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15 April 2009

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

Subject: 2008 Annual Progress Report
501 Ellis Street, Mountain View, California

Dear Ms. Lee:

This letter transmits the subject report, "2008 Annual Progress Report" for the Source Control Groundwater Remediation System at 501 Ellis Street, Mountain View, California. Geosyntec Consultants prepared this report on behalf of NEC Electronics America, Inc. (NEC). If you have any questions or comments, please call either of the undersigned at (510) 836-3034.

Sincerely,

Eric J. Suchomel, Ph.D., P.E.
Engineer

Carolyn Kneiblher, C.HG.
Associate Hydrogeologist

Copies to:
Alana Lee, EPA Region IX (3 copies, 2 CDs)
Peter Weinberg, Esq., NEC Electronics America Inc. (1 copy)
J. Ledesma, CH2MHill (1 copy, 1 CD)
MEW Repository c/o Joyce Adams, Weiss Associates (2 copies)
Candace Bowers, Mountain View Public Library (1 copy)
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Prepared for:

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2008 ANNUAL PROGRESS REPORT

501 Ellis Street
Mountain View, California

Prepared by:

Geosyntec consultants

engineers | scientists | innovators

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1. INTRODUCTION

This Annual Progress Report summarizes facility specific work and other related activities that were performed at 501 Ellis Street, Mountain View, California (the "Site") during the period 1 January through 31 December 2008. The work described in this report was performed pursuant to Sections XV A&B of CERCLA §106 Order, EPA Docket No. 91-4 (the "Order"). Geosyntec Consultants (Geosyntec) prepared this report on behalf of NEC Electronics America, Inc. (NEC), 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 2008 Annual Report Checklist is included in Appendix A.

1.1 Site Background

The Site is located in the area bounded by Middlefield Road, Ellis Street, Whisman Road, and U.S. Highway 101 in Mountain View, California (Figure 1). The area includes past and present locations of semiconductor and other manufacturing and industrial facilities, including the Site. In 1985, EPA identified the 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 ft^2 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 501 Ellis Street.

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 using underground chemical tanks in their production processes before 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 (Figure 1). The 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 MEW Study Area and the Site 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) (elevation 35 feet above Mean Sea Level) to a maximum depth of about 30 feet bgs. From the 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 VOCs in unsaturated soils located behind the Site building. 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 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 mg/kg. 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. The SCGWR system extracts groundwater from the A aquifer at the Site and treats the groundwater using granular activated carbon. The SCGWR system has been continuously operational since start-up in October 1997. The current operation of the groundwater treatment system at the Site, including monitoring, discharge, and treatment of the extracted groundwater is authorized by the requirements of Order No. R2-2004-0055, NPDES Permit No. CAG912003.

NEC's 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. These 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 2008 Activities

1.4.1 Field Activities

- 16 January, 25 February, 19 March, 16 April, 20 May, 16 June, 15 July, 20 August, 17 September, 15 October, 19 November, and 17 December. Locus Technologies (Locus) collected water samples from the SCGWR system influent, between the carbon vessels, and from the effluent to assess SCGWR system performance and to meet quarterly reporting requirements under the general NPDES discharge permit. Analytical results from the SCGWR system influent and effluent sampling have previously been included in EPA Progress Reports for the Site; however, per the Annual Report contents described by EPA [EPA, 2005], they are no longer included. Copies of the SCGWR system analytical results are included in the quarterly NPDES reports that are submitted to the RWQCB.

- 22 January, 19 February, 3 April, 9 June, 8 July, 18 August, 10 October, and 17 November. The primary carbon vessel was removed from the SCGWR system

and a new vessel was installed in the tertiary position. The former tertiary vessel was moved to the secondary position and the former secondary vessel moved to the primary position. Filter cartridges were replaced.

- 23 January. Locus received analytical results for the SCGWR system effluent sample collected on 22 January after replacement of the primary carbon vessel. The results indicated that no VOCs were detected. The system was restarted.

- 20 February. Locus received analytical results for the SCGWR system effluent sample collected on 19 February after replacement of the primary carbon vessel. The results indicated that no VOCs were detected. The system was restarted.

- 22 March. The SCGWR system was shut down for approximately 45 minutes due to a power outage.

- 27 March and 20 November. Semi-annual groundwater levels were measured in NEC monitoring wells.

- 4 April. Locus received analytical results for the SCGWR system effluent sample collected on 3 April after replacement of the primary carbon vessel. The results indicated that no VOCs were detected. The system was restarted.

- 4 May. The SCGRW system was shut down for approximately 6 hours due to a power outage.

- 27 May. The SCGRW system was shut down due to a flooded vault at NEC-27AE. The system remained offline until 2 June (7 days) due to a dead backup battery in the system autodialer. The battery was replaced and annual replacement of the battery was incorporated into the SCGWR operations and maintenance (O&M) program.

- 10 June. Locus received analytical results for the SCGWR system effluent sample collected on 9 June after replacement of the primary carbon vessel. The results indicated that no VOCs were detected. The system was restarted.

- 9 July. Locus received analytical results for the SCGWR system effluent sample collected on 8 July after replacement of the primary carbon vessel. The results indicated that no VOCs were detected. The system was restarted.

- 19 August. Locus received analytical results for the SCGWR system effluent sample collected on 18 August after replacement of the primary carbon vessel. The results indicated that no VOCs were detected. The system was restarted.

- 20 August. Locus replaced an inoperable sump pump.

- 10 October. Locus received analytical results for the SCGWR system effluent sample collected on 9 October after replacement of the primary carbon vessel. The results indicated that no VOCs were detected. The system was restarted.

- 18 November. Locus received analytical results for the SCGWR system effluent sample collected on 17 November after replacement of the primary carbon vessel. The results indicated that no VOCs were detected. The system was restarted.

- 19 November. Annual treatment system sampling, upstream, and downstream sampling was performed.

- 2, 3, and 4 December. Annual sampling of NEC groundwater monitoring wells.

1.4.2 Order Reporting Activities

- On 30 January, 30 April, 30 July, and 30 October 2008, NEC submitted to the RWQCB, the Fourth Quarter and Annual 2007, First Quarter 2008, Second Quarter 2008, and Third Quarter 2008 Self-Monitoring Reports under NPDES Discharge Permit No. CAG912003.

- On 14 April 2008, NEC submitted the 2007 Annual Progress Report to EPA.

2. GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

2.1 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.

2.2 Extraction and Treatment 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 29 December 2008, 26,899,290 gallons of water have been treated since startup of the SCGWR system on 16 October 1997. The average daily processing rate has been 6,651 gallons per day (gpd) or 4.6 gallons per minute (gpm).

Approximately 3.32 pounds of VOCs were removed by the SCGWR system in 2008. The total mass of VOCs removed by the treatment system from start-up through 29 December 2008 is approximately 36.63 pounds. Figure 2 shows the cumulative groundwater extracted and mass of VOCs removed since startup.

2.3 Hydraulic Control and Capture Zone Analysis

NEC monitoring and extraction wells are completed within the A aquifer at the Site (Table 2). Depth to groundwater in the A aquifer NEC monitoring wells ranged from approximately 7 to 15 feet below top of casing during both measurement rounds of the 2008 annual monitoring period (Tables 3 and 4). A hydrograph of selected monitoring wells that provide a cross-section of groundwater elevations across the Site is shown on Figure 3.

2.3.1 Methodology

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 2008 capture zone calculations using this approach are provided in Appendix B.

The second method for estimating groundwater capture uses a steady-state numerical simulation of groundwater flow incorporating particle tracking. Numerical simulations are performed using the computer program Visual MODFLOW Professional, Version 4.3®. The model domain is 2,500 feet wide by 2,500 feet long, with 10 feet by 10 feet grid blocks in the vicinity of the Site extraction wells and either 10 feet by 20 feet or 20 feet by 20 feet grid blocks near the perimeter of the model domain. The grid density is higher near the extraction wells to refine the modeled groundwater capture near the area of the model domain influenced by the extraction wells. 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. Boundary conditions for the numerical model are based on the site conceptual model described below. Given the variety of groundwater pumping activities currently ongoing 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 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 offsite sources.

2.3.2 Estimated Capture Zones for 2008

Numerical Model Development

The SCGWR system targets the A aquifer groundwater directly beneath the Site, and it is designed to provide complete groundwater containment. The site conceptual model treats the interlayered heterogeneities of the A aquifer as a single unit extending from 10 to 30 ft bgs. The unit is assumed to have a uniform transmissivity of 91 ft^2/day, estimated from pumping tests conducted on wells NEC-12A and NEC-22A during groundwater extraction system design [Bechtel, 1996 and Geosyntec, 2001] and

confirmed using the specific capacity of the extraction wells [Driscoll, 1986]. The transmissivity was incorporated into the numerical model using an aquifer thickness of 20 ft, resulting in a hydraulic conductivity of 4.6 ft/day ($1.6x10^{-3}$ cm/sec). This value is consistent with the average hydraulic conductivity of 2.3 ft/day ($8.1x10^{-4}$ cm/sec) estimated from slug tests conducted in the vicinity of the Site [Bechtel, 1989]. The value is also within the range of 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.

For the purpose of the Site numerical model, a uniform horizontal gradient with a direction of N28°W and a magnitude of 0.008 ft/ft (42.2 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 beneath the Site does not appear 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 monitored during onsite pumping tests conducted in the A aquifer, which showed no response to pumping of the A aquifer [Bechtel, 1996].

2008 Groundwater Capture

Based on the A aquifer thickness of 20 ft and a bulk hydraulic conductivity of 4.6 ft/day described above, the coupled analytical solution using the Javandel and Tasng method and potentiometric surface evaluation shows complete capture of A aquifer groundwater beneath the Site during 2008 (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 March and November 2008 groundwater extraction rates are shown in Figures 6 and 7, respectively. 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). Some differences between the predicted and observed water levels in the northern portion of the Site were noted. These differences are generally small (less than 1 foot) and are attributed to the previously discussed westward shift in the groundwater gradient near the downgradient portion of the Site, which is not currently incorporated into the numerical simulation.

For the A aquifer thickness of 20 feet and bulk hydraulic conductivity of 4.6 ft/day ($1.6x10^{-3}$ cm/sec) developed as part of the Site conceptual model, the numerically simulated capture zones demonstrate complete capture of A aquifer groundwater beneath the Site. The area of capture includes the portion of the Site containing wells NEC-9A and NEC-12A. Incomplete capture of groundwater in this area was an issue identified for the Site by EPA in the First Five-Year Review Report for the Site.

2.3.3 Horizontal and Vertical Gradients

Groundwater elevation contour maps for the 2008 monitoring periods (Figures 4 and 5) indicate an overall north-northwest groundwater flow direction. The groundwater elevation contours steepen around extraction wells NEC-1AE, NEC-27AE, and NEC-28AE indicating the pumping cones of depression.

The current NEC monitoring network consists of A aquifer monitoring wells, as shown on the groundwater elevation contour maps. Depth to groundwater measurements are taken at A aquifer monitoring wells at the Site only and the vertical gradient between groundwater zones is not evaluated.

2.4 Analytical Results

Table 5 summarizes the analytical data for groundwater samples collected on 2, 3, and 4 December 2008 from the monitoring wells and three extraction wells. Historical groundwater analytical data is presented in the CD provided with this report (provided

to EPA only). TCE isoconcentration contours for the December 2008 sampling event are shown in Figure 8. TCE concentrations in selected NEC wells are graphed vs. time in Figures 9 and 10. Laboratory reports (in EPA copy only) are included as Appendix C. The Quality Assurance Report for data collected during 2008 is provided as Appendix D and quality control results are summarized in Tables D-1, D-2, and D-3.

Eight chlorinated VOCs are detected in one or more Site monitoring wells. TCE is the only compound detected in all of the monitoring wells that are sampled at the site. Consistent with previous results, the highest TCE concentration in the NEC monitoring wells is detected in the sample collected from extraction well NEC-1AE. During the December 2008 sampling event, the concentration of TCE in extraction well NEC-1AE was 160 micrograms per liter (μg/L).

The highest TCE concentrations have historically been detected in the groundwater samples collected from monitoring well NEC-1A (Figure 9). Prior to November 2000, the TCE concentrations in NEC-1A varied cyclically, with higher concentrations (>1,000 μg/L) detected in annual events (measured in November) and lower concentrations (<1,000 μg/L) in semi-annual events (measured in May). Since May 2000, TCE concentrations in NEC-1A have been below 500 μg/L. During the December 2008 sampling event, the concentration of TCE in monitoring well NEC-1A was 150 μg/L, which is the within the concentration range observed at NEC-1A since May 2000.

VOC concentrations were subjected to Mann-Kendall trend analysis, a non-parametric trend test that uses only the relative magnitudes of the data rather than their measured values. TCE, *cis*-1,2-dichloroethene, and vinyl chloride concentration trends for all Site monitoring wells at both the 80% and 90% confidence level are summarized in Appendix D, along with a detailed summary of the Mann-Kendal analysis for each individual well.

Of the 20 monitoring and extraction wells at the Site, 17 wells exhibit either stable or decreasing TCE concentration trends at a 90% confidence level since November 1999 (Figure 11). Two of the three wells showing increasing TCE concentration trends, NEC-8A and NEC-PZ1A are located near the downgradient groundwater extraction wells NEC-27AE and NEC-28AE, which is consistent with recovery of groundwater

with relatively high TCE concentrations from beneath the building located at 501 Ellis Street. The remaining well showing an increasing concentration trend, NEC-27AE, is a downgradient extraction well.

3. OTHER 2008 ACTIVITIES

- On 14 March 2008 NEC participated in the MEW All-Parties Meeting held at the San Francisco offices of Cooley Godward, LLP.

- On 12 June 2008, NEC participated in the MEW All-Parties Meeting held at the Oakland offices of Northgate Environmental Management, Inc (Northgate).

- On 26 June 2008, NEC participated in the MEW All-Parties Meeting held at the City of Mountain View City Hall.

- On 3 September 2008, Geosyntec submitted on behalf of NEC the Optimization Evaluation for the SCGRW system at 501 Ellis Street [Geosyntec, 2008d]. Results of the optimization evaluation are discussed in Section 7 of this report.

- On 3 December 2008, NEC participated in the MEW All-Parties Meeting held at the Oakland offices of Geosyntec.

4. PROBLEMS ENCOUNTERED

The SCGWR system was offline for a 7 day period between 27 May and 2 June. The system was shut down on 27 May due to a flooded vault at NEC-27AE. The system shutdown was not observed by Locus until the next scheduled Site visit on 2 June due to a dead backup battery in the system autodialer. In response to the problem, the autodialer battery was replaced and an annual replacement of the battery was incorporated into the routine SCGWR O&M program.

5. TECHNICAL ASSESSMENT

Is the remedy functioning as intended? Yes, the SCGWR system is effectively extracting and treating 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. The capture zones for each semi-annual depth to groundwater measuring event were calculated using both the Javandel and Tsang methodology (Figures 4 and 5) and a site-specific numerical simulation (Figures 6 and 7). 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 9, TCE concentrations in monitoring well NEC-1A have decreased from a maximum concentration of 2,400 μg/L in November 1991 to 150 μg/L during the December 2008 monitoring event. Mann-Kendall trend analyses of Site monitoring and extraction wells indicate generally stable or decreasing TCE concentrations since SCGWR system startup in May 1997.

6. CONCLUSIONS AND RECOMMENDATIONS

During 2008, the SCGWR system functioned as designed, and a total of 3.32 pounds of VOCs were removed. A problem with the system autodialer backup battery resulted in the SCGWR system being offline from 27 May through 2 June. The problem was resolved, and annual replacement of the backup battery has been incorporated into the SCGWR system O&M program.

Converging lines of evidence indicate the capture zones at the Site are adequate for the A aquifer at the Site. The capture zones for the semi-annual depth to groundwater measuring events were calculated using the Javandel and Tsang methodology along with 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 150 μg/L in December 2008.

