avenue
Mountain View, California

Action/Item of Concern	Requirement/Response	Reference Number
Receiving Water Limitations (cont'd)	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.	Section V
	pH: Not to be depressed below 6.5 or raised above 8.5. 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.	Section III
	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		
Influent Sampling and Analysis	Sample influent monthly and analyze for: VOCs (EPA Method 8260B (8010-list)	Section VI.B and Attachment E
Effluent Sampling and Analysis	Sample effluent monthly and analyze for: VOCs (EPA Method 8260B-full list)	Section VI.B and Attachment E
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.	Attachment E. Section VII.

APPENDIX D

SUMMARY TABLE OF GENERAL WASTE DISCHARGE REQUIREMENTS FOR NPDES PERMIT

405 National Avenue
Mountain View, California

Action/Item of Concern	Requirement/Response	Reference Number
Annually, Semiannually, or Quarterly		
Influent Sampling and Analysis	Sample influent annually and analyze for: pH temperature	Section VI.B and Attachment E
Effluent Sampling and Analysis	Sample effluent annually and analyze for: Fish Toxicity, 96-hr (% survival) Turbidity (NTU)	Section VI.B and Attachment E
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, SVOCs, 1,4-dioxane	Section VI.C
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.	Attachment E. Section IV.B
Quarterly and Annually		
Annual Fees	$11,195	Attachment B
Monitoring Reports	If discharging, submit report to RWQCB no later than 45 days following the end of the calendar quarter. Annual report required by April 15th of each year. See sampling memo or self-monitoring plan for summary of report content requirements.	Attachment E. Section IX
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.	Attachment E

APPENDIX D

SUMMARY TABLE OF GENERAL WASTE DISCHARGE REQUIREMENTS FOR NPDES PERMIT

405 National Avenue
Mountain View, California

Action/Item of Concern	Requirement/Response	Reference Number
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.	Attachment E. Section VIII
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.	Attachment D
	Records of weekly discharge flow volume and totalized quarterly and annual flow.	Attachment D
	Tabulation of treatment system bypasses and/or accidental waste spills.	Attachment D
	Copy of Order No. R2-2004-0055, Authorization Letter, and O&M Manual maintained at the site.	Attachment D
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.	Attachment D and Attachment F
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.	Attachment D and Attachment F
Renewal of Agreement	Order No. CAG912003 expires on September 30, 2014.	Attachment D

APPENDIX D

SUMMARY TABLE OF GENERAL WASTE DISCHARGE REQUIREMENTS FOR NPDES PERMIT

405 National Avenue
Mountain View, California

References

1. General Waste Discharge Requirements from California Regional Water Quality Control Board (RWQCB) Order No. R2-2012-0012 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. CAG912002).
2. 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
SVOC = Semivolatile 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