California Regional Water Quality Control Board
San Francisco Bay Region

Third Five-Year Review

Hewlett-Packard (620-640 Page Mill Road) Superfund Site

Palo Alto, Santa Clara County, California

Approved By:

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9/30/10
Date

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ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
ARARs	Applicable or Relevant and Appropriate Requirements
bgs	below ground surface
CPT	cone penetrometer test
CSM	conceptual site model
DCE	1,1-dichloroethene
DNAPL	dense non-aqueous phase liquid
Five Year Report	Five Year Status Report and Effectiveness Evaluation
ESL	Environmental Screening Level (San Francisco Bay Region Water Quality Control Board)
GWET	groundwater extraction and treatment
MCL	Maximum Contaminant Level
MIP	membrane interface probe
mg/day	milligrams per day
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
Property	640 Page Mill Road
RAOs	Remedial Action Objectives
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
Regional Water Board	San Francisco Bay Regional Water Quality Control Board
RSL	Regional Screening Level

SCR	Final Site Cleanup Requirements
SVET	soil vapor extraction and treatment
TCE	trichloroethene
EPA	United States Environmental Protection Agency
VOC	volatile organic compound

EXECUTIVE SUMMARY

This is the third Five-Year Review of the Hewlett-Packard (620-640 Page Mill Road) Superfund Site (Site) in Palo Alto, Santa Clara County, California. The purpose of this Five-Year Review is to determine whether or not the remedy remains protective of human health and the environment.

Hewlett-Packard (HP) has continuously operated a groundwater extraction and treatment (GWET) system at 640 Page Mill Road (640 PMR [Property]) since 1982. During the last five years, HP's on-Property GWET system removed 880 pounds of volatile organic compounds (VOCs). HP operated an on-Property soil vapor extraction and treatment (SVET) system from 1994 to 1997 and removed 71 pounds of VOCs. Between 1987 and 1992, HP excavated and disposed of approximately 11,000 cubic yards of VOC-impacted soil from the Property.

HP has continuously operated a GWET system in the off-property Study Area since 1994. During the recent five-year review period, HP's off-Property GWET system that includes the Oregon Expressway Underpass (OEU) subdrain removed 1,267 pounds of VOCs.

Groundwater-VOC levels continue to slowly decline in most areas of the Site but increased in some areas. In the A1 Zone, on- and off-Property VOC levels continued to increase with the maximum on-Property TCE level in groundwater increasing from 16,000 micrograms per liter (µg/L) in 2005 to 28,000 µg/L in 2009. In the on-Property A2 Zone, VOCs showed a net increase over the five-year period, with the maximum TCE level increasing from 16,000 µg/L in 2005 to 85,000 µg/L in 2006, and then generally decreasing to 28,000 µg/L in 2009.

During the past five years, HP conducted high-resolution investigations at and downgradient from the Property to further characterize increasing elevated trichloroethene (TCE) in the A1 and A2 Zone groundwater and optimize the remediation system. The high-resolution investigations laterally and vertically defined the area of elevated VOC levels and identified specific elevated-VOC intervals within the A1 and A2 Zones.

HP responded to increasing off-Property VOC levels in the A1 Zone by increasing the pumping rate in the on- and off-Property A1 Zone extraction wells. The increased pumping rates have increased mass removal efficiency.

A protectiveness determination of the remedy at the Site cannot be made until potential vapor intrusion is re-evaluated in the off-Property Study Area and the extent of the contamination in the A1 Upper, A1 and A2 Zones is defined. HP has evaluated the vapor intrusion potential in the past to the satisfaction of the Regional Water Board. However, recent changes in the evaluation methods (primarily the adoption of a multiple lines of evidence approach) require additional analysis of the vapor intrusion pathway for certain portions of the Site. All other exposure pathways that could result in unacceptable risks are being controlled, and institutional controls are preventing exposure to, or the ingestion of, contaminated groundwater. The groundwater monitoring program in the Off-Property Study Area should be expanded to characterize the extent of TCE contamination in the A1U, A1, and A2 Zones. In the off-Property Study Area, the vapor intrusion exposure pathway will be re-evaluated within approximately 18 months. In order to make a protectiveness determination, an addendum to the 2010 Five-Year Review is required. The Five-Year Review addendum should be completed by October 30, 2012.

FIVE-YEAR REVIEW SUMMARY FORM		
SITE IDENTIFICATION		
Site Name (from CERCLIS): Hewlett-Packard (620-640 Page Mill Road)		
EPA ID: CAD009122540		
Region: 9	**State:** CA	**City/County:** Palo Alto / Santa Clara
SITE STATUS		
NPL status: Final		
Remediation Status: Operating		
Multiple OUs? No	**Construction completion date:** September 1997	
Has Site been put into reuse? Yes - a commercial building was constructed at the site in 1994.		
REVIEW STATUS		
Lead agency: State of California Regional Water Quality Control Board, San Francisco Bay Region		
Author Name: Roger Papler		
Author title: Engineering Geologist	**Author affiliation:** San Francisco Bay Regional Water Quality Control Board (Lead Agency)	
Review period: October 2005 to September 2010		
Date of Site inspection: 5/20/2010		
Type of Review: _ Post-Sara _Pre-Sara _NPL-Removal only _Non-NPL Remedial Action Site **X NPL State/Tribe-lead** _Regional Discretion		
Review number: (in bold) _1 (first) _2 (second) **X 3 (third)** _Other (specify)		
Triggering action: (in bold) _Actual RA Onsite Construction at OU#__ _Actual RA Start at OU#__ _Construction Completion **X Previous Five-Year Review Report** _Other (specify)		
Triggering action date (from CERCLIS): 9/30/2005		
Due Date: 9/30/2010		

Five-Year Review Summary Form

Issues:

The following issues were identified during the review:

1. The extent of the contamination in the A1 Upper, and A2 Zones should be fully defined. The A1U zone should be defined enough to determine if the area on the west side of the Off-Property Study Area is still unsaturated. There should be enough groundwater monitoring to determine the 100 µg/L and 50 µg/L TCE contour lines in order to identify all areas where vapor intrusion potential may be a concern. In areas where the A1U Zone is still unsaturated, the A1 zone should be defined enough to determine 100 µg/L and 50 µg/L TCE contour lines.
2. The potential for indoor air vapor intrusion in the Off-Property Study Area cannot be determined until the extent of contamination in the A1 Upper and A1 Zones is defined. Several buildings in the off-Property Study Area likely overly TCE shallow groundwater contamination. Also, TCE groundwater concentrations have increased in the shallow A1 zone in the off-Property area at the northwest corner of El Camino Real and Pepper Avenue.
3. Groundwater-VOC levels have increased in the on-Property A1 Zone and in the Off-Property Study Area to east/northeast of the Property in the areas around and between extraction wells EW-7 and EW-10. There are insufficient data to determine vertical plume capture as well as capture of the northeast portion of the TCE plume in the A1 Zone.

Recommendations and Follow-up Actions:

The following recommendations were identified during the review:

1. Expand the groundwater monitoring program in the Off-Property Study Area to characterize the extent of TCE contamination in the A1U and A1 Zone.
2. Evaluate the potential subsurface to indoor air (vapor intrusion) pathway by conducting a vapor intrusion investigation using multiple lines of evidence in the Off-Property Study Area.
3. Expand the groundwater monitoring system in the A1 Zone for the on- and off-Property areas around and between extraction wells EW-7 and EW-10 to ensure vertical plume capture and to determine if the GWET capture zone includes the northeast portion of the TCE plume in the A1 Zone.