7. FOLLOW-UP ACTIONS

Vapor Intrusion Remedial Investigation/Feasibility Study

On 8 March 2006, EPA sent a letter to the MEW Companies, including NASA and the Navy, requesting a Supplemental Remedial Investigation/Feasibility Study (RI/FS) Work Plan and a RI/FS Report for vapor intrusion [EPA, 2006]. The RI/FS Work Plan was submitted to EPA on 12 May 2006 [Locus, 2006a]. By e-mail, on 16 June 2006, EPA conditionally approved the RI/FS Work Plan. The Supplemental RI Report was submitted to EPA on 14 August 2006 [Locus, 2006b] and the Supplemental FS Report was submitted to EPA on 16 October 2006 [Locus, 2006c]. EPA provided comments via email on the Supplemental RI/FS on 15 November 2007. The Revised Supplemental FS Report was submitted to EPA on 24 January 2008 [Locus, 2008a] and the Revised Supplemental RI Report was submitted to EPA on 15 February 2008 [Locus, 2008b]. At the time of this report, EPA has not approved the Revised RI and FS Reports.

Groundwater Focused Feasibility Study

A Focused Feasibility Study (FFS) Work Plan for groundwater was submitted to the EPA on 31 July 2006 [Northgate, 2006]. The EPA provided comments on the FFS Work Plan on 26 July 2007 and conditionally approved the FFS Work Plan on 27 September 2007. Responses to EPA's comments on the FFS Work Plan were submitted on 17 January 2008. On 14 April 2008, Volume 1 of the Draft Site-Wide Focused Feasibility Study and Technical Impracticability Evaluation (FFS/TI) Report was submitted to EPA [Northgate, 2008]. In a letter dated 5 June 2008, EPA stated that the Draft FFS/TI Report was incomplete and inadequate and requested an optimization evaluation for the MEW Study Area be completed as a necessary first step before resumption of the FFS process. Following submittal of the facility-specific and regional optimization evaluations for the MEW Study Area on 3 September 2008, EPA presented a revised framework for the FFS process. The revised framework includes treatability studies and data gap evaluations to support the FFS in 2009, with the majority of the FS development to occur in 2010. Minor revisions to the proposed framework were suggested by the MEW Parties and transmitted to the EPA on 30 January 2009. At the time of this report, EPA has not approved the revised FFS framework.

SCGWR System Optimization Evaluation

In a letter dated 5 June 2008, EPA requested that an optimization evaluation of the SCGWR system at 501 Ellis Street be conducted. Geosyntec, on behalf of NEC, submitted an Optimization Evaluation of the SCGWR system on 3 September 2008 [Geosyntec, 2008d]. The Optimization Evaluation recommended the following:

- Modify the groundwater extraction rates. Based on the evaluation of groundwater extraction rates for the Site SCGWR system, the following modifications to groundwater extraction can be implemented to improve cost effectiveness while maintaining effective groundwater capture:
  - Discontinue groundwater extraction from NEC-1AE. The pump in NEC-1AE will continue to be maintained in case extraction needs to be resumed.
  - Continue operation of NEC-27AE and NEC-28AE at extraction rates near or slightly greater than 2.0 gpm. If 2.0 gpm cannot be maintained in NEC-28AE, then low rate extraction from NEC-1AE could be resumed.
  - Continue monitoring 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).
- Review results of treatability studies conducted by other MEW parties to evaluate their applicability to reduce the highest concentrations of VOCs detected in Site groundwater.

At the time of this report, EPA has not provided written approval of the Optimization Evaluation Report. However, during a 3 November 2008 meeting between EPA and Geosyntec, EPA concurred with the above recommendations provided that the following concerns were addressed:

- Contingencies are provided for the restart of extraction well NEC-1AE if groundwater capture becomes inadequate.

- A monitoring program would be implemented to evaluate groundwater capture.

Section 8 of this report includes a description of modifications to the groundwater extraction program, criteria for evaluation system performance (including groundwater capture), and contingencies for the restart of extraction well NEC-1AE.

8. IMPLEMENTATION OF OPTIMIZATION EVALUATION RECOMMENDATIONS

Following the 3 November 2008 meeting between EPA and Geosyntec, NEC authorized Geosyntec to begin implementing the recommendations presented in the Optimization Evaluation.

8.1 Permitting for Discharge to Palo Alto RWQCP

On 9 December 2008, NEC submitted to the City of Mountain View Fire and Environmental Protection Division (the "City") an application packet for discharge to the sanitary sewer of groundwater extracted at 501 Ellis Street. The City tentatively approved the application and provided a draft wastewater discharge permit on 3 February 2009. A copy of the draft permit is provided as Appendix E. Issuance of the final permit is expected once modifications to the SCGWR system are complete.

8.2 Modifications to SCGWR System

In order to comply with requirements in the wastewater discharge permit, NEC is installing a water meter to monitor discharge to the sanitary sewer. Installation of the water meter is expected to be completed in April 2009.

No other modifications to the SCGWR system are required for discharge to the sanitary sewer. Once discharge to the sanitary sewer begins, flow through the SCGWR system will be routed such that the carbon vessels are bypassed and extracted groundwater is directly discharged to the sanitary sewer without treatment.

The water meter is being installed such that discharge to Stevens Creek under an NPDES permit can be resumed if necessary.

8.3 Revised SCGWR Extraction and Monitoring Program

Once SCGWR system modifications are complete and the final wastewater discharge permit issued (expected in late April 2009), the groundwater extraction rates for the system will be modified and discharge to the sanitary sewer initiated. Once discharge to the sanitary sewer begins, the RWQCB will be notified, reporting under quarterly

NDPES monitoring requirements will cease, and a revised monitoring and reporting program will be initiated. The sections below describe the revised programs for monitoring groundwater capture and VOC concentrations.

Groundwater Extraction

Beginning concurrently with discharge to the sanitary sewer, groundwater extraction rates for the system will be modified as follows:

- NEC-1AE: 0 gpm (well shut down)
- NEC-27AE: Nominal 2.0 gpm
- NEC-28AE: Nominal 2.0 gpm

In order to confirm continued groundwater capture under the modified pumping regime, NEC will undertake the following steps:

- Locus will continue to conduct routine (monthly) O&M visits to the SCGWR system. During the O&M visits, Locus will record system flow rates. Geosyntec will review the monthly O&M logs and work with Locus to maintain flow rates near or above 2.0 gpm in wells NEC-27AE and NEC-28AE.

- For the first year of operation under the modified pumping regime, Geosyntec will evaluate groundwater capture on a quarterly basis using the site-specific numerical model and actual groundwater extraction rates. Results of the quarterly groundwater capture evaluation for the first year will be included in the 2009 Annual Report. If groundwater capture is determined to be adequate, the evaluation frequency will be reduced to semi-annually after the first year of operation.

Groundwater Monitoring

As required by the draft wastewater discharge permit (Appendix E), quarterly grab groundwater samples will be collected from the SGCRW system effluent. The quarterly samples will be used to confirm that system discharge is in compliance with local limits for industrial wastewater effluent. The samples will be analyzed for VOCs

and methyl tert-butyl ether (MTBE) by EPA Method 624. Results will be electronically submitted on a quarterly basis to the City once received from the analytical laboratory.

Results of the effluent samples will also be used to calculate VOC mass removed by the SCGWR system on a quarterly basis. Mass removal will continue be reported in future Annual Reports.

For the first year of operation under the modified pumping regime, quarterly groundwater samples will also be collected from well NEC-1AE and analyzed for VOCs. Results from these samples will be used to evaluate concentration rebound at that well in the absence of groundwater extraction. Sample results from NEC-1AE and an evaluation of concentration rebound will be included as part of the 2009 Annual Report, along with any recommended changes to the monitoring program, if warranted.

Groundwater monitoring wells will continue to be sampled annually in the fourth quarter.

8.4 Contingencies for Restart of Extraction Well NEC-1AE

Extraction well NEC-1AE will be restarted if a) turning the well off results in incomplete capture of A aquifer groundwater beneath the site or b) significant concentration rebound is observed in the extraction well once shut down.

Incomplete Capture

Groundwater capture will be evaluated quarterly using the site-specific numerical model and groundwater extraction rates for the SCGWR system. If particle pathlines generated by the numerical model indicate incomplete capture of the A aquifer groundwater beneath the Site, NEC will:

- Notify EPA that simulation results indicate incomplete capture and NEC-1AE will be restarted.

- Restart NEC-1AE at 0.5 gpm. Capture will be reevaluated using the numeric simulation after two weeks of operation to determine if groundwater capture is complete.

- If groundwater capture remains incomplete, groundwater extraction at NEC-1AE will continue to be increased in a step-wise manner (0.5 gpm increments) until complete capture can be demonstrated.

Concentration Rebound

Since November 2000, the average concentration of TCE at extraction well NEC-1AE has been 220±70 µg/L. For the first year of system operation with NEC-1AE not extracting groundwater, quarterly groundwater samples will be collected from NEC-1AE and analyzed for VOCs to evaluate concentration rebound. Because soil matrix diffusion is believed to be an important process at the Site, some concentration rebound may be expected following shut down of NEC-1AE as TCE desorbs from the pore spaces in the low permeability materials.

Concentration rebound will be considered significant and NEC-1AE potentially restarted if Mann-Kendall trend analysis shows a statistically significant (80% confidence interval) increase in TCE concentration at NEC-1AE.

If statistically significant concentration rebound is observed, NEC-1AE will be restarted at a nominal flow rate of 0.5 gpm and quarterly monitoring of VOCs continued to evaluate concentration trends. Operation of NEC-1AE may be continuous or pulsed depending on the observed VOC concentration response during subsequent monitoring events. If warranted, further modifications to the NEC-1AE extraction program in response to observed VOC concentration trends will be evaluated as part of the 2009 Annual Report.

9. UPCOMING WORK IN 2009 AND PLANNED FUTURE ACTIVITIES

January	• SCGWR system influent and effluent sampling • Submit 4th quarter NPDES Report to RWQCB
February	• SCGWR system influent and effluent sampling
March	• SCGWR system influent and effluent sampling • Groundwater level measurements
April	• SCGWR system influent and effluent sampling • Submit 1st quarter NPDES Report to RWQCB • Submit Annual Status Report to USEPA
May	• Initiate discharge to City of Mountain View sanitary sewer under wastewater discharge permit
June	• Quarterly SCGWR system effluent sampling • Quarterly sampling of NEC-1AE
July	• Submit 2nd quarter NPDES Report to RWQCB (if necessary for April extraction under NPDES permit)
August	• No work planned
September	• Quarterly SCGWR system effluent sampling • Quarterly sampling of NEC-1AE
October	• No work planned
November	• Groundwater level measurements • Groundwater sampling
December	• 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

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
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		26	94,470	4,544	140.5	0	0.11
Apr 16, 2002 - May 22, 2002	4/24/2002	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		21	255,090	9,769	202	0	0.43
July 11, 2002 - Aug 21, 2002	7/29/2002	42	193,600	6,518	141.8	0	0.23
Aug 22, 2002 - Sep 18, 2002		27	143,530	4,870	201.2	0	0.24
Sep 19, 2002 - Oct 17, 2002	10/1/2002	28	175,390	5,770	203.8	0	0.30
Oct 18, 2002 - Nov 20, 2002		33	250,780	6,920	201	0	0.42
Nov 21, 2002 - Dec 18, 2002	11/25/2002	27	184,290	7,009	137.2	0	0.21
Dec 19, 2002 - Jan 22, 2003		35	220,900	6,330	189.3	0	0.35
Jan 23, 2003 - Feb 19, 2003	2/10/2003	28	166,230	6,183	226.7	0	0.31
Feb 20, 2003 - Mar 19, 2003		28	179,360	6,090	166.3	0	0.25
Mar 20, 2003 - Apr 28, 2003	4/1/2003	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		41	227,380	5,732	160	0	0.30
July 1, 2003 - Aug 5, 2003	7/8/2003	36	230,950	6,186	186	0	0.36
Aug 6, 2003 - Sep 3, 2003		28	160,410	5,960	143.4	0	0.19
Sep 4, 2003 - Sep 30, 2003	9/9/2003	26	166,270	6,162	195.7	0	0.27
Oct 1, 2003 - Nov 5, 2003		35	238,150	6,608	186	0	0.37
Nov 6, 2003 - Dec 5, 2003	11/18/2003	29	186,150	6,225	200.4	0	0.31
Dec 6, 2003 - Dec 31, 2003		25	164,280	6,315	201.4	0	0.28
Jan 1, 2004 - Jan 28, 2004	1/12/2004	27	168,040	6,235	199.1	0	0.28
Jan 29, 2004 - Feb 27, 2004		29	183,810	6,169	167.1	0	0.26
Feb 28, 2004 - Mar 29, 2004	3/8/2004	30	191,270	6,587	168.7	0	0.27
Mar. 30, 2004 - Apr. 22, 2004		23	149,410	6,546	173.8	0	0.22
Apr. 23, 2004 - May 19, 2004	4/19/2004	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		30	171,870	5,729	144.8	0	0.21
July 22, 2004 - Aug 17, 2004	8/2/2004	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		28	145,290	5,189	131.9	0	0.16
Oct 21, 2004 - Nov 15, 2004	11/3/2004	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		28	205,800	7,350	144.9	0	0.25
Jan 20, 2005 - Feb 15, 2005	1/24/2005	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		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	8/17/2005 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		39	302,470	7,756	158.5	0	0.40

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
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
TOTALS		4,051	26,899,290	6,651	--	--	36.63
AVERAGES		--	--	--	164.3	1.8	--

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
Extraction Wells						
NEC27AE	May-97	43.73	6	0.02	12.7-27.7	A
NEC1AE	May-97	43.90	6	0.02	12.8-27.8	A
NEC28AE	Apr-02	42.70	6	0.02	9-29	A
Monitoring Wells						
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
NEC22A	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"

Table 3
Groundwater Levels - March 2008
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
NEC1A	44.47	9.42	35.05	A
NEC1AE	43.90	10.80	33.10	A
NEC3A	43.76	7.6	36.16	A
NEC7A	43.80	10.28	33.52	A
NEC8A	42.29	9.74	32.55	A
NEC9A	43.14	8.00	35.14	A
NEC10A	39.43	6.96	32.47	A
NEC11A	45.97	10.79	35.18	A
NEC12A	44.24	9.40	34.84	A
NEC20A	46.62	8.65	37.97	A
NEC21A	44.06	8.01	36.05	A
NEC22AE	43.17	8.73	34.44	A
NEC23A	43.77	9.12	36.65	A
NEC24A	44.50	9.88	34.62	A
NEC25A	42.30	8.37	33.93	A
NEC26A	43.65	8.84	34.81	A
NEC27AE	43.73	14.4	29.33	A
NEC28AE	42.27	10.79	31.48	A
NEC-PZ-1A	42.47	9.85	32.62	A
NEC-PZ-2A	43.02	10.02	33.00	A
NEC-PZ-3A	43.16	8.42	34.74	A
29A[1]	46.08	11.23	34.85	A
32A[1]	45.06	10.94	34.12	A
119A[1]	45.95	11.38	34.57	A
153A[1]	45.72	10.93	34.79	A
158A[1]	48.09	10.03	38.06	A

[1] Regional Groundwater Remediation Program (RGRP) monitoring wells.

