

Prepared for

Renesas Electronics America, Inc.
2880 Scott Boulevard
Santa Clara, California 95050-2554

2012 ANNUAL PROGRESS REPORT

**501 ELLIS STREET
MOUNTAIN VIEW, CALIFORNIA**

Prepared by

Geosyntec 
consultants

engineers | scientists | innovators

1111 Broadway, 6th Floor
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Project Number WR0434A

9 April 2013

9 April 2012

Ms. Alana Lee
SFD-7-3
EPA Region IX
75 Hawthorne Street
San Francisco, California 94105

**Subject: 2012 Annual Progress Report
501 Ellis Street, Mountain View, California**

Dear Ms. Lee:

This letter transmits the subject report for 501 Ellis Street, Mountain View, California. This report describes the work that was performed pursuant to Sections XV A&B of CERCLA §106 Order, EPA Docket No. 91-4, as amended on 16 September 2011 and Section 2.6.2 of the Statement of Work for Remedial Design and Remedial Action to Address the Vapor Intrusion Pathway. Geosyntec Consultants prepared this report on behalf of Renesas Electronics America, Inc. If you have any questions or comments, please call either of the undersigned at (510) 836-3034.

Sincerely,



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Senior Engineer



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Renesas Electronics America
2880 Scott Boulevard
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2012 Annual Progress Report

501 Ellis Street
Mountain View, California

Prepared by

Geosyntec Consultants, Inc.
1111 Broadway, 6th Floor
Oakland, California 94612

Project Number: WR0434A
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1. INTRODUCTION

This Annual Progress Report (Report) summarizes facility specific environmental work and related activities that were performed at 501 Ellis Street, Mountain View, California (the “Site”) during the period 1 January through 31 December 2012. The work described in this report was performed pursuant to Sections XV A&B of CERCLA §106 Order, EPA Docket No. 91-4, as amended on 16 September 2011 (the “Order”). Geosyntec Consultants, Inc. (Geosyntec) prepared this report on behalf of Renesas Electronics America, Inc. (Renesas)¹, responding to the EPA 6 May 2005 email correspondence prescribing 2004 and future Annual Report contents (EPA, 2005). In accordance with the EPA’s email, the 2012 Annual Report Checklist is included as **Appendix A**. In addition, this report includes the annual progress reporting requirements prescribed in Section 2.6.2 of the Statement of Work for Remedial Design and Remedial Action to Address the Vapor Intrusion Pathway (EPA, 2011b).

1.1 Site Background

The Site is located at 501 Ellis Street and lies within the larger area bounded by Middlefield Road, Ellis Street, Whisman Road, and U.S. Highway 101 in Mountain View, California (**Figure 1**). This area includes past locations of semiconductor manufacturing and other industrial activities, including the Site. In 1985, the EPA identified this area as the Middlefield-Ellis-Whisman (MEW) Study Area. Numerous investigations at the properties within the MEW Study Area have been conducted, and extensive soil and groundwater remedial activities have been implemented at many of the properties.

The Site is located within the MEW Study Area and is approximately 2 acres in size. A single-story building, constructed in 1967, occupies about 28,000 square feet of the western portion of the property, and a paved open area occupies the eastern portion of the property. From 1968 to 1978, Electronic Arrays Corporation used the Site to manufacture semiconductor devices and related components. Solvents and other chemicals were used in the manufacturing process. From 1978 until April 1984, NEC operated at the Site.

¹ Formerly NEC Electronics America, Inc. (NEC) prior to 15 April 2010. In this report both names (NEC and Renesas) are used in association with activities conducted at the Site.

In 1982, NEC initiated a groundwater monitoring and soil sampling program in response to the California Regional Water Quality Control Board (RWQCB) investigation of all companies that used underground chemical tanks in their production processes prior to 1 January 1975. Between 1982 and 1990, NEC completed several Site investigations that identified detectable concentrations of some volatile organic compounds (VOCs), primarily trichloroethene (TCE), in the soil and groundwater beneath the Site. Soil and groundwater remedial actions were implemented in the 1990s (Section 1.3).

1.2 Local Hydrogeology

The Site is located on a relatively flat tract of land that slopes gently to the north towards San Francisco Bay. San Francisco Bay is approximately two miles to the north, and the Santa Cruz Mountains are approximately six miles to the south.

Sediments beneath the Site are composed of varying proportions of unconsolidated to poorly consolidated gravel, sand, silt and clay typical of alluvial, estuarine, and bay deposits. The interbedded materials are generally lenticular, laterally gradational, and heterogeneous (Bechtel, 1996).

Water-bearing materials beneath the Site and larger MEW Study Area are divided into an upper aquifer zone, comprised of the A and B aquifers and their associated aquitards, and a lower aquifer zone, comprised of the C and deeper aquifers and their associated aquitards. The A aquifer at the Site is approximately 15 to 20 feet thick, extending from a depth of about 10 feet below ground surface (bgs) to a maximum depth of about 30 feet bgs. Based on geologic logs developed during the drilling of Site wells, the A aquifer is composed of silty sand (SM), sand (SP), and gravel (GP), with interbedded layers of silty clay (CL), silt (ML) and gravelly silt (ML).

1.3 Summary of Remedial Action

On 6 September 1991, NEC submitted to EPA a proposed final remedial design for treating VOCs in unsaturated soils located behind (east of) the Site building. Applicable treatment technologies for shallow unsaturated soils in the MEW Study Area are specified in the Record of Decision (the “ROD”), issued by EPA in May 1989, and consist of soil removal and aeration, or in-situ vapor extraction. NEC elected to excavate and send offsite for treatment and disposal unsaturated soils with TCE concentrations greater than the cleanup level of 0.5 milligrams per kilogram (mg/kg).

Soil excavations have been completed and NEC received EPA approval of its soil investigations and remediation at the Site in 1995.

In October 1997, NEC began operating a Source Control Groundwater Remediation (SCGWR) System at the Site. The SCGWR system is a groundwater extraction and treatment system that was designed to control, contain, and extract VOCs at the Site and to complement the regional groundwater remediation program for the MEW Study Area. As originally designed, the SCGWR system extracted groundwater from the A aquifer at the Site and treated the groundwater using granular activated carbon. The SCGWR system has been continuously operational since start-up in October 1997.

On 3 September 2008, Geosyntec submitted an Optimization Evaluation for the SCGWR system on behalf of NEC (Geosyntec, 2008). The Optimization Evaluation recommended the following modifications to the SCGWR system:

- Adjust the groundwater extraction rates. Based on an evaluation of groundwater extraction rates for the Site SCGWR system, the following modifications to groundwater extraction could be implemented to improve cost effectiveness while maintaining effective groundwater capture:
 - Discontinue groundwater extraction from NEC-1AE. The pump in NEC-1AE would remain in case extraction needed to be resumed.
 - Continue operation of NEC-27AE and NEC-28AE at extraction rates near or slightly greater than 2.0 gallons per minute (gpm). If 2.0 gpm could not be maintained at well NEC-28AE, then extraction from NEC-1AE at low rates could be resumed if necessary.
 - Monitor the direction and magnitude of the regional groundwater gradient for changes that might affect groundwater capture at the Site.
- Evaluate the possibility of direct discharge of extracted groundwater to the Palo Alto Regional Water Quality Control Plant (RWQCP).

During a 3 November 2008 meeting between EPA and Geosyntec, EPA concurred with these recommendations, providing that 1) contingencies were given for restart of NEC-1AE if groundwater capture became inadequate, and 2) a monitoring program for evaluating groundwater capture was implemented. A plan for implementing the Optimization Evaluation recommendations and addressing EPA comments was provided in the 2008 Annual Progress Report (Geosyntec, 2009). The Optimization

Evaluation recommendations were implemented in 2009 and the SCGWR system has operated in the optimized configuration since that time.

Operation of the optimized SCGWR system includes direct discharge of extracted groundwater to the Palo Alto Regional Water Quality Control Plant (RWQCP) and is conducted under the requirements of a City of Mountain View Wastewater Discharge Permit, Permit ID Number 925.

Remedial actions for soil and groundwater at the Site have reduced soil concentrations of TCE to below the EPA cleanup levels, and continue to control and reduce the concentrations of VOCs in groundwater. The investigation and remediation efforts at the Site have been documented in several reports (e.g., Bechtel, 1992 and Bechtel, 1996) and are periodically updated in progress reports to EPA, in accordance with the 106 Order.

1.4 Summary of 2012 Activities

The following section summarizes field and reporting activities that were completed for the Site in 2012.

1.4.1 Field Activities

- 14 March, 18 June, 10 September, and 17 December. Locus Technologies (Locus) collected quarterly samples from the SCGWR system effluent as required under the City of Mountain View Wastewater Discharge Permit and from well NEC-1AE as specified in the revised SCGWR extraction and monitoring program included in the 2008 Annual Progress Report.
- 15 March and 20 September. Semi-annual groundwater levels were measured in Site monitoring wells.
- 23 July. Geosyntec and Renesas conducted a building walkthrough at the Site with an EPA representative to identify and document potential indoor VOC sources, identify and document potential preferential pathways for VI, and select indoor air, outdoor air, and sub-slab soil vapor sampling locations.
- 25 and 26 July. Conduit and crack sealing to mitigate potential preferential pathways for VI was performed by American Integrated Services, Inc. (AIS) of Fairfield, California under the direction of Geosyntec.

- 2, 3, and 5 August. Geosyntec conducted indoor air, outdoor air, and sub-slab soil vapor sampling at the Site.
- 9 and 15 October. Annual sampling of the Site groundwater monitoring wells.²

1.4.2 Order Reporting Activities

- On 27 January 2013, Renesas submitted to the City of Mountain View a semiannual Periodic Report of Continued Compliance (PRCC) summarizing the results of self-monitoring analysis conducted during the second half of 2011.
- On 5 April 2012, Renesas submitted the 2011 Annual Progress Report to EPA.
- In July 2012, Renesas submitted to the City of Mountain View a semiannual PRCC summarizing the results of self-monitoring analysis conducted during the first half of 2012.
- On 17 July 2012, Renesas submitted the Final Work Plan to Evaluate the Potential Vapor Intrusion Pathway to EPA.
- On 21 December 2012, Renesas submitted the Results of the Summer 2012 Investigation of Potential Vapor Intrusion Pathway and Response Action Work Plan to the EPA.

² Groundwater sampling was moved from December to October beginning in 2011 to comply with the revised MEW groundwater monitoring schedule specified by EPA in a letter dated 20 June 2011 (EPA, 2011a).

2. GROUNDWATER REMEDY

The following sections present a summary of the operation and maintenance of the SCGWR system, a hydraulic control and capture zone analysis for the system, and results from the 2012 annual groundwater sampling at the Site.

2.1 SCGWR System Description

The SCGWR system consists of a groundwater extraction and treatment system that was designed to control, contain, and extract VOCs from the A aquifer at the Site and to complement the regional groundwater remediation program for the MEW Study Area. The SCGWR system has been continuously operational since start-up in October 1997. On 13 May 2009, the modifications to the SCGRW system recommended in the 2008 Optimization Evaluation (Section 1.3) were completed. These modifications included adjustments to groundwater extraction rates at the three extraction wells and converting the system from carbon treatment followed by discharge to Stevens Creek under an NPDES permit to direct discharge of untreated groundwater to the sanitary sewer for treatment at the Palo Alto RWQCP under a City of Mountain View wastewater discharge permit.

2.2 SCGWR System Operations and Maintenance

Performance of the SCGWR system, including monthly average flow rates, extraction totals, and VOC mass removal, is summarized in **Table 1**. As of 17 December 2012³, 35,096,960 gallons of water have been treated since startup of the SCGWR system on 16 October 1997. The average daily processing rate has been 6,551 gallons per day (gpd) or 4.6 gpm. Since system optimization in 2009, the average daily processing rate has been 3.8 gpm.

Approximately 2.0 pounds of VOCs were removed by the SCGWR system in 2012. The total mass of VOCs removed by the treatment system from start-up through 17 December 2012 is approximately 44.8 pounds. **Figure 2** shows the cumulative groundwater extracted and mass of VOCs removed since system startup.

³ The fourth quarter 2012 SCGWR system operation and maintenance (O&M) monitoring took place on 17 December 2012.

2.3 Hydraulic Control and Capture Zone Analysis

Site monitoring and extraction wells are completed within the A aquifer (**Table 2**). Depth to groundwater in the monitoring wells ranged from approximately 7 to 15 feet below top of casing (btoc) during the March monitoring period and approximately 6 to 17 feet btoc during the September monitoring period (**Tables 3 and 4**). A hydrograph of groundwater elevations in selected monitoring wells across the Site is shown in **Figure 3**.

2.3.1 Capture Zone Analysis Methodology

Javandel and Tsang Method

Capture of groundwater beneath the Site was estimated using two methods. The first method is the analytical solution of Javandel and Tsang (1987), which consists of calculating a stagnation point and capture zone width, followed by projection of streamlines perpendicular to groundwater contours. The 2012 capture zone calculations using this approach are provided as **Appendix B**.

Numerical Modeling Method and Model Development

The second method for estimating groundwater capture uses a steady-state numerical simulation of groundwater flow incorporating particle tracking. Numerical simulations were performed using Visual MODFLOW Professional, Version 2011.1[®].

The SCGWR system is designed to provide complete containment of the A aquifer groundwater directly beneath the Site. The conceptual site model (CSM) treats the interlayered heterogeneities of the A aquifer as a single unit extending from 10 to 30 feet bgs. The unit is assumed to have a uniform transmissivity of 91 square feet per day (ft²/day), estimated from pumping tests conducted on wells NEC-12A and NEC-22A during groundwater extraction system design (Bechtel, 1996; Geosyntec, 2001) and confirmed based on an analysis using the specific capacity of the extraction wells (Driscoll, 1986). The transmissivity was incorporated into the numerical model using an aquifer thickness of 20 feet, resulting in a hydraulic conductivity of 4.6 feet per day (ft/day) (1.6×10^{-3} centimeters per second [cm/sec]). This value is consistent with the average hydraulic conductivity of 2.3 ft/day (8.1×10^{-4} cm/sec) estimated from slug tests conducted in the vicinity of the Site (Bechtel, 1989). The value is also within the range of reported regional A aquifer hydraulic conductivities (0.35 ft/day to 2,050 ft/day),

although it should be noted that based on the regional data the A aquifer is highly heterogeneous and flow through the aquifer can vary considerably.

For the purpose of the Site numerical model, a uniform horizontal gradient with a direction of N28°W and a magnitude of 0.008 feet per foot (ft/ft) (42.2 feet per mile [ft/mile]) is assumed for the A aquifer groundwater beneath the Site. The horizontal gradient was estimated based on offsite groundwater elevations and regional potentiometric surface maps developed for the MEW Study Area (Weiss, 2004), and is consistent with previous estimates (Bechtel, 1989; Bechtel, 1996). However, the observed groundwater gradient direction beneath the Site does not appear to be uniform based on groundwater elevations in Site monitoring wells. Due to the position of the Site relative to the MEW Study Area and the active groundwater extraction systems onsite and to the west of the Site, the gradient appears to shift to the west near the downgradient portion of the Site.

For the purpose of the Site numerical model, it is also assumed that there is no contribution of groundwater from the underlying B1 aquifer into the A aquifer. This assumption is consistent with observations from B1 aquifer wells that showed no response when monitored during onsite pumping tests conducted in the A aquifer (Bechtel, 1996).

The model domain is 2,500 feet wide by 2,500 feet long, with 20 feet by 20 feet grid blocks. The numerical simulation has one vertical layer with a 30 foot thickness. The upper 10 feet of the vertical layer is unsaturated. The upper and lower boundaries of the vertical layer are sloped in a direction consistent with the groundwater gradient to maintain a uniform aquifer thickness. Given the large number of groundwater wells currently operating within the MEW Study Area, only groundwater extraction rates and elevation data within the immediate vicinity of the Site are used to evaluate groundwater capture.

Other Analysis Methods

Other techniques commonly used to evaluate the performance of groundwater extraction systems, such as contaminant concentration trends in up- and downgradient monitoring wells, or tracer tests, are not applicable to the Site due to the position of 501 Ellis Street relative to the MEW regional plume and contributions of similar contaminants to groundwater from upgradient offsite sources.

2.3.2 Estimated Capture Zones for 2012

Based on the A aquifer thickness of 20 feet and a bulk hydraulic conductivity of 4.6 ft/day described above, the coupled analytical solution using the Javandel and Tsang method and potentiometric surface evaluation shows complete capture of the A aquifer groundwater beneath the Site during the groundwater elevation measurements conducted in March and September 2012 (**Figures 4 and 5**). The calculation parameters used to estimate the stagnation point and capture zone width for these evaluations are provided in **Appendix B**.

Particle path lines indicating simulated groundwater capture in the A aquifer beneath the Site based on groundwater extraction rates averaged over each quarter of 2012 are shown in **Figures 6 through 9**. Although groundwater elevation contours are not shown in these figures, the groundwater elevations predicted by the numerical solution are in generally good agreement with the groundwater elevation contour maps developed based on observed water levels in Site monitoring wells (**Figures 4 and 5**). For the A aquifer thickness and bulk hydraulic conductivity estimated as part of the Site conceptual model, the numerically simulated capture zones demonstrate complete capture of A aquifer groundwater beneath the Site.

2.3.3 Horizontal and Vertical Gradients

Groundwater elevation contour maps for March and September 2012 (**Figures 4 and 5**) indicate that groundwater flow at the Site is generally to the north-northwest, towards the groundwater extraction wells. The groundwater elevation contours steepen around the operating extraction wells, indicating the pumping cones of depression.

The current Site monitoring network consists of A aquifer monitoring wells. Depth to groundwater measurements are only collected for A aquifer monitoring wells at the Site and vertical gradients between deeper groundwater zones are not evaluated.

2.4 Analytical Results

Table 5 summarizes the analytical data for groundwater samples collected in October 2012 from the Site monitoring wells and extraction wells. Historical groundwater analytical data is included on the CD provided with this report (provided to EPA only). TCE isoconcentration contours for the October 2012 sampling event are shown in **Figure 10**. Time-series plots of TCE concentration for select Site wells are provided in **Figure 11**. Laboratory analytical reports (provided to EPA only) are included as

Appendix C. The Quality Assurance Report for data collected during 2012 is provided as **Appendix D** and quality control results are summarized in **Tables D-1, D-2, and D-3**.

Analytical Results Summary

Six chlorinated VOCs have been detected in one or more Site monitoring wells. TCE is the only compound detected in all of the wells that are sampled at the Site. The highest TCE concentration detected during the October 2012 sampling event was 120 micrograms per liter ($\mu\text{g/L}$) in monitoring well NEC-26A. This is lower than the highest TCE concentration detected in 2011, which was 140 $\mu\text{g/L}$ at well NEC-26A.

The highest TCE concentrations have historically been detected in the groundwater samples collected from monitoring well NEC-1A (**Figure 11**). Prior to November 2000, the TCE concentrations in NEC-1A varied cyclically, with higher concentrations (above 1,000 $\mu\text{g/L}$) detected in November and lower concentrations (below 1,000 $\mu\text{g/L}$) detected in May. Since May 2000, TCE concentrations in NEC-1A have been below 500 $\mu\text{g/L}$, and concentrations have been at or below 100 $\mu\text{g/L}$ since December 2009. During the October 2012 sampling event, the concentration of TCE in monitoring well NEC-1A was 58 $\mu\text{g/L}$.

As part of the optimized SCGWR extraction and monitoring program, pumping in well NEC-1AE ceased, and quarterly groundwater sampling of NEC-1AE began. Results of the 2012 quarterly groundwater samples are summarized in **Table 6**. Since pumping ceased in NEC-1AE in May 2009, concentrations of TCE have decreased from 150 $\mu\text{g/L}$ to between 40 and 60 $\mu\text{g/L}$ (**Figure 12**). Concentration rebound in the vicinity of NEC-1AE has not occurred to date and the modified groundwater extraction regime may be contributing to the reduced concentrations near NEC-1AE. In contrast, concentrations of *cis*-1,2-dichloroethene (*cis*-1,2-DCE) at NEC-1AE since shutdown have doubled, from approximately 20 $\mu\text{g/L}$ to 40 $\mu\text{g/L}$. *cis*-1,2-DCE is a reductive dechlorination daughter product of TCE, and the observation that *cis*-1,2-DCE concentrations are stable or increasing relative to TCE indicates that ongoing natural attenuation processes at the Site may be occurring with increased efficiency in the absence of groundwater extraction.

TCE, *cis*-1,2-DCE, and vinyl chloride concentration trends at all Site monitoring wells were evaluated using Mann-Kendall trend analysis, a non-parametric trend test that uses only the relative magnitudes of the data rather than their measured values to evaluate trends. TCE, *cis*-1,2-DCE, and vinyl chloride concentration trends at the 90%

confidence level based on the previous 10 years of monitoring data are summarized in **Table E-1** of **Appendix E**. **Appendix E** also includes a summary worksheet of the Mann-Kendal analysis conducted at each individual well.

Of the 20 monitoring and extraction wells at the Site, 13 wells exhibit decreasing TCE concentration trends, two exhibit increasing TCE concentration trends, and five do not demonstrate a trend for TCE concentrations at a 90% confidence level (**Figure 13**). The wells showing increasing trends are NEC-7A, located crossgradient of the former operations area at the Site and NEC-PZ-1A, located adjacent to the downgradient groundwater extraction wells NEC-27AE and NEC-28AE and within their estimated capture zone. TCE concentrations did not exhibit a trend at upgradient well NEC-20A. TCE concentrations have historically shown increasing trends at NEC-20A. In addition to the decreasing TCE concentration trends, nine of the monitoring and extraction wells at the Site show increasing *cis*-1,2-DCE concentration trends, which may indicate that natural attenuation processes at the Site are resulting in the reductive dechlorination of TCE.

Data Quality Assurance Summary

Quality control results are summarized in **Tables D-1, D-2, and D-3**.

- Percent recoveries and relative percent differences (RPDs) for both laboratory control spikes and matrix spikes were within project goals.
- VOCs were not detected in field, laboratory, or lab blanks.
- An equipment blank was not collected in 2012. The groundwater sampling subcontractor has been instructed to collect an equipment blank during future sampling events.
- A blind duplicate sample was collected at monitoring well NEC-PZ-3A. RPDs for all detected VOCs were within project goals.

3. VAPOR INTRUSTION REMEDY

This section of the Annual Progress Report summarizes the vapor intrusion (VI) work that was conducted at the Site in 2012. The work was performed in general accordance with Section 2.6.2 of EPA's 16 September 2011 Statement of Work (SOW) for the VI pathway at MEW.

The SOW requires that the Annual Progress Report include the following:

- A description of the VI work activities performed in the reporting period, including, but are not limited to: fieldwork, sampling, data collection, reporting, community involvement and meetings, laboratory results, interim VI mitigation measures, and remedial design and remedial action activities;
- A summary of sampling and monitoring data results by building or property address, including sampling location maps and data summary tables;
- An interpretation or explanation of the data collected during that period, including summary table updates of the response action tiering status;
- Description of VI work planned for the next reporting period, with updated schedules; and
- Recommendations, follow-up actions, and proposed work schedules to address problems encountered.

The remainder of Section 3 summarizes the VI work completed in 2012, along with sampling results and interpretation. Recommends for follow-up actions and a description of the VI work planned for 2013 are provided in Sections 7 and 9 of the Annual Progress Report, respectively.