Protectiveness Statement:

A protectiveness determination of the remedy at the Site cannot be made until potential vapor intrusion is re-evaluated in the Off-Property Study Area and the extent of the contamination in the A1 Upper, A1 and A2 Zones is defined. All other exposure pathways that could result in unacceptable risks are being controlled, and institutional controls are preventing exposure to, or the ingestion of, contaminated groundwater. The groundwater monitoring program in

the Off-Property Study Area should be expanded to characterize the extent of TCE contamination in the A1U, A1 and A2 Zones. In the Off-Property Study Area, the vapor intrusion exposure pathway will be re-evaluated in approximately 18 months. In order to make a protectiveness determination, an addendum to the 2010 Five Year Review is required. The Five-Year Review addendum should be completed by October 30, 2012.

California Regional Water Quality Control Board
San Francisco Bay Region

Third Five-Year Review

Hewlett-Packard (620-640 Page Mill Road) Superfund Site

Palo Alto, Santa Clara County, California

I. INTRODUCTION

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and identify recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this Five-Year Review report pursuant to CERCLA §121 and the National Contingency Plan (NCP). CERCLA §121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

EPA interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board), conducted the five-year review of the remedy implemented at the Hewlett-Packard (620-640 Page Mill Road) Superfund Site (Site) in Palo Alto, Santa Clara County, California. This is the third policy five-year review. The triggering action for this review is the completion of the second five-year review on September 30, 2005. The policy five-year review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

II. SITE CHRONOLOGY

Table 1. Site Chronology

Activity	Date
HP begins soil and groundwater investigation after discovery of a leaking underground solvent storage tank	1981
HP begins initial groundwater remediation	1982
HP conducts soil excavations	1987-1992
HP expands groundwater remediation	1987
Site listed on NPL	1990
Additional soil excavation conducted	1994
HP begins soil vapor extraction	1994
Regional Water Board Order 94-130 approves remedies that include soil vapor extraction and treatment and groundwater extraction and treatment and discharge to sanitary sewer and surface water under NPDES permit	1994
EPA issues Record of Decision (ROD) for the Site	1995
HP submits a Five-Year Status Report and Effectiveness Evaluation	2000
Regional Water Board and EPA complete first Five-Year Review	2000
Regional Water Board approved work plan for chemical oxidation and decommissioning groundwater monitoring and extraction wells at the former Mayfield School site and northeast end of the 640 Page Mill Road site	2005
HP installed monitoring wells T1A and T2A; conducted chemical oxidation treatment in the combined A1/A2 zone in the area south and southwest of well F44A; and permanently decommissioned extraction wells EW-1, EW-2 and EW-6, and monitoring wells F23A, F43A1U, F44A, F45A1U, OB6-1, OB6-2, O24A1U and T2A	2005
HP submitted Five-Year Status Report and Effectiveness Evaluation	2005
Regional Water Board and EPA complete second Five-Year Review	2005

Stanford University completed redevelopment of the former Mayfield School site and northeast portion of former 640 PMR site as the Stanford/Palo Alto Community Playing Fields soccer complex	2006
HP submitted Addendum to Five-Year Status Report and Effectiveness Evaluation	2006
HP completed a one-time chemical oxidation treatment in extraction well EW-14 (permanganate injection) and the well was then permanently decommissioned	2006
HP installed six groundwater monitoring wells (wells P1-A1, P1-A2, P2-A2, P3-A2, P4-A2, and P5-A2) in the downgradient side of the Property parking lot, up gradient of the soccer complex	2007
HP decommissioned extraction wells EW-9 and EW-14, and permanently shut down extraction well EW-12	2007
HP conducted a preliminary assessment of in-situ remedial technologies, and conducted additional characterization investigations of the A Zones using high-resolution technologies, including membrane interface probe (MIP) at the 640 PMR site and cone penetrometer test (CPT) for a transect traversing Page Mill Road near the downgradient boundary of the Property	2007 - 2008
HP conducted soil gas sampling in the off-property downgradient area	2008
HP installed B-Zone well O152B in the west side of the Property	2009
HP submitted an updated conceptual site model (CSM) for the A1 zone near well O119A1 and the A2 zone near well O67A2 at the Property	2010
HP submitted a Five-Year Status Report and Effectiveness Evaluation	Feb 2010

III. BACKGROUND

Physical Characteristics

The Site includes the 640 Page Mill Road (640 PMR) property (Property) and the off-Property Study Area. This Five-Year Review includes the California-Olive-Emerson (COE) Perimeter Area, located down-cross gradient from the Property, within the off-Property Study Area. Though the report references 395 Page Mill Road (395 PMR), the remediation occurring at 395 PMR is not part of the Site. The Property is located south of Highway 101 near the corner of Page Mill Road and El Camino Real in Palo Alto (see Figure 1). Groundwater contamination from the Property commingled with similar contaminant releases from two other source properties in the vicinity of the Property: the former Hewlett-Packard (HP) facility located northeast of the Property at 395 PMR and the former Varian Medical Systems, Inc., (Varian) facility located adjacent to and northwest of the Property at 601 California Avenue. The Regional Water Board oversees remediation of groundwater associated with the Property, 395 PMR and the 601 California Avenue properties as one site. The commingled off-Property VOC plume extends approximately 1,500 feet downgradient (northeast) of the Property where it is captured by the Oregon Expressway Underpass (OEU) subdrain.

Palo Alto has a population of approximately 61,200 and is located in west side of Silicon Valley in Santa Clara County and is part of the San Francisco Bay Metropolitan Region.

Stanford University (Stanford) owns the Property and HP leased the Property until May 2007. HP first occupied the Property in 1962, ceased operations in 1986, and began redevelopment in 1992 with the construction of a new office building. HP constructed the majority of the building over a basement parking garage, and the remaining on-grade portion of the building over a vapor barrier. HP sold the building and associated land lease in May 2007. The current owner of the building and groundlease is NOP Page Mill Road.

Land use in the vicinity and downgradient of the site is predominately commercial, with smaller areas of residential development. A soccer complex was developed during 2005 and 2006 on the vacant land located immediately downgradient of the Property. The Property includes the southwestern margin of the soccer field.

Hydrogeology

The Site is underlain by alluvial fan deposits associated with San Francisquito Creek to the west and Matadero Creek to the east. Two primary water-bearing zones have been identified within the alluvial fan deposits and are known as: the A Zone, the saturated portion of which occurs between approximately 17 to 55 feet below ground surface (bgs); and the B Zone, which occurs between approximately 60 and 120 bgs. Shallow groundwater is not currently used as a source of potable water within the area of the groundwater plume. The C Zone is used as a source of drinking water elsewhere in Santa Clara County.

The A Zone is further subdivided into the A1 Upper (A1U) Zone, A1, A2, and A2 Deeper (A2D) Zones, collectively the A Zone. Coarse grained sediments that comprise the A1U Zone are generally

occurring between approximately 10 to 30 feet bgs. The A1U Zone depth interval is saturated beneath the northeastern portion of the Site and is unsaturated in the southwestern portion of the Site. The A1 Zone typically occurs between approximately 30 and 40 feet bgs, and the A2 Zone generally occurs between approximately 40 and 55 feet bgs. Within the southwestern portion of the Site, the A1 and A2 sands are in direct contact and form a single A1/A2 Zone. The A2D Zone comprises thin sandy lenses that extend into the upper portion of the aquitard that separates the A and B Zones. Within the A Zone, aquitards vary from 1 to 22 feet thick and the thinner aquitards allow some hydraulic connection between the water-bearing zones

Above the B Zone, the aquitard ranges from 6 to 23 feet in thickness. The B Zone is further subdivided into the B1 and B2 Zones. Within the B Zone, the aquitard separating the B1 and B2 Zones is approximately 20 feet thick.

The top of the C Zone occurs at approximately 150 feet bgs and the aquitard separating the B2 and C Zones is at least 50 feet thick.