Table 4
Groundwater Levels - November 2008
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
NEC1A	44.47	9.81	34.66	A
NEC1AE	43.90	11.32	32.58	A
NEC3A	43.76	8.03	35.73	A
NEC7A	43.80	10.76	33.04	A
NEC8A	42.29	10.2	32.09	A
NEC9A	43.14	8.53	34.61	A
NEC10A	39.43	7.29	32.14	A
NEC11A	45.97	10.16	35.81	A
NEC12A	44.24	10.11	34.13	A
NEC20A	46.62	9.28	37.34	A
NEC21A	44.06	8.55	35.51	A
NEC22A	43.17	9.22	33.95	A
NEC23A	43.77	9.7	34.07	A
NEC24A	44.50	10.37	34.13	A
NEC25A*	42.30	-	-	A
NEC26A	43.65	9.31	34.34	A
NEC27AE	43.73	15.27	28.46	A
NEC28AE	42.27	11.18	31.09	A
NEC-PZ-1A	42.47	10.35	32.12	A
NEC-PZ-2A	43.02	10.5	32.52	A
NEC-PZ-3A	43.16	9.85	33.31	A
29A[1]	46.08	11.70	34.48	A
32A[1]	45.06	10.94	33.56	A
119A[1]	45.95	12.09	33.86	A
153A[1]	45.72	11.40	34.32	A
158A[1]	48.09	10.55	37.54	A

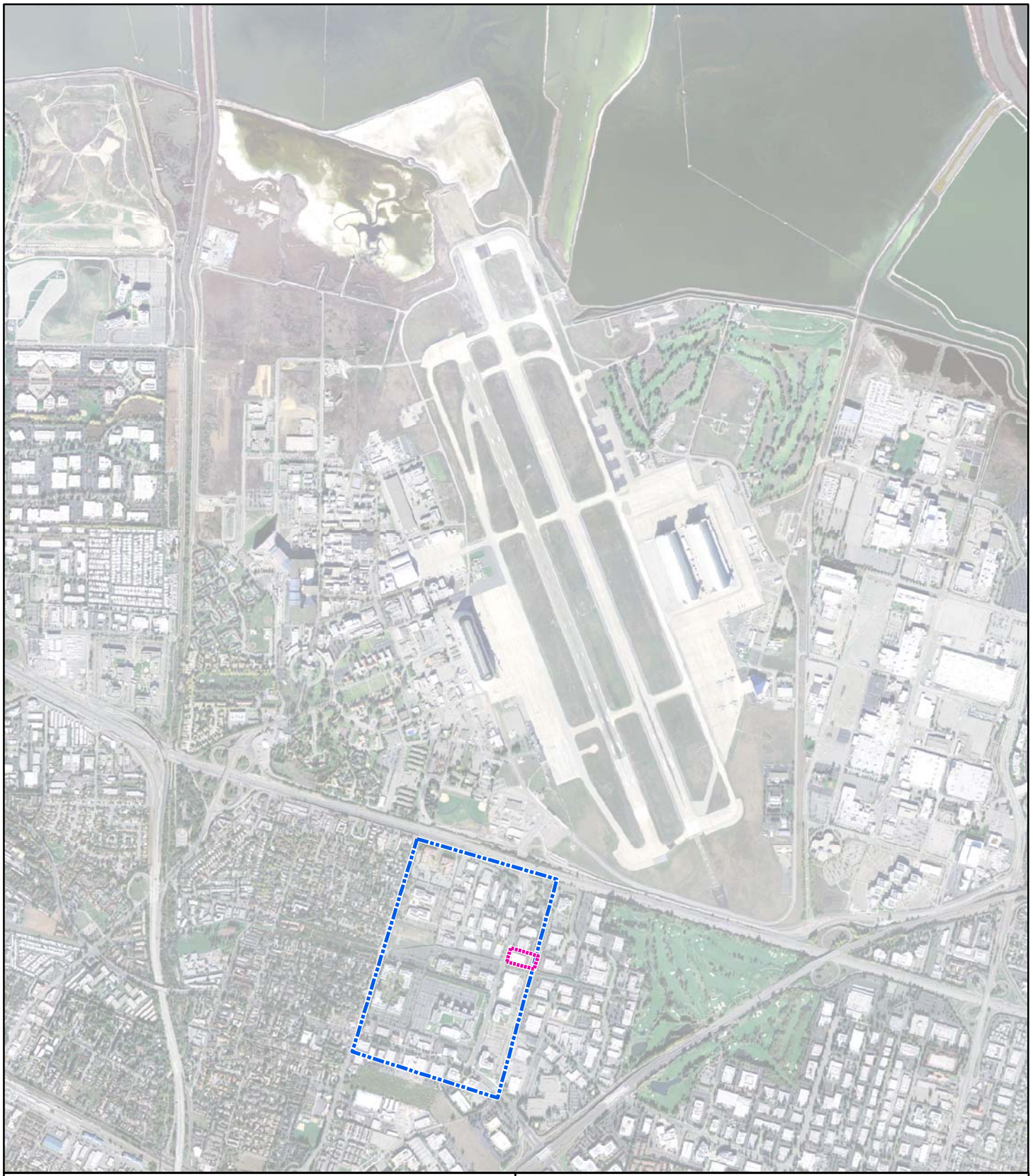
[1] Regional Groundwater Remediation Program (RGRP) monitoring wells.
*Access to well NEC25A was obstructed by a parked car and well could not be gauged.

Table 5
December 2008 Analytical Data from Groundwater Monitoring Wells
501 Ellis Street, Mountain View, California

WELL ID	NEC1A	NEC1AE	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	12/04/08	12/04/08	12/02/08	12/02/08	12/02/08	12/02/08	12/02/08	12/03/08	12/03/08	12/03/08	12/03/08	12/03/08	12/03/08	12/03/08	12/03/08	12/04/08	12/04/08	12/02/08	12/02/08	12/02/08	12/02/08
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Bromodichloromethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromoform	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromomethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Carbon Tetrachloride	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chlorobenzene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chloroethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
2-Chloroethyl vinyl ether	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chloroform	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chloromethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.4)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Dibromochloromethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichlorobenzene	ND (0.5)	2.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	2.3	1.2	ND (0.5)	ND (0.5)	0.6	ND (0.5)	ND (0.5)	0.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,3-Dichlorobenzene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,4-Dichlorobenzene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethene	ND (0.5)	ND (0.5)	0.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	1.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
cis-1,2-Dichloroethene	8.9	20	10	11	52	8.2	55	2.7	0.6	21	24	27	35	7.4	3.4	12	26	7.1	9.3	11	12
trans-1,2-Dichloroethene	2.5	9.1	ND (0.5)	1.1	2.7	ND (0.5)	2.0	ND (0.5)	ND (0.5)	0.8	ND (0.5)	ND (0.5)	1.3	2.3	ND (0.5)	1.4	12	0.6	0.8	1.9	2
1,2-Dichloropropane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
cis-1,3-Dichloropropene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
trans-1,3-Dichloropropene	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Freon 113	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Methylene Chloride	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
1,1,2,2-Tetrachloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Tetrachloroethene	1.2	1.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.5	ND (0.5)	ND (0.5)	ND (0.5)	0.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	1.1	1
1,1,1-Trichloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1,2-Trichloroethane	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trichloroethene	150	160	66	120	22	28	15	0.8	1.2	4.7	30	92	52	39	94	100	95	50	20	76	77
Trichlorofluoromethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Vinyl Chloride	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	14	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)

Notes: Samples analyzed by EPA Method 8260 (8010 Analyte list) by Curtis & Tompkins, Ltd.
ND - Analyte not detected above listed detection limit

FIGURES



Legend

501 Ellis Street

MEW

N

NOTE:
Aerial photogrpahy provided by TerraServer.
Boundaries are approximate.

0 1,000 2,000 Feet

Figure 1
Site Location Map

501 Ellis Street
Mountain View, California

Project WR0434	April 2009	Geosyntec consultants

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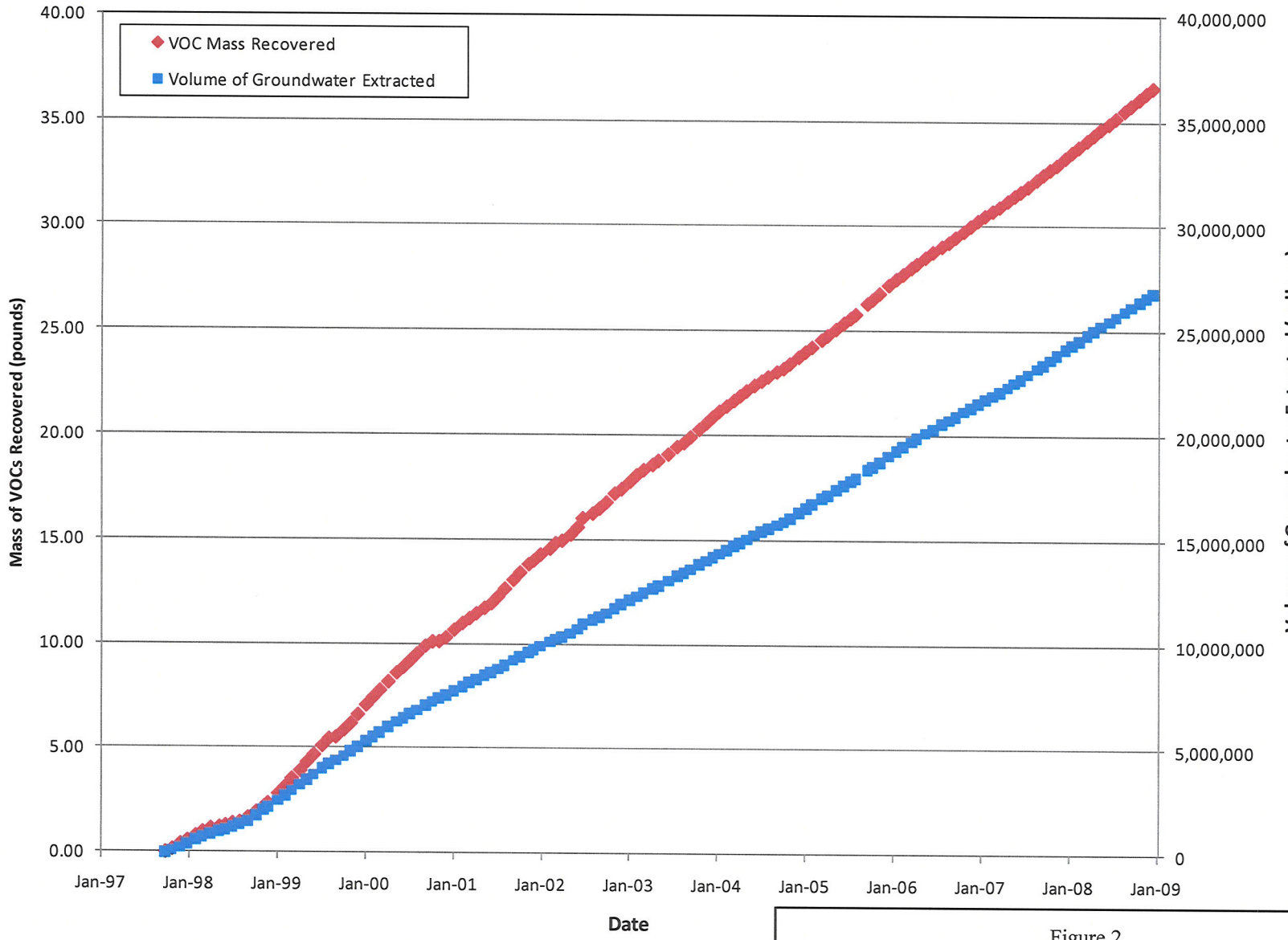

Figure 2
Groundwater Extracted and Mass of VOCs Removed

April 2009	501 Ellis Street Mountain View, California	Geosyntec consultants

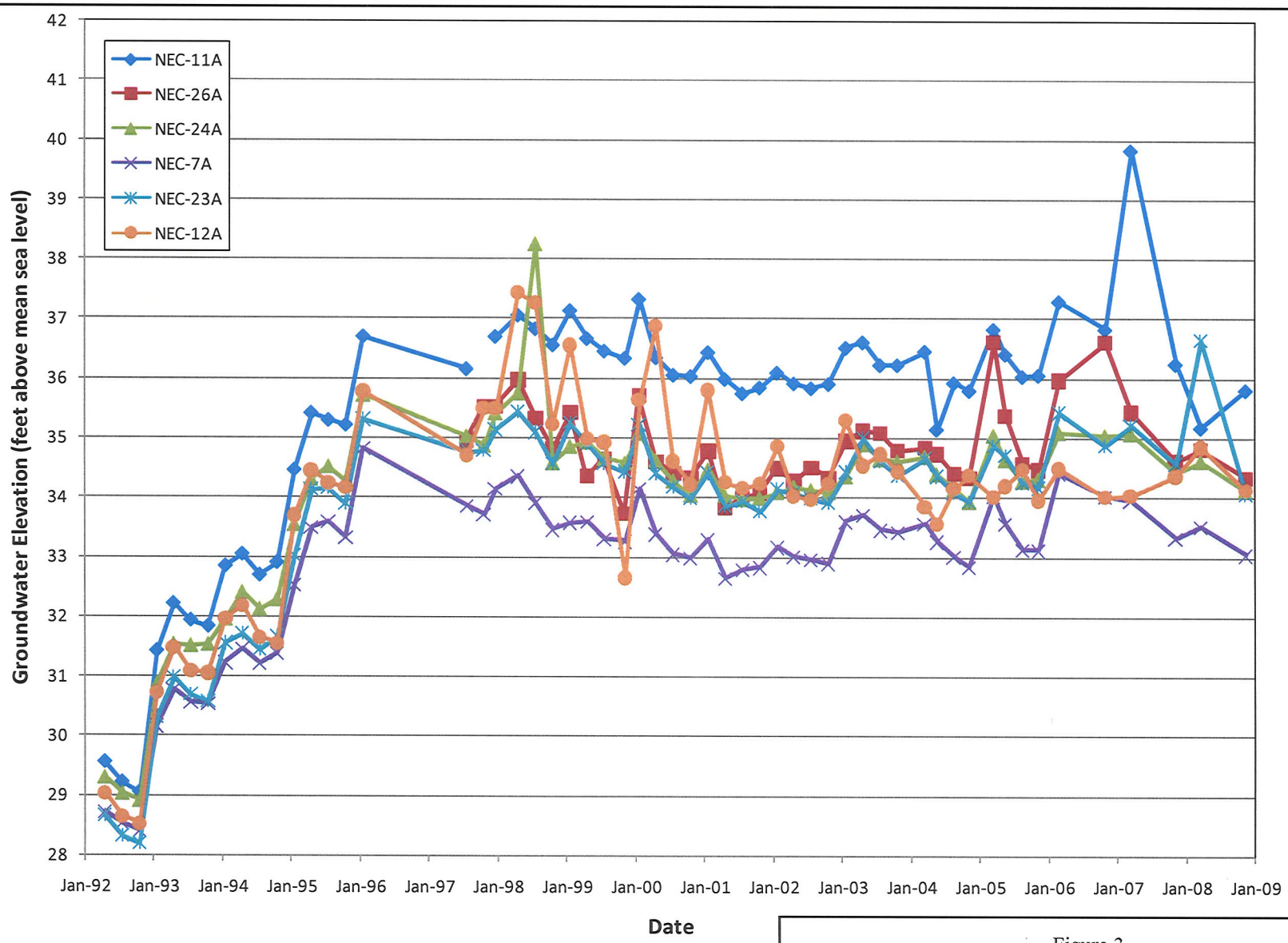

Figure 3
Groundwater Elevations in Selected Monitoring Wells

April 2009	501 Ellis Street Mountain View, California	Geosyntec consultants

NEC10A
(32.47)

ELLIS STREET

555A ELLIS STREET

33

34

515 ELLIS STREET

Gradient

32

NEC-PZ-2A
(33)

NEC-PZ-1A
(32.62)

NEC-PZ-3A
(34.74)

32

NEC8A
(32.55)

NEC28AE
(31.48)

NEC22A
(34.44)

32

30

NEC27AE
(29.33)

31

NEC25A
(33.93)

NEC9A
(35.14)

33

NEC23A*
(34.65)

NEC12A
(34.84)

35

501 ELLIS STREET

34

32A
(34.12)

NEC7A
(33.52)

NEC21A
(36.05)

36

NEC24A
(34.62)

NEC1AE
(33.1)

NEC3A
(36.16)

NEC26A
(34.81)

NEC1A
(35.05)

S.F. WATER DISTRICT

119A
(34.57)

153A
(34.79)

29A
(34.85)

35

NEC11A*
(35.18)

37

36

NEC20A
(37.97)

37

158A
38.06

ELLIS STREET

475 ELLIS STREET

Legend

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

* Asterisk indicates well with short screen interval, not used with contouring.
NM - Not Measured
MSL - Mean Sea level

N

0 40 80 160 Feet

Figure 4
Groundwater Elevation Contour Map and Capture Zone
First Quarter 2008

501 Ellis Street
Mountain View, California

Project WR0434	April 2009	Geosyntec consultants

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NEC10A
(32.14)