3.1 Sampling Work Plan

In June 2012, Geosyntec learned that the building at 501 Ellis Street would be vacated and undergo renovation, which presented an opportunity to collect soil vapor and indoor air samples while the building was unoccupied and the building slab was exposed. Following discussion with the building owners and EPA representatives, Geosyntec prepared a work plan to evaluate the potential vapor intrusion pathway at 501 Ellis Street, consistent with the SOW (Geosyntec, 2012a). The EPA conditionally approved the Work Plan on 20 July 2012, provided that Renesas collect one additional sub-slab soil vapor sample that was requested by EPA (EPA, 2012).

3.2 Sampling Activities

Geosyntec performed the field activities described in the Work Plan from 23 July through 5 August 2012. The main objective of the work was to evaluate the potential presence of a vapor intrusion pathway at the Site. Sampling activities are summarized below and described in detail in the Results of Summer 2012 Investigation of Potential Vapor Intrusion Pathway and Response Action Work Plan (Geosyntec, 2012b).

3.2.1 Building Walkthrough

A building walkthrough was performed prior to sampling to identify and document potential indoor VOC sources and potential preferential pathways for VI (e.g., cracks in the slab or features such as piping or conduits that penetrate the slab). The potential preferential pathways identified during the building walkthrough were mitigated by sealing the cracks or penetrations with a mixture of concrete joint sealant, foam sealant, or rapid hardening concrete. As part of the building walkthrough, indoor air, outdoor air, and sub-slab sampling locations were selected by Geosyntec and EPA.

3.2.2 Indoor Air Sampling

One ambient (outdoor) air (OA) and six indoor air (IA) samples were collected in 2012 and analyzed for volatile organic compounds (VOCs) by EPA Method TO-15 with a project-specific analyte list including the constituents of concern (COCs) that have been identified at MEW. All samples were collected with the heating, ventilation, and air conditioning (HVAC) system off.

3.2.3 Sub-Slab Sampling

Six sub-slab soil vapor probes (SSPs) were installed beneath the Site building slab and soil vapor samples were collected and analyzed for the same suite of parameters. The sub-slab samples were collocated with the indoor air samples.

3.2.4 Pathway Sampling

During indoor air sampling investigations conducted in 2003, a fire sprinkler test drain was identified as a potential vapor migration pathway (Geosyntec, 2004). In January 2004, Geosyntec placed an expandable gasket plug into the drain and posted a sign nearby stating that the plug should remain in the drain at all times, except when testing the fire sprinkler. Testing conducted after the plug was placed showed that the potential vapor migration pathway was successfully mitigated.

During the summer 2012 sample event, EPA collected an unannounced pathway sample at the drain opening. Renesas was not given an opportunity to observe the sample collection or collect a split sample for analysis. Details for the sampling methodology have been requested from EPA and are still pending. Visual observations of the drain on 19 December 2012 indicate that the expandable gasket plug may have been removed when EPA collected the pathway sample (**Appendix F**).

3.3 Sampling Results

Ambient (indoor and outdoor) air analytical results are summarized in **Table 7** and **Figure 14**. Sub-slab sampling results are summarized in **Table 8** and **Figure 14**.

The indoor and outdoor air results may be summarized as follows:

- TCE was detected in the outdoor air sample at a concentration of 1.1 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and in all of the indoor air samples at concentrations ranging from 1.9 to 4.1 $\mu\text{g}/\text{m}^3$.
- Tetrachloroethene (PCE) was detected in the outdoor air sample at a concentration of 0.11 $\mu\text{g}/\text{m}^3$ and in all of the indoor air samples at concentrations ranging from 0.074 to 0.26 $\mu\text{g}/\text{m}^3$.
- 1,1-Dichloroethene (1,1-DCE) was detected at IA-04 at a concentration of 0.050 $\mu\text{g}/\text{m}^3$.
- *cis*-1,2,-DCE was detected in the outdoor air sample at a concentration of 0.028 $\mu\text{g}/\text{m}^3$ and in five of the indoor air samples at concentrations ranging from 0.012 to 0.130 $\mu\text{g}/\text{m}^3$.
- *trans*-1,2-Dichloroethene (*trans*-1,2-DCE) was detected in the outdoor sample at a concentration of 0.19 $\mu\text{g}/\text{m}^3$ and in all of the indoor samples at concentrations ranging from 0.011 J to 0.03 $\mu\text{g}/\text{m}^3$.
- 1,1-Dichloroethane (1,1-DCA) and vinyl chloride were not detected in any indoor air samples above their respective reporting limits.

Indoor and outdoor air results were compared to Site-specific Indoor Air Cleanup Levels (IACLs) (Haley & Aldrich, 2011). IACLs were not exceeded at any location.

The sub-slab soil vapor results may be summarized as follows:

- 1,1-DCA, 1,1-DCE, *cis*-1,2-DCE, *trans*-1,2-DCE, and vinyl chloride were not detected in any of the soil vapor samples.
- *cis*-1,2-DCE and *trans*-1,2-DCE were detected in the fire sprinkler test drain sample at concentrations of 30 µg/m³.
- PCE was detected in the soil vapor samples at concentrations ranging from 7.4 to 300 µg/m³. PCE concentration exceeded the sub-slab screening levels at location SSP-06.
- TCE was detected in soil vapor samples at concentrations ranging from 5.0 to 1,900 µg/m³. TCE concentrations exceeded the screening levels at location SSP-02 and SSP-06.

The fire sprinkler test drain results may be summarized as follows:

- TCE was detected in the drain sample at a concentration of 300 µg/m³. Results for a nearby indoor air sample also collected in the server room (IA-05) showed the presence of TCE at concentrations below the IACL (**Table 7**).

3.4 **Reporting**

On 21 December 2012, Renesas submitted the Results of Summer 2012 Investigation of Potential Vapor Intrusion Pathway and Response Action Work Plan which described the indoor air, outdoor air, and sub-slab vapor sampling activities conducted at the Site in 2012 and presented response action recommendations (Geosyntec, 2012b). Based on the findings of the 2012 sampling activities, a recommendation was made that the building at 501 Ellis Street should be categorized as Tier 3A at the present time (i.e., a building with indoor air concentrations below indoor air cleanup levels, but greater than outdoor concentrations). Tier 3A requires a response action of developing and implementing a long-term monitoring plan and implementing institutional controls (ICs).

4. OTHER 2012 ACTIVITIES

- On 16 February 2012, Renesas participated in an MEW All Parties meeting to discuss the status of the VI remedy at MEW.

5. PROBLEMS ENCOUNTERED

No problems related to operation of the SCGWR system or indoor air sampling for the VI remedy were encountered in 2012.

6. TECHNICAL ASSESSMENT – GROUNDWATER REMEDY

Is the remedy functioning as intended? Yes, the SCGWR system is effectively extracting and containing groundwater from the Site.

Are capture zones adequate? Converging lines of evidence indicate the capture zones at the Site are adequate for the A aquifer at the Site. Capture zones were estimated semi-annually (corresponding to the depth to groundwater monitoring events) using the Javandel and Tsang methodology (**Figures 4 and 5**) and quarterly using a Site-specific numerical simulation (**Figures 6 through 9**). The simulation results are in good agreement with the potentiometric surfaces based on depth to groundwater measurements and the capture zones show complete capture of the A aquifer groundwater beneath the Site.

Are vertical gradients appropriate? Not applicable to the Site.

Are VOC concentrations decreasing over time? Yes, concentrations are decreasing over time. As shown in **Figure 11**, TCE concentrations in monitoring well NEC-1A have decreased from a maximum concentration of 2,400 µg/L in November 1991 to 58 µg/L during the September 2012 monitoring event. NEC-1AE ceased pumping in 2009 and concentrations of TCE in that well have declined from 150 µg/L to less than 60 µg/L (**Figure 12**). Mann-Kendall trend analyses of Site monitoring and extraction wells indicate decreasing TCE concentration trends at a majority of wells. The two wells exhibiting increasing concentration trends are located either crossgradient of the former operational area of the Site (NEC-7A) or are located near the two downgradient extraction wells (NEC-PZ1A).

7. CONCLUSIONS AND RECOMMENDATIONS

The following section presents conclusions and recommendations for the groundwater and VI remedies.

Groundwater

During 2012, the SCGWR system removed a total of 2.0 pounds of VOCs. No problems related to system operation were noted in 2012.

Converging lines of evidence indicate the groundwater capture zones are adequate for the A aquifer at the Site. The capture zones for the semi-annual depth to groundwater measuring events were estimated using the Javandel and Tsang methodology. Capture zones were also estimated quarterly based on groundwater extraction rates using a site-specific numerical simulation. The numerical simulation results are in good agreement with the potentiometric surfaces based on depth to groundwater measurements and the capture zones show complete capture of the A aquifer groundwater beneath the Site.

Concentrations of TCE in the Site monitoring wells have decreased since the implementation of the SCGWR system. In monitoring well NEC-1A, the TCE concentration has decreased from a maximum concentration of 2,400 µg/L in November 1991 to 58 µg/L in September 2011. Trend analyses indicate stable or decreasing concentrations in all Site wells, except for two wells that are located upgradient or crossgradient of the Site (NEC-7A) or near the two downgradient extraction wells (NEC-PZ1A).

The modifications to the SCGWR system recommended in the 2008 Optimization Evaluation and completed in May 2009 have not adversely impacted the groundwater remedy performance. In addition, concentration rebound has not been observed at extraction well NEC-1AE since it was shut down as part of the May 2009 optimization activities. Instead, TCE concentrations at NEC-1AE decreased from 150 µg/L before the optimization to 57 µg/L immediately following shutdown and have decreased through December 2012 (**Table 6, Figure 12**). In addition since 2009, cis-1,2-DCE concentrations at NEC-1AE have doubled from approximately 20 µg/L to 40 µg/L, indicating that ongoing natural attenuation processes at the Site may occur with increased efficiency in the absence of groundwater extraction.

Vapor Intrusion

Results from indoor air sampling conducted in 2012 with the building HVAC system off indicated that concentrations of VOCs in indoor air are below site-specific IACLS (Haley & Aldrich, 2011). Based on these findings, the building at 501 Ellis Street can be categorized as Tier 3A at the present time (i.e., a building with indoor air concentrations below indoor air cleanup levels, but greater than outdoor concentrations). Tier 3A requires a response action of developing and implementing a long-term monitoring plan and implementing institutional controls (ICs). A second round of indoor air sampling in 2013 is recommended to confirm the findings of the 2012 sampling and response action tiering.

To mitigate potential vapor migration from the fire sprinkler test drain in the future, a new lockable expandable gasket plug will be placed in the fire sprinkler test drain to prevent tampering. Building ownership representatives will be provided with a key or combination for the lock, which tenants will not have access to without permission.

8. FOLLOW-UP ACTIONS

8.1 Groundwater Remedy

During the 2 March 2011 MEW All Parties meeting, EPA suggested that Renesas propose a trial shutdown of the SCGWR system. The objectives of the trial shutdown would be to assess plume stability in the absence of groundwater extraction and evaluate whether monitored natural attenuation (MNA) is a viable alternative remedy for the Site. Geosyntec submitted the Work Plan for Trial Shutdown of Groundwater Extraction System to EPA on behalf of Renesas on 12 September 2011 (Geosyntec, 2011b). In a follow up phone call on 21 November 2011, EPA informed Geosyntec that the trial shut down could not be approved until the VI Tiering Workplan (Haley & Aldrich, 2011) was approved and implemented at 501 Ellis Street.

8.2 Vapor Intrusion Remedy

On 16 August 2010, EPA issued its Record of Decision Amendment (ROD) for the Vapor Intrusion Pathway for the MEW Study Area 9 (EPA, 2010). EPA issued a Statement of Work (SOW) for the Remedial Design and Remedial Action to Address the Vapor Intrusion Pathway at MEW in September 2011. The SOW was included as an attachment to Amendment 91-4A to Unilateral Administrative Order 91-4 (106 Order), which requires implementation of additional response actions required by the VI remedy at MEW (EPA, 2011b). In an email dated 23 September 2011, Renesas notified EPA of its intent to comply with Amendment 91-4A.

On 29 September 2011, Haley & Aldrich submitted a Site-Wide Vapor Intrusion Sampling and Analysis Work Plan for Response Action Tiering (Tiering Work Plan) (Haley & Aldrich, 2011). EPA is currently reviewing the Work Plan, and approval is expected in 2012. Upon approval of this work plan, it is expected that implementation of the VI remedy will begin.

On 22 January 2013, EPA issued its comments on the Haley & Aldrich Tiering Work Plan. On 22 March 2013, Haley & Aldrich submitted a revised Site-Wide Vapor Intrusion Sampling and Analysis Work Plan for Response Action Tiering (Revised Tiering Work Plan) (Haley & Aldrich, 2013).

9. UPCOMING WORK IN 2013 AND PLANNED FUTURE ACTIVITIES

Upcoming work planned in 2013 is summarized in the table below.

January	<ul style="list-style-type: none"> • Routine SCGWR O&M
February	<ul style="list-style-type: none"> • Routine SCGWR O&M
March	<ul style="list-style-type: none"> • Routine SCGWR O&M • Quarterly SCGWR system effluent sampling • Quarterly sampling of NEC-1AE • Semi-annual groundwater level measurements
April	<ul style="list-style-type: none"> • Routine SCGWR O&M • Submit Annual Status Report to USEPA
May	<ul style="list-style-type: none"> • Routine SCGWR O&M
June	<ul style="list-style-type: none"> • Routine SCGWR O&M • Quarterly SCGWR system effluent sampling • Quarterly sampling of NEC-1AE
July	<ul style="list-style-type: none"> • Routine SCGWR O&M
August	<ul style="list-style-type: none"> • Routine SCGWR O&M • Conduct second round of ambient (indoor and outdoor) air sampling for response action tiering
September	<ul style="list-style-type: none"> • Routine SCGWR O&M • Semi-annual groundwater level measurements • Quarterly SCGWR system effluent sampling • Quarterly sampling of NEC-1AE
October	<ul style="list-style-type: none"> • Routine SCGWR O&M • Annual groundwater sampling
November	<ul style="list-style-type: none"> • Routine SCGWR O&M
December	<ul style="list-style-type: none"> • Routine SCGWR O&M • Quarterly SCGWR system effluent sampling • Quarterly sampling of NEC-1AE

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TABLES

Table 1
SCGWR System Performance Summary
501 Ellis Street, Mountain View, California

Discharge Period	Primary Adsorber Replaced	Discharge (days)	Total Discharge (gallons)	Average Rate (gpd)	Influent VOCs (µg/L)	Effluent VOCs (µg/L)	VOCs Removed (lbs)
Startup Oct 16, 1997		0	0	NA	NA	NA	0.00
Oct 16- Nov 13, 1997		27	109,340	4,050	152	0	0.14
Nov 14- Dec 17, 1997		34	153,010	4,500	202	0	0.26
Dec 18, 1997-Jan 15, 1998		29	152,110	5,245	134	0	0.17
Jan 16-Feb 19, 1998		35	194,870	5,568	138.1	0	0.22
Feb 20-Mar 19, 1998		28	149,510	5,340	144	1.4	0.18
Mar 20-Apr 22, 1998	3/23/1998	34	157,430	4,630	137.4	0	0.18
Apr 23-May 28, 1998		36	104,370	2,899	69.9	0	0.06
May 29-June 23, 1998		25	95,110	3,804	110	15.28	0.08
June 24-July 22, 1998	7/14/1998	29	145,370	5,013	83	0	0.10
July 23-Aug 20, 1998		29	118,290	4,107	60.8	0	0.06
Aug 21-Sep 23, 1998		34	129,190	3,791	196.6	1.1	0.21
Sep 24-Oct 28, 1998	10/8/1998	35	277,800	7,919	125.3	0	0.29
Oct 29-Nov 30, 1998		32	283,740	8,890	110	0	0.26
Dec 1-Dec 15, 1998	12/21/1998	15	120,120	7,959	146.2	0	0.15
Dec 16, 1998 - Jan 27, 1999	1/8/1999	42	326,540	7,777	168.7	0	0.46
Jan 28 - Feb 24, 1999		27	233,490	8,721	167.9	0	0.33
Feb 25 - Mar 24, 1999	3/5/1999	27	242,060	8,956	195	0	0.39
Mar 25 - Apr 28, 1999	4/12/1999	35	289,730	8,253	159.4	0	0.39
Apr 21 - May 26, 1999		30	237,970	7,953	202.1	0	0.40
May 27 - June 23, 1999	6/8/1999	26	235,210	9,040	182.4	0	0.36
June 23 - July 28, 1999		35	292,100	8,325	178.4	2.8	0.43
July 29 - Aug 25, 1999	8/9/1999	28	228,510	8,209	184	3.3	0.34
Aug 26 - Sep 22, 1999	9/16/1999	28	160,730	5,730	57.9	0	0.08
Sep 23 - Oct 27, 1999		36	224,710	6,242	184	3.7	0.34
Oct 28 - Nov 23, 1999	11/12/1999	26	210,000	8,024	180.4	0	0.32
Nov 24 - Dec 22, 1999		29	222,120	7,696	231.9	2.2	0.43
Dec 23, 1999 - Jan 26, 2000	12/23/1999	35	275,070	7,872	201.3	1.2	0.46
Jan 27 - Feb 23, 2000	2/7/2000	28	212,950	7,608	208.6	8.8	0.35
Feb 24 - Mar 22, 2000	3/11/2000 and 3/20/2000	27	202,020	7,493	210	0	0.35
Mar 23 - Apr 26, 2000	4/17/2000	35	260,110	7,432	186.5	0	0.40
Apr 27 - May 31, 2000	5/26/2000	35	252,920	7,226	201.5	0	0.43
June 1 - June 28, 2000	6/26/2000	28	190,590	6,807	170.1	0	0.27
June 29 - July 26, 2000		28	187,760	6,706	212.8	0	0.33
July 27 - Aug 23, 2000	9/21/2000	28	183,790	6,564	204.7	0	0.31
Aug 24 - Sep 27, 2000		35	229,820	6,566	194.9	0	0.37
Sep 28 - Oct 26, 2000	10/6/2000	29	175,300	6,325	138.5	0	0.20
Oct 27 - Nov 22, 2000	11/17/2000	27	169,590	6,014	213.0	202.7	0.01
Nov 23 - Dec 20, 2000		28	141,930	5,046	159.7	0	0.19
Dec 21, 2000 - Jan 24, 2001	1/19/2001	35	207,970	6,498	213.4	0	0.37
Jan 25 - Feb 28, 2001	2/19/2001	35	215,600	6,151	178.3	0	0.32
Mar 1 - Mar 28, 2001		28	176,650	6,314	159.4	0	0.23
Mar 29 - Apr 25, 2001	4/10/2001	28	155,570	5,504	181.5	0	0.24
Apr 26 - May 30, 2001	5/30/2001	35	192,810	5,382	164.4	0	0.26
May 31 - June 27, 2001		28	136,610	5,013	202	0	0.23
June 28 - July 25, 2001	7/2/2001 and 7/16/2001	28	173,810	6,439	226.9	0	0.33
July 26 - Aug 22, 2001	8/14/2001	28	187,720	6,697	237.4	0	0.37
Aug 23 - Sep 26, 2001	9/19/2001	35	232,980	6,668	217.4	0	0.42
Sep 27, 2001 - Oct 24, 2001		28	186,960	6,672	225.4	0	0.35
Oct 25, 2001 - Nov 28, 2001	10/29/2001	35	214,470	6,125	223.8	0	0.40
Nov 29, 2001 - Dec 19, 2001	12/11/2001	21	117,130	5,580	176.6	0	0.17
Dec 20, 2001 - Jan 16, 2002		28	163,130	5,549	210.7	0	0.29

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501 Ellis Street, Mountain View, California

Discharge Period	Primary Adsorber Replaced	Discharge (days)	Total Discharge (gallons)	Average Rate (gpd)	Influent VOCs (µg/L)	Effluent VOCs (µg/L)	VOCs Removed (lbs)
Jan 17, 2002 - Feb 25, 2002	2/19/2002	40	215,500	5,210	159.1	0	0.29
Feb 26, 2002 - Mar 20, 2002		23	136,160	4,643	238.4	0	0.27
Mar 21, 2002 - Apr 15, 2002	4/24/2002	26	94,470	4,544	140.5	0	0.11
Apr 16, 2002 - May 22, 2002		37	175,070	5,315	202.7	0	0.30
May 23, 2002 - June 19, 2002	6/4/2002	28	201,600	7,156	207.4	0	0.35
June 20, 2002 - July 10, 2002	7/29/2002	21	255,090	9,769	202	0	0.43
July 11, 2002 - Aug 21, 2002		42	193,600	6,518	141.8	0	0.23
Aug 22, 2002 - Sep 18, 2002	10/1/2002	27	143,530	4,870	201.2	0	0.24
Sep 19, 2002 - Oct 17, 2002		28	175,390	5,770	203.8	0	0.30
Oct 18, 2002 - Nov 20, 2002	11/25/2002	33	250,780	6,920	201	0	0.42
Nov 21, 2002 - Dec 18, 2002		27	184,290	7,009	137.2	0	0.21
Dec 19, 2002 - Jan 22, 2003	2/10/2003	35	220,900	6,330	189.3	0	0.35
Jan 23, 2003 - Feb 19, 2003		28	166,230	6,183	226.7	0	0.31
Feb 20, 2003 - Mar 19, 2003	4/1/2003	28	179,360	6,090	166.3	0	0.25
Mar 20, 2003 - Apr 28, 2003		39	207,300	5,504	146.7	0	0.25
Apr 29, 2003 - May 19, 2003	5/19/2003	21	131,770	6,315	172.7	0	0.19
May 20, 2003 - June 30, 2003	7/8/2003	41	227,380	5,732	160	0	0.30
July 1, 2003 - Aug 5, 2003		36	230,950	6,186	186	0	0.36
Aug 6, 2003 - Sep 3, 2003	9/9/2003	28	160,410	5,960	143.4	0	0.19
Sep 4, 2003 - Sep 30, 2003		26	166,270	6,162	195.7	0	0.27
Oct 1, 2003 - Nov 5, 2003	11/18/2003	35	238,150	6,608	186	0	0.37
Nov 6, 2003 - Dec 5, 2003		29	186,150	6,225	200.4	0	0.31
Dec 6, 2003 - Dec 31, 2003	1/12/2004	25	164,280	6,315	201.4	0	0.28
Jan 1, 2004 - Jan 28, 2004		27	168,040	6,235	199.1	0	0.28
Jan 29, 2004 - Feb 27, 2004	3/8/2004	29	183,810	6,169	167.1	0	0.26
Feb 28, 2004 - Mar 29, 2004		30	191,270	6,587	168.7	0	0.27
Mar. 30, 2004 - Apr. 22, 2004	4/19/2004	23	149,410	6,546	173.8	0	0.22
Apr. 23, 2004 - May 19, 2004		26	174,000	6,500	168.6	0	0.24
May 20, 2004 - June 21, 2004	6/1/2004	32	201,810	6,361	156.3	0	0.26
June 22, 2004 - July 21, 2004	8/2/2004	30	171,870	5,729	144.8	0	0.21
July 22, 2004 - Aug 17, 2004		27	145,690	5,396	167.5	0	0.20
Aug 18, 2004 - Sep 22, 2004	9/20/2004	36	162,960	4,527	173.3	0	0.24
Sep 23, 2004 - Oct 20, 2004	11/3/2004	28	145,290	5,189	131.9	0	0.16
Oct 21, 2004 - Nov 15, 2004		26	182,140	7,005	152.9	0	0.23
Nov 16, 2004 - Dec 22, 2004	12/13/2004	37	257,700	6,965	150.5	0	0.32
Dec 23, 2004 - Jan 19, 2005	1/24/2005	28	205,800	7,350	144.9	0	0.25
Jan 20, 2005 - Feb 15, 2005		27	185,870	6,884	147.9	0	0.23
Feb 16, 2005 - Mar 28, 2005	3/14/2005	41	283,820	6,922	149.1	0	0.35
Mar 29, 2005 - Apr 20, 2005	4/14/2005	23	153,380	6,669	150.6	0	0.19
Apr 21, 2005 - May 25, 2005	5/19/2005	35	255,110	7,289	144.2	0	0.31
May 26, 2005 - June 27, 2005		33	239,120	7,246	149.1	0	0.30
June 28, 2005 - July 25, 2005	8/17/2005	28	184,260	6,581	153.7	0	0.24
July 26, 2005 - Aug 15, 2005		21	152,620	7,268	139.2	0	0.18
Aug 16, 2005 - Oct 3, 2005	9/15/2005	49	378,200	7,718	163.5	0	0.52
Oct 4, 2005 - Oct 24, 2005	10/18/2005	21	160,050	7,621	149.8	0	0.20
Oct 25, 2005 - Nov 21, 2005		28	208,170	7,435	162.7	0	0.28
Nov 22, 2005 - Dec 30, 2005	11/18/2005	39	302,470	7,756	158.5	0	0.40