The regional groundwater flow direction is generally to the northeast from the hills toward San Francisco Bay. However, local variations in groundwater flow directions have been attributed to groundwater extraction or to preferential migration paths caused by coarse-grained buried stream channels and local groundwater extraction. Approximately 1,500 feet north of the Property, the Oregon Expressway Underpass subdrain captures and treats the majority of the Site's plume and creates a preferential pathway towards the subdrain near and at the distal end of the plume. The OEU passes under the Southern Pacific Railroad tracks, Alma Street and Park Boulevard and extends approximately twenty-four feet below ground surface and into the A1U Zone. To prevent flooding of the OEU, a subdrain system was installed to control groundwater flow of the A1U. The OEU subdrain probably also affects the A1 and A2 Zones based on non-detectable to near trace VOC levels in monitoring wells located downgradient from the OEU.

History of Contamination

Soil investigations began at the Property in 1981 after the discovery of a leaking 1,000 gallon underground storage tank (UST) that stored used solvent. The most frequently detected contaminants in soil included arsenic, gallium, trichloroethene (TCE), trichloroethane (TCA), 1,1-dichloroethene (DCE), tetrachloroethene (PCE), 1,2,4-trichlorobenzene, and phenol.

The solvent UST release also contaminated groundwater. The chemicals most frequently detected in the groundwater beneath the Property included TCE, TCA, 1,1-DCE and PCE. Contamination is mostly confined to the A-Zone. In the B Zone, the VOC contamination is below MCLs. There is a 50-foot aquitard between the B and C Zones. It was determined that C Zone monitoring was not needed because of non-detectable to trace levels of VOCs in the B Zone and the thickness of the B-C aquitard.

Initial Response

HP initiated on-Property groundwater extraction and treatment (GWET) in 1982 for seven months and restarted the GWET system in 1987. HP then expanded the GWET system in 1988 and again between 1992 and 1996.

On-Property soil excavations between 1987 and 1992 removed soil containing semi-VOCs above the cleanup standard of 10 parts per million (ppm). On-Property soil vapor extraction and treatment (SVET) between 1994 and 1997 remediated soil containing residual VOCs in the upper portion of the former vadose zone to the cleanup standard of 1 ppm. As discussed further below, groundwater levels rose in the 1990s and saturated the lower portion of the former vadose zone.

Summary of Basis for Taking Action

The Site overlies the Santa Clara Valley groundwater basin. Groundwater from this basin provides up to 50 percent of the municipal drinking water for over 1.4 million residents of the Santa Clara Valley. The Site was listed on the National Priorities List (NPL) primarily because past chemical releases posed a potential threat to the groundwater resource.

IV. REMEDIAL ACTIONS

Remedy Selection

The Remedial Action Objectives for the site, as specified in the 1994 Feasibility Study, are as follows:

- Prevent human exposure by ingestion of groundwater containing chemicals of concern (COCs) in excess of Maximum Contaminant Levels (MCLs).

- Prevent human exposure by ingestion of, inhalation of, or dermal contact with groundwater for all COCs such that cancer risks do not exceed 10^{-4} to 10^{-6} in aggregate for all COCs and such that the non-cancer hazard index is less than 1.0 for all COCs.

- Mitigate migration of groundwater that contains COCs at levels above MCLs.

The Regional Water Board adopted Final Site Cleanup Requirements (SCR) Order No. 94-130 in September 1994 and EPA issued a Record of Decision in March 1995. The final cleanup remedy selected in the ROD for the Site consisted of the following:

- Continued operation of the existing 15- well soil vapor extraction system at the HP-640 PMR site until final cleanup standards are achieved
- Continued operation and expansion of the current on-site and off-site groundwater extraction and treatment system until final cleanup standards are achieved
- Long-term groundwater monitoring
- A deed restriction for the HP-640 PMR site prohibiting use of on-site groundwater for drinking water until final cleanup standards are achieved

The ROD selected cleanup standards for both soil and groundwater as defined in the Regional Water Board's SCR Order. The soil cleanup standards are 1.0 milligram per kilogram (mg/kg) for total VOCs, 10 mg/kg for SVOCs, and 25 mg/kg for acetone.

Table 2 presents the groundwater cleanup standards in the ROD.

Table 2. Groundwater Cleanup Standards

Chemical	Cleanup Standard (µg/L)
Acetone	3,500
Benzene	1
1,1-Dichloroethane (1,1-DCA)	5
1,2-Dichloroethane	0.5
cis-1,2-Dichloroethene (cis-1,2-DCE)	6
trans-1,2-Dichloroethene (trans-1,2-DCE)	10
1,1-dichloroethene (1,1-DCE)	6
Freon 113	1,200
Methylene Chloride	5
Tetrachloroethene (PCE)	5
1,1,1-Trichloroethane (1,1,1-TCA)	200
1,1,2-Trichloroethane	3
Trichloroethene (TCE)	5
1,2-Dicholrobenzene	600
Trichlorobenzene (1,2,4-TCB)	70

Remedy Implementation

The GWET and soil vapor extraction and treatment systems were in place at the time the final SCR Order was adopted by the Regional Water Board in 1994.

Soil Vapor Extraction

HP operated an on-Property SVET system full time from 1994 to 1995 and then periodically shut down and re-started the system until 1997 to allow for VOC rebound. HP has not operated the SVET system for any significant time since 1997. The SVET system included a total of 28 soil vapor extraction (SVE) wells that were screened in the upper, intermediary, and lower intervals of the then-unsaturated vadose zone. The SVET system completed remediation of the upper portion of the vadose zone soil. However, rising groundwater levels saturated the intermediary and lower intervals of SVET wells that have been converted to groundwater extraction wells.

Groundwater Extraction

HP continually operated an on-Property GWET system since 1982 and expanded the GWET system to include off-Property areas in 1994. In the on-Property area, HP operated the following extraction wells: EW-4 and EW-5 in the A1 and A2 Zones, and EW-7 in the A1 Zone. In the off-Property area, HP operated extraction wells EW-1, EW-2, and EW-9 in the A1U Zone, EW-6 in the combined A1/A2 Zone, and EW-8 and EW-10 in the A1U Zone. Since 2005, HP curtailed EW-9 and decommissioned EW-1, EW-2 and EW-6. Currently, HP operates on-Property well EW-7 and off-Property wells EW-8 and EW 10.

Ongoing groundwater extraction from the saturated on-Property SVET system wells is removing VOCs from the now-saturated lower portion of the vadose zone. The on- and off-Property GWET systems, including the OEU subdrain, have operated continuously during this five-year review period with the exception of periodic maintenance and repairs. HP is currently extracting and treating contaminated groundwater from the A1 and A2 Zones. The OEU subdrain treated groundwater is discharged under an NPDES permit to a storm drain that ultimately discharges to Matadero Creek.

Institutional Controls

Stanford recorded a covenant and environmental restriction (Deed Restriction) on the property on May 28, 2003. The Deed Restriction requires that no owners or occupants of the property shall construct a well for the purpose of extracting contaminated water for any use, unless expressly permitted in writing by the Regional Water Board.

System Operation and Maintenance

Actual operation and maintenance (O&M), monitoring, NPDES fees, labor, and other expenses between January 2005 and June 2009 for the GWET were $378,000. As of October 2009, HP has reported a cumulative cost of $6,788,253 for the Site's remediation project since inception and could not provide a subdivided presentation of costs for each five-year review period.