ELLIS STREET

555A ELLIS STREET

515 ELLIS STREET

Gradient

32

33

34

35

36

37

NEC-PZ-1A
(32.12)

NEC-PZ-2A
(32.52)

NEC-PZ-3A
(33.31)

NEC28AE
(31.09)

NEC8A
(32.09)

NEC22A
(33.95)

NEC23A
(NM)

NEC27AE
(28.46)

29

30

31

NEC9A
(34.61)

NEC12A
(34.13)

NEC23A*
(34.07)

32A
(33.56)

NEC7A
(33.04)

NEC21A
(35.51)

NEC1AE
(32.58)

NEC3A
(35.73)

NEC24A
(34.13)

NEC26A
(34.34)

NEC1A
(34.66)

119A
(33.86)

153A
(34.32)

29A
(34.38)

S.F. WATER DISTRICT

NEC11A
(35.81)

NEC20A
(37.34)

158A
(37.54)

ELLIS STREET

475 ELLIS STREET

Legend

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

* Asterisk indicates well with short screen interval, not used with contouring.
NM - Not Measured
MSL - Mean Sea level

N

0 40 80 160 Feet

Figure 5
Groundwater Elevation Contour Map and Capture Zone
Fourth Quarter 2008

501 Ellis Street
Mountain View, California

Project WR0434	April 2009	Geosyntec consultants

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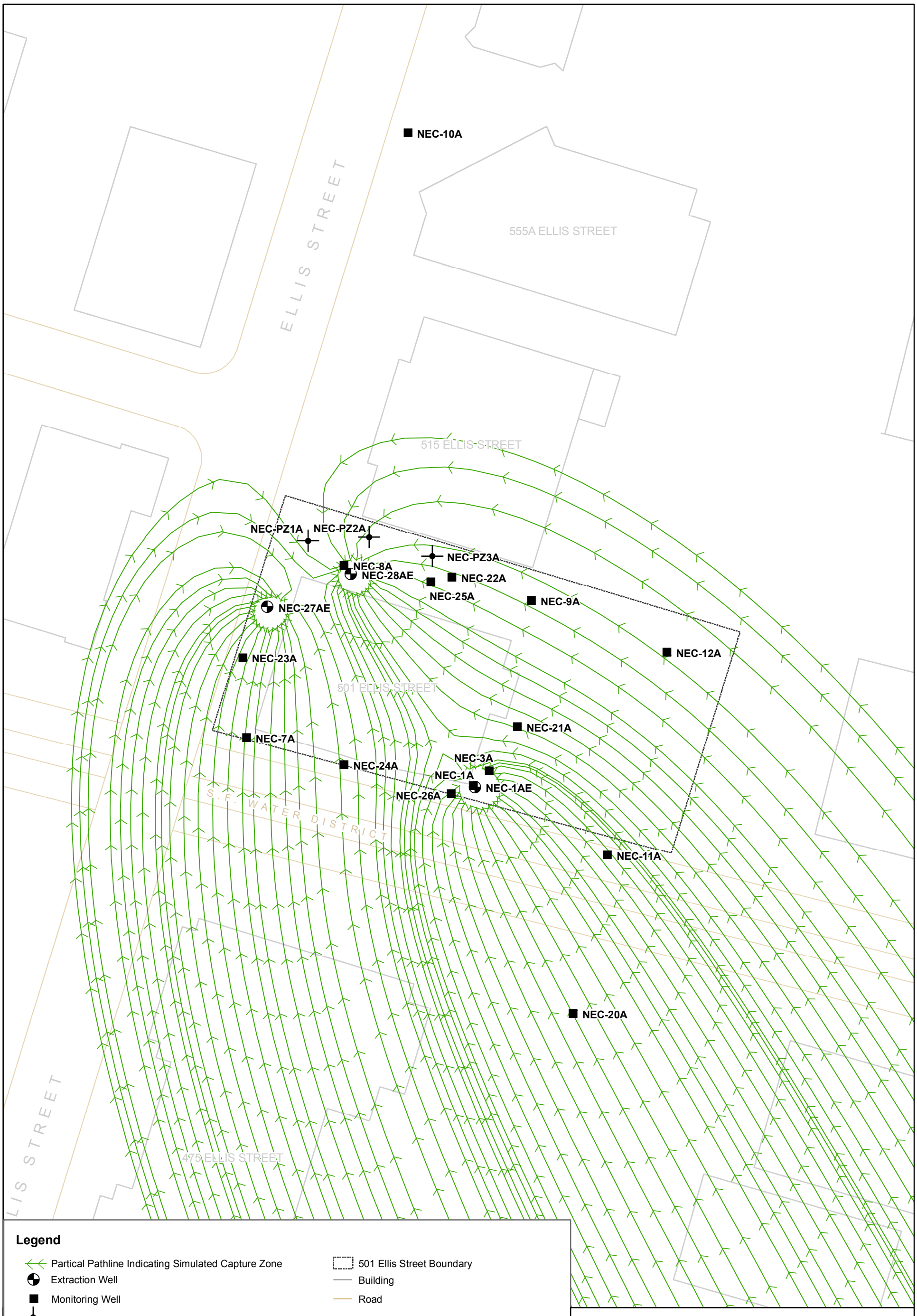

Figure 6
Simulated A Aquifer Capture Zone
First Quarter 2008

501 Ellis Street
Mountain View, California

Project WR0434	April 2009	Geosyntec consultants

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ELLIS STREET

555A ELLIS STREET

515 ELLIS STREET

501 ELLIS STREET

475 ELLIS STREET

S.F. WATER DISTRICT

NEC-PZ1A
NEC-PZ2A
NEC-PZ3A
NEC-8A
NEC-28AE
NEC-22A
NEC-25A
NEC-9A
NEC-27AE
NEC-12A
NEC-23A
NEC-21A
NEC-7A
NEC-3A
NEC-24A
NEC-1A
NEC-1AE
NEC-26A
NEC-11A
NEC-20A

Legend

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

Model Parameters:

Transmissivity: 91 ft^2/day	Extraction Rates (gpm)
Hydraulic Gradient 0.0008 ft/ft, N28W	NEC-1AE - 1.6 NEC-27AE - 1.8 NEC-28AE - 1.9
Recharge 1 in/yr	

N

0 40 80 160 Feet

Figure 7
Simulated A Aquifer Capture Zone
Fourth Quarter 2008

501 Ellis Street
Mountain View, California

Project WR0434	April 2009	Geosyntec consultants

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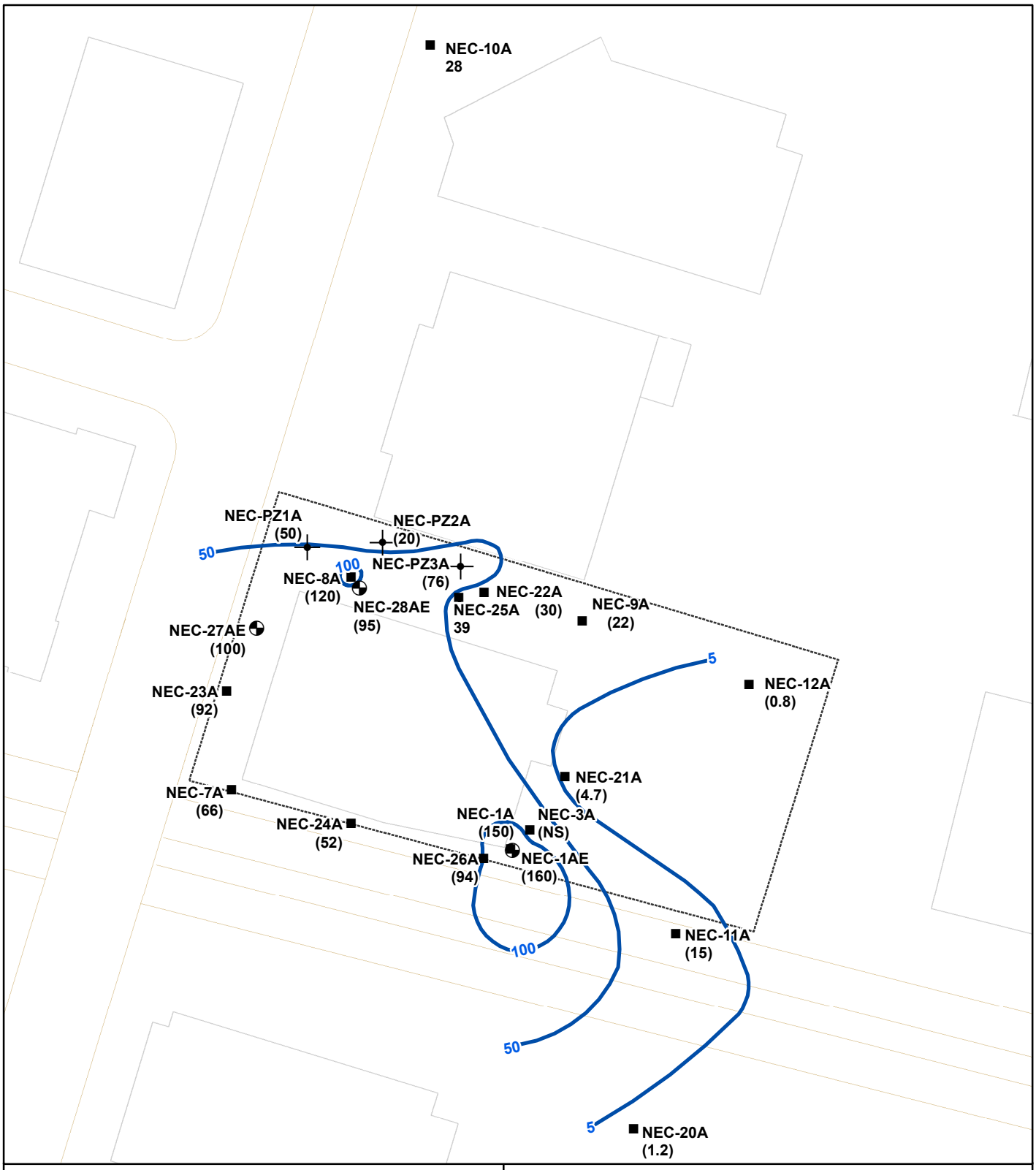


Legend

- Extraction Well
- Monitoring Well
- Piezometer
- Estimated TCE Concentration Contour ug/L
- 501 Ellis street Boundary