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Discharge Period	Primary Adsorber Replaced	Discharge (days)	Total Discharge (gallons)	Average Rate (gpd)	Influent VOCs (µg/L)	Effluent VOCs (µg/L)	VOCs Removed (lbs)
Dec 31, 2005 - Jan 30, 2006	1/5/2006	31	237,010	7,645	143.1	0	0.28
Jan 31, 2006 - Feb 27, 2006	2/6/2006	28	205,260	7,331	134.3	0	0.23
Feb 28, 2006 - Apr 3, 2006	3/13/2006	35	246,150	7,033	153.9	0	0.32
Apr 4, 2006 - Apr 24, 2006		21	150,040	7,145	145.6	0	0.18
Apr 25, 2006 - May 30, 2006		36	252,130	7,004	142.8	0	0.30
May 31, 2006 - June 30, 2006	6/5/2006	31	205,290	6,622	156	0	0.27
July 1, 2006 - Aug 7, 2006	7/12/2006	37	247,740	6,696	129.4	0	0.27
Aug 8, 2006 - Sep 5, 2006	8/31/2006	28	183,410	6,550	128.6	0	0.20
Sep 6, 2006 - Oct 2, 2006		26	182,180	7,007	158.6	0	0.24
Oct 3, 2006 - Nov 6, 2006		34	232,190	6,829	145.7	0	0.28
Nov 7, 2006 - Dec 4, 2006	11/9/2006	27	179,870	6,662	170.9	0	0.26
Dec 5, 2006 - Jan 2, 2007	12/14/2006	28	181,650	6,488	174.5	0	0.26
Jan 3, 2007 - Feb 1, 2007	2/1/2007	29	193,140	6,660	146	0	0.24
Feb 2, 2007 - Mar 5, 2007		31	200,650	6,473	135.2	0	0.23
Mar 6, 2007 - Apr 2, 2007		27	176,910	6,552	134.9	0	0.20
Apr 2, 2007 - May 7, 2007	4/24/2007	35	235,030	6,715	148	0	0.29
May 7, 2007 - June 4, 2007	5/23/2007	28	200,670	7,167	145.8	0	0.24
June 4, 2007 - June 29, 2007		25	180,590	7,224	134.5	0	0.20
June 29, 2007 - July 30, 2007	7/5/2007	32	230,300	7,197	127.6	0	0.25
July 30, 2007 - Sept 4, 2007		36	281,730	7,826	138	0	0.32
Sept 4, 2007 - Oct 1, 2007	9/13/2007	27	184,930	6,849	164.8	0	0.25
Oct 2, 2007 - Oct 29, 2007	10/9/2007	28	220,880	7,889	127.4	0	0.23
Oct 30, 2007 - Nov 26, 2007	11/19/2007	28	221,870	7,924	115.5	0	0.21
Nov 27, 2007 - Dec 31, 2007		35	282,300	8,066	145.8	0	0.34
Jan 1, 2008 - Jan 28, 2008	1/22/2008	28	204,940	7,319	156.9	0	0.27
Jan 29, 2008 - Feb 25, 2008	2/19/2008	28	214,970	7,678	141.8	0	0.25
Feb 26, 2008 - Mar 31, 2008		35	270,880	7,739	137.3	0	0.31
Apr 1, 2008 - Apr 28, 2008	4/3/2008	27	215,770	7,991	144.9	0	0.26
Apr 29, 2008 - May 27, 2008		28	233,230	8,330	148.9	0	0.29
May 28, 2008 - June 30, 2008	6/9/2008	33	215,260	6,523	135.8	0	0.24
July 1, 2008 - July 28, 2008		27	213,290	7,900	145.5	0	0.26
July 29, 2008 - Sep 2, 2008		35	271,770	7,765	157.2	0	0.36
Sep 3, 2008 - Sep 29, 2008		26	206,440	7,940	147.5	0	0.25
Sep 30, 2008 - Nov 3, 2008	10/9/2008	34	255,440	7,513	145.6	0	0.31
Nov 4, 2008 - Dec 1, 2008	11/17/2008	27	201,980	7,481	160.9	0	0.27
Dec 2, 2008 - Dec 29, 2008		27	199,220	7,379	146.5	0	0.24
Dec 30, 2008 - Feb 2, 2009	1/5/2009	35	262,400	7,497	144.5	0	0.32
Feb 3, 2009 - March 2, 2009	2/17/2009	28	208,760	7,456	132	0	0.23
March 3, 2009 - April 6, 2009		35	261,780	7,479	123.5	0	0.27
Apr 7, 2009 - May 4, 2009	4/8/2009	28	202,690	7,239	133.5	0	0.23
May 5, 2009 - Jun 1, 2009		28	172,870	6,174	133.4	0	0.19
Jun 2, 2009 - Jun 29, 2009		28	150,880	5,389	--*	98.6*	0.12
Jun 30, 2009 - Oct 5, 2009		98	538,960	5,500	--	114.2	0.51
Oct 6, 2009 - Dec 31, 2009		87	483,970	5,563	--	119.6	0.48
Jan 1, 2010 - March 17, 2010		76	412,870	5,433	--	119.0	0.41
March 18, 2010 - June 30, 2010		105	577,330	5,498	--	110.6	0.53
July 1, 2010 - Sep 14, 2010		76	412,240	5,424	--	129.3	0.44
Sep 14, 2010 - Dec 30, 2010		108	537,210	4,974	--	126.3	0.57
Dec 31, 2010 - Mar 14, 2011		73	367,480	5,034	--	124.3	0.38
Mar 15, 2011 - Jun 13, 2011		91	493,950	5,428	--	119.7	0.49
Jun 14, 2011 - Sep 12, 2011		91	531,530	5,841	--	106.7	0.47
Sep 13, 2011 - Dec 12, 2011		91	521,590	5,732	--	117.5	0.51
Dec 13, 2011 - Mar 14, 2012		92	515,530	5,604	--	104.7	0.45
Mar 15, 2012 - Jun 18, 2012		95	515,360	5,425	--	111.1	0.48
Jun 19, 2012 - Sep 10, 2012		83	466,110	5,616	--	123.2	0.48
Sep 11, 2012 - Dec 17, 2012		97	564,160	5,816	--	128.8	0.61
TOTALS		5,496	35,096,960	6,555	--	--	44.80

Notes:

*Beginning 13 May 2009, extracted groundwater is discharged without pre-treatment to the sanitary sewer under City of Mountain View Wastewater Discharge Permit Number 925. At this time, collection of influent samples was discontinued. Quarterly effluent samples are collected as required by the City of Mountain View Wastewater Discharge Permit. VOC recovery is estimated quarterly based on effluent concentration and total discharge.

Table 2
Summary of Extraction Well and Monitoring Well
Construction Details
501 Ellis Street, Mountain View, California

Well ID	Date Installed	Reference Elevation Top of PVC (feet)	Well Diameter ⁽¹⁾ (inches)	Screen Slot Size ⁽¹⁾ (inches)	Depth of Screened Interval (feet)	Aquifer Zone
<i>Extraction Wells</i>						
NEC27AE	May-97	43.73	6	0.02	12.7-27.7	A
NEC1AE ⁽²⁾	May-97	43.90	6	0.02	12.8-27.8	A
NEC28AE	Apr-02	42.70	6	0.02	9-29	A
<i>Monitoring Wells</i>						
NEC-1A	Sep-82	44.41	2	0.01	5-25	A
NEC-2A	Sep-82	45.02	2	0.01	5-25.5	A
NEC-7A	Oct-83	43.61	2	0.02	6-26.5	A
NEC-8A	Oct-83	42.24	2	0.02	5-25	A
NEC-9A	Oct-83	42.97	2	0.02	5-30	A
NEC-10A	Aug-84	39.72	2	0.02	10-30	A
NEC-11A	Aug-84	46.06	2	0.02	10-30	A
NEC-3A	Oct-85	43.76	4	0.02	24.95-28.72	A
NEC-12A	Oct-85	44.24	4	0.02	18.90-28.32	A
NEC-21A	Dec-88	44.06	4	0.02	26-28	A
NEC-22A	May-89	43.17	4	0.02	25-27	A
NEC-23A	May-89	43.77	4	0.02	26-28	A
NEC-24A	Dec-91	44.50	4	0.02	15.8-25.8	A
NEC-25A	Mar-96	42.30	4	0.02	17.19-27.19	A
NEC-26A	Mar-96	43.65	4	0.02	28.24-33.24	A
NEC-PZ-1A	Apr-99	42.47	2	0.02	11-16	A
NEC-PZ-2A	Apr-99	43.02	2	0.02	9-14	A
NEC-PZ-3A	Apr-99	43.16	2	0.02	8-13	A

Notes:

⁽¹⁾ Well diameters and screen slot sizes for wells constructed in the 1980's obtained from the table "Summary of NEC Monitoring Well Construction"

⁽²⁾ Ceased groundwater extraction from well NEC-1AE on 13 May 2009. Resuming extraction is contingent upon note maintaining sufficient capture with the remaining two extraction wells.

Table 3
Groundwater Levels - March 2012
501 Ellis Street, Mountain View, California

Well Number	Reference Elevation (top of PVC) (feet)	Depth to Water (top of PVC) (feet)	Groundwater Elevation (feet)	Aquifer Zone
NEC1A	44.47	8.60	35.87	A
NEC1AE	43.90	8.70	35.20	A
NEC3A	43.76	7.45	36.31	A
NEC7A	43.80	10.40	33.40	A
NEC8A	42.29	9.78	32.51	A
NEC9A	43.14	8.06	35.08	A
NEC10A	39.43	7.05	32.38	A
NEC11A	45.97	9.82	36.15	A
NEC12A	44.24	9.40	34.84	A
NEC20A	46.62	8.77	37.85	A
NEC21A	44.06	8.17	35.89	A
NEC22A	43.17	8.85	34.32	A
NEC23A	43.77	9.32	34.45	A
NEC24A	44.50	9.93	34.57	A
NEC25A	42.30	8.68	33.62	A
NEC26A	43.65	8.70	34.95	A
NEC27AE	43.73	15.20	28.53	A
NEC28AE	42.27	11.27	31.00	A
NEC-PZ-1A	42.47	9.92	32.55	A
NEC-PZ-2A	43.02	10.08	32.94	A
NEC-PZ-3A	43.16	9.95	33.21	A
29A ¹	46.08	11.65	34.43	A
32A ¹	45.06	11.51	33.55	A
119A ¹	45.95	12.00	33.95	A
153A ¹	45.72	11.35	34.37	A
158A ¹	48.09	10.29	37.80	A

¹ Regional Groundwater Remediation Program (RGRP) monitoring wells.

Table 4
Groundwater Levels - September 2012
501 Ellis Street, Mountain View, California

Well Number	Reference Elevation (top of PVC) (feet)	Depth to Water (top of PVC) (feet)	Groundwater Elevation (feet)	Aquifer Zone
NEC1A	44.47	9.15	35.32	A
NEC1AE	43.90	9.32	34.58	A
NEC3A	43.76	8.12	35.64	A
NEC7A	43.80	10.85	32.95	A
NEC8A	42.29	10.30	31.99	A
NEC9A	43.14	8.52	34.62	A
NEC10A	39.43	7.67	31.76	A
NEC11A	45.97	10.25	35.72	A
NEC12A	44.24	10.12	34.12	A
NEC20A	46.62	9.23	37.39	A
NEC21A	44.06	8.61	35.45	A
NEC22A	43.17	9.34	33.83	A
NEC23A	43.77	9.69	34.08	A
NEC24A	44.50	10.38	34.12	A
NEC25A	42.30	5.98	36.32	A
NEC26A	43.65	9.21	34.44	A
NEC27AE	43.73	16.50	27.23	A
NEC28AE	42.27	11.93	30.34	A
NEC-PZ-1A	42.47	10.41	32.06	A
NEC-PZ-2A	43.02	10.61	32.41	A
NEC-PZ-3A	43.16	10.00	33.16	A
29A ¹	46.08	11.89	34.19	A
32A ¹	45.06	11.75	33.31	A
119A ¹	45.95	12.17	33.78	A
153A ¹	45.72	11.61	34.11	A
158A ¹	48.09	10.6	37.49	A

¹ Regional Groundwater Remediation Program (RGRP) monitoring wells.

**Analytical Results - October 2012 Sampling Event
501 Ellis Street, Mountain View, California**

WELL ID	NEC1A	NEC7A	NEC8A	NEC9A	NEC10A	NEC11A	NEC12A	NEC20A	NEC21A	NEC22A	NEC23A	NEC24A	NEC25A	NEC26A	NEC27AE	NEC28AE	NECPZ-1A	NECPZ-2A	NECPZ-3A	NECPZ-3A (dup)	
DATE OF SAMPLE	10/09/12	10/09/12	10/09/12	10/09/12	10/09/12	10/09/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/09/12	10/09/12	10/09/12	10/09/12	10/09/12	10/09/12	
UNITS	µg/L																				
Bromodichloromethane	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.3	<1.0	<1.0	<1.7	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon Tetrachloride	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.3	<1.0	<1.0	<1.7	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloromethane	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.3	<1.0	<1.0	<1.7	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	1.8	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.6	<0.5	0.5	<0.8	<1.0	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	<0.5	0.7	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethene	37	15	11	43	7.1	3.5	4.9	<0.5	13	28	28	49	5.8	4.9	11	30	8.1	19	15	14	14
trans-1,2-Dichloroethene	5.9	<0.5	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.7	<0.6	2.7	1.8	<0.8	1.5	12	0.7	1.1	2.1	2.1	2.2
1,2-Dichloropropane	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Freon 113	<2.0	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.5	<2.0	<2.0	<3.3	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Methylene Chloride	<20	<20	<40	<20	<20	<20	<20	<20	<20	<20	<0.6	<20	<20	<33	<40	<20	<20	<20	<20	<20	<20
1,1,2,2-Tetrachloroethane	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	1.0	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	0.9	0.8
1,1,1-Trichloroethane	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	58	77	110	3.7	19	22	1.2	1.1	4.4	26	81	45	34	120	96	72	64	34	52	53	53
Trichlorofluoromethane	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.3	<1.0	<1.0	<1.7	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.5	<0.5	<0.8	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

Samples analyzed by EPA Method 8260 (8010 Analyte list) by Curtis & Tompkins, Ltd.

"<" indicates not detected above the reported detection limit

Table 6
Analytical Results - 2012 NEC1AE Quarterly Sampling
501 Ellis Street, Mountain View, California

WELL ID	NEC1AE	NEC1AE	NEC1AE	NEC1AE
DATE OF SAMPLE	03/14/12	06/11/12	09/10/12	12/17/12
UNITS	µg/L	µg/L	µg/L	µg/L
Bromodichloromethane	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	< 1.0	< 1.0	< 1.0	< 1.0
Carbon Tetrachloride	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	0.6	0.6	0.7	0.9
1,3-Dichlorobenzene	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethene	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	33	35	40	38
trans-1,2-Dichloroethene	5.7	5.3	7.0	5.7
1,2-Dichloropropane	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 0.5
Freon 113	< 2.0	< 2.0	< 2.0	< 2.0
Methylene Chloride	< 20	< 20	< 20	< 20
1,1,2,2-Tetrachloroethane	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	0.7	0.6	0.6	0.6
1,1,1-Trichloroethane	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethene	50	58	48	40
Trichlorofluoromethane	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	< 0.5	< 0.5	< 0.5	< 0.5

Notes:

Extraction from NEC-1AE discontinued on 15 May 2009 as part of SCGWR system optimization.

Samples analyzed by EPA Method 8260 (8010 Analyte list) by Curtis & Tompkins, Ltd.

"<" indicates not detected above the reported detection limit

Table 7
Ambient Air Analytical Results
501 Ellis Street, Mountain View, California

Location ID:		OA-01 ²	IA-01	IA-02	IA-03	IA-04	IA-05	IA-06
Lab Sample ID:	Indoor Air Cleanup	1208156AR 1-01A	1208156AR 1-02A	1208156AR 1-03A	1208156AR 1-04A	1208156AR 1-05A	1208156AR 1-06A	1208156AR 1-07A
Date Sampled:	Levels ¹ (µg/m ³)	8/2/2012	8/2/2012	8/2/2012	8/2/2012	8/2/2012	8/2/2012	8/2/2012
Units:		µg/m ³						
TO-15 Volatile Organic Compounds								
1,1-Dichloroethane	6	0.15 U	0.13 U	0.13 U	0.13 U	0.14 U	0.13 U	0.14 U
1,1-Dichloroethene	700	0.075 U	0.066 U	0.065 U	0.063 U	0.050 J	0.065 U	0.067 U
cis-1,2-Dichloroethene	210	0.028 J	0.026 J	0.012 J	0.12 U	0.020 J	0.020 J	0.130 U
Tetrachloroethene	2	0.11 J	0.074 J	0.15 J	0.17 J	0.14 J	0.17 J	0.26
trans-1,2-Dichloroethene	210	0.019 J	0.022 J	0.030 J	0.021 J	0.011 J	0.028 J	0.03 J
Trichloroethene	5	1.1	1.9	4.1	3.9	3.7	3.1	3.6
Vinyl Chloride	2	0.048 U	0.042 U	0.042 U	0.040 U	0.043 U	0.042 U	0.043 U

Notes:

1. Haley & Aldrich, Inc. 2011. Site-Wide Vapor Intrusion Sampling and Analysis Work Plan for Response Action Tiering Middlefield-Ellis-Whisman Superfund Area, Mountain View, California and Moffett Field: Table V - Indoor Air Cleanup Levels for MEW Chemicals of Potential Concern - Commercial. 29 September.

2. Outdoor air is compared to indoor air results, not to non-residential indoor air cleanup levels.

µg/m³ - micrograms per cubic meter

Bolded values represent compounds above laboratory reporting limit

U - undetected, associated value is the method reporting limit

J - Estimated value

**Table 8
Sub-Slab Soil Vapor Analytical Results
501 Ellis Street, Mountain View, California**

	Lab Sample ID	Date	Units	TO-15 Volatile Organic Compounds						
				1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
Screening Levels										
Sub-Slab Screening Levels ¹	-	-	(µg/m ³)	60	7,000	2,100	20	2,100	50	20
Sub-Slab Screening Levels ²	-	-	(µg/m ³)	120	14,000	4,200	40	4,200	100	40
Sub-Slab Samples										
SSP-01	1208156B-09A	8/3/2012	(µg/m ³)	2.9 U	2.9 U	2.9 U	4.9 U	2.9 U	5.1	1.8 U
SSP-01 (EPA)	1208013-01	8/3/2012	(µg/m ³)	8 U	8 U	8 U	10 U	8 U	5 C1, J	5 U
SSP-02 Uncorrected*	1208156B-10A	8/5/2012	(µg/m ³)	2.7 U	2.6 U	2.6 U	8.0	2.6 U	48	1.7 U
SSP-02 Corrected*	1208156B-10A	8/5/2012	(µg/m ³)	3.2 U	3.1 U	3.1 U	9.6	3.1 U	57.3	2.0 U
SSP-2 DUP Uncorrected*	1208156B-15A	8/5/2012	(µg/m ³)	2.9 U	2.8 U	2.8 U	10	2.8 U	55	1.8 U
SSP-2 DUP Corrected*	1208156B-15A	8/5/2012	(µg/m ³)	3.5 U	3.3 U	3.3 U	11.9	3.3 U	65.7	2.1 U
SSP-03	1208156B-11A	8/3/2012	(µg/m ³)	3.1 U	3 U	3 U	7.4	3 U	38	1.9 U
SSP-03 (EPA)	1208013-02	8/3/2012	(µg/m ³)	8 U	8 U	8 U	10	8 U	50	5 U
SSP-04	1208156B-12A	8/5/2012	(µg/m ³)	2.8 U	2.8 U	2.8 U	4.7 U	2.8 U	9.3	1.8 U
SSP-05 Uncorrected*	1208156B-13A	8/3/2012	(µg/m ³)	2.9 U	2.8 U	2.8 U	4.8 U	2.8 U	7.8	1.8 U
SSP-05 Corrected*	1208156B-13A	8/3/2012	(µg/m ³)	3.5 U	3.3 U	3.3 U	5.7 U	3.3 U	9.3	2.1 U
SSP-05 (EPA)	1208013-03	8/3/2012	(µg/m ³)	8 U	8 U	8 U	10 U	8 U	8 C1, J	5 U
SSP-06	1208156B-14A	8/3/2012	(µg/m ³)	3.9 U	3.8 U	3.8 U	270	3.8 U	1,900	2.5 U
SSP-06 (EPA)	1208013-04	8/3/2012	(µg/m ³)	8 U	8 U	8 U	300	8 U	1,800	5 U
Pathway Sample										
PATH-FDRAIN (EPA)**	1208013-05	8/3/2012	(µg/m ³)	8 U	8 U	30 U	10 U	30 U	300	5 U

Notes:
 1 - Based on Indoor Air Screening Levels, using an attenuation factor of 0.1 per EPA's Vapor Intrusion Screening Level Calculator User's Guide (March 2012).
 2 - Based on Indoor Air Screening Levels, using an attenuation factor of 0.05 per DTSC's Vapor Intrusion Guidance Document, Table 2, for the existing commercial building subslab scenario (October 2011).