Table 3. Total GWET System Operation and Maintenance Costs

From	To	Total Cost
1/1/2004	6/30/2009	$378,000

V. PROGRESS SINCE LAST REVIEW

The 2nd five-year review concluded that:

"The remedy is expected to be protective of human health and the environment upon attainment of groundwater cleanup goals. In the interim, exposure pathways that could result in unacceptable risks are being controlled and institutional controls are preventing exposure to, or the ingestion of, contaminated groundwater. Based on currently available information, the vapor intrusion pathway is not complete at the site due to the on-site building design, and is unlikely at the downgradient residential area due to the low levels of VOCs found in the groundwater there and other factors, such as ongoing hydraulic control of the plume. However, the groundwater monitoring program in the off-site area should continue, and the potential for indoor air intrusion should be evaluated if concentrations in groundwater increase significantly."

The issues identified and the actions taken since the last five-year review are summarized below in Table 4.

Table 4. Actions Taken Since the Last Five-Year Review

Issues from Previous Reviews	Recommendations Follow-up Actions	Action Taken and Outcome
Declining VOC removal efficiency in most of the extraction wells.	Hewlett Packard plans to assess whether in-situ remedial technologies would be a practical alternative to accelerate the remediation process, especially in onsite areas where the VOC removal efficiency of the GWET system has significantly declined.	HP conducted a preliminary assessment of in-situ remedial technologies by conducting high-resolution investigations at the Property to further characterize the distribution of elevated TCE concentrations, and performed hydraulic testing. HP optimized the GWET system, which has resulted in a marked increase in mass removal efficiency. HP implemented in-situ chemical oxidation (ISCO) remediation in the combined A1/A2 Zone in the soccer field area and successfully decreased TCE levels from more than 500 µg/L to 240 µg/L.
Rising groundwater levels have resaturated soils that the lower zone wells of the SVET system were designed to treat.	HP will continue to operate the GWET system and monitor groundwater quality.	HP operated the GWET system and monitored groundwater quality.

VI. FIVE-YEAR REVIEW PROCESS

Community Notification

The Regional Water Board published a public notice in the Palo Alto Weekly on July 2, 2010. The public notice announced the beginning of the five-year review process.

Document Review

This five-year review included a review of relevant documents including the February 19, 2010, *Third Five Year Status Report and Effectiveness Evaluation*; January 19, 2010, *Updated Conceptual Site Model – A1 Zone Near Well O119A1 and A2 Zone Near Well O67A2* (Updated CSM Report); July 29, 2009, *Installation Report for B-Zone Well 0152B*, (B-Zone Well Installation Report); October 22, 2008, *Report of Recent Investigative Activities* (MIP and CPT Report); September 30, 2005 Second Five-Year Review Report; September 14, 2000 Five-Year Review Report; March 24, 1995 Record of Decision; September 21, 1994 Site Clean-up requirements letter; and groundwater monitoring reports. Applicable groundwater cleanup standards contained in the Final Site Cleanup Requirements (SCRs) Order were reviewed. There have been no changes in the cleanup standards contained in the SCRs.

Data Review

Soil Data

Remedial soil excavations conducted at the Property between 1987 and 1992 removed approximately 11,000 cubic yards of VOC-impacted soil. Because VOC analytical data associated with this removal is reportedly not available, an estimate of VOC mass removed from the excavation is also not available.

Soil Vapor Data

Between 1994 and 1997, HP operated an on-Property SVET system until the system approached asymptotic conditions. The SVET system removed approximately 71 pounds of VOCs. Based on soil cleanup confirmation data, the Regional Water Board approved curtailment of the SVE system.

Groundwater Data

Mass Removal

Since 1987, the on-Property GWET system has removed 2,283 pounds of VOCs. However, elevated VOCs persist in on-Property A1-Zone well O119A1 and A2-Zone well O67A2. Tables 5a and 5b summarize Site-wide and area/property-specific mass removal efficiency data.

The off-Property GWET system has removed 6,128 pounds of VOCs and has been reducing VOC levels in groundwater, and hydraulically controlling migration of the plume. The amount of VOC mass being removed has declined considerably and VOC levels in groundwater have stabilized.

In the majority of the Off-Property Area, VOC levels have been reduced to near-asymptotic or asymptotic levels. This observation of an initial significant reduction in VOC levels followed by a leveling off of the reduction in VOC levels has been occurring at many other sites in the area. Based on this trend, the GWET system may not be able to restore the groundwater to its beneficial use as a potential drinking water source.

Table 5a. Groundwater Mass Removal Efficiency – Site-Wide

From	To	Volume Extracted (million gal)	VOC Mass Removed (lbs)	Mass Removal Efficiency (lbs per million gal)
1/1/1995	12/31/1999	848	4,717	5.6
1/1/2000	12/31/2004	998.1	1,548	1.6
1/1/2005	12/31/2009	932.4	2,147	2.3

Table 5b. Groundwater Mass Removal Efficiency – Area-Specific

From	To	Volume Extracted (million gal)	VOC Mass Removed (lbs)	Mass Removal Efficiency (lbs per million gal)
On-Property				
1/1/1995	12/31/1999	70	900	12.9
1/1/2000	12/31/2004	67.5	503	7.4
1/1/2005	12/31/2009	43.8	880	20.1
Off-Property Study Area*				
1/1/1995	12/31/1999	778	3,816.8	4.9
1/1/2000	12/31/2004	930.6	1,044.6	1.1
1/1/2005	12/31/2009	888.6	1,266.6	1.4

Note: * Off-Property Study Area includes OEU.

Monitoring Data

Contamination is mostly confined to the A-Zone. In the B Zone, the VOC contamination is below MCLs. There is a 50-foot aquitard between the B and C Zones. It was determined that C Zone monitoring was not needed because of non-detectable to trace levels of VOCs in the B Zone and the thickness of the B-C aquitard.

No potentially toxic or mobile transformation products have been identified during sampling conducted during this evaluation period that were not already identified to be present at the time of the Record of Decision.

On-Property

On-Property groundwater monitoring data collected from 2005 to 2010 are summarized in Table B2 (see Appendix B) and were reviewed to evaluate progress in remediating the groundwater pollutant plume.

There are no on-Property A1U-Zone monitoring wells. The maximum on-Property groundwater-TCE level in the A1 Zone has increased during the most recent five years from 16,000 µg/L to 28,000 µg/L (well O119A1). TCE concentrations in the immediate on-Property vicinity of the former on-Property source area (near well O116A1) continued to remain low.

The maximum on-Property groundwater-TCE level in the A2 Zone has increased from 15,000 µg/L in 2005 to 28,000 µg/L in 2009, and peaked at 85,000 µg/L (O67A2) in 2006. Elevated TCE levels in the on-Property A2 Zone need to be monitored to verify that the A2-Zone VOC plume has stabilized. In most on-Property A-2 Zone wells, concentrations of TCE have decreased or remained stable over the five-year period.

Maximum on-Property groundwater-TCE concentrations within the B Zone were less that the MCL and approximately the same as 2005.

Off-Property

Off-Property groundwater monitoring data collected from 2005 to 2009 are summarized in Table C1 and were reviewed to evaluate progress in remediating the groundwater pollutant plume. In most of the Study Area, maximum groundwater-TCE concentrations within the A1U Zone monitoring wells have remained relatively stable over the five-year period. The maximum off-Property TCE level within the A1U Zone monitoring well network increased from 200 µg/L (well F22A1U) in 2005 to 240 µg/L in 2009. However, groundwater grab sampling data from two proximal temporary well boreholes at 2875 and 2865 El Camino Real (northeast corner of El Camino Real and Page Mill Road, respectively) indicated that TCE levels increased from 85 µg/L in 2006 to 660 µg/L in 2010. Based on the above, grab groundwater sampling results appear to indicate that VOC levels have increased in the A1U Zone by factor of eight in the vicinity of this property. In the off-Property Study Area, the downgradient extent of VOCs in the A1U Zone has been completely defined to below their MCLs. However, additional investigation at the northeast corner of El Camino Real and Page Mill Road is needed because of the rise in groundwater-VOCs in this portion of the off-Property Study Area.