Feet: 0 25 50 100

N

Notes: ug/L - Micrograms per Liter; TCE - Trichloroethene
NS - Not Sampled

Figure 8
TCE Concentration Contour Map
Fourth Quarter 2008

501 Ellis Street
Mountain View, California

Project WR0434	April 2009	Geosyntec consultants

P:\GIS\NEC\Project\2008AnnualReport\TCE_08_A.mxd

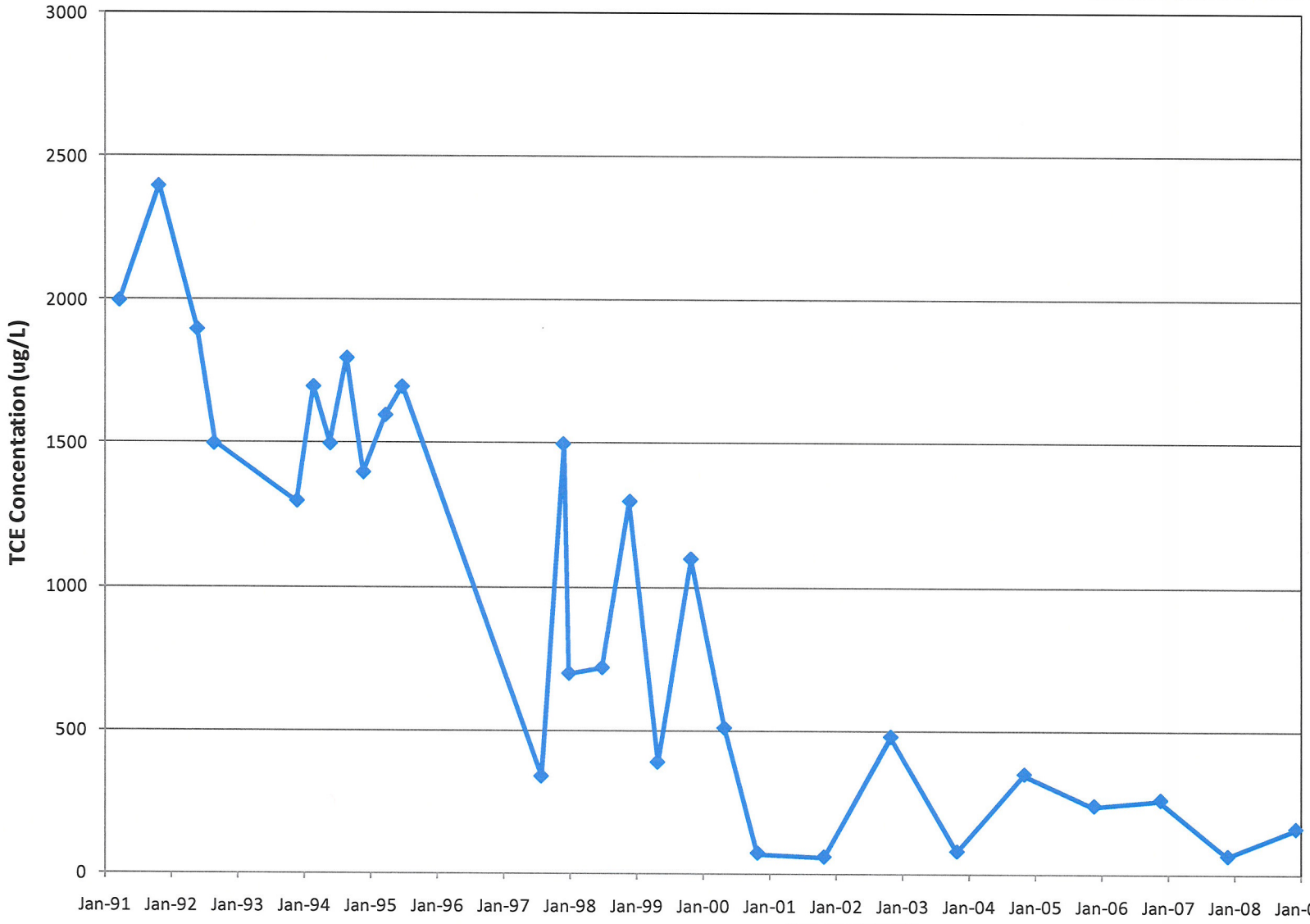


Figure 9
TCE Concentrations in Well NEC-1A

April 2009	501 Ellis Street Mountain View, California	Geosyntec consultants

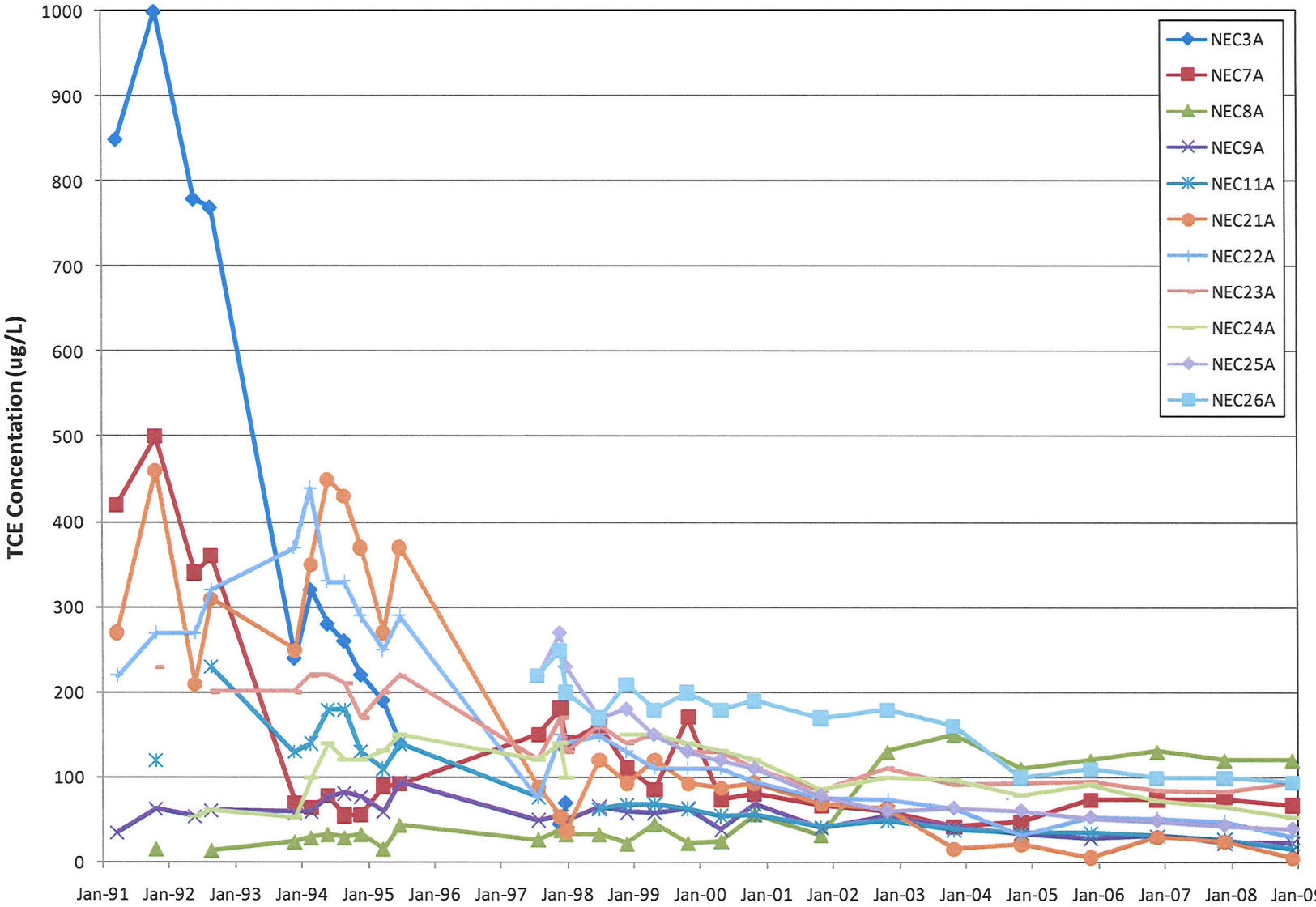
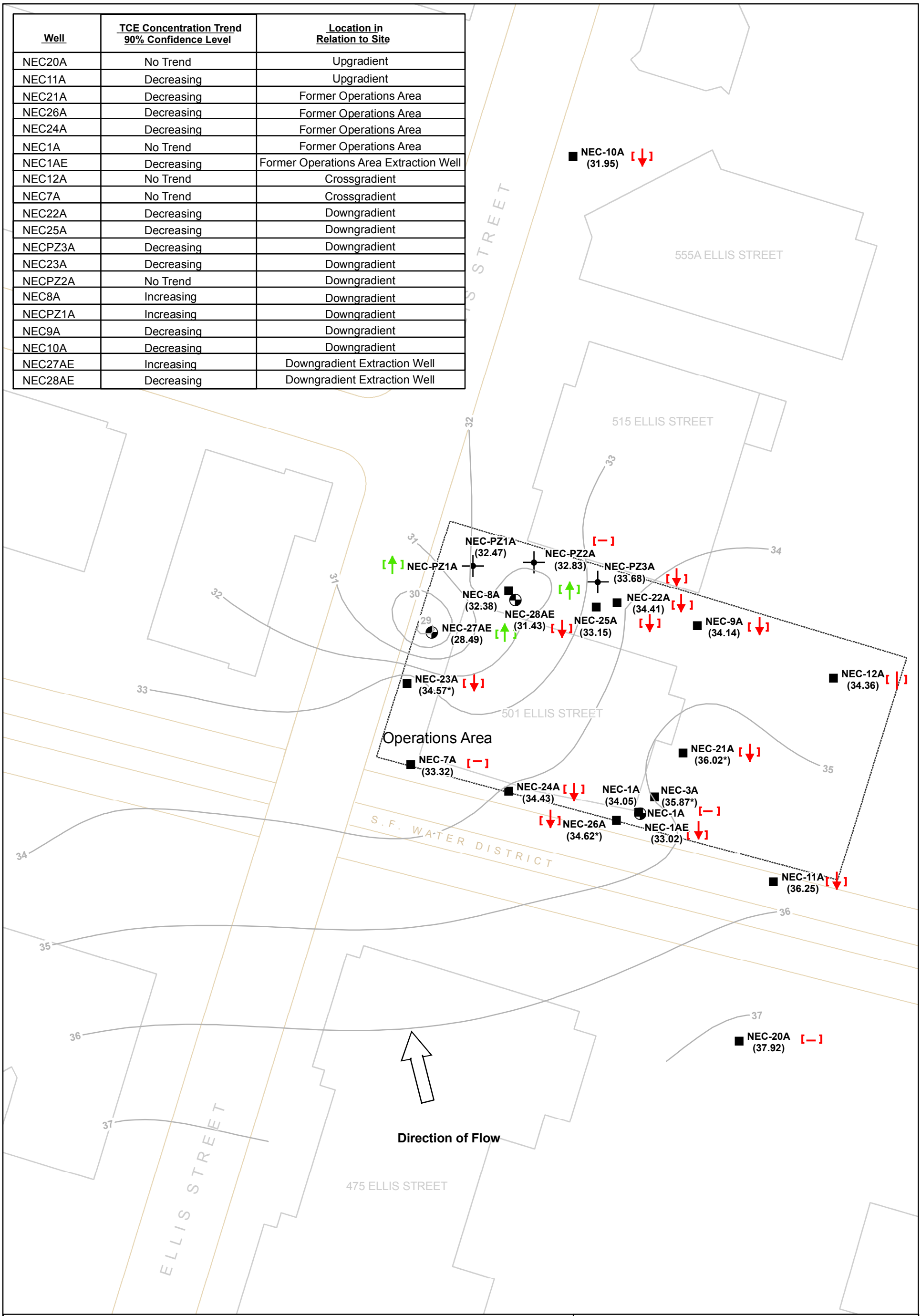


Figure 10
TCE Concentrations in Groundwater

April 2009	501 Ellis Street Mountain View, California	Geosyntec consultants

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



Legend

- Groundwater Elevation Contour (ft MSL)
- Extraction Well
- Monitoring Well
- Piezometer
- Increasing TCE Contentration Trend
- Decreasing TCE Concentration Trend
- Stable TCE Concentration Trend
- 501 Ellis Street Boundary
- Building
- Road

TCE - Trichloroethene
MSL - Mean Sea Level

N

Feet: 0, 40, 80, 160

* Asterisk indicates well not sampled for VOCs.

Figure 11
TCE Concentration Trend Analysis

501 Ellis Street
Mountain View, California

Project WR0434	April 2009	Geosyntec consultants

P:\GIS\NEC\Project\2008Aug\TCETrend.mxd

APPENDIX A

2008 Annual Report
Remedy Performance Checklist

2008 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 2009 | EPA Site ID: CAD980883268 (CERCLIS database)

Site Lead: ☐ Fund ☐ PRP ☐ State ☐ State Enforcement ☐ Federal Facility ☒ 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, First Five-Year Report for MEW Superfund Study Area, Mountain View, California."* U.S. EPA Region 9. September 2004.) **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 three A zone groundwater extraction wells, pre-filtration, treatment by a series of three liquid-phase GAC vessels, and discharge to a storm drain that leads to Stevens Creek under NPDES discharge permit No. CAG912003.

II. CONTACTS

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

	Name/Title	Phone	E-mail
PRP / Facility Representative	Peter M. Weinberg, Esq. General Counsel NEC Electronics America, Inc.	408.588.6157	Peter.Weinberg@am.necel.com
PRP Contractor/ Consultant	Carolyn Kneiblher, C.HG. Geosyntec Consultants Eric Suchomel, Ph.D., P.E. Geosyntec Consultants	510.836.3034	ckneiblher@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

2008 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:

2008 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:

2008 Annual Report Remedy Performance Checklist

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

Groundwater Quality Data

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

2008 Annual Progress Report submitted April 2009. Data includes groundwater levels, groundwater elevation contours and estimated captures zone analyses, groundwater sampling results (lab reports and summary tables) and TCE isoconcentration contour maps (annual only), and concentration versus time graphs for all monitoring wells.

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

Groundwater Pump & Treat Extraction Well and Treatment System Data

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

1) NPDES Self-Monitoring Reports submitted to the California Regional Water Quality Control Board, San Francisco Bay Region on a quarterly basis during 2008. Data includes extraction system operating parameters (e.g. flow rates, volumes, influent and effluent chemistry, etc) and operations and maintenance records

2) 2008 Annual Progress Report submitted April 2009. Data includes extraction system operating parameters (e.g. flow rates, volumes, influent and effluent chemistry, etc), operations and maintenance records, receiving water monitoring results, etc. per NPDES reporting requirements. In addition, the progress report documents site-related meetings, reports submitted, investigations performed, historical and current groundwater elevation and sampling results, etc.

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

Discharge Data

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

NPDES Self-Monitoring Reports submitted to the California Regional Water Quality Control Board, San Francisco Bay Region on a quarterly basis. Data includes extraction system operating parameters (e.g. flow rates, volumes, influent and effluent chemistry, etc), operations and maintenance records, receiving water monitoring results, etc.

☒ The system is in compliance with discharge permits.

Slurry Wall Data

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

Is slurry wall operating as designed? ☐ Yes ☐ No

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

Elaborate on technical data and/or other comments

2008 Annual Report Remedy Performance Checklist

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

Walk-throughs/Surveys: None during 2008

Air testing/monitoring conducted: No indoor air testing conducted at the Site in 2008.

Summary of Results: N/A

Problems Encountered: N/A

Recommendations/Next Steps:

No further action recommended.

Schedule:

X. REMEDY PERFORMANCE ASSESSMENT

A. Groundwater Remedies

What are the remedial goals for groundwater? ☒ Plume containment (prevent plume migration); ☒ Plume restoration (attain ROD-specific cleanup levels in aquifer); ☐ Other goals, please explain:

See Source Control discussion, Section C., below.

Have you done a trend analysis? ☒ Yes ☐ No; If Yes, what does it show?

(Is it inconclusive due to inadequate data? Are the concentrations increasing or decreasing?) Explain and provide source document reference.

Figures 9 and 10 of the 2008 Annual Report indicate decreasing or stable TCE concentrations in NEC monitoring wells.

If plume containment is a remedial goal, check all that apply:
☒ Plume migration is under control (explain basis below)
☐ Plume migration is not under control (explain basis below)
☐ Insufficient data to determine plume stability (explain below)
(Include attachments that substantiate your answers, e.g., reference plume, trend analysis, and capture zone maps in source document)

Elaborate on basis for determining that plume containment goal is being met or not being met:

Capture zone analysis indicates plume is contained (Figures 4 through 7 in the 2008 Annual Report)

If plume restoration is a cleanup objective, check all that apply:
☒Progress is being made toward reaching cleanup levels (explain basis below)
☐ Progress is not being made toward reaching cleanup levels (explain basis below)
☐ Insufficient data to determine progress toward restoration goal (explain below)

Elaborate on basis for determining progress or lack of progress toward restoration goal:

TCE concentrations within the plume are decreasing (Figure 8 in the 2008 Annual Report)

2008 Annual Report Remedy Performance Checklist

B. Vertical Migration

Have you done an assessment of vertical gradients? ☒ Yes ☐ No; If Yes, what does it show? (Is it inconclusive due to inadequate data? Are the concentrations increasing or decreasing? Explain and provide source document reference)

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 B2-B3 well pair were 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 three extraction wells and concentration trends are decreasing.

XI. PROJECTIONS

Administrative Issues
Dates of next monitoring and sampling events for next annual reporting period: 2009 Annual Monitoring will be scheduled by the MEW parties.

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

Remedy Projections for **the upcoming year (2009)**
☐ No significant changes projected.
☐ Groundwater remedy will be converted to monitored natural attenuation. Target date:
☐ Groundwater Pump & Treat will be shut down. Target date:
☐ Groundwater cleanup standards to be modified. Target date:
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Change in the number and/or types of analytes being analyzed. ☐ Increasing or ☐ decreasing? Target date:
☒ Change in groundwater extraction system. Expansion or minimization (i.e., number of extraction wells and/or pumping rate)? Target date: 1 May 2009
☒ Modification on groundwater treatment? Elaborate below. Target date: 1 May 2009
☒ Change in discharge location. Target date: 1 May 2009
☐ Other modification(s) anticipated:_____ Elaborate below. Target date:

Elaborate on Remedy Projections:

Based on results of groundwater optimization evaluation (submitted to EPA on 3 September 2008), groundwater extraction will be modified to pump from wells NEC-27AE and NEC-28AE at 2.0 gpm per well (NEC-1AE turned off). Extracted water will no longer be treated by GAC. Water will instead be directly discharged to City of Mountain View sanitary sewer under an industrial wastewater discharge permit granted by the City.

Remedy Projections for **the long-term** (Check all that apply)
☐ No significant changes projected.
☐ Groundwater remedy will be converted to monitored natural attenuation. Target date:
☐ Groundwater Pump & Treat will be shut down. Target date:
☐ Groundwater cleanup standards to be modified. Target date:
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Change in the number and/or types of analytes being analyzed. ☐ Increasing or ☐ decreasing? Target date:

2008 Annual Report Remedy Performance Checklist

☒ Change in groundwater extraction system. Expansion or minimization (i.e., number of extraction wells and/or pumping rate)? Target date:
☒ Modification on groundwater treatment? Elaborate below. Target date:
☒ Change in discharge location. Target date:
☐ Other modification(s) anticipated:_____ Elaborate below. Target date:

Elaborate on Remedy Projections:

Projected long-term remedy projections are the same as the projections for 2009

B. Projections – Slurry Walls (Check all that apply) – N/A

Remedy Projections for **the upcoming year**
☐ No significant changes projected.
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Other modification(s) anticipated:_____ Elaborate below. Target date:

Elaborate on Remedy Projections:

Remedy Projections for **the long-term**
☐ No significant changes projected.
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Other modification(s) anticipated:_____ Elaborate below. Target date:

Elaborate on Remedy Projections:

C. Projections – Other Remedial Options Being Reviewed to Enhance Cleanup

Progress implementing recommendations from last report or Five-Year Review
Has optimization study been implemented or scheduled? ☒ Yes; ☐ No; If Yes, please elaborate.

Pumping rate in extraction well NEC-28AE has been incrementally increased over the past year. Based on optimization evaluation, extraction from NEC-28AE will continue at the increased rate (nominally 2.0 gpm) in 2009.

XII. ADMINISTRATIVE ISSUES
Check all that apply:

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

Date of Next EPA Five-Year Review: **September 30, 2009**

2008 Annual Report Remedy Performance Checklist

XII. RECOMMENDATIONS

APPENDIX B

Capture Zone Calculations

CALCULATIONS FOR CAPTURE ZONE ANALYSIS – 1ST QUARTER 2008

The 1st quarter 2008 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 4th Quarter 2004 and reflect the current understanding of the Site. Other than the pumping rates of the extraction wells, the input parameters were not reevaluated during this quarter.

Pumping Rate

The average pumping rates during the first quarter of 2008 for the three pumping wells at 501 Ellis Street are summarized below.

Well	Q (gpm)	Q (ft^3/day)
NEC1AE	1.81	348.43
NEC27AE	1.81	348.43
NEC28AE	2.08	400.40

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).

$$i = \frac{5\,ft}{625\,ft} = \boxed{0.008\ \frac{ft}{ft}}$$

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) 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	28
	21	
NEC-25A	188	239.5
	291	
Average T		**91.3 ft^2/day**

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

Hydraulic Conductivity

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

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

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

Equation Parameter	NEC1AE	NEC27AE	NEC28AE
Q (ft^3/day)	348.43	348.43	400.40
B (ft)	20	20	20
K (ft/day)	4.6	4.6	4.6
i (ft/ft)	0.008	0.008	0.008
U (ft/day)	0.0368	0.0368	0.0368

Javandel and Tsang Methodology

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

$$X_s = \frac{Q}{2\pi Bu} \qquad (1)$$

where: X_s = stagnation point (ft)
Q = pumping rate (ft^3/day)
B = saturated aquifer thickness (ft)
U = Darcy's velocity (K*i) (ft/day)
K = hydraulic conductivity (ft/day)
i = hydraulic gradient (ft/ft)

Using Equation 1 and the calculated input parameters, the stagnation points for the three wells are:

NEC1AE	NEC27AE	NEC28AE
75.39 ft	**75.39 ft**	**86.64 ft**

The 1st quarter 2008 capture zones calculated using Javandel and Tsang are shown on Figure 4.