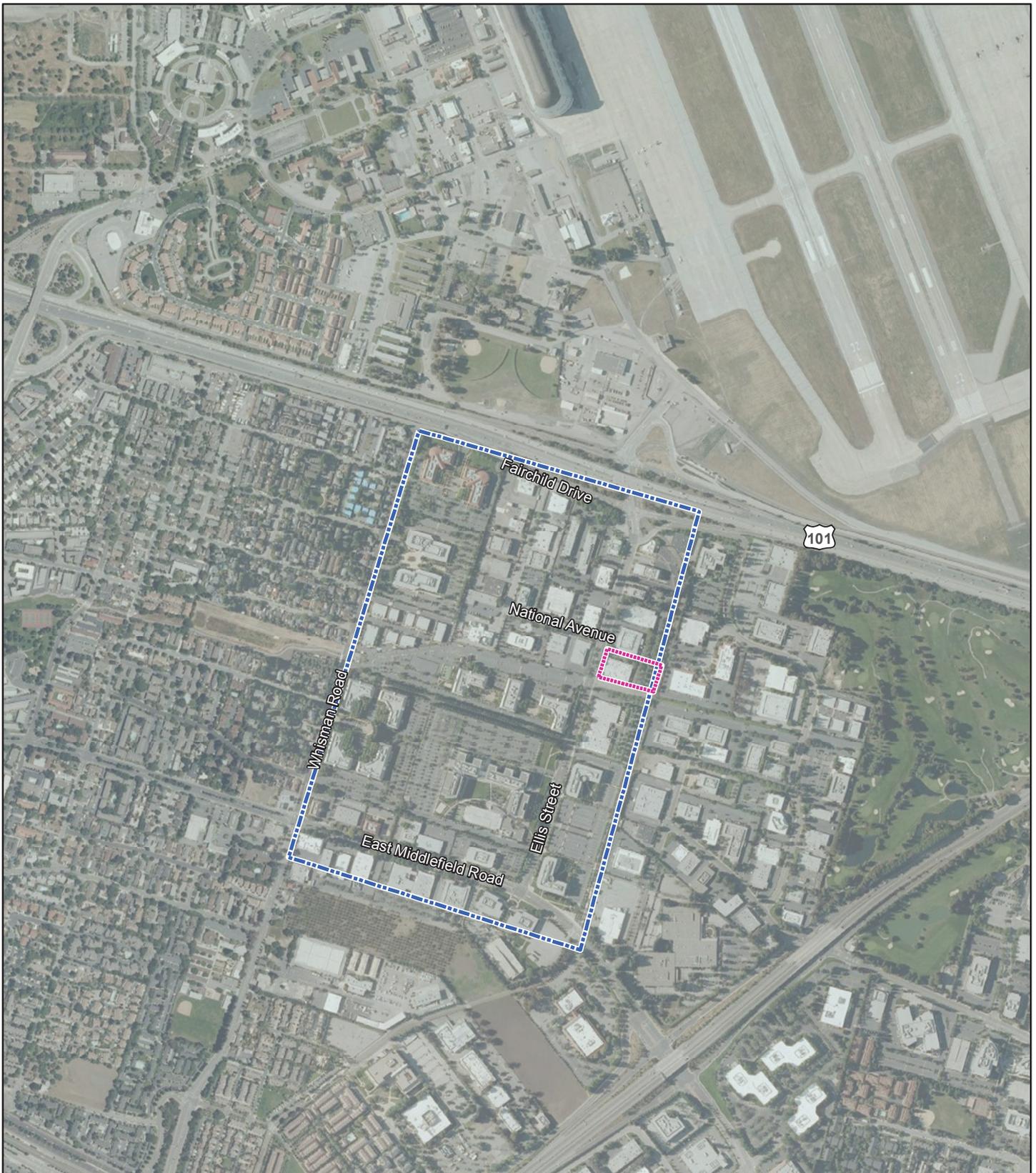
* analytical data have been corrected for influx of helium from shroud.
 **EPA lab report did not provide helium result, therefore this result is not corrected for influx of helium from the shroud.

Bolded values represent compounds above laboratory reporting limit
 µg/m³ - micrograms per cubic meter

U - undetected, associated value is the method reporting limit
 J - The reported result for this analyte should be considered an estimated value
 C1 - The reported concentration for this analyte is below the quantitation limit

SSP-01 (EPA), SSP-03 (EPA), SSP-05 (EPA), and SSP-06 (EPA) are co-located duplicate sub-slab sample analyzed at EPA Region 9 laboratory.
 PATH-FDRAIN (EPA) is a pathway sample collected at the fire drain in the Server Room and analyzed at EPA Region 9 laboratory. The drain plug may have been removed during sample collection.

FIGURES

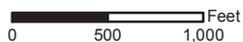


Legend

-  501 Ellis Street
-  MEW Study Area



NOTE:
 Boundaries are approximate.
 Aerial Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye,
 Getmapping, Aerogrid, IGN, IGP, and the GIS User
 Community



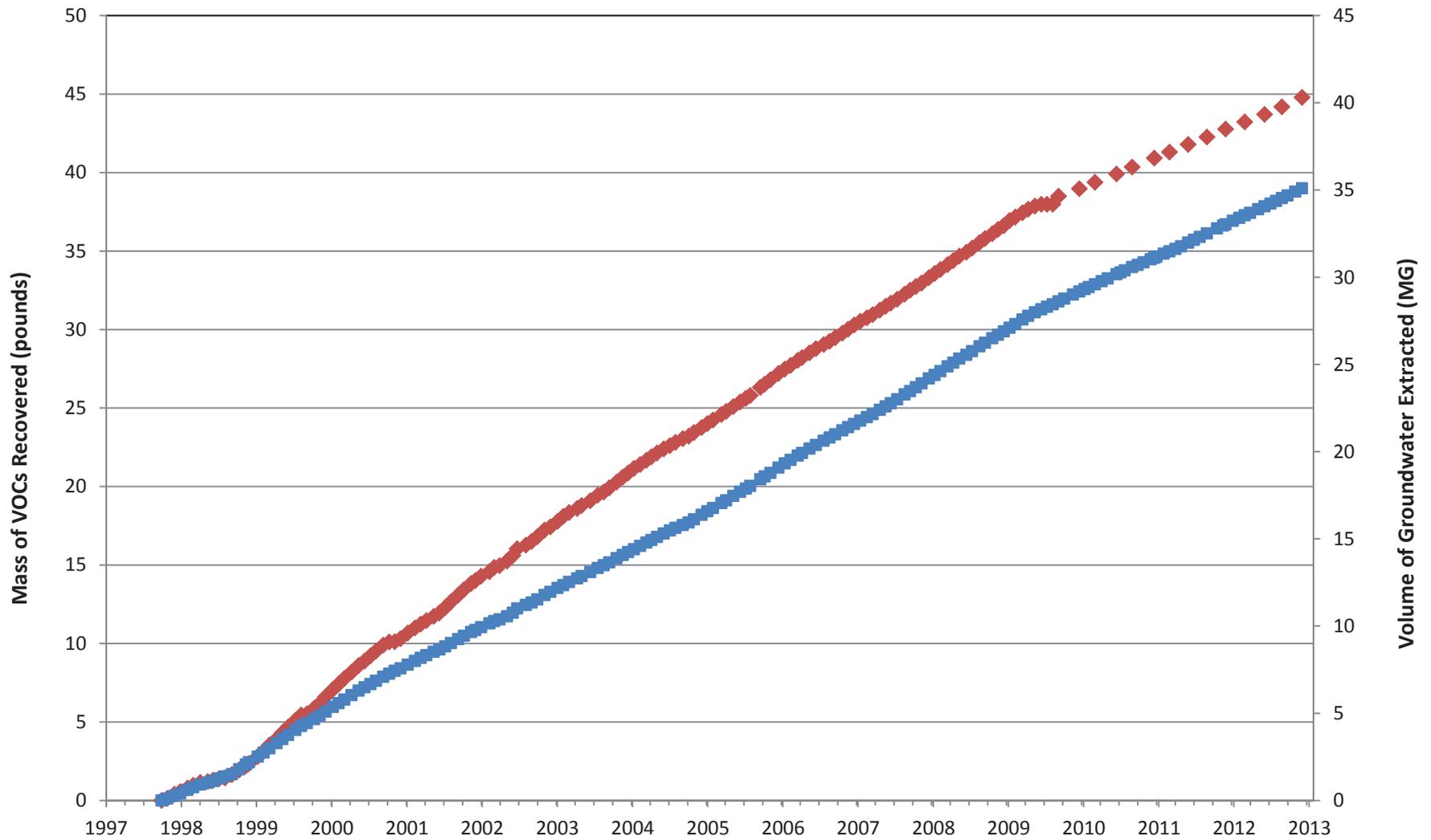
**Figure 1
 Site Location Map**

**501 Ellis Street
 Mountain View, California**

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April 2013





Legend

- ◆ VOC Mass Removed
- Volume of Groundwater Extracted

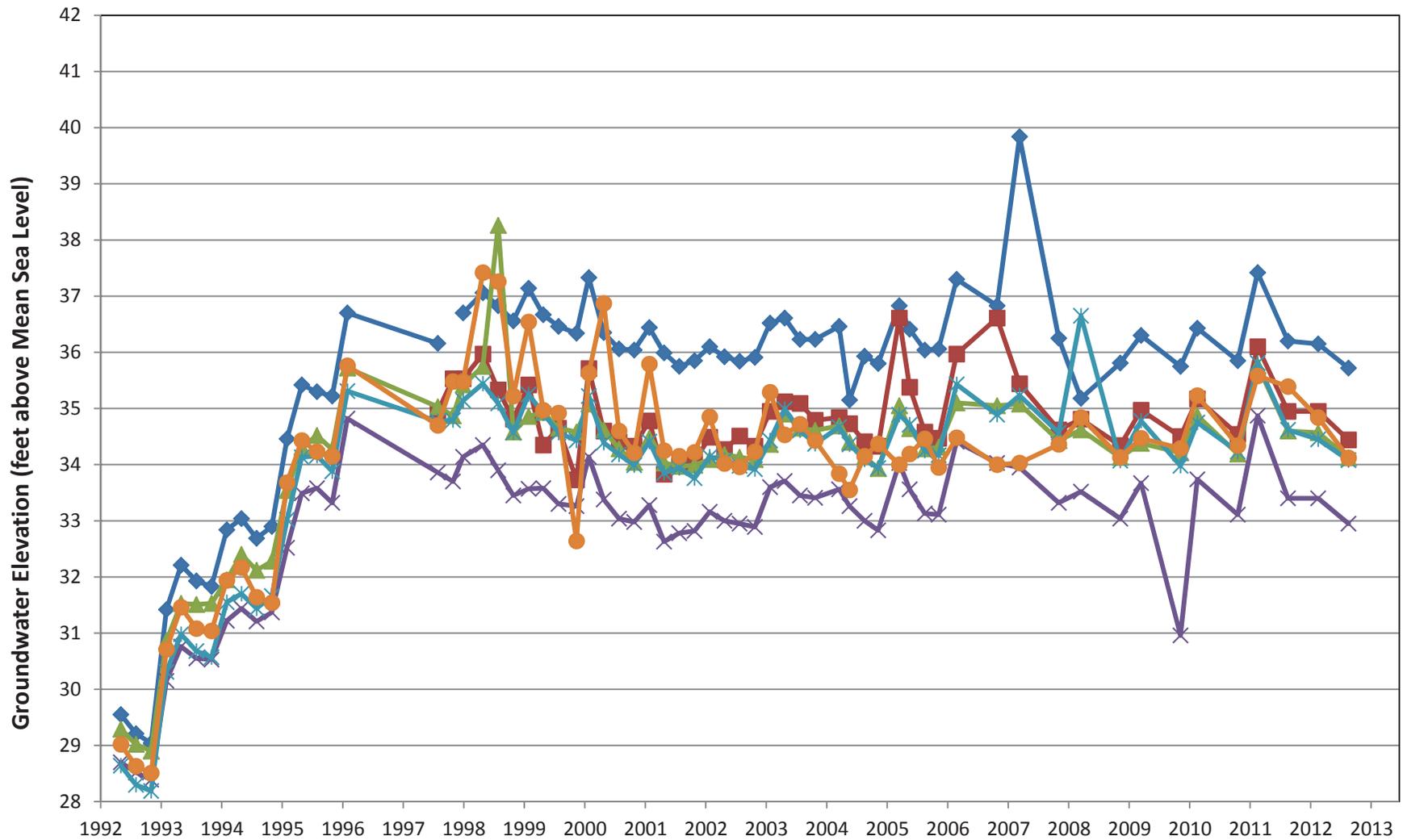
VOC = Volatile Organic Compounds
 MG = Million Gallons

Figure 2
Groundwater Extracted and Mass of VOCs Removed

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April 2013





Legend

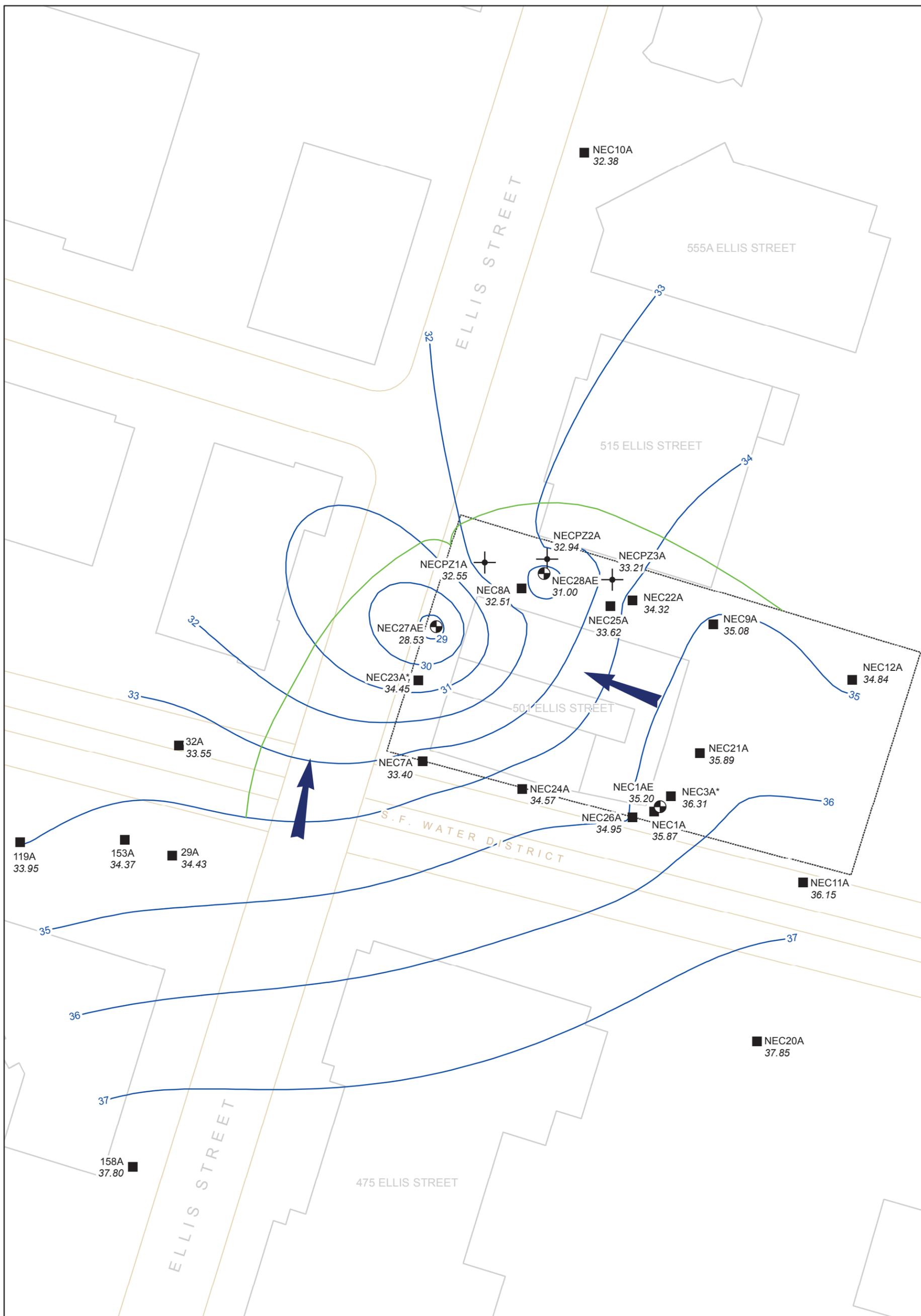
- ✕ NEC-7A ◆ NEC-11A
- NEC-12A ✖ NEC-23A
- ▲ NEC-24A ■ NEC-26A

Figure 3
Groundwater Elevations in Selected Monitoring Wells

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Legend

- Estimated Capture Zone
- Groundwater Elevation Contour (ft MSL)
- Extraction Well
- Monitoring Well
- Piezometer

- 501 Ellis Street Boundary
- Building
- Road
- Groundwater Flow Direction

Extraction Rates (gpm)
 NEC1AE - 0.00
 NEC27AE - 2.01
 NEC28AE - 1.90

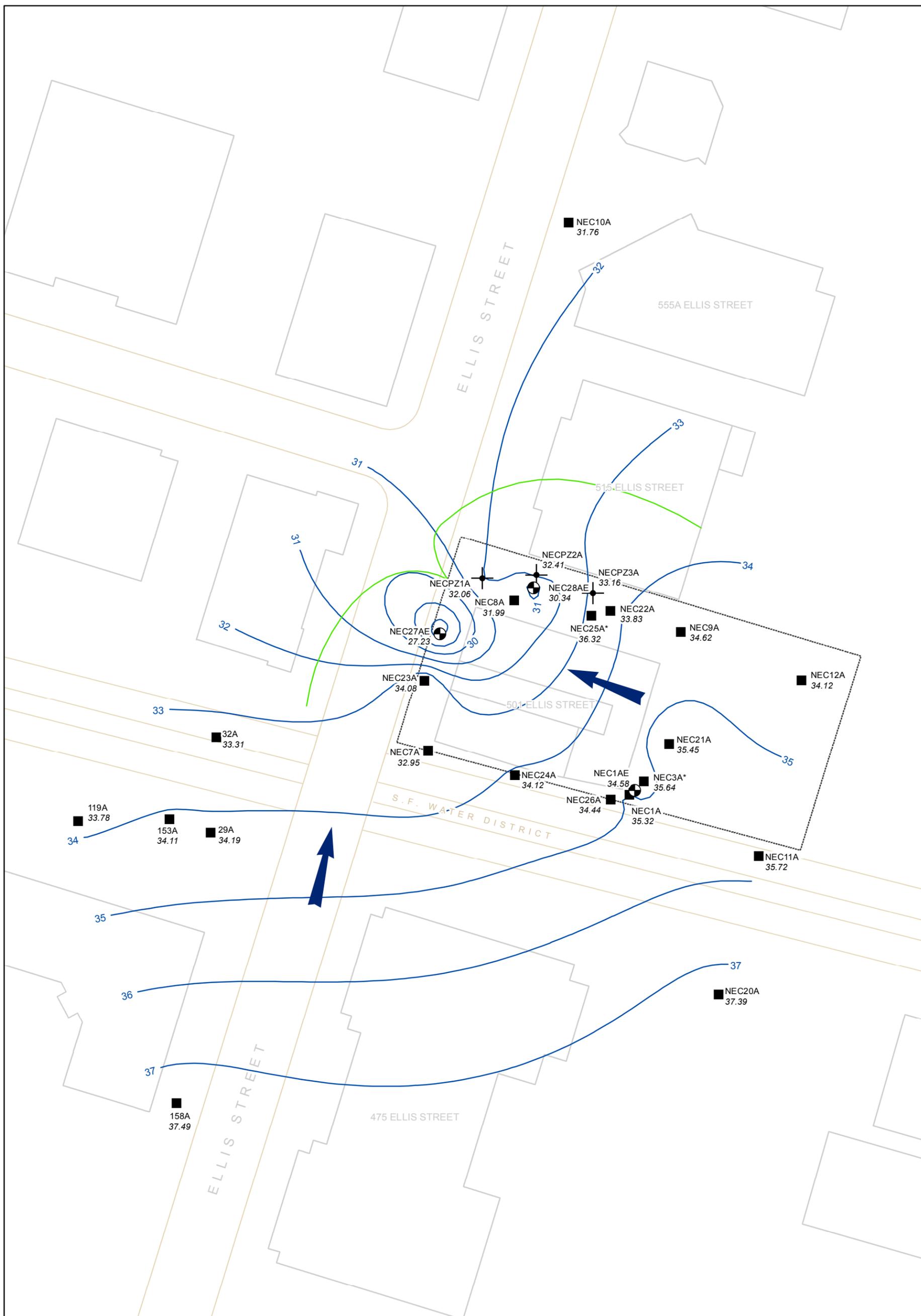


* Groundwater Measurement Not Used in Contouring.
 NM - Not Measured
 MSL - Mean Sea level



Figure 4
Groundwater Elevation Contour Map
and Capture Zone
First Quarter 2012
501 Ellis Street
Mountain View, California

Project WR0434A	April 2013	
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Legend

- Estimated Capture Zone
- Groundwater Elevation Contour (ft MSL)
- Extraction Well
- Monitoring Well
- Piezometer
- 501 Ellis Street Boundary
- Building
- Road
- Groundwater Flow Direction

Extraction Rates (gpm)
 NEC1AE - 0.00
 NEC27AE - 1.89
 NEC28AE - 1.92



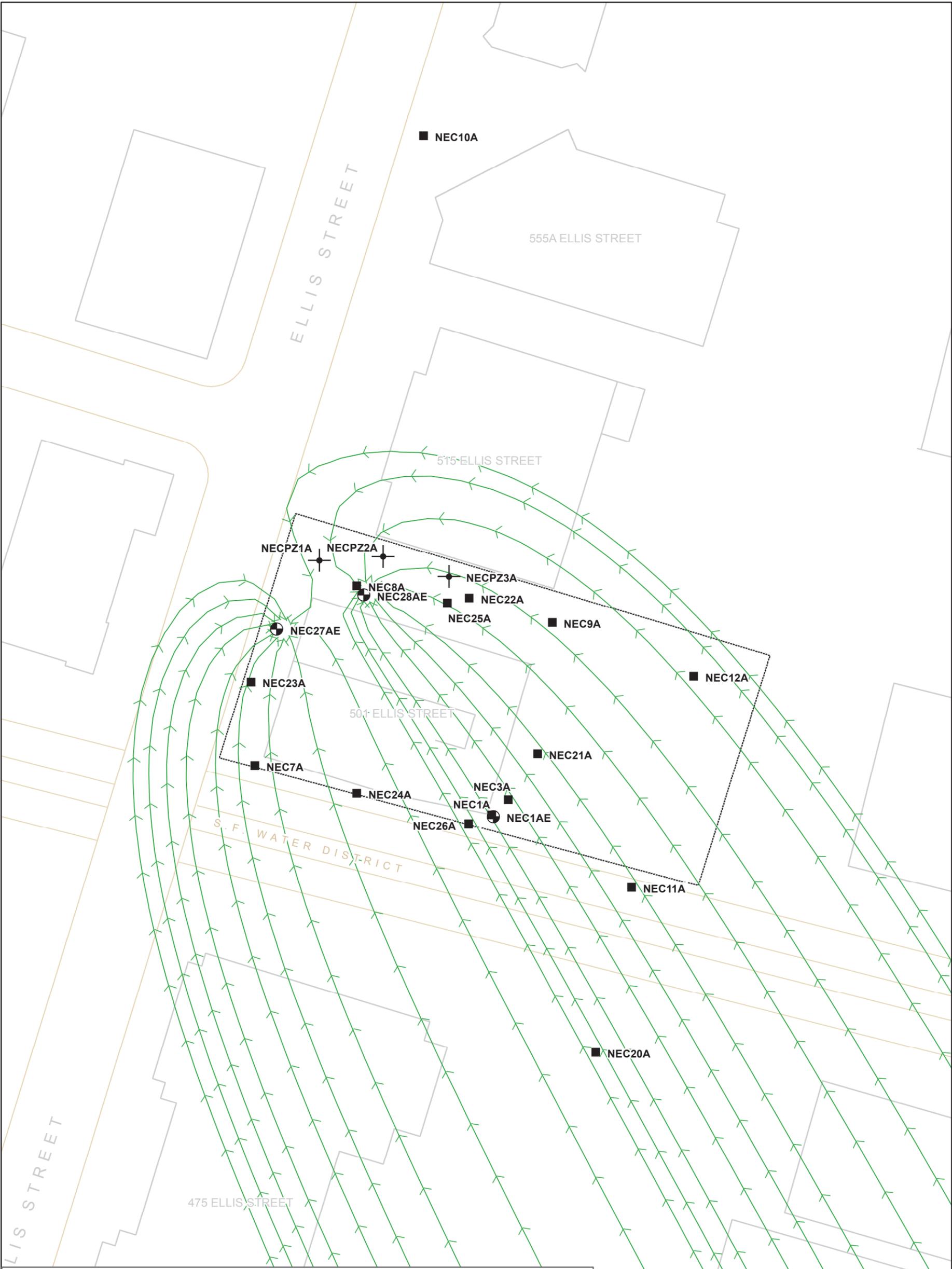
Figure 5
Groundwater Elevation Contour Map
and Capture Zone
Third Quarter 2012
501 Ellis Street
Mountain View, California