The maximum off-Property groundwater-TCE level in the A1 Zone increased in well F42A1 from 980 µg/L in 2005 to 2,400 µg/L in 2009. In the most distal monitoring well (F127A1) currently included in the 1,000 µg/L contour line area of the A1-Zone, the TCE level increased from 470 µg/L in 2005 to 2,300 µg/L in 2009. Elevated TCE levels in the off-Property A1 Zone need to be monitored to verify that the A1-Zone VOC plume has stabilized with increased off-Property pumping rates.

Although on-Property VOC levels are elevated, groundwater monitoring and CPT transect data do not suggest continued downgradient migration of the elevated VOC plume from this area.

Maximum groundwater-TCE levels within the B Zone were less that the MCL and approximately the same as 2005.

Investigations

On-Property MIP Investigation

HP documented the results of a membrane interface probe (MIP) investigations in their October 22, 2008, *Report of Recent Investigation Activities* (MIP and CPT Report). In their MIP and CPT Report, HP documented the results of an on-Property MIP investigation to identify remnant areas of elevated VOC levels, optimize the GWET technology, and assess the potential for off-Property migration of VOCs in the A2 zone. The MIP portion of the MIP and CPT Report indicated that on Property:

- Sources of elevated VOCs were not noted under the existing building or in the unsaturated/vadose sediments in the area of on-property elevated groundwater-VOCs in the A1 and A2 Zones.

- Elevated groundwater-VOCs in the A1 Zone are laterally defined on the upgradient edge of the plume near well O119A1 and MIP boreholes MIP-31, 32 and 33. Elevated groundwater-VOC levels are stable and generally located near and between well O67A2 and the on-Property building.

- Elevated groundwater-VOCs are vertically defined above the aquitard separating the A2 and B Zones.

- Groundwater extraction at EW-7 may be decreasing elevated VOC levels in the A2 Zone near well O67A2.

The MIP Report concluded that no further investigation is required to define the lateral and vertical extent of elevated VOCs in on-Property groundwater, and recommended continued operation of the A1 Zone extraction wells EW-7 and EW-8 to control the off-Property migration of VOCs.

Off-Property CPT Investigation

In the MIP and CPT Report, HP documented the results of groundwater sampling of VOCs in the A2 Zone with a transect of CPT boreholes. The CPT transect was located approximately 400 feet downgradient from well O67A2 and spanned from well O69A2D to well F79A2D, crossing Page Mill Road. HP advanced five CPT boreholes in to the A2 Zone to a maximum depth of 57 feet bgs and encountered TCE and other VOCs, mostly at non-detectable levels. On the Property side of Page Mill Road, CPT-1 contained maximum VOC levels with TCE at 110 µg/L. HP concluded that the downgradient extent of the A2-Zone VOC plume had been defined to MCLs approximately 400 east of well O67A2 and approximately 600 feet northeast of O67A2.

Monitoring Well Installation

The Regional Water Board expressed concern regarding potential contamination of the on-Property B-Zone underlying well O67A2. The A2/B Aquitard is thinnest near O67A2 with a thickness of approximately six feet, and VOC levels in groundwater have exceeded their dense non-aqueous phase liquid (DNAPL) threshold near this well for almost ten years. Based on the above, HP installed a B-Zone monitoring well in the west side of the Property to evaluate potential impact from elevated TCE levels in well O67A2. Installing a conductor cased well near O67A2 could cross contaminate the B Zone, and landscaping features would have required grading to accommodate the drilling rig. Given these considerations, the well was installed downgradient from the O67A2 where the presence of the B Zone had been documented by prior investigation. HP documented the results of the B Zone well in their July 29, 2009, *Installation Report for B-Zone Well O152B* (B-Zone Report). The B-Zone Report indicated that no VOCs were detected in the B-Zone groundwater at this location.

Updated CSM

The B-Zone Report partially addressed Regional Water Board concerns. The Regional Water Board reviewed the Report and recent groundwater monitoring reports and made the following observations:

- TCE has increased in well O119A1 since the groundwater extraction rate in EW-7 was increased. The migration pathway for VOCs exceeding their DNAPL threshold level from the original source area to monitoring well 067A2 is not well understood.

- The upper portion of the B-zone may not be fully characterized in the area of A-2 Zone well O67A2.

- TCE area defined by the off-Property 1,000 µg/L isoconcentration contour has expanded. The TCE level in well F127A1, located at the distal end of the A1 Zone plume, has increased from 470 µg/L in 2005 to 2,300 µg/L in 2009.

- A significant amount of on-Property high-resolution investigation data has been collected recently.

Based on the above, the Regional Water Board required HP to develop an updated conceptual site model of the on-Property area and the off-Property A1 Zone plume emanating from the site.

The Regional Water Board required HP to submit an updated conceptual site model to evaluate the need for further characterization and to evaluate the potential influence and proper decommissioning of monitoring wells with long screens that were constructed around the on-Property underground storage tank source in the late 1980s. The long screens on these wells may have contributed to the downward migration of elevated TCE levels in to the A2 Zone near well O67A2. HP's January 2010 Updated CSM Report concluded the following:

- On-Property elevated VOCs in the A1-Zone near well O119A1 and the A2-Zone near well O67A2 originated from the EW-5 source area located approximately 200 feet northwest of these two wells. At EW-5, groundwater extraction reduced TCE levels from 10,000 µg/L to less than 30 µg/l. Rising groundwater levels and an eastward dipping A1/A2 aquitard probably induced an eastward migration of residual elevated VOCs to wells O119A1 and O67A2. Recent high resolution investigations have fully defined elevated VOCs near these two wells and VOC levels in the A2 Zone appear stable. Based on the new B zone well O152B and the other historic on-Property B Zone wells, there are no data suggesting VOCs have migrated down into the on-Property B Zone. Recent groundwater data indicate that VOC levels in the A2 Zone have stabilized.

- Off-Property elevated VOCs were not completely captured by the active off-Property extraction well EW-8 at the prior extraction rate of 8 gpm. Since 2009, EW-8 has been pumping at approximately 25 to 30 gpm and the on-Property extraction well EW-7 has been pumping at approximately 18 to 20 gpm. The groundwater elevation and VOC data suggest an improved hydraulic capture of groundwater downgradient from EW-8.

- All prior monitoring wells in the area of the former solvent tank that were installed by Environ or Stantec had been properly decommissioned.

The updated CSM report recommended monitoring the effectiveness of extractions wells EW-7 and EW-8 to provide ongoing hydraulic control in the A1 Zone. The updated CSM report also recommended further evaluation of the stability of the on-property A2 Zone plume, including hydraulic testing.

TCE and other VOC levels have exceeded their DNAPL threshold in the A2 Zone near O67A2 for almost ten years and currently persist. HP asserted that groundwater extraction at an increased pumping rate from well EW-7 is exerting vertical hydraulic control on elevated VOCs in the A2 Zone near O67A2. However, EW-7 extracts from the A1 Zone and is located over 120 feet downgradient from O67A2. Groundwater extraction from the A1 Zone extraction well EW-7 has not significantly decreased VOC levels in O67A2 after two and a half years of increased pumping from EW-7. During the most recent five years, elevated TCE levels in O67A2 ranged from 15,000 µg/L in 2005 to 85,000 µg/L in 2006. Since increased pumping in EW-7 began in January 2008, elevated TCE levels have increased in O67A2 from 18,000 µg/L in June 2008 to 28,000 µg/L in June 2009. Based on the above, the hydraulic influence of groundwater extraction from EW-7 on the A2 Zone near O67A2 is probably insignificant. Increased pumping seems to be more successful in some areas of contamination than others.

Site Inspection

The Regional Water Board and EPA conducted a Site inspection on May 20, 2010. No activities that could interfere with cleanup of the Site were observed. The institutional controls that are in place include prohibitions on the use of on-Property groundwater until cleanup standards are achieved. No activities were observed that would have violated the institutional controls.