Numerical Simulation of Capture Zone

The 1st quarter 2008 capture zone at the Site was also estimated 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 either 10 ft by 10 ft, 10 ft by 20 ft, or 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 Figure 6.

CALCULATIONS FOR CAPTURE ZONE ANALYSIS – 4TH QUARTER 2008

The 4th quarter 2008 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 4th Quarter 2004 and reflect the current understanding of the Site. Other than the pumping rates of the extraction wells, the input parameters were not reevaluated during this quarter.

Pumping Rate

The average pumping rates during the fourth quarter of 2008 for the three pumping wells at 501 Ellis Street are summarized below.

Well	Q (gpm)	Q (ft^3/day)
NEC1AE	1.64	315.70
NEC27AE	1.81	348.43
NEC28AE	1.93	371.53

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).

$$i = \frac{5\,ft}{625\,ft} = \boxed{0.008\ \frac{ft}{ft}}$$

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) 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	28
	21	
NEC-25A	188	239.5
	291	
Average T		**91.3 ft^2/day**

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

Hydraulic Conductivity

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

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

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

Equation Parameter	NEC1AE	NEC27AE	NEC28AE
Q (ft^3/day)	315.70	348.43	371.53
B (ft)	20	20	20
K (ft/day)	4.6	4.6	4.6
i (ft/ft)	0.008	0.008	0.008
U (ft/day)	0.0368	0.0368	0.0368

Javandel and Tsang Methodology

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

$$X_s = \frac{Q}{2\pi Bu} \qquad (1)$$

where: X_s = stagnation point (ft)
Q = pumping rate (ft^3/day)
B = saturated aquifer thickness (ft)
U = Darcy's velocity (K*i) (ft/day)
K = hydraulic conductivity (ft/day)
i = hydraulic gradient (ft/ft)

Using Equation 1 and the calculated input parameters, the stagnation points for the three wells are:

NEC1AE	NEC27AE	NEC28AE
68.31 ft	**75.39 ft**	**80.39 ft**

The 4th quarter 2008 capture zones calculated using Javandel and Tsang are shown on Figure 5.

Numerical Simulation of Capture Zone

The 4th quarter 2008 capture zone at the Site was also estimated 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 either 10 ft by 10 ft, 10 ft by 20 ft, or 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 Figure7.

APPENDIX C

Laboratory Analytical Reports
December 2008

APPENDIX D

Annual Quality Assurance Report

Table D-1
Comparison of Analytical Laboratory Quality Control Results
2008 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	12/8/2008	145694	1,1-Dichloroethene	111	NR	NR
Lab Control Spike			Trichloroethene	104	NR	NR
			Chlorobenzene	99	NR	NR
EPA 8260B	12/8/2008	145694	1,1-Dichloroethene	111	108	3
Matrix Spike			Trichloroethene	110	104	5
			Chlorobenzene	103	104	1
EPA 8260B	12/9/2008	145737	1,1-Dichloroethene	106	NR	NR
Lab Control Spike			Trichloroethene	115	NR	NR
			Chlorobenzene	97	NR	NR
EPA 8260B	12/9/2008	145737	1,1-Dichloroethene	91	92	1
Matrix Spike			Trichloroethene	103	103	1
			Chlorobenzene	99	97	2
EPA 8260B	12/10/2008	145801	1,1-Dichloroethene	111	NR	NR
Lab Control Spike			Trichloroethene	111	NR	NR
			Chlorobenzene	97	NR	NR
EPA 8260B	12/10/2008	145801	1,1-Dichloroethene	80	76	6
Matrix Spike			Trichloroethene	99	94	5
			Chlorobenzene	98	95	3
Project Average				**103**	**97**	**3.0**
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.
NR = Not Reported

Table D-2
Summary of Blank Sample Results
2008 Annual Progress Report
501 Ellis Street, Mountain View, California

Blank Type	Date Sampled	Method	Blank ID	Contaminant	Concentration	Detection Limit
Trip	12/2/2008	EPA 8260B	214NEC200	--	ND	0.5-5.0 µg/L
	12/3/2008	EPA 8260B	214NEC200	--	ND	0.5-5.0 µg/L
Field	12/2/2008	EPA 8260B	214NEC500	Chloroform	0.5	0.5-5.0 µg/L
Equipment	12/2/2008	EPA 8260B	214NEC300	--	ND	0.5-5.0 µg/L
Lab Blank	12/8/2008	EPA 8260B	QC474004	--	ND	0.5-5.0 µg/L
	12/8/2008	EPA 8260B	QC474005	--	ND	0.5-5.0 µg/L
	12/9/2008	EPA 8260B	QC474227	--	ND	0.5-5.0 µg/L
	12/9/2008	EPA 8260B	QC474228	--	ND	0.5-5.0 µg/L
	12/10/2008	EPA 8260B	QC474515	--	ND	0.5-5.0 µg/L
	12/10/2008	EPA 8260B	QC474516	--	ND	0.5-5.0 µg/L

Table D-3
Duplicate Quality Control Results
2008 Annual Progress Report
501 Ellis Street, Mountain View, California

Groundwater Monitoring Wells

Sample Date	Contaminant	NECPZ-3A µg/L	NECPZ-3A (Dup) µg/L	RPD[(1)]
12/2/2008	cis-1,2-Dichloroethene	11	12	8.7
	trans-1,2-Dichloroethene	1.9	2.0	5.1
	Tetrachloroethene	1.1	1.0	9.5
	Trichloroethene	76	77	1.3
Project Average		--	--	**6.2**
Project Goals		--	--	**<35**

Notes:

1) RPD = relative percent difference = $|X_1-X_2|/X_3 \times 100$
where:
X_1 = concentration of the sample
X_2 = concentration of the duplicate
X_3 = average of X_1 and X_2

APPENDIX E

VOC Concentration Mann-Kendall Trend Analysis

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

Well ID	Trichloroethene		cis-1,2-Dichoroethene		Vinyl Choride	
	80% confidence level	90% confidence level	80% confidence level	90% confidence level	80% confidence level	90% confidence level
NEC1A	No Trend	No Trend	Decreasing	Decreasing	No Trend	No Trend
NEC7A	No Trend	No Trend	Decreasing	Decreasing	No Trend	No Trend
NEC8A	Increasing	Increasing	Decreasing	No Trend	No Trend	No Trend
NEC9A	Decreasing	Decreasing	No Trend	No Trend	No Trend	No Trend
NEC10A	Decreasing	Decreasing	No Trend	No Trend	No Trend	No Trend
NEC11A	Decreasing	Decreasing	Increasing	Increasing	Increasing	No Trend
NEC12A	Increasing	No Trend	No Trend	No Trend	Increasing	Increasing
NEC20A	No Trend	No Trend	Increasing	Increasing	No Trend	No Trend
NEC21A	Decreasing	Decreasing	Decreasing	Decreasing	No Trend	No Trend
NEC22A	Decreasing	Decreasing	Decreasing	No Trend	No Trend	No Trend
NEC23A	Decreasing	Decreasing	Decreasing	Decreasing	No Trend	No Trend
NEC24A	Decreasing	Decreasing	No Trend	No Trend	No Trend	No Trend
NEC25A	Decreasing	Decreasing	Decreasing	Decreasing	No Trend	No Trend
NEC26A	Decreasing	Decreasing	No Trend	No Trend	Decreasing	No Trend
NECPZ1A	Increasing	Increasing	Increasing	Increasing	No Trend	No Trend
NECPZ2A	Decreasing	No Trend	No Trend	No Trend	No Trend	No Trend
NECPZ3A	Decreasing	Decreasing	Decreasing	No Trend	No Trend	No Trend
NEC1AE	Decreasing	Decreasing	Decreasing	No Trend	No Trend	No Trend
NEC27AE	Increasing	Increasing	Increasing	No Trend	No Trend	No Trend
NEC28AE	Decreasing	Decreasing	Decreasing	No Trend	No Trend	No Trend

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 = NEC1A

	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	23-Nov-99	1100	63	3.6			
2	29-Nov-00	72	17	1			
3	26-Nov-01	59	21	0.5			
4	25-Nov-02	480	8.5	0.5			
5	7-Nov-03	79	12	0.6			
6	4-Nov-04	350	7	2.5			
7	22-Nov-05	240	6	2.5			
8	27-Nov-06	260	6	2.5			
9	28-Nov-07	64	10	0.5			
10	2-Dec-08	150	9	0.5			
	Mann Kendall Statistic (S) =	-7.0	-23.0	-8.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	285.40	15.93	1.47	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	318.864	17.246	1.177	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	1.117	1.083	0.800	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	DECREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV > 1 NON-STABLE	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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

Geosyntec Consultants

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC1AE

	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	23-Nov-99	340	19	1.3			
2	29-Nov-00	290	24	1.3			
3	26-Nov-01	250	30	0.8			
4	25-Nov-02	290	20	1			
5	7-Nov-03	230	18	0.7			
6	4-Nov-04	190	15	1			
7	22-Nov-05	240	17	1			
8	27-Nov-06	260	17	2			
9	28-Nov-07	64	18	1.3			
10	2-Dec-08	160	20	0.5			
	Mann Kendall Statistic (S) =	-28.0	-12.0	-5.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	231.40	19.80	1.09	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	77.986	4.315	0.418	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.337	0.218	0.383	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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

Geosyntec Consultants

State of Wisconsin
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Remediation and Redevelopment Program

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC7A

	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	23-Nov-99	170	42	0.5			
2	29-Nov-00	80	15	0.5			
3	26-Nov-01	65	15	0.5			
4	25-Nov-02	58	9.3	0.5			
5	7-Nov-03	41	5.8	0.5			
6	4-Nov-04	46	8	0.5			
7	22-Nov-05	72	13	0.5			
8	27-Nov-06	73	1	0.7			
9	28-Nov-07	72	10	0.5			
10	2-Dec-08	66	10	0.5			
	Mann Kendall Statistic (S) =	-8.0	-19.0	5.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	74.30	12.90	0.52	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	35.799	11.075	0.063	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.482	0.859	0.122	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	DECREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV <= 1 STABLE	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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

Geosyntec Consultants

State of Wisconsin
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Remediation and Redevelopment Program

Mann-Kendall Statistical Test
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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC8A

	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	23-Nov-99	22	30	0.5			
2	29-Nov-00	56	21	0.5			
3	26-Nov-01	31	18	0.5			
4	25-Nov-02	130	12	0.6			
5	7-Nov-03	150	9.4	0.5			
6	4-Nov-04	110	9	0.5			
7	22-Nov-05	120	10	0.5			
8	27-Nov-06	130	9	0.5			
9	28-Nov-07	120	52	0.5			
10	2-Dec-08	120	11	0.5			
	Mann Kendall Statistic (S) =	17.0	-15.0	-3.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	98.90	18.12	0.51	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	45.177	13.730	0.032	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.457	0.758	0.062	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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

Geosyntec Consultants

State of Wisconsin
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Remediation and Redevelopment Program

Mann-Kendall Statistical Test
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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC9A

	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	23-Nov-99	63	19	0.5			
2	29-Nov-00	68	25	0.5			
3	26-Nov-01	40	39	0.5			
4	25-Nov-02	54	48	0.5			
5	7-Nov-03	41	58	0.5			
6	4-Nov-04	33	50	0.5			
7	22-Nov-05	28	62	0.5			
8	27-Nov-06	31	6	0.5			
9	28-Nov-07	22	6	0.5			
10	2-Dec-08	22	52	0.5			
	Mann Kendall Statistic (S) =	-36.0	10.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	40.20	36.54	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	16.437	20.945	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.409	0.573	0.000	#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	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC10A

	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	29-Nov-00	48	4.7	0.5			
2	26-Nov-01	34	5	0.5			
3	25-Nov-02	46	6.4	0.5			
4	6-Nov-03	36	5.1	0.5			
5	5-Nov-04	29	5.7	0.5			
6	22-Nov-05	29	7.1	0.5			
7	21-Nov-06	27	2	0.5			
8	27-Nov-07	27	2	0.5			
9	3-Dec-08	28	8	0.5			
10							
	Mann Kendall Statistic (S) =	-26.0	7.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	9	9	9	0	0	0
	Average =	33.78	5.22	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	8.121	1.945	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.240	0.373	0.000	#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	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC11A

	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	23-Nov-99	63	2	0.5			
2	29-Nov-00	56	1.9	0.5			
3	26-Nov-01	41	1.7	0.5			
4	25-Nov-02	48	2	0.5			
5	6-Nov-03	38	1.6	0.5			
6	5-Nov-04	34	2	0.5			
7	22-Nov-05	34	3	0.5			
8	27-Nov-06	31	5	5.8			
9	28-Nov-07	26	5	14			
10	3-Dec-08	15	55	0.5			
	Mann Kendall Statistic (S) =	-42.0	28.0	13.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	38.60	7.95	2.38	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	14.175	16.592	4.410	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.367	2.087	1.853	#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	INCREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	INCREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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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	23-Nov-99	1.5	0.8	1.6			
2	29-Nov-00	3.2	1.1	2.2			
3	26-Nov-01	3.7	1.6	2.7			
4	25-Nov-02	6.3	1.9	2			
5	7-Nov-03	10	3.1	6.8			
6	4-Nov-04	17	5	13			
7	22-Nov-05	5.3	3	5.8			
8	27-Nov-06	5.3	1	11			
9	28-Nov-07	12	1	0.5			
10	3-Dec-08	0.8	3	14			
	Mann Kendall Statistic (S) =	12.0	6.0	19.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	6.51	1.97	5.96	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	5.076	1.328	5.051	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.780	0.674	0.847	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	No Trend	INCREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	INCREASING	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 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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 = NEC20A

	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	23-Nov-99	0.8	0.5	0.5			
2	29-Nov-00	0.5	0.5	0.5			
3	26-Nov-01	0.5	0.5	0.5			
4	25-Nov-02	0.5	0.5	0.5			
5	7-Nov-03	51.07	0.5	0.5			
6	4-Nov-04	0.5	1	0.5			
7	22-Nov-05	0.5	1	0.5			
8	27-Nov-06	13	50	0.5			
9	28-Nov-07	0.8	43	0.5			
10	3-Dec-08	1.2	1	0.5			
	Mann Kendall Statistic (S) =	10.0	18.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	6.94	9.71	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	15.986	19.460	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	2.304	2.004	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	INCREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	INCREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		CV > 1 NON-STABLE	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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

Geosyntec Consultants

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

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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	23-Nov-99	92	77	0.5			
2	29-Nov-00	93	74	0.5			
3	26-Nov-01	68	74	0.5			
4	25-Nov-02	63	70	0.5			
5	7-Nov-03	15	58	0.5			
6	4-Nov-04	21	49	0.5			
7	22-Nov-05	5.3	59	0.5			
8	27-Nov-06	29	41	0.5			
9	28-Nov-07	24	43	0.5			
10	3-Dec-08	4.7	21	0.5			
	Mann Kendall Statistic (S) =	-29.0	-38.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	41.50	56.60	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	34.346	18.143	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.828	0.321	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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

Geosyntec Consultants

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC22AE

Event Number	Sampling Date (most recent last)	TCE Concentration (leave blank if no data)	c,1,2, DCE Concentration (leave blank if no data)	VC Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
Compound ->							
1	23-Nov-99	110	33	0.5			
2	29-Nov-00	94	40	0.5			
3	26-Nov-01	75	39	0.5			
4	25-Nov-02	74	39	0.5			
5	7-Nov-03	63	42	0.5			
6	4-Nov-04	32	38	0.5			
7	22-Nov-05	53	43	0.5			
8	27-Nov-06	51	36	0.5			
9	28-Nov-07	47	34	0.5			
10	3-Dec-08	30	24	0.5			
	Mann Kendall Statistic (S) =	-39.0	-12.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	62.90	36.80	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	25.787	5.514	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.410	0.150	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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 = NEC23A