* Groundwater Measurement Not Used in Contouring.
 MSL - Mean Sea level

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Legend

- Partial Pathline Indicating Simulated Capture Zone
- Extraction Well
- Monitoring Well
- Piezometer
- 501 Ellis Street Boundary
- Building
- Road

Model Parameters:

Transmissivity: 91.3 ft ² /day	Extraction Rates (gpm)
Hydraulic Gradient 0.008 ft/ft, N28W	NEC1AE - 0.00
Recharge 1 in/yr	NEC27AE - 2.01
	NEC28AE - 1.90



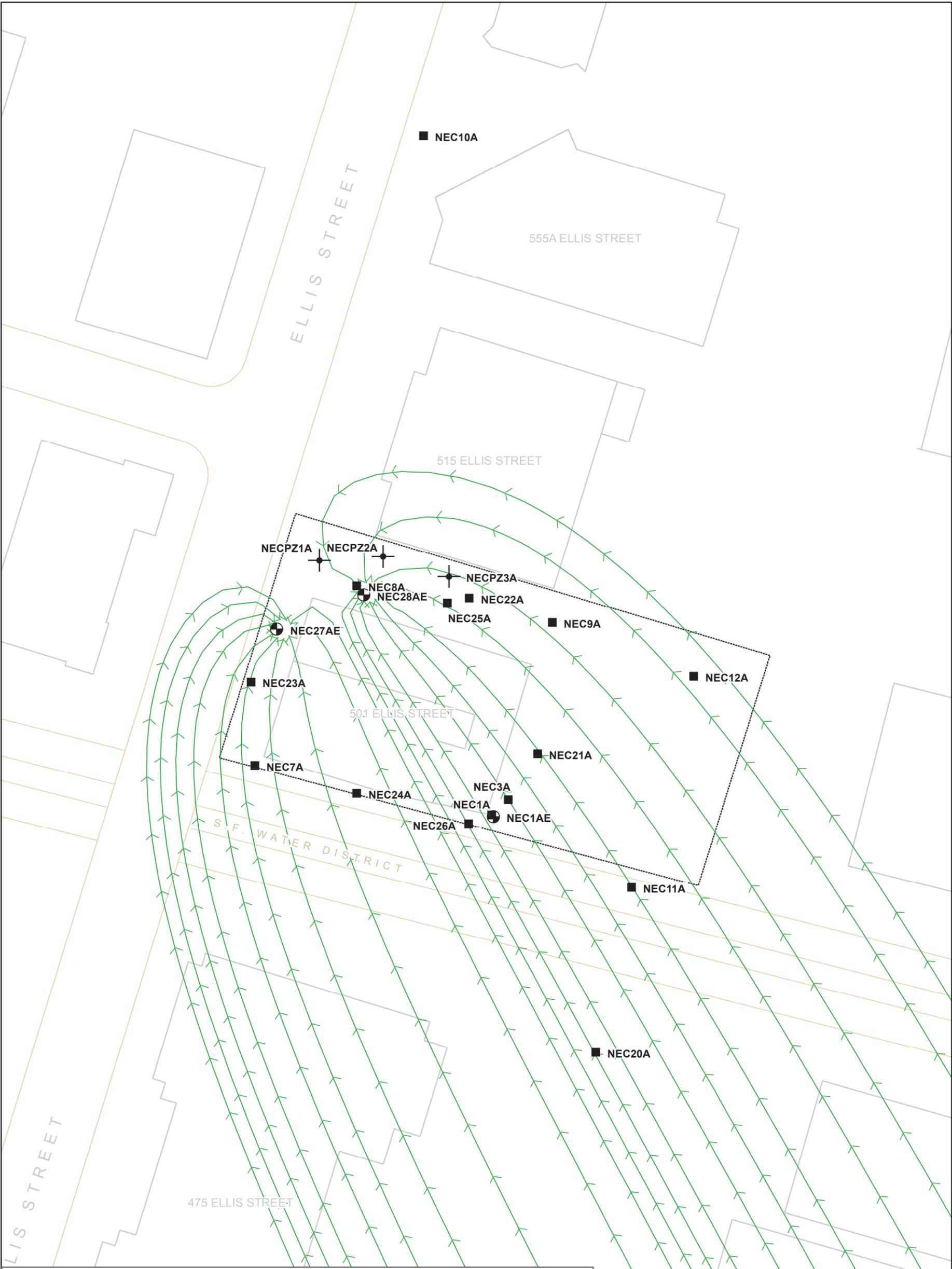
Figure 6
Simulated A Aquifer Capture Zone
First Quarter 2012

501 Ellis Street
Mountain View, California

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Legend

- Partial Pathline Indicating Simulated Capture Zone
- Extraction Well
- Monitoring Well
- Piezometer
- 501 Ellis Street Boundary
- Building
- Road

Model Parameters:

Transmissivity: 91.3 ft ² /day	Extraction Rates (gpm)
Hydraulic Gradient 0.008 ft/ft, N28W	NEC1AE - 0.00
Recharge 1 in/yr	NEC27AE - 1.82
	NEC28AE - 1.91



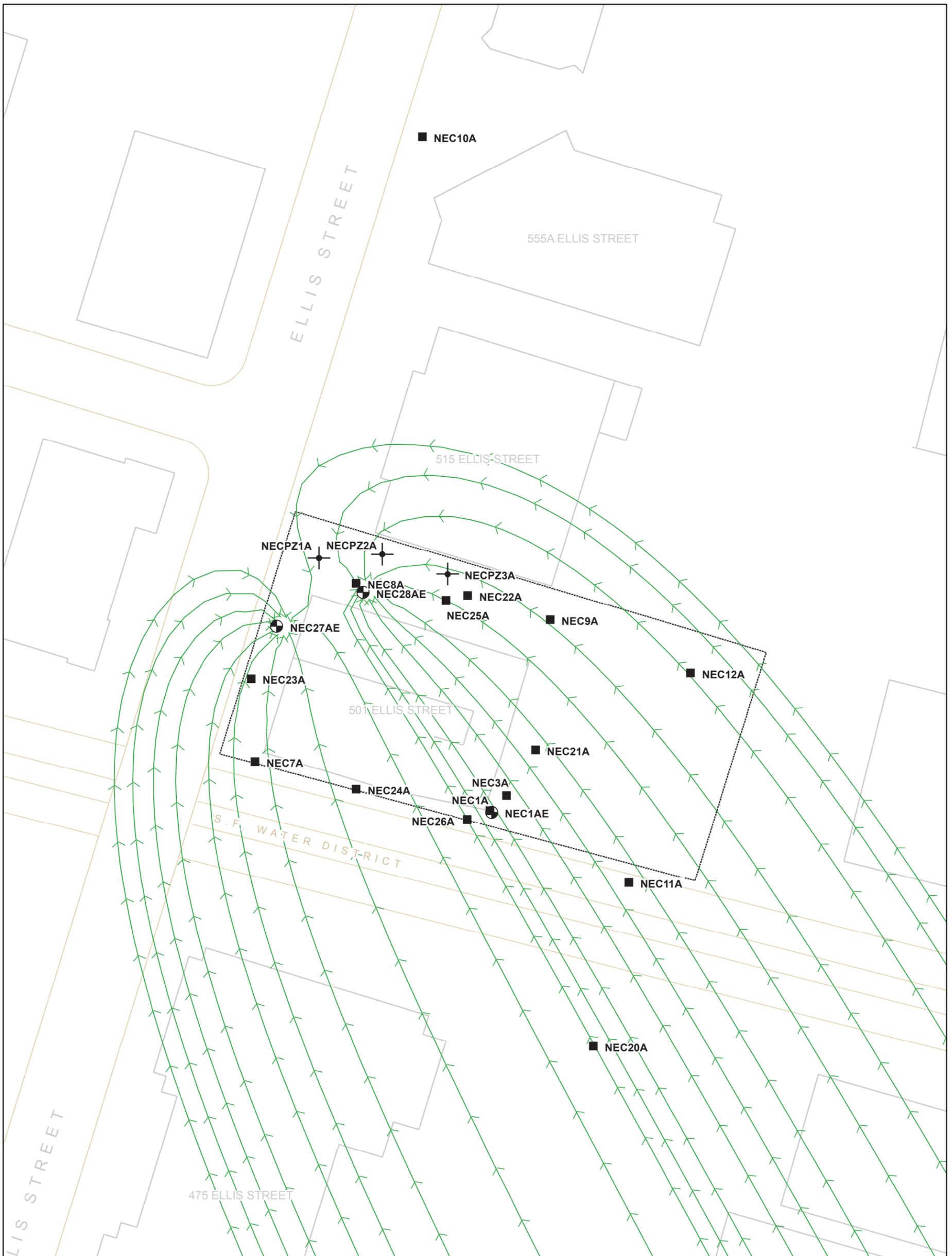
Figure 7
Simulated A Aquifer Capture Zone
Second Quarter 2012

501 Ellis Street
Mountain View, California

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Legend

- Partial Pathline Indicating Simulated Capture Zone
- Extraction Well
- Monitoring Well
- Piezometer
- 501 Ellis Street Boundary
- Building
- Road

Model Parameters:

Transmissivity: 91.3 ft ² /day	Extraction Rates (gpm)
Hydraulic Gradient 0.008 ft/ft, N28W	NEC1AE - 0.00
Recharge 1 in/yr	NEC27AE - 1.89
	NEC28AE - 1.92



Figure 8
Simulated A Aquifer Capture Zone
Third Quarter 2012

501 Ellis Street
Mountain View, California

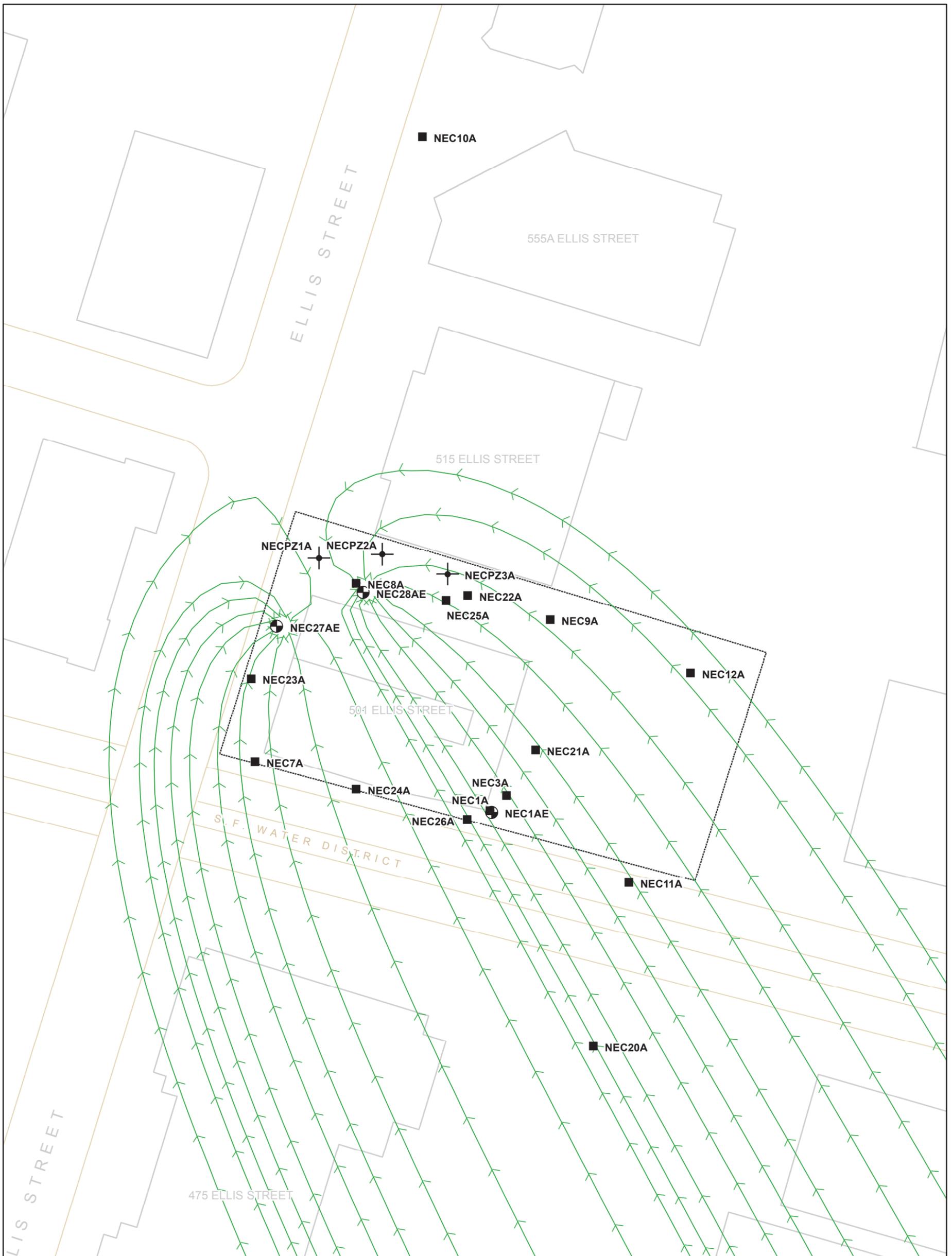
Note: Extraction from well NEC-1AE discontinued on 13 May 2009 as part of SGGWR system optimization



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Legend

- Partial Pathline Indicating Simulated Capture Zone
- Extraction Well
- Monitoring Well
- Piezometer
- 501 Ellis Street Boundary
- Building
- Road

Model Parameters:

Transmissivity: 91.3 ft ² /day	Extraction Rates (gpm)
Hydraulic Gradient 0.008 ft/ft, N28W	NEC1AE - 0.00
Recharge 1 in/yr	NEC27AE - 1.93
	NEC28AE - 1.94



Figure 9
Simulated A Aquifer Capture Zone
Fourth Quarter 2012

501 Ellis Street
Mountain View, California

Note: Extraction from well NEC-1AE discontinued on 13 May 2009 as part of SGWR system optimization

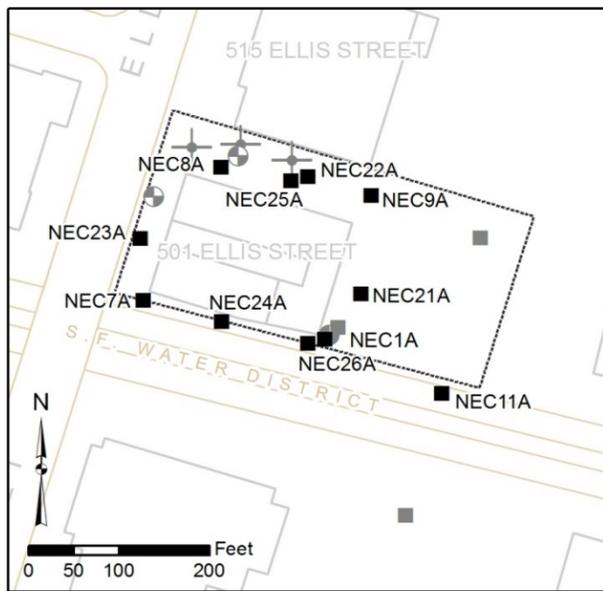
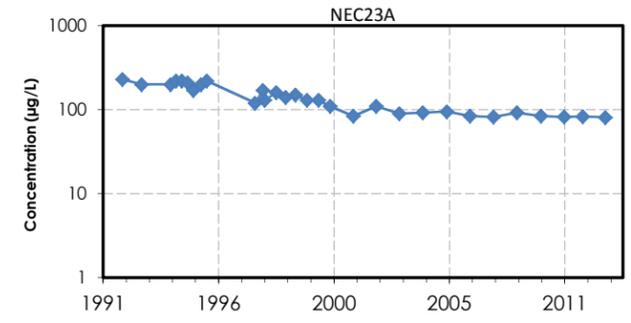
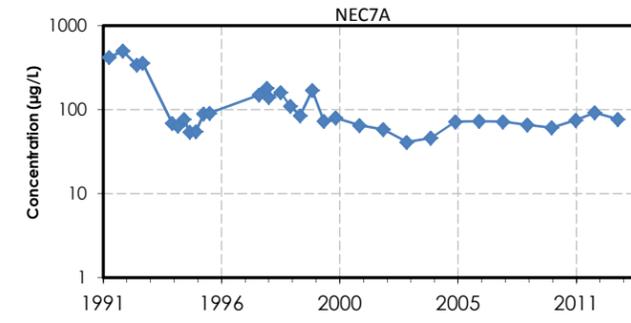
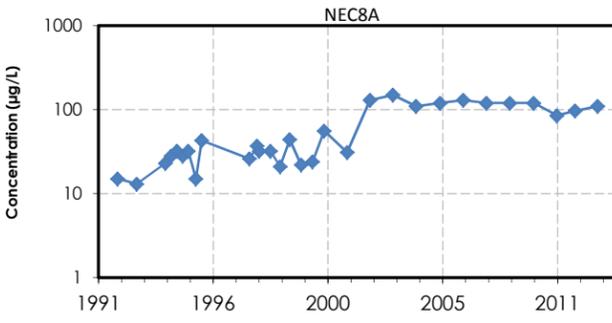
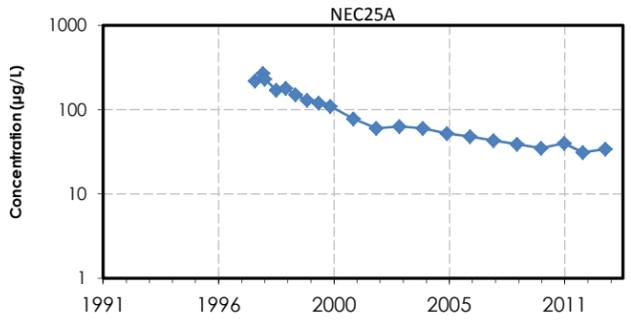
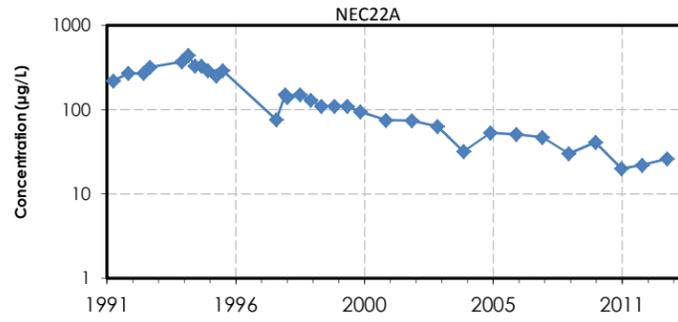
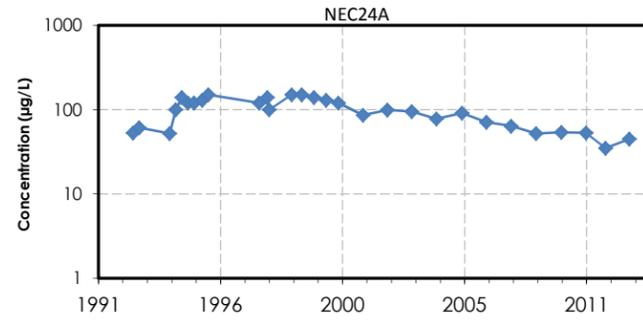
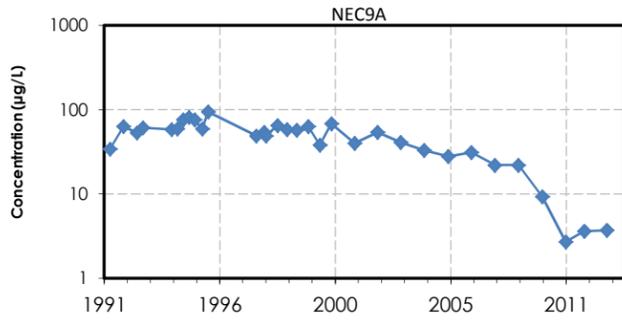
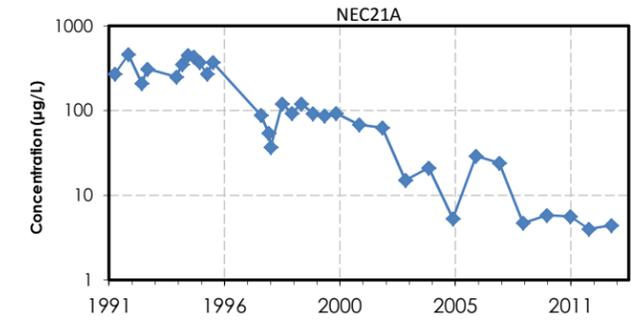
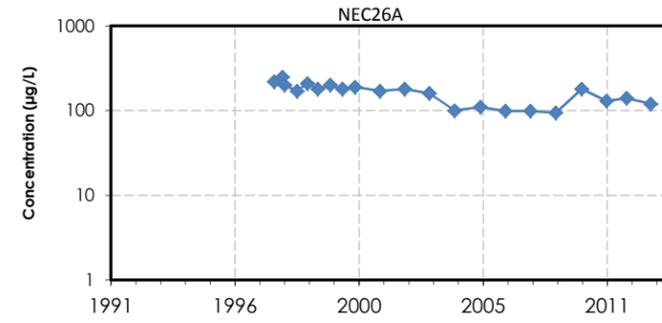
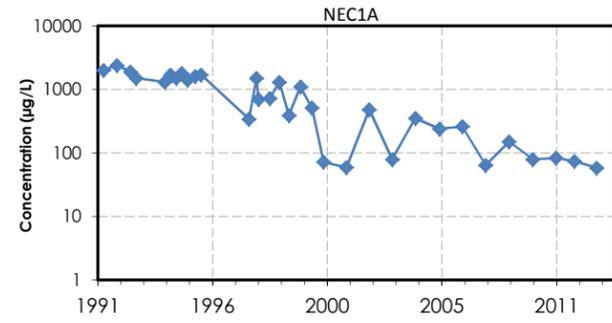
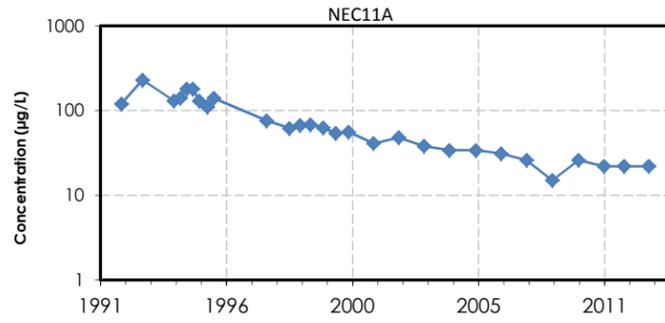


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P:\PRJ\2008\BEM\NEC\WR0434\EPAs Annual Reports\2012 Annual Figures\Figs_11_12_14 TCE Concentrations.xlsx\Figure 11