VII. TECHNICAL ASSESSMENT

Question A: Is the remedy functioning as intended by the decision documents?

The remedy selected in the ROD was implemented as planned and has removed VOCs from vadose zone soil and groundwater, maintained plume control and reduced VOC levels in groundwater. Contamination is mostly confined to the A Zone. In the B Zone, the VOC contamination is below MCLs.

The current groundwater monitoring program is sufficient to track the plume in the A1, A2, and B Zones, as well as track the effectiveness of remedial actions in these water-bearing zones. However, grab groundwater results from the northwest corner of El Camino Real and Pepper Avenue indicate that TCE exceeds the ESL for indoor air vapor intrusion. Additional monitoring well installation is needed in the A1U Zone. Remedial actions conducted at the site continue to make progress toward achieving cleanup standards.

The institutional controls in place prohibit on-Property groundwater usage. No activities were observed that would have violated the institutional controls.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Physical Conditions of Site

Institutional controls prohibit the on-Property use of groundwater, and groundwater is not currently used at the source Property. There have been no changes to the physical conditions of the Site that would affect protectiveness of the remedy. Land use at the Site is commercial and land use downgradient of the Site where the groundwater plume has migrated is commercial and residential.

An outdoor soccer complex was completed in 2006 on the vacant land located downgradient from the Property.

Changes in Cleanup Standards

There have been no changes to Applicable or Relevant and Appropriate Requirements (ARARs) for the Site and no new standards that would affect the protectiveness of the remedy. TCE and cis-1,2-DCE are the primary chemicals whose levels still routinely exceed the cleanup standards. Groundwater cleanup standards for these chemicals have not changed since the ROD was issued.

Changes in Toxicity

Several toxicity factors have changed since the original 1990 risk assessment. In 2009, EPA harmonized Region's 3, 6 and 9 similar risk-based screening levels into a single table: "Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites." The RSLs are

developed using risk assessment guidance from the EPA Superfund program. They are risk-based levels derived from standardized equations combining exposure information assumptions with EPA toxicity data.

Table 6. ROD Groundwater Cleanup Standards vs Current Risk-Based Levels

Chemical	Cleanup Standard in 1990 ROD (µg/L)	Current RSL for tap water (µg/L)	Risk Calculation in Excess of 10^{-6}
1,1-dichloroethene (1,1-DCE)	6	340.00	-
Trichloroethene (TCE)	5	2.00	2.5×10^{-6}
1,1-dichloroethane (1,1-DCA)	5	2.40	-
1,1,1-trichloroethane (1,1,1-TCA)	200	9,100.00	-
cis-1,2-dichloroethene (cis-1,2-DCE)	6	370.00	-
trans-1,2-dichloroethene (trans 1,2-DCE)	10	110.00	-
Tetrachloroethene (PCE)	5	0.11	45.5×10^{-6}
1,2-DCA	2	0.15	13.3×10^{-6}
Toluene	100	2,300.00	-

Three contaminants have had their toxicity value lowered since the 1990: PCE, TCE, and 1,2-DCA. The current RSL values are based on a 10^{-6} risk level. The Record of Decision chose the California MCL of 5 µg/L for the clean-up level for TCE. Based on the new toxicity numbers, this would result in a 2.5×10^{-6} risk, which is still within EPA's risk range. The same is true for PCE. The Record of Decision chose 5 µg/L, the MCL, for the PCE cleanup standard. Using the new toxicity value, this would result in a 4.55×10^{-5} risk, which is within EPA's risk range. Similarly, using the new toxicity value for 1,2-DCA would result in 1.3×10^{-5} risk at the current cleanup standard.

Although there have been changes to the toxicity values, the changes do not increase the Site risk to unacceptable levels. The clean-up levels chosen in the Record of Decision are still protective.

Changes in Exposure Pathways

Baseline Public Health Evaluation

The Agency for Toxic Substances and Disease Registry prepared a Baseline Public Health Evaluation (BPHE) for the Property in 1992. This risk assessment was used to evaluate and select remedial options for the site. The risk evaluation evaluated four exposure pathways:

1. Ingestion of ground water;

2. Dermal contact with ground water while showering;

3. Inhalation of VOCs while showering; and

4. Inhalation of VOCs in indoor air.

At the Property and in the downgradient area, groundwater is not used as a source of potable water or for domestic purposes. Thus the only potentially complete pathway was the inhalation of VOCs migrating from the groundwater into indoor air (i.e, via vapor intrusion).

There are no drinking water supply wells in the groundwater plume area. Nearly 85% of the local drinking water supply originates from the Hetch Hetchy Reservoir in the Sierra Nevada Mountains. The other 15% comes from local reservoirs. The vadose zone soils have been remediated to clean-up levels and therefore do not pose a threat to direct contact exposure**.**

Current institutional controls have prevented installation of wells at the affected on-Property area. This has controlled the exposure pathways for ingestion of ground water; dermal contact with ground water while showering; and inhalation of VOCs while showering.

It should be noted that the first three exposure pathways are not complete with respect to the Property as the VOCs released from the Property have not affected the municipal water supply. Overlying the C-Zone that is used as a drinking water supply, VOC levels in the B-Zone groundwater range from non-detectable to below State MCLs. The soils have been remediated to clean-up levels and therefore do not pose a threat to direct contact exposure.

Thus the only potentially complete pathway in the off-Property Study area is the inhalation of VOCs migrating from the groundwater or source areas to indoor air.

If the concentration of a contaminant in groundwater is above its respective ESL for vapor intrusion, there is potential for exposure. The probability of vapor intrusion is site-specific, and many factors such as geologic features, building construction and layout of utilities could affect vapor pathways and whether there is a risk of indoor air being contaminated by chemical contaminants migrating from groundwater.

Assessing vapor intrusion is an evolving science. HP has evaluated the vapor intrusion potential in the past to the satisfaction of the Regional Water Board. However, recent changes in the

evaluation methods require additional analysis of the vapor intrusion pathway for certain portions of the Site.

On-Property

The current vapor intrusion pathway appears to be incomplete at the Property due to the design and construction of the existing building. HP installed a vapor barrier under the on-grade portions of the replacement building in 1994. For the basement parking area underlying the rest of the building, HP installed a grated entrance to the basement to provide additional ventilation to the active ventilation that is triggered by vehicle carbon monoxide levels. To confirm the effectiveness of the vapor barrier and building design, the current occupant, Wilson Sonsini Goodrich and Rosatti (WSGR), collected indoor air data that is presented in Table 7. The indoor air analytical data indicate that VOCs were detected on the first floor at levels exceeding RSLs at one location and not detected on the second floor. WSGR plans to conduct confirmation indoor air sampling at the end of 2010.

Table 7. Indoor Air Levels at the Property

Location (Sample #)	Date of Sampling	PCE	TCE	1,1,1-TCA	1,1-DCE
SRI-BR-6[1]	12/3/2009	0.31	1.0	0.35	0.092
PRI-BR-6[1]	12/3/2009	ND <0.21	ND <0.17	0.3	ND <0.061
PRI-BR-6 dup[1]	12/3/2009	2.9	4.1	3.7	0.2
PC-2-B[2]	12/3/2009	ND <0.24	ND <0.19	ND <0.19	ND <0.069
FH-2-1-8[2]	12/3/2009	ND <0.22	ND <0.18	ND <0.18	ND <0.065
Commercial RSL		2.1	6.1	22,000	880

Notes:
[1] Collected from first floor
[2] Collected from second floor
Concentrations in micrograms per cubic meter
ND< = Not detected less than detection limit

Off-Property

Study Area

In the residential portion of the off-Property Study Area, current TCE groundwater levels in the off-Property A1U Zone range from less than 0.5 µg/L to 240 µg/L (Well EW-2) As shown in Table C-3, HP collected soil vapor samples in 2008 to evaluate potential indoor air vapor intrusion in the off-Property Study Area. TCE levels in soil vapor were generally not detectable. However, TCE was detected in one of the soil vapor samples up to 2,600 µg/m^3. Based on the nearby building design and the ESLs, the Regional Water Board approved the conclusion that there were no vapor intrusion concerns in the off-Property Study Area, excluding 395 PMR.