	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	23-Nov-99	130	43	0.5			
2	29-Nov-00	110	39	0.5			
3	26-Nov-01	84	33	0.5			
4	25-Nov-02	110	36	0.5			
5	7-Nov-03	90	35	0.5			
6	4-Nov-04	92	31	0.5			
7	22-Nov-05	95	32	0.5			
8	27-Nov-06	84	36	0.5			
9	28-Nov-07	82	29	0.5			
10	3-Dec-08	92	27	0.5			
	Mann Kendall Statistic (S) =	-20.0	-30.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	96.90	34.10	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	15.249	4.748	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.157	0.139	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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Geosyntec Consultants

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC24A

	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	23-Nov-99	140	30	0.5			
2	29-Nov-00	120	30	0.5			
3	26-Nov-01	86	27	0.5			
4	25-Nov-02	99	27	0.5			
5	7-Nov-03	95	29	0.5			
6	4-Nov-04	78	22	0.5			
7	22-Nov-05	91	35	0.5			
8	27-Nov-06	71	13	0.5			
9	28-Nov-07	64	13	0.5			
10	3-Dec-08	52	35	0.5			
	Mann Kendall Statistic (S) =	-37.0	-9.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	89.60	26.10	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	26.133	7.880	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.292	0.302	0.000	#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	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC25A

	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	23-Nov-99	130	16	0.5			
2	29-Nov-00	110	16	0.5			
3	26-Nov-01	78	13	0.5			
4	25-Nov-02	60	14	0.5			
5	7-Nov-03	63	16	0.5			
6	4-Nov-04	60	19	0.5			
7	22-Nov-05	52	11	0.5			
8	27-Nov-06	48	4	0.5			
9	28-Nov-07	43	3	0.5			
10	3-Dec-08	39	7	0.5			
	Mann Kendall Statistic (S) =	-42.0	-22.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	68.30	11.94	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	29.781	5.463	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.436	0.458	0.000	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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

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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NEC26A

	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	23-Nov-99	200	6.5	0.7			
2	29-Nov-00	190	4.8	0.7			
3	26-Nov-01	170	3.9	0.5			
4	25-Nov-02	180	3.3	0.7			
5	7-Nov-03	160	3.7	0.5			
6	4-Nov-04	100	4	0.5			
7	22-Nov-05	110	3	0.5			
8	27-Nov-06	99	10	0.7			
9	28-Nov-07	99	12	0.5			
10	3-Dec-08	94	3	0.5			
	Mann Kendall Statistic (S) =	-40.0	-7.0	-14.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	140.20	5.39	0.58	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	43.433	3.166	0.103	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.310	0.587	0.178	#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		DECREASING	No Trend	No Trend	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 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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	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	23-Nov-99	55	15	0.5			
2	29-Nov-00	61	16	0.5			
3	26-Nov-01	63	14	0.5			
4	25-Nov-02	90	14	0.5			
5	7-Nov-03	96	13	0.5			
6	4-Nov-04	93	13	0.5			
7	22-Nov-05	240	14	0.5			
8	27-Nov-06	260	23	0.7			
9	28-Nov-07	94	23	0.7			
10	3-Dec-08	100	12	0.5			
	Mann Kendall Statistic (S) =	33.0	-6.0	12.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	115.20	15.70	0.54	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	73.034	4.001	0.084	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.634	0.255	0.156	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	No Trend	INCREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	No Trend	No Trend	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 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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 = NEC28AE

	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	150	26	0.5			
2	6-Nov-03	120	26	0.5			
3	5-Nov-04	86	26	0.5			
4	22-Nov-05	110	19	0.7			
5	27-Nov-06	94	6.7	0.5			
6	28-Nov-07	85	7.1	0.5			
7	3-Dec-08	95	26	0.5			
8							
9							
10							
	Mann Kendall Statistic (S) =	-11.0	-7.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	7	7	7	0	0	0
	Average =	105.71	19.54	0.53	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	23.286	9.008	0.076	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.220	0.461	0.143	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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 =	NECPZ1A
	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	23-Nov-99	1.3	0.9	0.5			
2	29-Nov-00	1.3	2.1	0.5			
3	26-Nov-01	1.4	2.9	0.5			
4	25-Nov-02	2.2	3.7	0.5			
5	6-Nov-03	2.3	4.4	0.5			
6	5-Nov-04	4.9	6.5	0.5			
7	22-Nov-05	4.9	9	0.5			
8	27-Nov-06	12	7	0.5			
9	28-Nov-07	20	8	0.7			
10	3-Dec-08	50	7	0.5			
	Mann Kendall Statistic (S) =	43.0	37.0	7.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	10.03	5.06	0.52	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	15.281	2.606	0.063	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	1.523	0.515	0.122	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	INCREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		INCREASING	INCREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4
	Data Entry By =	EJS	Date =	3-Apr-09	Checked By =		

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
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Site Name : NEC - 501 Ellis Street | BRRTS No. = | Well Number = NECPZ2A

	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	23-Nov-99	30	10	0.5			
2	29-Nov-00	75	15	0.5			
3	26-Nov-01	39	10	0.5			
4	25-Nov-02	62	9.6	0.5			
5	6-Nov-03	53	7.4	0.5			
6	5-Nov-04	35	8.5	0.5			
7	22-Nov-05	35	7	0.5			
8	27-Nov-06	21	12	0.5			
9	28-Nov-07	87	12	0.5			
10	3-Dec-08	20	9	0.5			
	Mann Kendall Statistic (S) =	-12.0	-9.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	45.70	10.07	0.50	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	22.789	2.409	0.000	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.499	0.239	0.000	#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	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	CV <= 1 STABLE	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

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 = NECPZ3A

	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	23-Nov-99	140	15	0.5			
2	29-Nov-00	160	15	0.5			
3	26-Nov-01	110	11	0.5			
4	25-Nov-02	170	12	0.5			
5	6-Nov-03	130	10	0.5			
6	5-Nov-04	76	11	0.5			
7	22-Nov-05	76	13	0.5			
8	27-Nov-06	95	12	0.5			
9	28-Nov-07	73	11	0.7			
10	3-Dec-08	76	11	0.5			
	Mann Kendall Statistic (S) =	-26.0	-15.0	7.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	110.60	12.10	0.52	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	37.206	1.729	0.063	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.336	0.143	0.122	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV <= 1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = EJS | Date = 3-Apr-09 | Checked By =

APPENDIX F

Draft Wastewater Discharge Permit

CITY OF MOUNTAIN VIEW
FIRE AND ENVIRONMENTAL SAFETY DIVISION
500 Castro Street • City Hall • 4th Floor • Mountain View, CA 94041-2010 • 650-903-6378

WASTEWATER DISCHARGE PERMIT

THE FIRM OR CORPORATION NAMED HEREIN IS AUTHORIZED TO DISCHARGE REGULATED WASTEWATER INTO THE SANITARY SEWER IN ACCORDANCE WITH ALL CONDITIONS IN THIS PERMIT AND CHAPTER 35 OF THE MOUNTAIN VIEW CITY CODE.

Permitted **NEC Groundwater Extraction System**
Facility **501 Ellis Street**

NEC Groundwater Extraction System
475 14th Street, Suite 400
Oakland, CA 94612
Attn: Carolyn Kneiblher-Geosyntec Consultants

Date Issued: **2/3/2009**
Date Revised:
Date Expires: **5/1/2009**
Permit ID: **925**

Jaymae Wentker
Jaymae Wentker, Fire Marshal

EPA Category/Subcategory:
Reference:

POST IN A CONSPICUOUS PLACE AT THE "PERMITTED FACILITY" SITE

I. Discharge Limitations:

Process Discharge (industrial waste) shall not exceed 9,560 Gallons Per Day (GPD).
(Location A1: 9560 GPD)
Total Discharge (industrial and domestic waste) shall not exceed 9,560 Gallons Per Day (GPD).

II. Special Conditions/Requirements:

1 Discharge quantity shall not exceed 9,560 gpd.
2 STO/TTO samples shall be analyzed using EPA method 601/602 or 624 (see section XIII).
3 Sample results shall be submitted to the City upon receipt.

III. Self-Monitoring Sampling Analysis:

Pollutant	Sampling Frequency	Sample Type	Sampling Location(s)*	Federal Maximum for any 1 day (mg/L)	Federal Avg. of daily values for 30 consec.days (mg/L)	Local Limit (mg/L)
Single Toxic Organic	Quarterly	Grab	A1	NA	NA	.75
Total Toxic Organics	Quarterly	Grab	A1	NA	NA	1

*Sampling Location A1 is in the northwest corner of the treatment pad.

IV. Wastewater Discharge Limits: (MVCC 35.32.12 & CFR 40)

Your industrial wastewater effluent shall not exceed the following limits:

Discharge Parameter	Federal Max. for any 1 day	Federal Avg. of daily values for 30 consecutive days	Local[1]	Discharge Parameter	Federal Max. for any 1 day	Federal Avg. of daily values for 30 consecutive days	Local[1]
Arsenic	No Limit	No Limit	0.1 mg/L[1]	Manganese	No Limit	No Limit	1.0 mg/L[1]
Barium	No Limit	No Limit	5.0 mg/L[1]	Mercury[2]	No Limit	No Limit	0.01 mg/L[2]
Berrylium	No Limit	No Limit	0.75 mg/L[1]	Nickel	No Limit	No Limit	0.5 mg/L
Boron	No Limit	No Limit	1.0 mg/L[1]	Oil & Grease	No Limit	No Limit	200 mg/L
Cadmium	No Limit	No Limit	0.1 mg/L[1]	Phenols	No Limit	No Limit	1.0 mg/L
Chromium Hex.	No Limit	No Limit	1.0 mg/L[1]	pH[5]	No Limit	No Limit	5.0-11
Chromium, Total	No Limit	No Limit	2.0 mg/L[1]	Selenium	No Limit	No Limit	1.0 mg/L[1]
Cobalt	No Limit	No Limit	1.0 mg/L[1]	Silver, Photo	No Limit	No Limit	0.50 mg/L
Copper[4]	No Limit	No Limit	2.0 mg/L[1]	Silver, Non-Photo	No Limit	No Limit	0.25 mg/L
Copper	No Limit	No Limit	0.25 mg/L	Single Toxic Organic	No Limit	No Limit	0.75 mg/L
Cyanide	No Limit	No Limit	1.0 mg/L[1]	Suspended Solids	No Limit	No Limit	6000 mg/L
Fluoride	No Limit	No Limit	65 mg/L	Total Dissolved Solid	No Limit	No Limit	10000 mg/L
Formaldehyde	No Limit	No Limit	5.0 mg/L[1]	Total Toxic Organics[6]	No Limit	No Limit	1.0 mg/L
Lead	No Limit	No Limit	0.5 mg/L[1]	Zinc[7]	No Limit	No Limit	2.0 mg/L[1]

[1]If the discharge at any single sampling location exceeds 50,000 gpd, the local discharge limit for that location shall not exceed ONE-HALF (1/2) of the local limit listed above.

[2]Dental facilities using mercury-containing amalgam shall not exceed a local discharge limit of 0.05 mg/L for mercury.

[3]These limits refer to either grab or 24-hour composite samples.

[4]This limit applies only to the following EPA categories: Non-EPA Non-SIUs, Metal Finishing (Copper), and Electroplating. This limit also applies to cooling towers discharging < 2,000 gpd at any facility.

[5]Where pH is monitored continuously, no individual deviation from this range may exceed 20 minutes in length for discharges < 10,000 gpd, nor 10 minutes in length for discharges > 10,000 gpd. The total time of deviations during any seven day period shall not exceed 60 minutes. Any pH reading ≤ 2.0 or ≥ 12.5 is prohibited.

[6] See Section XIII of this permit for a list of components of Total Toxic Organics.

[7]Vehicle service facilities shall not exceed a local discharge limit of 4.0 mg/L for zinc.

V. Quality Assurance/Quality Control: (MVCC 35.32.13 & 40 CFR 136)

All metals samples must be collected in duplicate and stored and preserved until the next sampling event for that parameter. The duplicate sample must be labeled as a duplicate and made available to any City inspector.

VI. Sample Collection and Analysis: (MVCC 35.32.13.3, 40 CFR 403.12(g)&(h), 40 CFR 136)

All metals shall be collected as specified in the individual permit requirements. Cyanide and Total Toxic Organics (TTO) shall always be collected as grab samples. Samples shall be analyzed by an analytical laboratory approved by the State of Cal. Dept. of Health Services. Sample collection, preservation, and analysis shall be in accordance with EPA regulations (40 CFR 136) and the City of Mountain View's "Sample Collection, Analysis and Reporting Instructions".

VII. Violation Reporting & Follow-Up: (MVCC 35.32.6.2 & 40 CFR 403.12(f) & (g))

If the results of sampling or pH analysis exceed applicable limit(s), or any discharges meet the definition of hazardous waste, you shall:

1) VERBALLY NOTIFY THE CITY OF MOUNTAIN VIEW AT 650-903-6378 AND THE PALO ALTO WATER QUALITY CONTROL PLANT AT 650-329-2598 WITHIN 24 HOURS of knowledge of the violation. If an accidental discharge, slug discharge, or upset or failure of the pretreatment system occurs, verbal notification shall be made within 15 minutes of knowledge of the condition;

2) SUBMIT A WRITTEN REPORT WITHIN 15 WORKING DAYS of knowledge of the violation explaining: the cause, nature, volume and duration of the violation, and mitigation measures taken to correct it and prevent reoccurrence;

3) INITIATE A SAMPLING/ANALYSIS PROGRAM demonstrating up to 21 consecutive days of compliance. The first sample result shall be submitted within 30 days of becoming aware of the violation.

VIII. Penalty Provisions: (MVCC 35.32.15)

Any person who violates any provision of this permit, "Notice of Violation", or Chapter 35 MVCC, may be subject to criminal, civil, or administrative penalties. Civil penalties shall not exceed $25,000/day per violation. Administrative penalties shall not exceed the following: (1) $2,000/day for failing or refusing to furnish technical or monitoring reports; (2) $3,000/day for failing or refusing to comply with a compliance schedule; (3) $5,000/day/violation for discharges in violation of any waste discharge limitation, permit condition, or requirement; and (4) $10/gallon for discharges in violation of any suspension, cease and desist order, or any prohibition issued by the City.

IX. Record-Keeping Requirements: (40 CFR 403.12(o))

All Industrial Users shall maintain records for all information resulting from any monitoring activities conducted. Such records shall include for all samples:

1) The date, exact place, method, and time of sampling and the names of the peron or persons taking the samples;
2) The dates analyses were performed;
3) Who performed the analyses;
4) The analytical techniques/methods used; and
5) The results of such analysis.

All Industrial Users shall maintain for a minimum of 3 years any records of monitoring activities and results, and shall make such records available for inspection and copying by the City of Mountain View and Palo Alto Water Quality Control Plant. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Industrial User or the operation of the POTW Pretreatment Program or when requested by the Director or the Regional Administrator.

X. Notification of Changed Discharge: (40 CFR 403.12(j))

All Industrial Users shall promptly notify the City of Mountain View at 650-903-6378 and the Palo Alto Water Quality Control Plant at 650-329-2598 in advance of any substantial change in the volume or character of pollutants in their discharge, including the characteristic hazardous wastes for which the Industrial User has submitted initial notification under 40 CFR 403.12(p).

XI. Notification of Bypass: (40 CFR 403.17(c)(2))

All Industrial Users shall verbally notify the City of Mountain View at 650-903-6378 and Palo Alto Water Quality Control Plant at 650-329-2598 of an unanticipated bypass (intentional diversion of its wastestream from the treatment facility) within 24 hours from the time the Industrial User becomes aware of the bypass. A written submission shall also be provided within 5 days of the time the Industrial User becomes aware of the bypass. The written submission shall contain a description of the bypass and its cause; the duration of the bypass, including exact dates and times, and, if the bypass has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

XII. Transferability of Permit: (MVCC 35.32.2.4)

This permit is not transferable without prior written notification to and approval by the City and the assumption of all permit conditions by the new owner/operator.