Legend

- Monitoring Well
- ⊕ Extraction Well
- + Piezometer
- ◆ TCE Concentration in µg/L

Notes:
TCE - Trichloroethene
µg/L - Microgram per Liter
Wells Shown in gray not included in figure

TCE Concentrations in Groundwater

501 Ellis Street
Mountain View, California

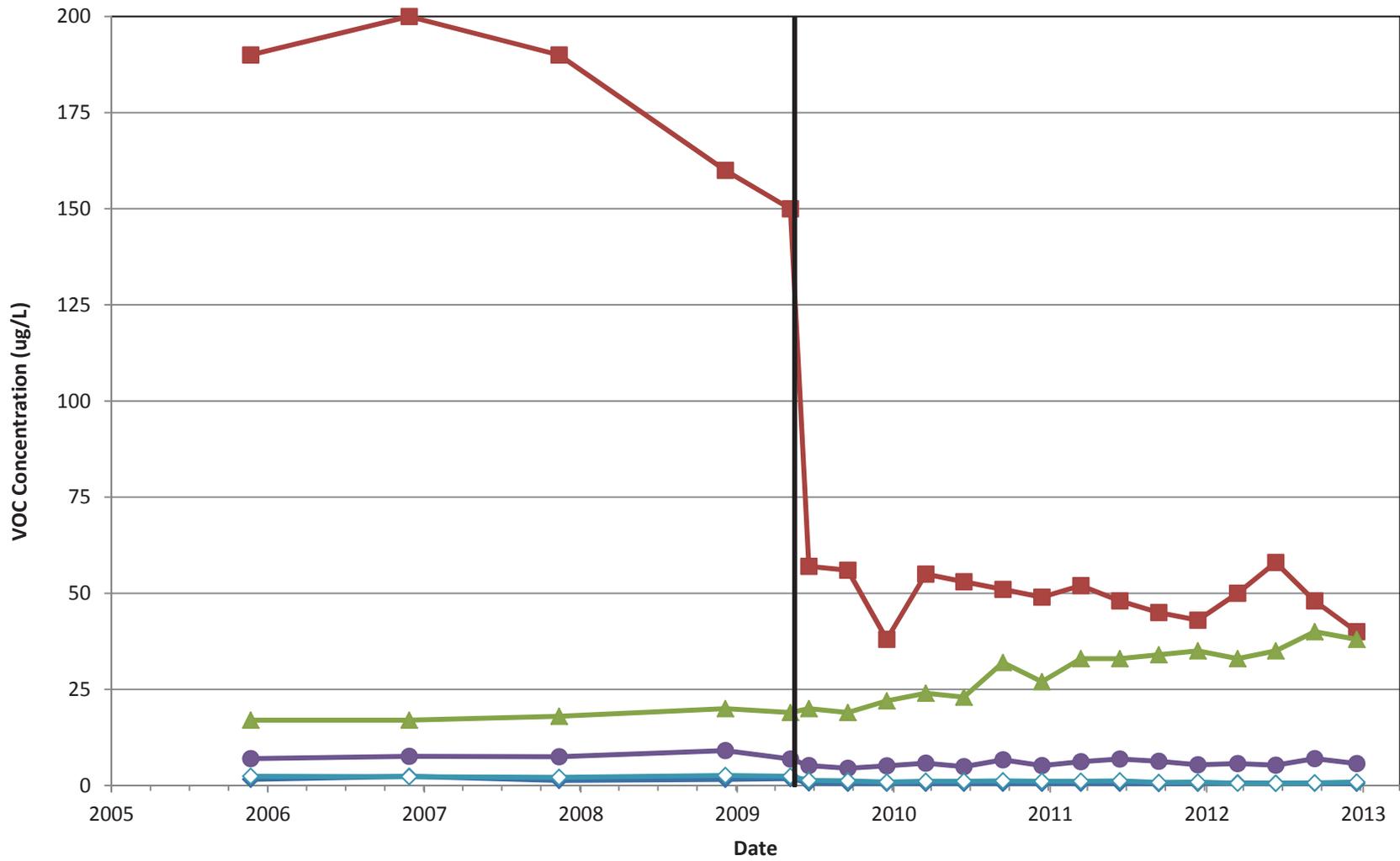


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Figure

11



Legend

- ◆ Tetrachloroethene
- *trans*-1,2-Dichloroethene
- Trichloroethene
- ◇ 1,2-Dichlorobenzene
- ▲ *cis*-1,2-Dichloroethene
- Extraction at NEC-1AE Discontinued

Notes:
 VOC = Volatile Organic Compounds
 µg/L = micrograms per liter

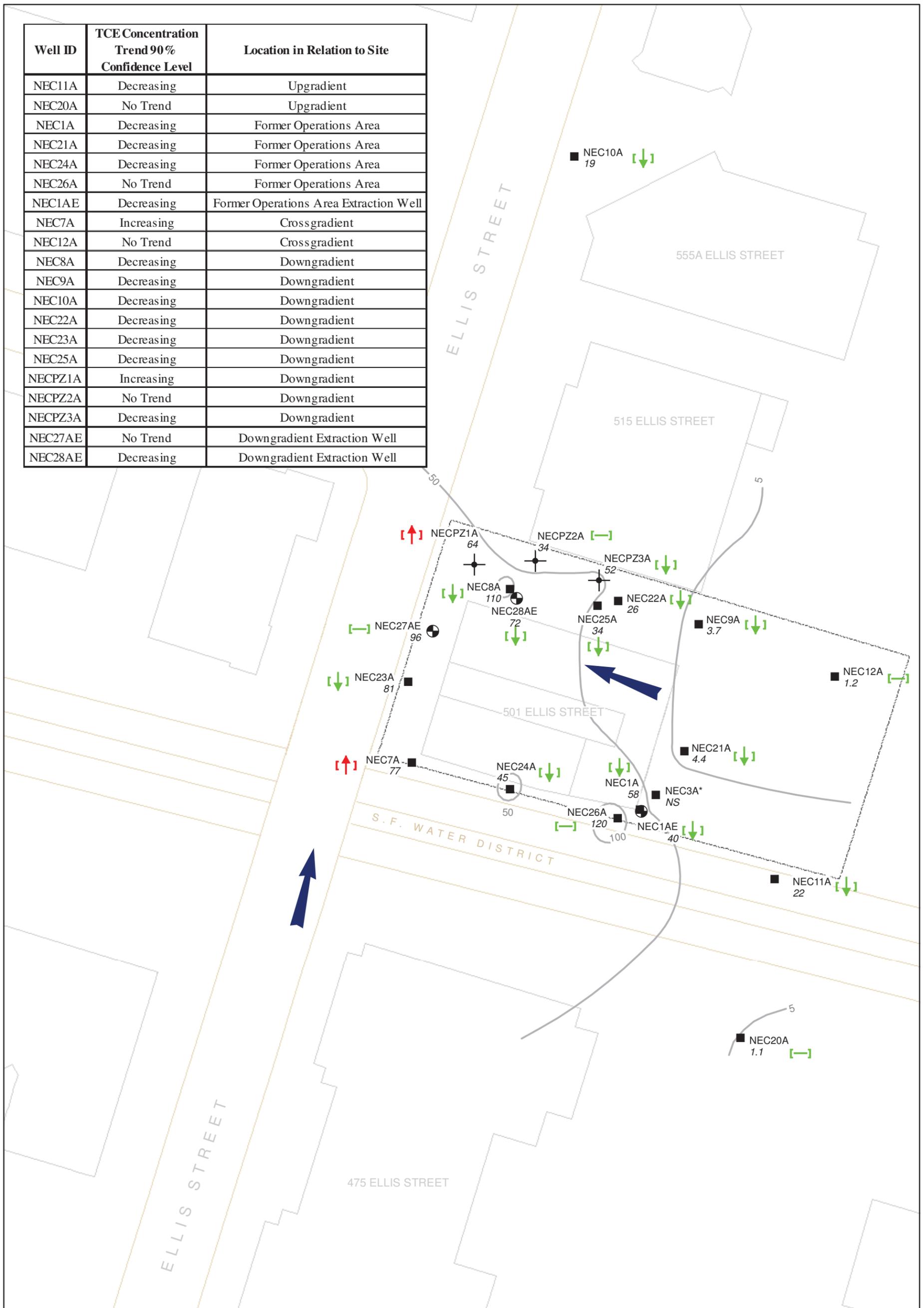
Figure 12
VOC Concentrations in Well NEC-1AE

Project WR0434A

April 2013



Well ID	TCE Concentration Trend 90% Confidence Level	Location in Relation to Site
NEC11A	Decreasing	Upgradient
NEC20A	No Trend	Upgradient
NEC1A	Decreasing	Former Operations Area
NEC21A	Decreasing	Former Operations Area
NEC24A	Decreasing	Former Operations Area
NEC26A	No Trend	Former Operations Area
NEC1AE	Decreasing	Former Operations Area Extraction Well
NEC7A	Increasing	Crossgradient
NEC12A	No Trend	Crossgradient
NEC8A	Decreasing	Downgradient
NEC9A	Decreasing	Downgradient
NEC10A	Decreasing	Downgradient
NEC22A	Decreasing	Downgradient
NEC23A	Decreasing	Downgradient
NEC25A	Decreasing	Downgradient
NECPZ1A	Increasing	Downgradient
NECPZ2A	No Trend	Downgradient
NECPZ3A	Decreasing	Downgradient
NEC27AE	No Trend	Downgradient Extraction Well
NEC28AE	Decreasing	Downgradient Extraction Well



Legend

- TCE Concentration Contour (ug/L)
- Extraction Well
- Monitoring Well
- Piezometer
- Groundwater Flow Direction
- Decreasing TCE Concentration Trend
- No Observed TCE Concentration Trend
- Increasing TCE Concentration Trend
- 501 Ellis Street Boundary
- Building
- Road
- TCE - Trichloroethene

ug/L = micrograms per liter
 * Asterisk indicates well not sampled for VOCs.



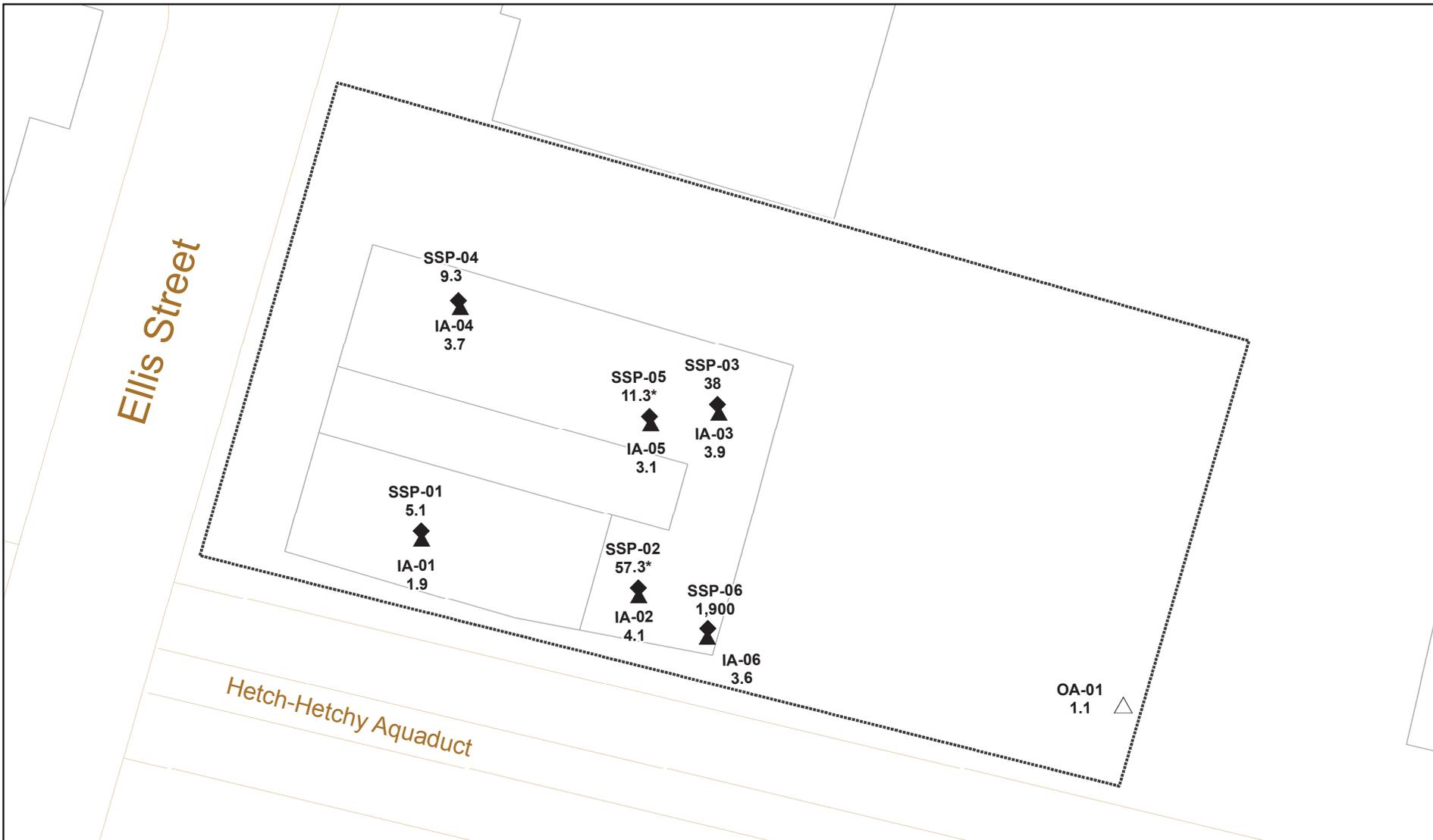
Figure 13
TCE Concentration Trend Analysis

501 Ellis Street
Mountain View, California

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Legend

- ▲ Indoor Air Sample
- △ Outdoor Air Sample
- ◆ Sub-Slab Sample
- 501 Ellis street Boundary
- Building
- Road

Screening Levels:

IA $5 \mu\text{g}/\text{m}^3$
SSP $1,770 \mu\text{g}/\text{m}^3$ (CHHSL)

Notes:

Sample locations are approximate.
 Units are micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)
 CHHSL - California Human Health Screening Levels
 IA - Indoor Air
 SSP - Sub Slab Probe
 OA - Outdoor Air
 *Analytical data have been corrected for influx of helium from shroud



Figure 14
Sub-Slab and Indoor Air
Trichloroethene Analytical Results

501 Ellis Street
Mountain View, California

Project WR0434A

April 2013

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APPENDIX A

2012 Annual Report Remedy Performance Checklist

2012 Annual Report Remedy Performance Checklist

I. GENERAL SITE INFORMATION			
Facility Name: 501 Ellis Street			
Facility Address, City, State: 501 Ellis Street, Mountain View, CA			
Checklist completion date: 15 April 2013		EPA Site ID: CAD980883268 (CERCLIS database)	
Site Lead: <input type="checkbox"/> Fund <input type="checkbox"/> PRP <input type="checkbox"/> State <input type="checkbox"/> State Enforcement <input type="checkbox"/> Federal Facility <input checked="" type="checkbox"/> Other, specify:			
U.S. EPA Region 9			
Site Remedy Components (Include Other Reference Documents for More Information, as appropriate): (See Section 4.2.5 "Final, Second Five-Year Report for MEW Superfund Study Area, Mountain View, California." U.S. EPA Region 9. September 2009.) Soil Remedy. Excavation and aeration. About 210 cubic yards of soil were excavated and aerated. 55 cubic yards were reused as backfill on site; the remaining 155 cubic yards were disposed offsite. Groundwater Remedy. Source control groundwater extraction system consisting of two A zone groundwater extraction wells, and discharge to City of Mountain View sanitary sewer under City of Mountain View Wastewater Discharge Permit ID Number 925.			
II. CONTACTS			
<u>List important personnel associated with the Site:</u> Name, title, phone number, e-mail address:			
	Name/Title	Phone	E-mail
PRP / Facility Representative	John Jeter, Esq. Senior Corporate Counsel Renesas Electronics America, Inc.	408.588.6185	john.jeter@renesas.com
PRP Contractor/ Consultant	Carolyn Kneibler, C.HG. Geosyntec Consultants Eric Suchomel, Ph.D., P.E. Geosyntec Consultants	510.836.3034	ckneibler@geosyntec.com esuchomel@geosyntec.com
O&M Contractor	Mr. Wes Hawthorne Locus Technologies, Inc.	650.960.1640	hawthornej@locustec.com
Other	N/A	N/A	N/A

2012 Annual Report Remedy Performance Checklist

III. O&M COSTS (OPTIONAL)

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

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

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

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): Not applicable

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:

2012 Annual Report Remedy Performance Checklist

VI. SIGNIFICANT SITE EVENTS

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

- Community Issues
- Vandalism
- Maintenance Issues
- Other:

Please elaborate on Significant Site Events:

VII. REDEVELOPMENT

Is redevelopment on property planned? Yes No

If yes, what is planned? Please describe below.

Is redevelopment plan complete Yes, date: _____; No ? Not Applicable

Redevelopment proposal in progress? Yes, elaborate below

No; If no, is a proposal anticipated? Yes No

Is the redevelopment proposal compatible with remedy performance? Yes No

Elaborate on redevelopment proposal and how it affects remedy performance:

2012 Annual Report Remedy Performance Checklist

VIII. GROUNDWATER REMEDY (reference isoconcentration, capture zone maps, trend analysis, and other documentation to support analysis)	
<p><u>Groundwater Quality Data</u></p> <p>List the types of data that are available:</p> <p>2012 Annual Progress Report submitted April 2013. Data includes groundwater levels, groundwater elevation contours and estimated capture zone analyses, groundwater sampling results (lab reports and summary tables) and TCE isoconcentration contour maps (annual only), concentration versus time graphs for all monitoring wells, and Mann-Kendall concentration trend analyses for TCE in all wells.</p> <p><input type="checkbox"/> Contaminant trend(s) tracked during O&M (i.e., temporal analysis of groundwater contaminant trends). <input checked="" type="checkbox"/> Groundwater data tracked with software for temporal analyses. <input type="checkbox"/> Reviewed MNA parameters to ensure health of substrate (e.g., DO, pH, temperature), if appropriate?</p>	<p>What is the source report?</p>
<p><u>Groundwater Pump & Treat Extraction Well and Treatment System Data</u></p> <p>List the types of data that are available:</p> <p>2012 Annual Progress Report submitted April 2013. Data includes extraction system operating parameters (e.g., flow rates and volumes) operations and maintenance records, and effluent monitoring results per City of Mountain View reporting requirements. In addition, the progress report documents site-related meetings, reports submitted, investigations performed, and historical and current groundwater elevation and sampling results.</p> <p><input checked="" type="checkbox"/> The system is functioning adequately. <input type="checkbox"/> The system has been shut down for significant periods of time in the past year. Please elaborate below.</p>	<p>What is the source report?</p>
<p><u>Discharge Data</u></p> <p>List the types of data that are available:</p> <p>Semi-annual Periodic Reports of Continued Compliance (PRCC) submitted to the City of Mountain View in January and July 2012. Data includes results of self-monitoring analysis (flow rates, volumes, effluent chemistry, etc.) conducted during the first half of 2012. Data for the second half of 2012 will be submitted in January of 2013.</p> <p><input checked="" type="checkbox"/> The system is in compliance with discharge permits.</p>	<p>What is the source report?</p>
<p><u>Slurry Wall Data</u> NA</p> <p>List the types of data that are available:</p> <p>Is slurry wall operating as designed? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If not, what is being done to correct the situation?</p>	<p>What is the source report?</p>
<p><u>Elaborate on technical data and/or other comments</u></p>	

2012 Annual Report Remedy Performance Checklist

IX. AIR MONITORING/VAPOR INTRUSION PATHWAY EVALUATION (Include in Annual Progress Report and reference document)
<p>Walk-throughs/Surveys: A walk-through was conducted in July 2012, and potential preferential pathways (floor cracks and penetrations) were sealed (Geosyntec, 2012c).</p>
<p>Air testing/monitoring conducted: Indoor and outdoor air and soil vapor testing was conducted at the Site in August 2012. Indoor air sampling conducted with HVAC off.</p>
<p>Summary of Results:</p> <ul style="list-style-type: none"> • Indoor and outdoor air results were compared to site-specific Indoor Air Cleanup Levels (IACLs). IACLs were not exceeded at any location. • For sub-slab samples, tetrachloroethene concentrations exceeded the sub-slab screening levels at location SSP-06, and trichloroethene concentrations at SSP-02 slightly exceeded the EPA-based screening level (attenuation factor of 0.1), but did not exceed the DTSC-based screening level (attenuation factor of 0.05). No additional volatile organic compounds were detected above screening levels at sample locations. <p>Problems Encountered: Problems were not encountered</p> <p>Recommendations/Next Steps:</p> <p>Results from this sampling event categorize the building at 501 Ellis Street as Tier 3A at the present time (i.e., a building with indoor air concentrations below indoor air cleanup levels, but greater than outdoor concentrations). Tier 3A requires a response action of developing and implementing a long-term monitoring plan and implementing institutional controls (ICs). A second round of indoor air sampling is planned for 2013 to confirm the results.</p>
<p>Schedule:</p>
X. REMEDY PERFORMANCE ASSESSMENT
<p>A. Groundwater Remedies</p>
<p>What are the remedial goals for groundwater? <input checked="" type="checkbox"/> Plume containment (prevent plume migration); <input checked="" type="checkbox"/> Plume restoration (attain ROD-specific cleanup levels in aquifer); <input type="checkbox"/> Other goals, please explain:</p> <p>See Source Control discussion, Section C., below.</p> <p>Have you done a trend analysis? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No; If Yes, what does it show?</p> <p>(Is it inconclusive due to inadequate data? Are the concentrations increasing or decreasing?) Explain and provide source document reference.</p> <p>Figure 12 of the 2012 Annual Report indicates decreasing TCE concentrations in most NEC monitoring wells.</p>
<p>If plume containment is a remedial goal, check all that apply:</p> <p><input checked="" type="checkbox"/> Plume migration is under control (explain basis below)</p> <p><input type="checkbox"/> Plume migration is not under control (explain basis below)</p> <p><input type="checkbox"/> Insufficient data to determine plume stability (explain below)</p> <p>(Include attachments that substantiate your answers, e.g., reference plume, trend analysis, and capture zone maps in source document)</p>
<p>Elaborate on basis for determining that plume containment goal is being met or not being met:</p> <p>Capture zone analysis indicates plume is contained (Figures 4 through 9 in the 2012 Annual Report).</p>
<p>If plume restoration is a cleanup objective, check all that apply:</p>