Since that time, EPA began evaluating potential vapor intrusion using a multiple lines of evidence approach. As such, the vapor intrusion pathway needs to be re-evaluated using that approach.

395 PMR

HP also collected soil vapor samples in 2009 around the building at 395 PMR where limited VOC-groundwater data is available from the shallowest A1U Zone. TCE and PCE did not exceed the Regional Water Board's ESLs. HP concluded that there were no vapor intrusion concerns at 395 PMR. However, EPA and the Regional Water Board have reviewed the soil gas data and concluded that the vapor intrusion pathway needs to be evaluated using the updated multiple lines of evidence approach.

Table 8. Soil Gas Results at 395 Page Mill Road

Location (Sample #)	Date of Sampling	PCE	TCE	cis-1,2-DCE	vinyl chloride
SG-1	5/11/2009	300	<44	<32	<21
SG-1 Dup	5/11/2009	280	14	<4.1	<2.6
SG-1	10/2/2009	120	<58	<43	<28
SG-1 Dup	10/2/2009	120	<59	<44	<28
SG-2	5/11/2009	<1,600	<1,200	<910	<590
SG-2	10/2/2009	380	78	<45	<29
SG-3	5/11/2009	<720	<570	<420	<270
SG-3	10/2/2009	950	1,300	<43	<28
SG-4	5/11/2009	150	61	60	8.1
SG-4	10/2/2009	550	330	160	64
SG-4 Dup	10/2/2009	590	320	160	68
SG-5	10/2/2009	710	1,800	<44	<28
SG-6	10/2/2009	920	<58	<43	<28
SG-7	10/2/2009	<76	<60	<44	<29
SG-8	10/2/2009	<74	<58	<43	<28
Commercial ESL	---	1,400	4,100	20,000	100

Notes:
Concentrations in micrograms per cubic meter
ND< = Not detected less than detection limit

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no other information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed and the site inspection, the remedy is continuing to control the groundwater contamination. There have been no changes in the physical condition or land use at the Site that would affect the protectiveness of the remedy. The groundwater monitoring program in the Off-Property Study Area should expanded to determine the extent of contamination in the Upper Zone and the ability of the GWET to capture the TCE plume in the area of EW-7 and EW-10. The vapor intrusion potential needs to be further evaluated in the Off-Property Study Area and in the building overlying the west portion of 395 PMR. There is no other information that calls into question the protectiveness of the remedy.

VIII. ISSUES

Issues:

The following issues were identified during the review:

1. The extent of the contamination in the A1 Upper, and A2 Zones should be fully defined. The A1U zone should be defined enough to determine if the area on the west side of the Off-Property Study Area is still unsaturated. There should be enough groundwater monitoring to determine the 100 µg/L and 50 µg/L TCE contour lines in order to identify all areas where vapor intrusion potential may be a concern. In areas where the A1U Zone is still unsaturated, the A1 zone should be defined enough to determine 100 µg/L and 50 µg/L TCE contour lines.
2. The potential for indoor air vapor intrusion in the off-Property Study Area cannot be determined until the extent of contamination in the A1 Upper and A1 Zones is defined. Several buildings in the off-Property Study Area likely overly TCE shallow groundwater contamination. Also, TCE groundwater concentrations have increased in the shallow A1 zone in the off-Property area at the northwest corner of El Camino Real and Pepper Avenue.
3. Groundwater-VOC levels have increased in the on-Property A1 Zone and in the Off-Property Study Area to east/northeast of the Property in the areas around and between extraction wells EW-7 and EW-10. There are insufficient data to determine vertical plume capture as well as capture of the northeast portion of the TCE plume in the A1 Zone.

IX. RECOMENDATIONS

Recommendations and Follow-up Actions:

The following recommendations were identified during the review:

1. Expand the groundwater monitoring program in the Off-Property Study Area to characterize the extent of TCE contamination in the A1U and A1 Zone.
2. Evaluate the potential subsurface to indoor air (vapor intrusion) pathway by conducting a vapor intrusion investigation using multiple lines of evidence in the Off-Property Study Area.
3. Expand the groundwater monitoring system in the A1 Zone for the on- and off-Property areas around and between extraction wells EW-7 and EW-10 to ensure vertical plume capture and to determine if the GWET capture zone includes the northeast portion of the TCE plume in the A1 Zone.

The issues, recommendations, follow-up actions and milestone dates are summarized in Table 9.

Table 9. Issues/Recommendations and Milestones Dates

Issue	Recommendations and Follow-Up Action	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
The extent of the contamination in the A1 Upper, and A2 Zones should be fully defined.	Expand the groundwater monitoring program in the Off-Property Study Area to characterize the extent of TCE contamination in the A1U and A1 Zone.	HP	Regional Water Board	2012	Unknown	Unknown
Potential for Off-Property indoor air vapor intrusion cannot be determined until extent of contamination in shallow groundwater is defined.	Evaluate the potential Off-Property indoor air vapor intrusion pathway using a multiple lines of evidence approach.	HP	Regional Water Board	2012	Unknown	Unknown

Issue	Recommendations and Follow-Up Action	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
Groundwater-VOC levels have increased in the on-Property A1 Zone and in the off-Property Study Area to east/northeast of the Property in the areas around and between extraction wells EW-7 and EW-10.	Expand the groundwater monitoring system in the A1 Zone in the on- and off-Property areas around and between extraction wells EW-7 and EW-10 to ensure vertical plume capture and to determine if the GWET capture zone includes the northeast portion of the TCE plume in the A1 Zone.	HP	Regional Water Board	2012	Unknown	Unknown

Non-Protectiveness Follow-up

Declining Effectiveness

The TCE contamination in and near the on-property area remains high. HP should optimize the GWET system, assess its effectiveness in meeting the remedial action objectives and consider evaluating new emerging cleanup technologies and adding additional extraction wells.

A2 Zone Remediation

The TCE contamination in and near the on-property area remains high in the A2 Zone. Optimize the GWET System and asses its effectiveness in meeting the remedial action objectives.

X. PROTECTIVENESS STATEMENT

A protectiveness determination of the remedy at the Site cannot be made until potential vapor intrusion is re-evaluated in the Off-Property Study Area and the extent of the contamination in the A1 Upper, A1 and A2 Zones is defined. All other exposure pathways that could result in unacceptable risks are being controlled, and institutional controls are preventing exposure to, or the ingestion of, contaminated groundwater. The groundwater monitoring program in the Off-Property Study Area should be expanded to characterize the extent of TCE contamination in the A1U, A1 and A2 Zones. In the off-Property Study Area, the vapor intrusion exposure pathway will be reevaluated over the next 18 months. In order to make a protectiveness determination, an addendum to the 2010 Five-Year Review is required. The Five-Year Review addendum should be completed by October 30, 2012.

XI. NEXT REVIEW

The next Five-Year Review for the Site is required within five years of the date of this Five-Year Review. HP should submit the next five-year report to the Regional Water Board by February 1, 2015.