XIII. Definition of Total Toxic Organics: (40 CFR 469.12)

The term "total toxic organics" (TTO) means the sum of the concentrations for each of the following toxic organic components found in the discharge at a concentration greater than ten (10) micrograms per liter. The facility's local TTO and STO limits apply to all of the compounds listed below. Those compounds analyzed using EPA Method 601/602 or 624 are identified by a "■".

❑Acenaphthene	❑2-Chlorophenol	❑Methyl bromide	❑Diethyl phthalate	❑4,4-DDT
❑Acrolein	❑1,2-Dichlorobenzene	❑Bromoform	❑Dimethyl phthalate	❑4,4-DDE
❑Acrylonitrile	❑1,3-Dichlorobenzene	❑Dichlorobromomethane	❑1,2-Benzanthracene	❑4,4-DDD
❑Benzene	❑1,4-Dichlorobenzene	❑Chlorodibromomethane	❑qBenzo(a)pyrene	❑Alpha-endosulfan
❑Benzidine	❑3,3-Dichlorobenzidine	❑Hexachlorobutadiene	❑3,4-Benzofluoranthene	❑Beta-endosulfan
❑Carbon tetrachloride	❑1,1-Dichloroethylene	❑Hexchlorocyclopentadiene	❑11,12-Benzofluoranthene	❑Endosulfan sulfate
❑Chlorobenzene	❑1,2-Trans-dichloroethylene	❑Isophorone	❑Chrysene	❑Endrin
❑1,2,4-Trichlorobenzene	❑2,4-Dichlorophenol	❑Naphthalene	❑Acenaphthylene	❑Endrin aldehyde
❑Hexachlorobenzene	❑1,2-Dichloropropane	❑Nitrobenzene	❑Anthracene	❑Heptachlor
❑1,2-Dichloroethane	❑1,3-Dichloropropylene	❑2-Nitrophenol	❑1,12-Benzoperylene	❑Heptachlor epoxide
❑1,1,1-Trichloroethane	❑2,4-Dimethylphenol	❑4-Nitrophenol	❑Fluorene	❑Alpha-BHC
❑Hexachloroethane	❑2,4-Dinitrotoluene	❑2,4-Dinitrophenol	❑Phenanthrene	❑Beta-BHC
❑1,1-Dichloroethane	❑2,6-Dinitrotoluene	❑4,6-Dinitro-o-cresol	❑1,2,5,6-Dibenzanthracene	❑Gamma-BHC
❑1,1,2-Trichloroethane	❑1,2-Diphenylhydrazine	❑N-nitrosodimethylamine	❑Indeno(1,2,3-cd) pyrene	❑Delta-BHC
❑1,1,2,2-Tetrachloroethane	❑Ethylbenzene	❑N-nitrosodiphenylamine	❑Pyrene	❑PCB-1242
❑Chloroethane	❑Fluoranthene	❑N-nitrosodi-n-propylamine	❑Tetrachloroethylene	❑PCB-1254
❑Bis(2-chloroethyl) ether	❑4-Chlorophenyl phenyl ether	❑Pentachlorophenol	❑Toluene	❑PCB-1221
❑2-Chloroethyl vinyl ether	❑4-Bromophenyl phenyl ether	❑Phenol	❑Trichlroethylene	❑PCB-1232
❑2-Chloronaphthalene	❑Bis(2-chloroisopropyl)ether	❑Bis(2-ethylhexyl)phthalate	❑Vinyl chloride	❑qPCB-1248
❑2,4,6-Trichlorophenol	❑Bis(2-chloroethoxy)methane	❑Butyl benzyl phthalate	❑Aldrin	❑PCB-1260
❑Parachlormeta cresol	❑Methylene chloride	❑Di-n-butyl phthalate	❑Dieldrin	❑Toxaphene
❑Chloroform	❑Methyl chloride	❑Di-n-octyl phthalate	❑Chlordane	❑TCDD

CITY OF MOUNTAIN VIEW
FIRE AND ENVIRONMENTAL SAFETY DIVISION
500 Castro Street • City Hall • 4th Floor • Mountain View, CA 94041-2010 • 650-903-6378

ENVIRONMENTAL COMPLIANCE PLAN
Business Activities

Facility ID:	925
Updated:	2/3/2009

Business Name
NEC Groundwater Extraction System

Facility Street Address
501 Ellis Street

I. FACILITY IDENTIFICATION

State Facility ID #	43-005-000925	EPA ID # (Hazardous Waste Only)	CAD980883268

II. ACTIVITIES DECLARATION

NOTE: If you check YES to any part of this list, please submit the Business Owner/Operator Identification page (OES Form 2730)

Does your facility...		If Yes, please complete these pages of the UPCF...
A. HAZARDOUS MATERIALS Have on site (for any purpose) hazardous materials at or above 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases (including liquids in ASTs and USTs); or the applicable Federal threshold quantity for an extremely hazardous substance specified in 40 CFR Part 355, Appendix A or B; or handle radiological materials in quantities for which an emergency plan is required pursuant to 10 CFR Parts 30, 40 or 70?	☐ Yes ☒ No	* **HAZARDOUS MATERIALS INVENTORY-CHEMICAL DESCRIPTION** (OES 2731)
B. UNDERGROUND STORAGE TANKS (USTs) 1. Own or operate underground storage tanks?	☐ Yes ☒ No	* **UST FACILITY** (Formerly SWRCB Form A) * **UST TANK** (one page per tank)(Formerly Form B)
2. Intend to upgrade existing or install new USTs now?	☐ Yes ☒ No	* **UST FACILITY** (Formerly SWRCB Form A) * **UST TANK** (one page per tank)(Formerly Form B) * **UST INSTALLATION-CERTIFICATE OF COMPLIANCE** (one page per tank)(Formerly Form C)
3. Need to report closing a UST?	☐ Yes ☒ No	*UST TANK (closure portion--one page per tank)
C. ABOVEGROUND PETROLEUM STORAGE TANKS (ASTs) Own or operate ASTs above these thresholds: --any tank capacity is 55 gallons or greater, and -- the total capacity of the facility is > 1,320 gallons?	☐ Yes ☒ No	*COMPLETE SPCC Per 40CFR 112
D. HAZARDOUS WASTE 1. Generate hazardous waste?	☐ Yes ☒ No	* **EPA ID NUMBER**--provide at the top of this page
2. Recycle more than 100 kg/month of excluded or exempted recyclable materials (per HSC Sec 25143.2)?	☐ Yes ☒ No	* **RECYCLABLE MATERIALS REPORT** (one per recycler)
3. Treat hazardous waste on site?	☐ Yes ☒ No	*ONSITE HAZARDOUS WASTE TREATMENT-FACILITY (Formerly DTSC Form 1772) *ONSITE HAZARDOUS WASTE TREATMENT-UNIT (one page per unit) (Formerly DTSC Forms 1772A, B, C, D and L)
4. Treatment subject to financial assurance requirements (for Permit by Rule and Conditional Authorization)?	☐ Yes ☒ No	*CERTIFICATE OF FINANCIAL ASSURANCE (Formerly DTSC Form 1232)
5. Consolidate hazardous waste generated at a remote site?	☐ Yes ☒ No	* REMOTE WASTE/CONSOLIDATION SITE ANNUAL NOTIFICATION (Formerly DTSC Form 1196)
6. Need to report the closure/removal of a tank that was classified as hazardous waste and cleaned onsite?	☐ Yes ☒ No	* HAZARDOUS WASTE TANK CLOSURE CERTIFICATION (Formerly DTSC Form 1249)
E. LOCAL REQUIREMENTS 1. Store or use hazardous materials exceeding the exempt amounts in Chapter 24, MVCC, or have permitted wastewater discharge?	☒ Yes ☐ No	*COMPLETE ENVIRONMENTAL COMPLIANCE PLAN (ECP)

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ENVIRONMENTAL COMPLIANCE PLAN
Business Owner/Operator Identification

Facility ID:	**925**
Updated:	**2/3/2009**

I. IDENTIFICATION			
State Facility ID # **43-005-000925**	Beginning Date **Refer to Permit**		Ending Date **Refer to Permit**
Business Name **NEC Groundwater Extraction System**		Business Phone	
Business Site Address **501 Ellis Street**			
City **Mountain View**	State **CA**	Zip **94043**	County **Santa Clara**
Dunn & Bradstreet No.		SIC Code	
Business Operator Name **Locus Technologies**		Business Operator Phone **650-960-1640**	

II. BUSINESS OWNER		
Owner Name **NEC Electronics America, Inc. Peter**		Owner Phone **408-588-6000**
Owner Mailing Address **2880 Scott Blvd**		
City **Santa Clara**	State **CA**	Zip **95050**

III. ENVIRONMENTAL CONTACT		
Contact Name **Carolyn Kneiblher-Geosyntec Consultants**		Contact Phone **510-285-2724**
Contact Mailing Address **475 14th Street, Suite 400**		
City **Oakland**	State **CA**	Zip **94612**

-PRIMARY- **IV. EMERGENCY CONTACTS** **-SECONDARY-**	
Name **LuxyMartin-Locus Technologies**	Name **Eric Suchomel-Geosyntec Consultants**
Title **Assistant Project Engineer**	Title **Sr. Staff Engineer**
Business Phone **650-960-1640**	Business Phone **510-285-2786**
24 Hr Phone **650-641-8268**	24 Hr Phone **678-984-2337**
Pager #	Pager #

V. ADDITIONAL LOCALLY COLLECTED INFORMATION		
EPA ID **CAD980883268**	Primary Bus Activity **Groundwater Extraction System**	
Property Owner **Renault and Handley**		Phone **650-321-3040**
Shift Times: 1st to	2nd to	3rd to
# of Employees/Shift		

Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true,accurate, and complete.

Signature of Owner/Operator	**Date**	**Name of Document Preparer**

Name of Signer (print)	**Title of Signer**

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ENVIRONMENTAL COMPLIANCE PLAN
Wastewater Process Discharge

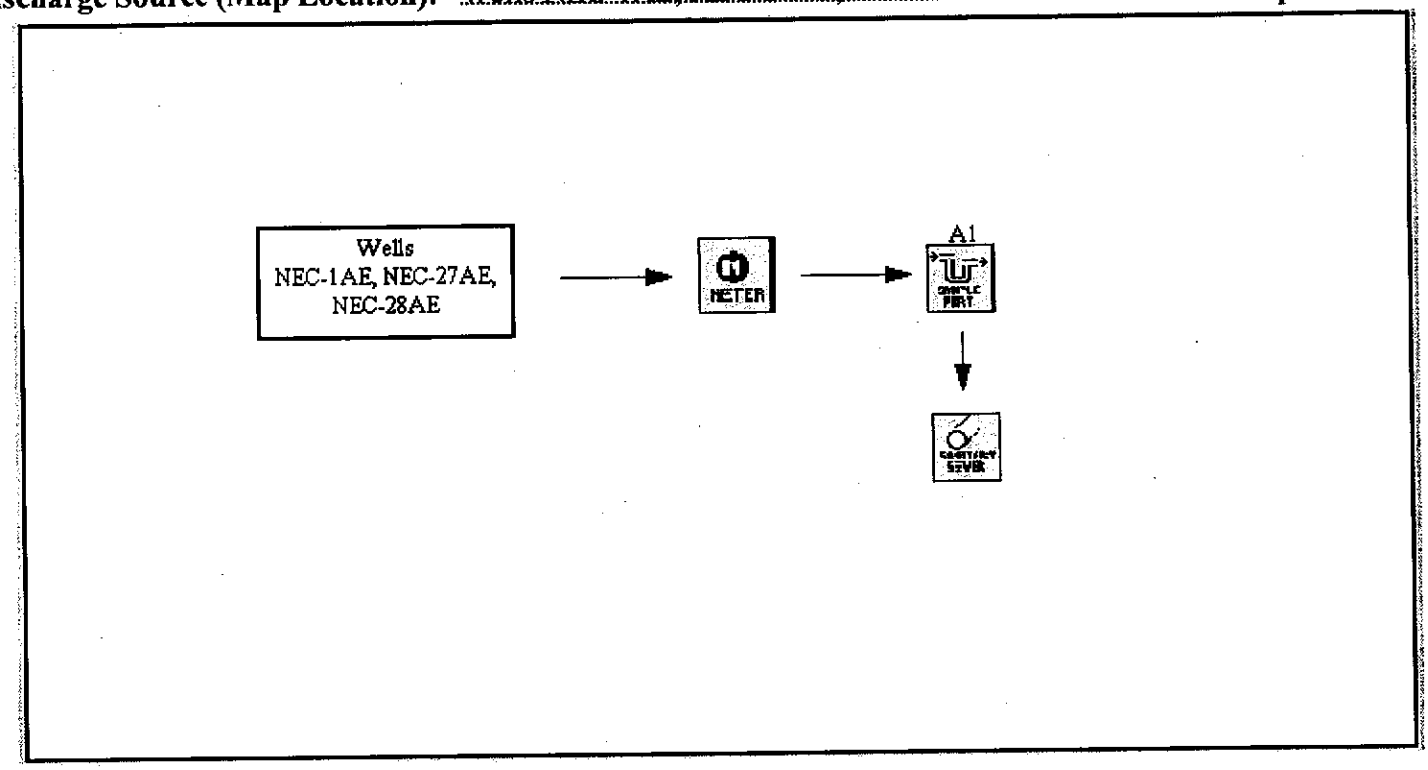
Business Name
NEC Groundwater Extraction System

Facility ID:	925
Updated:	2/3/2009

Facility Street Address
501 Ellis Street

Discharge Activity Name: Groundwater Extraction Wells **Activity** 1 **of** 1

Discharge Source (Map Location): Wells NEC-1AE, NEC-27AE, NEC-28AE **RCMs Required?** No



Sanitary Sewer Discharge Data:

Average Daily Flow: 7,460 GPD **Maximum Daily Flow:** 9,560 GPD **Sample Port:** A1

REASONABLE CONTROL MEASURES (RCMs)

This section does NOT APPLY to this wastewater process discharge.

Control of Bath Make-Up

	Select Best Bath Chemistry
	Use Standard Recipes
	Use De-Ionized Water

Extension of Bath Life

	Bath Purification
	High Purity Anodes
	Change Bath by Analysis
	Purifiable Bath Chemistry

Pretreatment of Spent Baths

	Electrowin Spent Baths, or
	Batch Treat Spent Bath

Minimization of Drag-In

	Efficient Pre-Cleaning of Parts
	Use Coated Racks
	Optimization of Prior Processes
	Use Drag-In/Drag-Out Sequence

Flow Control

	Conductivity Controller, or
	Flow Timer, or
	Contact Switch

Countercurrent Rinsing

	Separate Tank, or
	Divide Existing Tank, or
	Spray Over Existing Tank

Minimization of Drag-Out

	Static Drag-Out Tank
	Spray Rinse, or
	Squeege, or
	Air Knives
	Drain Boards
	Splash Guard
	Drip Bar, or
	Increased Dwell Time
	Recapture Drag Out

Substitutes/Comments

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ENVIRONMENTAL COMPLIANCE PLAN
Facility Maps

Facility ID:	925
Updated:	2/3/2009

Business Name
NEC Groundwater Extraction System

Facility Street Address
501 Ellis Street

Scale No Scale **Map Title** NEC Groundwater Extraction System, 501 Ellis Street **Map** 1 **of** 1

Legend
Bold Text=Hazmat Locations
G W E L =Utility Shutoffs
=Gas Pump Shutoff
LB =Lock Box (Knox Box)
M =MSDS Location
=On-Site Connection
=Riser
=Inspector Test Port
=Post Indicator Valve
=Wall Indicator Valve
=Fire Dept. Connection
=Outside Stem & Yoke
=Water Tank
= On-Site Hydrant
= Sanitary Sewer
=Storm Drain
=Wastewater Line
C/O =Clean Out
S-P =Sample Port