2012 Annual Report Remedy Performance Checklist

<input checked="" type="checkbox"/> Progress is being made toward reaching cleanup levels (explain basis below) <input type="checkbox"/> Progress is not being made toward reaching cleanup levels (explain basis below) <input type="checkbox"/> Insufficient data to determine progress toward restoration goal (explain below)
Elaborate on basis for determining progress or lack of progress toward restoration goal: TCE concentrations within the plume are decreasing (Figure 10 in the 2012 Annual Report)
B. Vertical Migration
Have you done an assessment of vertical gradients? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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) Vertical gradients were assessed in 1995. The vertical gradients were assessed between the A and B1 units, B1 and B2 units, and B2 and B3 units. Gradients in 16 of 17 well pairs were upward. Gradient in the deeper B2-B3 well pair was downward.
C. Source Control Remedies
What are the remedial goals for source control? Containment by pumping. Elaborate on basis for determining progress or lack of progress toward these goals: On-site capture is achieved through two extraction wells and concentration trends are decreasing.
XI. PROJECTIONS
<u>Administrative Issues</u> Dates of next monitoring and sampling events for next annual reporting period: 2013 Annual Monitoring will be scheduled by the MEW parties.
A. Groundwater Remedies - Projections for the upcoming year and long-term (Check all that apply)
<u>Remedy Projections for the upcoming year (2013)</u> <input checked="" type="checkbox"/> No significant changes projected. <input type="checkbox"/> Groundwater remedy will be converted to monitored natural attenuation. Target date: <input type="checkbox"/> Groundwater Pump & Treat will be shut down. Target date: <input type="checkbox"/> Groundwater cleanup standards to be modified. Target date: <input type="checkbox"/> PRP will request remedy modification. Target date of request: <input type="checkbox"/> Change in the number of monitoring wells. <input type="checkbox"/> Increasing or <input type="checkbox"/> decreasing? Target date: <input type="checkbox"/> Change in the number and/or types of analytes being analyzed. <input type="checkbox"/> Increasing or <input type="checkbox"/> decreasing? Target date: <input type="checkbox"/> Change in groundwater extraction system. Expansion or minimization (i.e., number of extraction wells and/or pumping rate)? Target date: <input type="checkbox"/> Modification on groundwater treatment? Elaborate below. Target date: <input type="checkbox"/> Change in discharge location. Target date: <input type="checkbox"/> Other modification(s) anticipated: _____ Elaborate below. Target date:
Elaborate on Remedy Projections:
<u>Remedy Projections for the long-term</u> (Check all that apply) <input checked="" type="checkbox"/> No significant changes projected. <input type="checkbox"/> Groundwater remedy will be converted to monitored natural attenuation. Target date: <input type="checkbox"/> Groundwater Pump & Treat will be shut down. Target date: <input type="checkbox"/> Groundwater cleanup standards to be modified. Target date:

2012 Annual Report Remedy Performance Checklist

<input type="checkbox"/> PRP will request remedy modification. Target date of request: <input type="checkbox"/> Change in the number of monitoring wells. <input type="checkbox"/> Increasing or <input type="checkbox"/> decreasing? Target date: <input type="checkbox"/> Change in the number and/or types of analytes being analyzed. <input type="checkbox"/> Increasing or <input type="checkbox"/> decreasing? Target date: <input type="checkbox"/> Change in groundwater extraction system. Expansion or minimization (i.e., number of extraction wells and/or pumping rate)? Target date: <input type="checkbox"/> Modification on groundwater treatment? Elaborate below. Target date: <input type="checkbox"/> Change in discharge location. Target date: <input type="checkbox"/> Other modification(s) anticipated: _____ Elaborate below. Target date:
Elaborate on Remedy Projections: Projected long-term remedy projections are the same as the projections for 2013.
B. Projections – Slurry Walls (Check all that apply) – N/A
<u>Remedy Projections for the upcoming year</u> <input type="checkbox"/> No significant changes projected. <input type="checkbox"/> PRP will request remedy modification. Target date of request: <input type="checkbox"/> Change in the number of monitoring wells. <input type="checkbox"/> Increasing or <input type="checkbox"/> decreasing? Target date: <input type="checkbox"/> Other modification(s) anticipated: _____ Elaborate below. Target date:
Elaborate on Remedy Projections:
<u>Remedy Projections for the long-term</u> <input type="checkbox"/> No significant changes projected. <input type="checkbox"/> PRP will request remedy modification. Target date of request: <input type="checkbox"/> Change in the number of monitoring wells. <input type="checkbox"/> Increasing or <input type="checkbox"/> decreasing? Target date: <input type="checkbox"/> Other modification(s) anticipated: _____ Elaborate below. Target date:
Elaborate on Remedy Projections:
<u>C. Projections – Other Remedial Options Being Reviewed to Enhance Cleanup</u> Progress implementing recommendations from last report or Five-Year Review Has optimization study been implemented or scheduled? <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No; If Yes, please elaborate. Modifications to the SCGWR system to allow discharge to the City of Mountain View sanitary sewer were completed in May 2009 and discharge to the sanitary sewer was started. Extraction well NEC-01AE was shut down, and the target flow rates at extraction wells NEC-27AE and NEC-28AE were set to nominal values of 2.0 gpm.
XII. ADMINISTRATIVE ISSUES Check all that apply:

2012 Annual Report Remedy Performance Checklist

- Explanation of Significant Differences in progress ROD Amendment in progress
- Site in operational and functional ("shake down") period;
- Notice of Intent to Delete in progress Partial site deletion in progress TI Waivers
- Other administrative issues:

Date of Next EPA Five-Year Review: **September 30, 2014**

XII. RECOMMENDATIONS

APPENDIX B

Capture Zone Calculations

CALCULATIONS FOR CAPTURE ZONE ANALYSIS

The 2012 capture zone analysis was conducted using two methodologies: the Javandel and Tsang (1987)¹ methodology and a site-specific numerical model. Both methodologies require the same input parameters to estimate the capture zones of the groundwater extraction wells. The input parameters used in the numerical model were evaluated during the fourth quarter of 2004 and reflect the current understanding of the Site conditions. Other than average quarterly pumping rates by extraction wells, input parameters were unchanged in 2012.

Pumping Rate

The average quarterly pumping rates during 2012 for the two operating extraction wells at 501 Ellis Street are summarized below:

Quarter	Well	Avg Monthly Flow (gpm)			Avg Quarterly Flow Q (gpm)	Avg Quarterly Flow Q (ft ³ /day)
1	27AE	2.17	1.97	1.88	2.01	386
	28AE	1.90	1.90	1.89	1.90	365
2	27AE	1.81	1.82	1.82	1.82	350
	28AE	1.92	1.90	1.9	1.91	367
3	27AE	1.80	1.96	1.92	1.89	364
	28AE	1.90	1.93	1.92	1.92	369
4	27AE	1.95	1.94	1.91	1.93	372
	28AE	1.91	1.97	1.95	1.94	374

Hydraulic Gradient

The hydraulic gradient, i , was calculated using the November 2004 regional potentiometric surface in the area of the Site from Weiss Associates (2004)².

$$i = \frac{5 \text{ ft}}{625 \text{ ft}} = 0.008 \frac{\text{ft}}{\text{ft}}$$

¹ Javandel and Tsang (1987). Groundwater, Vol. 25, No. 5. pp. 616-625.

² Weiss Associates, 2004. *Draft A/A1 Aquifer (South) Groundwater Elevations and Estimated Capture Zones*. 18 November.

Aquifer Thickness

A uniform aquifer thickness, B, was assumed to be **20 feet**. The interlayered heterogeneities of the A aquifer, observed in the stratigraphy of the pumping wells, are treated as a single unit extending from 10 to 30 feet below ground surface.

Transmissivity

Transmissivity (T) was measured by Bechtel (1996)³ in monitoring wells NEC-12A, NEC-25A, and NEC-22A.

Well	T (ft ² /day)	Average T in each well
NEC-12A	6.5	6.5
NEC-22A	35 21	28
NEC-25A	188 291	239.5
	Average T	91.3 ft²/day

Hydraulic Conductivity

The hydraulic conductivity, K, is calculated from the transmissivity, T, and aquifer thickness as follows:

$$K = \frac{T}{B} = \frac{91.3 \text{ ft}^2 / \text{day}}{20 \text{ ft}} = \boxed{4.6 \text{ ft/day}}$$

The input parameters for the Javandel and Tsang methodology, as well as the numerical model are summarized as follows:

Quarter	Parameter	Well NEC-27AE	Well NEC-28AE
1	Q (ft ³ /day)	386	365
2	Q (ft ³ /day)	350	367
3	Q (ft ³ /day)	364	369
4	Q (ft ³ /day)	372	374
All	B (ft)	20	20
All	K (ft/day)	4.6	4.6
All	i (ft/ft)	0.008	0.008

³ Bechtel, 1996. *Source Control Groundwater Remediation Final Design, 501 Ellis Street, Mountain View*. 26 August.

Javandel and Tsang Methodology

From Javandel and Tsang, the stagnation point for each extraction well was calculated using Equation 1

$$X_s = \frac{Q}{2\pi BKi} \quad (1)$$

where: X_s = distance to stagnation point (ft)
 Q = pumping rate (ft³/day)
 B = saturated aquifer thickness (ft)
 K = hydraulic conductivity (ft/day)
 i = hydraulic gradient (ft/ft)

Using Equation 1 and the above input parameters, the distance to stagnation points for the two wells, in feet, are:

Quarter	NEC-27AE	NEC-28AE
1	83.6	79.0
2	75.7	79.4
3	78.9	79.8
4	80.5	80.9

First and fourth quarter capture zones calculated using the Javandel and Tsang methodology are shown on Figures 4 and 5 of the 2012 Annual progress report, respectively.

Numerical Simulation of Capture Zone

Capture zones at the Site were also estimated for each quarter using a steady-state numerical stimulation of groundwater flow beneath the Site, incorporating particle tracking. The numerical model consisted of a 2,500 ft wide, by 2,500 ft long model domain, with 20 ft by 20 ft grid blocks. Based on an A aquifer thickness of 20 ft and a bulk hydraulic conductivity of 4.6 ft/day, the numerical simulation of the groundwater potentiometric surface shows complete capture of A aquifer groundwater beneath the Site. The results are presented on Figures 6 through 9.

APPENDIX C

Laboratory Analytical Reports –
December 2012



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Analytical Laboratories, Since 1878



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

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

**Laboratory Job Number 241999
ANALYTICAL REPORT**

Locus Technologies
299 Fairchild Dr.
Mountain View, CA 94043

Project : 98007-99-2200
Location : NEC
Level : II

Sample ID
241NEC-01AE

Lab ID
241999-001

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

Signature: _____

Desiree N. Tetrault
Project Manager
(510) 486-0900

Date: 12/26/2012

NELAP # 01107CA

CASE NARRATIVE

Laboratory number: 241999
Client: Locus Technologies
Project: 98007-99-2200
Location: NEC
Request Date: 12/17/12
Samples Received: 12/17/12

This data package contains sample and QC results for one water sample, requested for the above referenced project on 12/17/12. The sample was received cold and intact.

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

No analytical problems were encountered.

241999



CHAIN-OF-CUSTODY RECORD

(See Reverse for Instructions)

SERIAL NO.
14960

PROJECT NAME NEC SAMPLERS _____ (PRINT) _____ (SIGN)

PROJECT NUMBER 98007-99-2200 RECORDER the Coy _____ (SIGN)

NO.	DATE	TIME	SAMPLE ID	AVERAGE			Field / Container Temp.	Field Filtered (check)	Sample Description (enter code)	Sample container (enter code)	NUMBER OF CONTAINERS AND PRESERVATION			TAT Requested (enter code)	Maximum Holding Time for Method Requested	Sample Store at 4°C (Check)	No VOA Headspace (Check)	LAB PROJECT NO.
				TEMP °C	COND microhos/cm	pH					Unpreserved	HNO ₃	HCL					
1	12-17-12	1240	241NEC-01AE						AA									
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		

ANALYTICAL LAB CET

LABORATORY USE ONLY

ASSIGNED BOTTLE NUMBERS _____

NOTES _____

SAMPLE CONDITION UPON RECEIPT _____

Received By: (Signature) _____ Date 12/17/12 Time 1350

Received By: (Signature) _____ Date 12/17/12 Time 1330

Received By: (Signature) _____ Date _____ Time _____

Relinquished By: (Signature) _____ Date _____ Time _____

Relinquished By: (Signature) _____ Date _____ Time _____

Relinquished By: (Signature) _____ Date _____ Time _____

Received for lab By: (Signature) _____ Date _____ Time _____

Container Sealed with Custody Seal: Yes No

Method of Shipment _____ Description of Transport Container _____

Other Chains-of-Custody Transported with this Chain (by Serial No.) Ag by 12-17-12 1350

Send Lab Results to (Name): Luxy Martinez Shelly Nasir (Check Office Below) Verbal Requested: Yes No

MOUNTAIN VIEW • 299 FAIRCHILD DRIVE • MTN VIEW, CA 94043 • TEL (650) 960-1640 • FAX (650) 960-0739

WALNUT CREEK • 1701 N. CALIFORNIA BLVD • WALNUT CREEK, CA 94596 • TEL (925) 906-8100 • FAX (925) 906-8101

SACRAMENTO • 1100 MELODY LANE • ROSEVILLE, CA 95678 • TEL (916) 677-1751 • FAX (916) 677-1760

OTHER _____ TEL _____ FAX _____

COOLER RECEIPT CHECKLIST



Login # 241999 Date Received 12/17/12 Number of coolers 1
 Client LOCUS Project 99007-99-2200

Date Opened 12/17/12 By (print) EL (sign) E. Perry
 Date Logged in ↓ By (print) ↓ (sign) ↓

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

2A. Were custody seals present? YES (circle) on cooler on samples NO
 How many _____ Name _____ Date _____

2B. Were custody seals intact upon arrival? _____ YES NO N/A

3. Were custody papers dry and intact when received? YES NO

4. Were custody papers filled out properly (ink, signed, etc)? YES NO

5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO

6. Indicate the packing in cooler: (if other, describe) _____

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

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: Wet Blue/Gel None Temp(°C) 1.3

Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

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

8. Were Method 5035 sampling containers present? _____ YES NO

If YES, what time were they transferred to freezer? _____

9. Did all bottles arrive unbroken/unopened? YES NO

10. Are there any missing / extra samples? _____ YES NO

11. Are samples in the appropriate containers for indicated tests? _____ YES NO

12. Are sample labels present, in good condition and complete? _____ YES NO

13. Do the sample labels agree with custody papers? _____ YES NO

14. Was sufficient amount of sample sent for tests requested? _____ YES NO

15. Are the samples appropriately preserved? _____ YES NO N/A

16. Did you check preservatives for all bottles for each sample? _____ YES NO N/A

17. Did you document your preservative check? _____ YES NO N/A

18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO N/A

19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO N/A

20. Are bubbles > 6mm absent in VOA samples? _____ YES NO N/A

21. Was the client contacted concerning this sample delivery? _____ YES NO

If YES, Who was called? _____ By _____ Date: _____

COMMENTS

7) 1.3' taken on 12/17/12 @ 1750. E. Perry

Volatile Organics			
Lab #:	241999	Location:	NEC
Client:	Locus Technologies	Prep:	EPA 5030B
Project#:	98007-99-2200	Analysis:	EPA 8260B
Field ID:	241NEC-01AE	Batch#:	194106
Lab ID:	241999-001	Sampled:	12/17/12
Matrix:	Water	Received:	12/17/12
Units:	ug/L	Analyzed:	12/22/12
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	5.7	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	38	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	40	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	0.6	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	0.9	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-127
1,2-Dichloroethane-d4	110	69-148
Toluene-d8	98	80-120
Bromofluorobenzene	96	80-121

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Volatile Organics			
Lab #:	241999	Location:	NEC
Client:	Locus Technologies	Prep:	EPA 5030B
Project#:	98007-99-2200	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC671186	Batch#:	194106
Matrix:	Water	Analyzed:	12/22/12
Units:	ug/L		

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

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-127
1,2-Dichloroethane-d4	107	69-148
Toluene-d8	96	80-120
Bromofluorobenzene	97	80-121

ND= Not Detected

RL= Reporting Limit

Batch QC Report

Volatile Organics			
Lab #:	241999	Location:	NEC
Client:	Locus Technologies	Prep:	EPA 5030B
Project#:	98007-99-2200	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	194106
Units:	ug/L	Analyzed:	12/22/12
Diln Fac:	1.000		

Type: BS Lab ID: QC671187

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	20.00	19.47	97	65-130
Trichloroethene	20.00	20.92	105	76-121
Chlorobenzene	20.00	20.01	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	95	80-127
1,2-Dichloroethane-d4	108	69-148
Toluene-d8	96	80-120
Bromofluorobenzene	94	80-121

Type: BSD Lab ID: QC671188

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	20.00	18.50	93	65-130	5	22
Trichloroethene	20.00	18.89	94	76-121	10	20
Chlorobenzene	20.00	20.59	103	80-120	3	20

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-127
1,2-Dichloroethane-d4	104	69-148
Toluene-d8	97	80-120
Bromofluorobenzene	97	80-121

RPD= Relative Percent Difference



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Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

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

**Laboratory Job Number 239573
ANALYTICAL REPORT**

Locus Technologies
299 Fairchild Dr.
Mountain View, CA 94043

Project : 98007-99-2200
Location : NEC
Level : II

<u>Sample ID</u>	<u>Lab ID</u>
239NEC-EFT	239573-001
239NEC-5346	239573-002

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

Signature: _____

Isabelle Choy
Project Manager
(510)204-2223

Date: 09/19/2012

NELAP # 01107CA

CASE NARRATIVE

Laboratory number: 239573
Client: Locus Technologies
Project: 98007-99-2200
Location: NEC
Request Date: 09/11/12
Samples Received: 09/11/12

This data package contains sample and QC results for two water samples, requested for the above referenced project on 09/11/12. The samples were received cold and intact.

Volatile Organics by GC/MS (EPA 624):

No analytical problems were encountered.

Total Dissolved Solids (TDS) (SM2540C):

High RPD was observed for total dissolved solids in the BS/BSD for batch 190504. No other analytical problems were encountered.

239573



CHAIN-OF-CUSTODY RECORD

(See Reverse for Instructions)

SERIAL NO. 14931

PROJECT NAME NEC (PRINT) _____ (SIGN) _____

PROJECT NUMBER 98007-99-2200 (PRINT) _____ (SIGN) _____

REORDER At & Co (SIGN) _____

SAMPLERS _____ (PRINT) _____ (SIGN) _____

RECORDER _____ (SIGN) _____

NO.	DATE	TIME	SAMPLE ID	AVERAGE		pH	Field / Container Temp. °C	Sample container (enter code)	Sample Description (enter code)	Unpreserved HNO ₃ HCL	NUMBER OF CONTAINERS AND PRESERVATION	ANALYSIS REQUESTED	TAT Requested (enter code)	Maximum Holding Time for Method Requested	Sample Store at 4°C (Check)	No VOA Headspace (Check)	LAB PROJECT NO.
				TEMP °C	COND microhos/cm												
1	9-10-12	945	239 NEC-EFT					AA1	AA1	3		EPA 624 HCS-1.2 DCE+MTBE TDS Temperature					
2	945		" "					CA1	CA1	3							
3			" "					CA1	CA1	3							
4			Temp Blank					AA1	AA1	3							
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	

NOTE: Temperature to be measured and recorded upon receipt of samples at lab. 3 °C

Container Sealed with Custody Seal: Yes No

Method of Shipment: Description of Transport Container _____

Other Chains-of-Custody Transported with this Chain (by Serial No.): _____

Relinquished By: (Signature) [Signature] Date 9/11/12 Time 1320

Relinquished By: (Signature) [Signature] Date 9/12/12 Time 1730

Relinquished By: (Signature) [Signature] Date _____ Time _____

Received for lab By: (Signature) _____ Date _____ Time _____

ANALYTICAL LAB C&T

LABORATORY USE ONLY

Send Lab Results to (Name): Lucy Martinez Shelly Masada (Check Office Below) Verbal Requested: Yes No

MOUNTAIN VIEW • 299 FAIRCHILD DRIVE • MTN VIEW, CA 94043 • TEL (650) 960-1640 • FAX (650) 960-0739

WALNUT CREEK • 1701 N. CALIFORNIA BLVD • WALNUT CREEK, CA 94596 • TEL (925) 906-8100 • FAX (925) 906-8101

SACRAMENTO • 1100 MELODY LANE • ROSEVILLE, CA 95678 • TEL (916) 677-1751 • FAX (916) 677-1760

OTHER _____ TEL _____ FAX _____

COOLER RECEIPT CHECKLIST



Curtis & Tompkins, Ltd.

Login # 239573 Date Received 9/11/12 Number of coolers 3
 Client COCCW Project NTE

Date Opened 9/11/12 By (print) AAI (sign) [Signature]
 Date Logged in 9/12/12 By (print) EL (sign) [Signature]

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

2A. Were custody seals present? YES (circle) on cooler on samples NO
 How many 3 Name Henry Date 9/11/12

2B. Were custody seals intact upon arrival? YES NO N/A

3. Were custody papers dry and intact when received? YES NO

4. Were custody papers filled out properly (ink, signed, etc)? YES NO

5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO

6. Indicate the packing in cooler: (if other, describe) _____

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

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: Wet Blue/Gel None Temp(°C) 3, 4, 5.5

Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

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

8. Were Method 5035 sampling containers present? _____ YES ~~NO~~

If YES, what time were they transferred to freezer? _____

9. Did all bottles arrive unbroken/unopened? YES NO

10. Are there any missing / extra samples? _____ YES ~~NO~~

11. Are samples in the appropriate containers for indicated tests? _____ YES NO

12. Are sample labels present, in good condition and complete? _____ YES NO

13. Do the sample labels agree with custody papers? _____ YES NO

14. Was sufficient amount of sample sent for tests requested? _____ YES NO

15. Are the samples appropriately preserved? YES NO N/A

16. Did you check preservatives for all bottles for each sample? _____ YES NO ~~N/A~~

17. Did you document your preservative check? _____ YES NO ~~N/A~~

18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO ~~N/A~~

19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO ~~N/A~~

20. Are bubbles > 6mm absent in VOA samples? YES NO N/A

21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~

If YES, Who was called? _____ By _____ Date: _____

COMMENTS

Curtis & Tompkins Laboratories Analytical Report

Lab #:	239573	Location:	NEC
Client:	Locus Technologies	Prep:	EPA 624
Project#:	98007-99-2200	Analysis:	EPA 624
Field ID:	239NEC-EFT	Batch#:	190472
Lab ID:	239573-001	Sampled:	09/10/12
Matrix:	Water	Received:	09/11/12
Units:	ug/L	Analyzed:	09/13/12
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
MTBE	ND	0.5
trans-1,2-Dichloroethene	6.2	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	19	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	98	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
Bromoform	ND	1.0
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	114	80-127
1,2-Dichloroethane-d4	123	69-148
Toluene-d8	98	80-120
Bromofluorobenzene	91	80-121

Curtis & Tompkins Laboratories Analytical Report

Lab #:	239573	Location:	NEC
Client:	Locus Technologies	Prep:	EPA 624
Project#:	98007-99-2200	Analysis:	EPA 624
Field ID:	239NEC-5346	Batch#:	190472
Lab ID:	239573-002	Sampled:	09/10/12
Matrix:	Water	Received:	09/11/12
Units:	ug/L	Analyzed:	09/13/12
Diln Fac:	1.000		

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

Surrogate	%REC	Limits
Dibromofluoromethane	120	80-127
1,2-Dichloroethane-d4	125	69-148
Toluene-d8	98	80-120
Bromofluorobenzene	93	80-121

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	239573	Location:	NEC
Client:	Locus Technologies	Prep:	EPA 624
Project#:	98007-99-2200	Analysis:	EPA 624
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC656105	Batch#:	190472
Matrix:	Water	Analyzed:	09/13/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	30.00	26.90	90	65-130
Benzene	30.00	30.86	103	80-123
Trichloroethene	30.00	30.31	101	76-121
Toluene	30.00	29.47	98	80-120
Chlorobenzene	30.00	27.91	93	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	115	80-127
1,2-Dichloroethane-d4	130	69-148
Toluene-d8	98	80-120
Bromofluorobenzene	88	80-121

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	239573	Location:	NEC
Client:	Locus Technologies	Prep:	EPA 624
Project#:	98007-99-2200	Analysis:	EPA 624
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC656106	Batch#:	190472
Matrix:	Water	Analyzed:	09/13/12
Units:	ug/L		

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

Surrogate	%REC	Limits
Dibromofluoromethane	122	80-127
1,2-Dichloroethane-d4	127	69-148
Toluene-d8	101	80-120
Bromofluorobenzene	95	80-121

Total Dissolved Solids (TDS)

Lab #:	239573	Location:	NEC
Client:	Locus Technologies	Prep:	METHOD
Project#:	98007-99-2200	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Batch#:	190504
Field ID:	239NEC-EFT	Sampled:	09/10/12
Matrix:	Water	Received:	09/11/12
Units:	mg/L	Prepared:	09/13/12
Diln Fac:	1.000	Analyzed:	09/14/12

Type	Lab ID	Result	RL
SAMPLE	239573-001	860	10
BLANK	QC656228	ND	10

ND= Not Detected
 RL= Reporting Limit
 Page 1 of 1

Batch QC Report

Total Dissolved Solids (TDS)			
Lab #:	239573	Location:	NEC
Client:	Locus Technologies	Prep:	METHOD
Project#:	98007-99-2200	Analysis:	SM2540C
Analyte:	Total Dissolved Solids	Batch#:	190504
Field ID:	ZZZZZZZZZZ	Sampled:	09/11/12
MSS Lab ID:	239542-009	Received:	09/11/12
Matrix:	Water	Prepared:	09/13/12
Units:	mg/L	Analyzed:	09/14/12

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim	Diln	Fac
BS	QC656229		104.0	100.0		96	73-120				1.000
BSD	QC656230		104.0	94.00		90	73-120	6 * 5			1.000
SDUP	QC656231	37,780		36,940	100.0			2 5			10.00

*= Value outside of QC limits; see narrative

RL= Reporting Limit

RPD= Relative Percent Difference

APPENDIX D

Annual Quality Assurance Report

Table D-1
Comparison of Analytical Laboratory Quality Control Results
2012 Annual Progress Report
501 Ellis Street, Mountain View, California

Method	Date Analyzed	Laboratory Batch Number	Analyte	Accuracy Spike % REC ⁽¹⁾	Accuracy Duplicate % REC ⁽¹⁾	Precision RPD ⁽²⁾
EPA 8260B Batch Spike	10/19/2012	191858	1,1-Dichloroethene	101	96	6
			Trichloroethene	103	96	8
			Chlorobenzene	107	101	6
EPA 8260B Batch Spike	10/19/2012	191860	1,1-Dichloroethene	92	88	4
			Trichloroethene	103	100	4
			Chlorobenzene	102	102	1
EPA 8260B Batch Spike	10/20/2012	191906	1,1-Dichloroethene	96	89	7
			Trichloroethene	87	86	1
			Chlorobenzene	98	98	0
EPA 8260B Batch Spike	10/20/2012	191906	1,1-Dichloroethene	91	87	4
			Trichloroethene	88	82	7
			Chlorobenzene	97	95	1
EPA 8260B Batch Spike	10/23/2012	191977	1,1-Dichloroethene	92	90	2
			Trichloroethene	88	87	2
			Chlorobenzene	93	98	5
EPA 8260B Batch Spike	10/23/2012	191994	1,1-Dichloroethene	74	78	5
			Trichloroethene	89	94	5
			Chlorobenzene	95	99	4
EPA 8260B Matrix Spike	10/19/2012	191860	1,1-Dichloroethene	91	89	2
			Trichloroethene	98	93	4
			Chlorobenzene	104	101	2
Project Average				95	93	3.8
Project Goals				40-150	40-150	<35

Notes:

(1) % REC = Percent recovery

(2) RPD = Relative percent difference between the batch spike and batch spike duplicate.

Table D-2
Summary of Blank Sample Results
2012 Annual Progress Report
501 Ellis Street, Mountain View, California

Blank Type	Date Sampled	Method	Laboratory Batch Number	Blank ID	Contaminant	Concentration	Reporting Limit (µg/L)
Trip	10/19/2012	EPA 8260B	191858	240NEC-5352	--	ND	0.5 - 20
Field	10/19/2012	EPA 8260B	191858	240NEC-5354	--	ND	0.5 - 20
Lab Blank	10/19/2012	EPA 8260B	191858	QC661811	--	ND	0.5 - 20
	10/19/2012	EPA 8260B	191860	QC661817	--	ND	0.5 - 20
	10/20/2012	EPA 8260B	191906	QC661994	--	ND	0.5 - 20
	10/23/2012	EPA 8260B	191977	QC662277	--	ND	0.5 - 20
	10/23/2012	EPA 8260B	191994	QC662339	--	ND	0.5 - 20

Note: An equipment blank was not collected in 2012 and the subcontractor has been instructed to include one during future sampling events.

Table D-3
Duplicate Quality Control Results
2012 Annual Progress Report
501 Ellis Street, Mountain View, California

Groundwater Monitoring Wells

Sample Date	Contaminant	235NEC-26A (µg/L)	235NEC-5243 (µg/L)	RPD ⁽¹⁾
10/9/2012	<i>cis</i> -Dichloroethene	15.0	14	6.9
	trans-1,2-Dichloroethene	2.1	2.2	4.7
	Trichloroethene	52	53	1.9
Project Average		--	--	4.5
Project Goals		--	--	<35

Notes:

(1) RPD = relative percent difference = $|X_1 - X_2| / X_3 \times 100$

where:

- X₁ = concentration of the sample
- X₂ = concentration of the duplicate
- X₃ = average of X₁ and X₂

APPENDIX E

VOC Concentration
Mann-Kendall Trend Analysis

Table E-1
Mann Kendall Statistical Test Summary Table
501 Ellis Street, Mountain View, CA

Well	2012 VOC Data			Trend through 2012 (90% CL)		
	TCE	cDCE	VC	TCE	cDCE	VC
NEC-1A	58	37	< 0.5	Decreasing	Increasing	<RL
NEC-1AE	40	38	< 0.5	Decreasing	Increasing	<RL
NEC-7A	77	15	< 0.5	Increasing	Increasing	<RL
NEC-8A	110	11	< 1.0	Decreasing	Increasing	<RL
NEC-9A	3.7	43	< 0.5	Decreasing	Decreasing	<RL
NEC-10A	19	7.1	< 0.5	Decreasing	Increasing	<RL
NEC-11A	22	3.5	< 0.5	Decreasing	Increasing	<RL
NEC-12A	1.2	4.9	< 0.5	No Trend	No Trend	Decreasing
NEC-20A	1.1	<0.5	< 0.5	No Trend	No Trend	<RL
NEC-21A	4.4	13	< 0.5	Decreasing	Decreasing	<RL
NEC-22A	26	28	< 0.5	Decreasing	No Trend	<RL
NEC-23A	81	28	< 0.6	Decreasing	Decreasing	<RL
NEC-24A	45	49	< 0.5	Decreasing	Increasing	<RL
NEC-25A	34	5.8	< 0.5	Decreasing	Decreasing	<RL
NEC-26A	120	4.9	< 0.8	No Trend	No Trend	<RL
NEC-27AE	96	11	< 1.0	No Trend	Decreasing	<RL
NEC-28AE	72	30	< 0.5	Decreasing	Increasing	<RL
NEC-PZ-1A	64	8.1	< 0.5	Increasing	No Trend	<RL
NEC-PZ-2A	34	19	< 0.5	No Trend	Increasing	<RL
NEC-PZ-3A	52	15	< 0.5	Decreasing	No Trend	<RL

Notes: VOC = volatile organic compound
CL = confidence limit
TCE = trichloroethene
cDCE = cis-1,2-dichloroethene
VC = vinyl chloride
<RL = concentrations below reporting limits

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p>Notice: This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p>Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC1A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10-Nov-03	79	12				
2	5-Nov-04	350	7.3				
3	28-Nov-05	240	5.5				
4	28-Nov-06	260	6.2				
5	29-Nov-07	64	9.9				
6	4-Dec-08	150	8.9				
7	18-Dec-09	79	14				
8	21-Dec-10	83	23				
9	11-Oct-11	74	28				
10	9-Oct-12	58	37				
Mann Kendall Statistic (S) =		-22.0	29.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		143.70	15.18	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		103.285	10.629	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.719	0.700	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13	Checked By = TMKK			

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p>Notice: This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p>Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC1AE		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	6-Nov-03	230	18				
2	5-Nov-04	190	15				
3	22-Nov-05	220	17				
4	27-Nov-06	200	17				
5	12-Nov-07	190	18				
6	4-Dec-08	160	20				
7	16-Dec-09	38	22				
8	13-Dec-10	49	27				
9	12-Dec-11	43	35				
10	17-Dec-12	40	38				
Mann Kendall Statistic (S) =		-34.0	37.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		136.00	22.70	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		82.620	8.028	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.607	0.354	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC7A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	6-Nov-03	41	5.8				
2	5-Nov-04	46	8				
3	22-Nov-05	72	13				
4	21-Nov-06	73	12				
5	27-Nov-07	72	11				
6	2-Dec-08	66	10				
7	21-Dec-09	61	10				
8	21-Dec-10	75	14				
9	11-Oct-11	92	15				
10	9-Oct-12	77	15				
Mann Kendall Statistic (S) =		26.0	25.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		67.50	11.38	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		15.006	3.029	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.222	0.266	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	INCREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	INCREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC8A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	6-Nov-03	150	9.4				
2	5-Nov-04	110	9.1				
3	22-Nov-05	120	9.5				
4	21-Nov-06	130	9.2				
5	27-Nov-07	120	10				
6	2-Dec-08	120	11				
7	21-Dec-09	120	9.9				
8	20-Dec-10	85	6.9				
9	11-Oct-11	97	10				
10	9-Oct-12	110	11				
Mann Kendall Statistic (S) =		-20.0	17.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		116.20	9.60	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		17.669	1.159	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.152	0.121	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC9A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	6-Nov-03	41	58				
2	5-Nov-04	33	50				
3	22-Nov-05	28	62				
4	21-Nov-06	31	64				
5	27-Nov-07	22	52				
6	2-Dec-08	15	55				
7	21-Dec-09	9.3	54				
8	21-Dec-10	2.7	45				
9	11-Oct-11	3.6	39				
10	9-Oct-12	3.7	43				
Mann Kendall Statistic (S) =		-37.0	-23.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		18.93	52.20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		13.988	8.135	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.739	0.156	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)			
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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC11A	
Compound ->		TCE	c,1,2, DCE			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	38	1.6			
2	7-Nov-03	34	2			
3	4-Nov-04	34	2.7			
4	22-Nov-05	31	2.4			
5	27-Nov-06	26	2.4			
6	28-Nov-07	27	2.5			
7	3-Dec-08	26	2.8			
8	22-Dec-10	22	2.8			
9	11-Oct-11	22	2.8			
10	9-Oct-12	22	3.5			
Mann Kendall Statistic (S) =		-38.0	35.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0
Average =		28.20	2.55	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		5.750	0.513	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.204	0.201	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13	Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC10A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	6-Nov-03	36	5.1				
2	5-Nov-04	29	5.7				
3	22-Nov-05	29	7.1				
4	21-Nov-06	27	6.2				
5	27-Nov-07	27	6.2				
6	2-Dec-08	28	8.2				
7	18-Dec-09	25	8.9				
8	21-Dec-10	23	8.6				
9	11-Oct-11	22	5.1				
10	9-Oct-12	19	7.1				
Mann Kendall Statistic (S) =		-39.0	16.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		26.50	6.82	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		4.673	1.394	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.176	0.204	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC12A		
Compound ->		TCE	c,1,2, DCE	VC			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	10	3.1	6.8			
2	7-Nov-03	17	4.5	13			
3	4-Nov-04	5.3	3	5.8			
4	22-Nov-05	13	5.2	11			
5	27-Nov-06	12	5.4	14			
6	28-Nov-07	0.8	2.7	0.5			
7	3-Dec-08	34.36	5.2	11			
8	22-Dec-10	0.6	2	0.5			
9	11-Oct-11	1.2	2.5	0.5			
10	15-Oct-12	1.2	4.9	0.5			
Mann Kendall Statistic (S) =		-14.0	-6.0	-18.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	10	0	0	0
Average =		9.55	3.85	6.36	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		10.558	1.309	5.611	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		1.106	0.340	0.882	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	No Trend	DECREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	DECREASING	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV ≤ 1 STABLE	NA	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC20A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	51.07	0.5				
2	7-Nov-03	0.5	0.5				
3	4-Nov-04	0.5	0.5				
4	22-Nov-05	0.8	0.5				
5	27-Nov-06	0.8	0.5				
6	28-Nov-07	1.2	0.6				
7	3-Dec-08	0.6	0.5				
8	22-Dec-10	1.6	0.7				
9	11-Oct-11	1.3	0.5				
10	15-Oct-12	1.1	0.5				
Mann Kendall Statistic (S) =		11.0	7.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		5.95	0.53	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		15.859	0.067	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		2.667	0.127	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC21A		
Compound ->		TCE	c,1,2, DCE	VC			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	63	70				
2	7-Nov-03	15	58				
3	4-Nov-04	21	49				
4	22-Nov-05	35	59				
5	27-Nov-06	29	50				
6	28-Nov-07	24	43				
7	3-Dec-08	4.7	21				
8	22-Dec-10	5.6	18				
9	11-Oct-11	4	15				
10	15-Oct-12	4.4	13				
Mann Kendall Statistic (S) =		-27.0	-39.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		20.57	39.60	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		18.662	21.009	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.907	0.531	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC22A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	130	38				
2	7-Nov-03	110	35				
3	4-Nov-04	110	33				
4	22-Nov-05	110	46				
5	27-Nov-06	94	40				
6	28-Nov-07	75	39				
7	3-Dec-08	74	39				
8	22-Dec-10	63	42				
9	11-Oct-11	22	24				
10	15-Oct-12	26	28				
Mann Kendall Statistic (S) =		-40.0	-6.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		81.40	36.40	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		36.525	6.586	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.449	0.181	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC23A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	110	36				
2	7-Nov-03	90	35				
3	4-Nov-04	92	31				
4	22-Nov-05	95	32				
5	27-Nov-06	84	36				
6	28-Nov-07	82	34				
7	3-Dec-08	92	27				
8	22-Dec-10	82	24				
9	11-Oct-11	83	30				
10	15-Oct-12	81	28				
Mann Kendall Statistic (S) =		-27.0	-24.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		89.10	31.30	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		8.937	4.084	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.100	0.130	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC24A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	99	27				
2	7-Nov-03	95	29				
3	4-Nov-04	78	22				
4	22-Nov-05	91	35				
5	27-Nov-06	71	36				
6	28-Nov-07	64	29				
7	3-Dec-08	52	35				
8	22-Dec-10	53	35				
9	11-Oct-11	35	38				
10	15-Oct-12	45	49				
Mann Kendall Statistic (S) =		-39.0	29.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		68.30	33.50	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		22.216	7.367	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.325	0.220	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC25A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	63	16				
2	7-Nov-03	60	19				
3	4-Nov-04	52	11				
4	22-Nov-05	48	13				
5	27-Nov-06	43	13				
6	28-Nov-07	39	7.4				
7	3-Dec-08	35	9.9				
8	22-Dec-10	40	5.7				
9	11-Oct-11	31	6.2				
10	15-Oct-12	34	5.8				
Mann Kendall Statistic (S) =		-39.0	-32.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		44.50	10.70	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		10.987	4.576	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.247	0.428	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13	Checked By = TMKK			

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC26A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	160	3.7				
2	7-Nov-03	100	3.5				
3	4-Nov-04	110	2.8				
4	22-Nov-05	99	3.6				
5	27-Nov-06	99	3.4				
6	28-Nov-07	94	3.4				
7	3-Dec-08	180	5.6				
8	22-Dec-10	130	3				
9	11-Oct-11	140	5.6				
10	15-Oct-12	120	4.9				
Mann Kendall Statistic (S) =		2.0	7.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		123.20	3.95	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		29.165	1.031	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.237	0.261	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC27AE		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	96	13				
2	7-Nov-03	93	13				
3	4-Nov-04	100	14				
4	22-Nov-05	120	10				
5	27-Nov-06	100	12				
6	28-Nov-07	100	12				
7	3-Dec-08	94	10				
8	22-Dec-10	88	10				
9	11-Oct-11	88	8.8				
10	9-Oct-12	96	11				
Mann Kendall Statistic (S) =		-12.0	-24.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		97.50	11.38	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		9.083	1.680	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.093	0.148	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	DECREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

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State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NEC28AE		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	120	26				
2	7-Nov-03	86	26				
3	4-Nov-04	110	19				
4	22-Nov-05	94	23				
5	27-Nov-06	85	23				
6	28-Nov-07	95	26				
7	3-Dec-08	99	29				
8	22-Dec-10	80	23				
9	11-Oct-11	91	27				
10	9-Oct-12	72	30				
Mann Kendall Statistic (S) =		-21.0	17.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		93.20	25.20	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		14.085	3.259	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.151	0.129	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	INCREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

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Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NECPZ1A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	2.3	4.4				
2	7-Nov-03	4.9	6.5				
3	4-Nov-04	12	8.6				
4	22-Nov-05	20	6.7				
5	27-Nov-06	34	7.1				
6	28-Nov-07	50	7.1				
7	3-Dec-08	48	6				
8	22-Dec-10	51	5				
9	11-Oct-11	54	3.5				
10	9-Oct-12	64	8.1				
Mann Kendall Statistic (S) =		43.0	-2.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		34.02	6.30	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		22.541	1.607	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.663	0.255	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p>Notice: This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p>Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NECPZZA		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	53	7.4				
2	7-Nov-03	35	8.5				
3	4-Nov-04	21	6.9				
4	22-Nov-05	22	6.9				
5	27-Nov-06	20	7.5				
6	28-Nov-07	20	9.3				
7	3-Dec-08	24	12				
8	22-Dec-10	34	13				
9	11-Oct-11	31	12				
10	9-Oct-12	34	19				
Mann Kendall Statistic (S) =		-1.0	31.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		29.40	10.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		10.352	3.835	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.352	0.374	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	INCREASING	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	INCREASING	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV ≤ 1 STABLE	NA	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13	Checked By = TMKK			

VOC Concentration Trend Analysis
501 Ellis Street, Mountain View, California

Geosyntec Consultants

State of Wisconsin Department of Natural Resources Remediation and Redevelopment Program			Mann-Kendall Statistical Test Form 4400-215 (2/2001)				
<p>Notice: This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.</p> <p>Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.</p>							
Site Name : NEC - 501 Ellis Street			BRRTS No. =		Well Number = NECPZ3A		
Compound ->		TCE	c,1,2, DCE				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	25-Nov-02	98	12				
2	7-Nov-03	86	12				
3	4-Nov-04	87	12				
4	22-Nov-05	73	11				
5	27-Nov-06	76	11				
6	28-Nov-07	77	12				
7	3-Dec-08	66	11				
8	22-Dec-10	58	11				
9	11-Oct-11	49	22				
10	9-Oct-12	52	15				
Mann Kendall Statistic (S) =		-35.0	3.0	0.0	0.0	0.0	0.0
Number of Rounds (n) =		10	10	0	0	0	0
Average =		72.20	12.90	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =		15.985	3.414	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=		0.221	0.265	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV ≤ 1 STABLE	n<4	n<4	n<4	n<4
Data Entry By = EF			Date = 8-Feb-13		Checked By = TMKK		

APPENDIX F

Fire Sprinkler Test Drain Photo Log –
December 2012



Photo No.:	1	Date:	19 December 2012
Photographer:	Jackie Lanson		
Subject:	Fire Drain Plug and Sign		
Project:	NEC	City/State:	Mountain View, CA

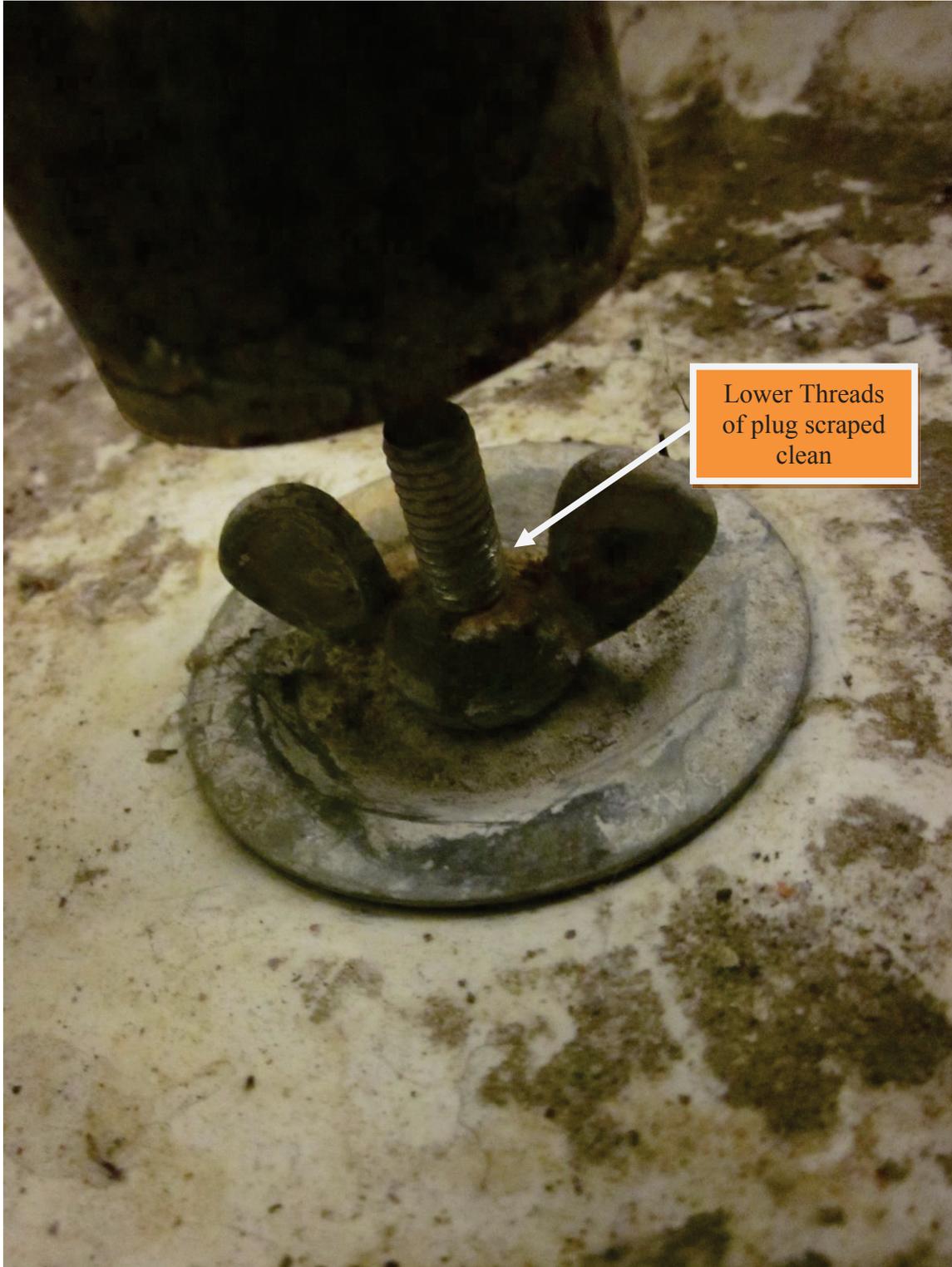


Photo No.:	2	Date:	19 December 2012
Photographer:	Jackie Lanson		
Subject:	Fire Drain Plug		
Project:	NEC	City/State:	Mountain View, CA

Historical Data Included on CD
(EPA Only)