Figure 1. Site Map

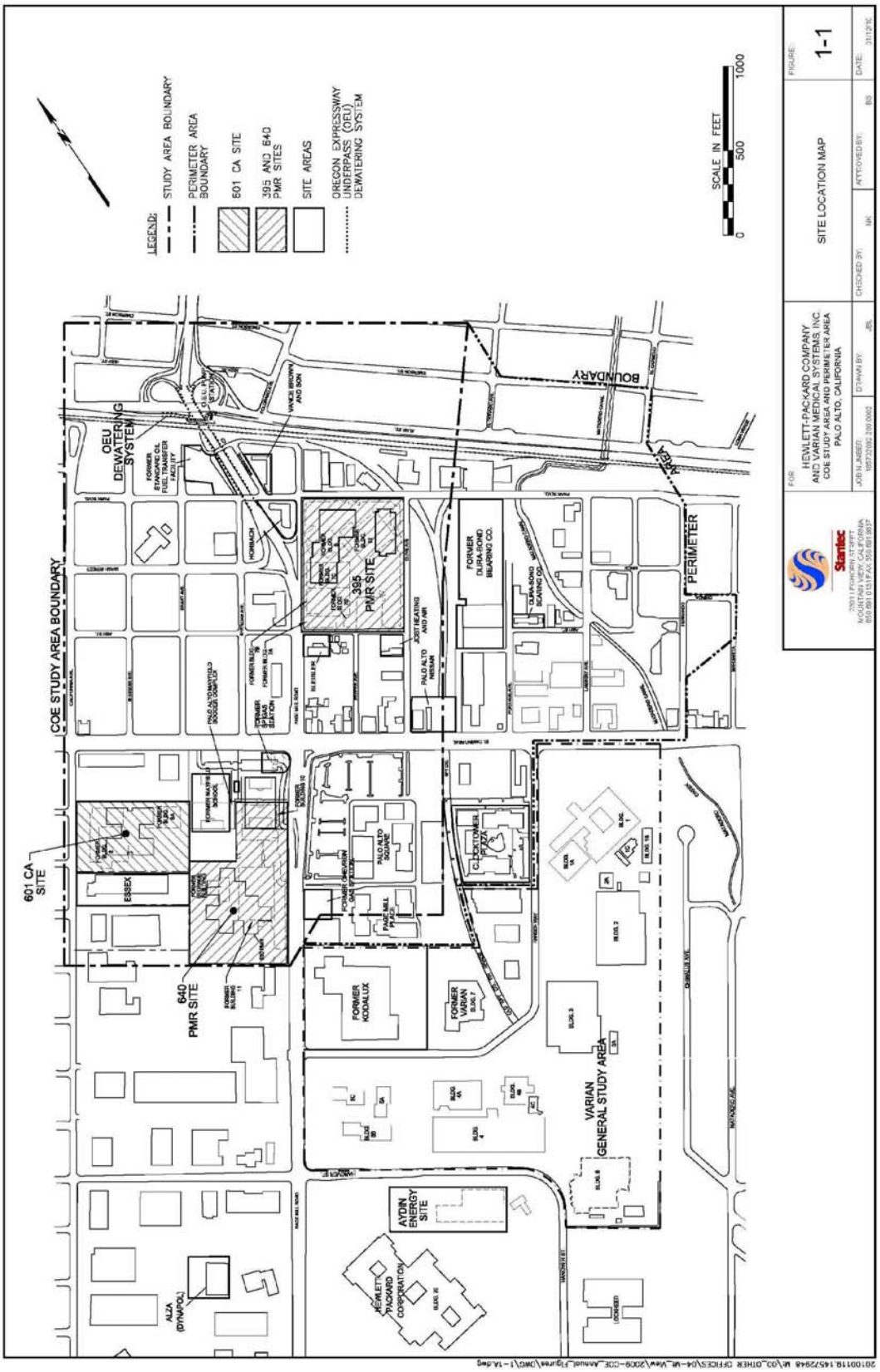


Figure 2. Estimated TCE Contour Map A1 Upper Zone, June 2009

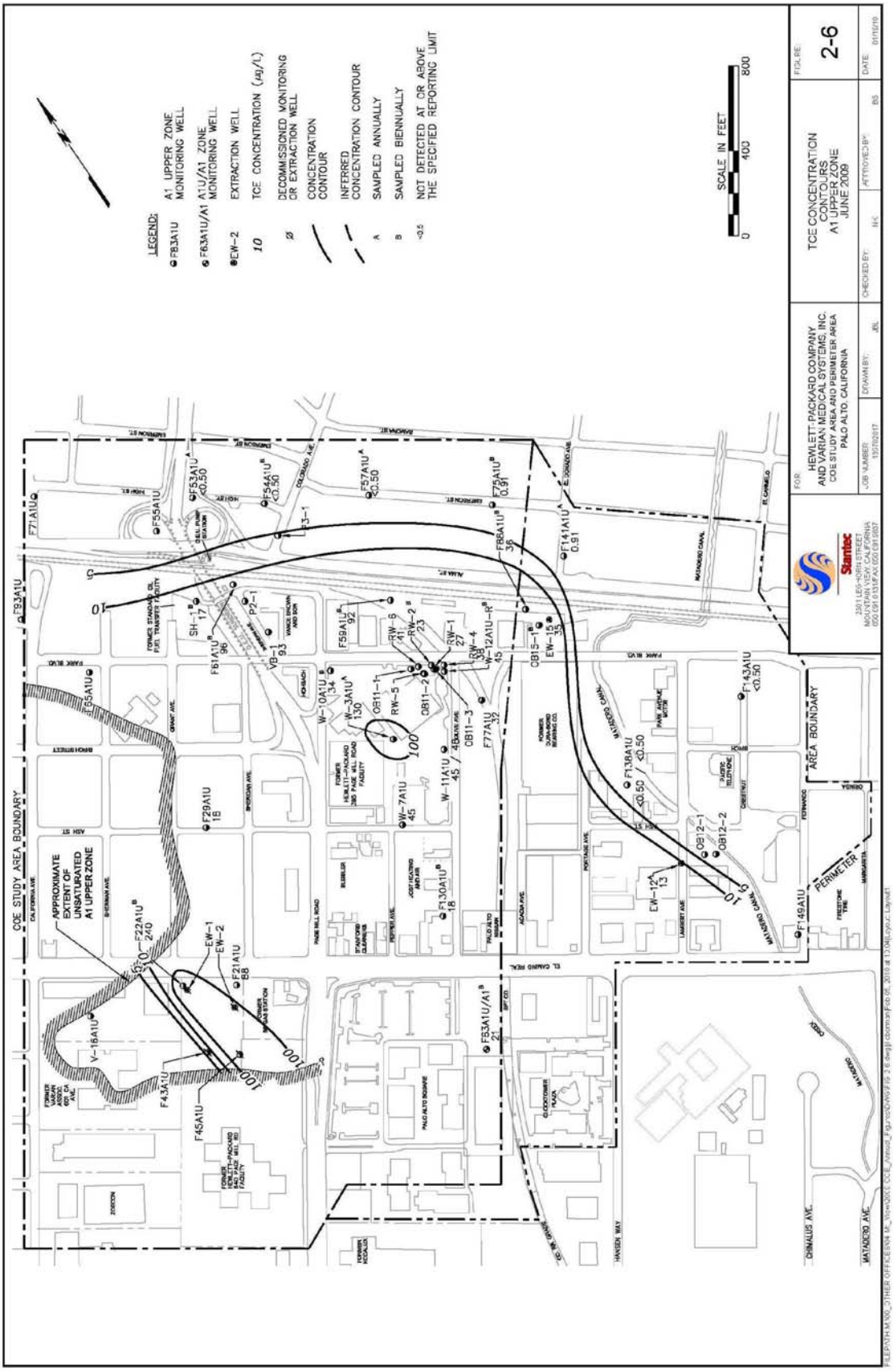


Figure 3. Estimated TCE Contour Map A1 Zone, June 2009

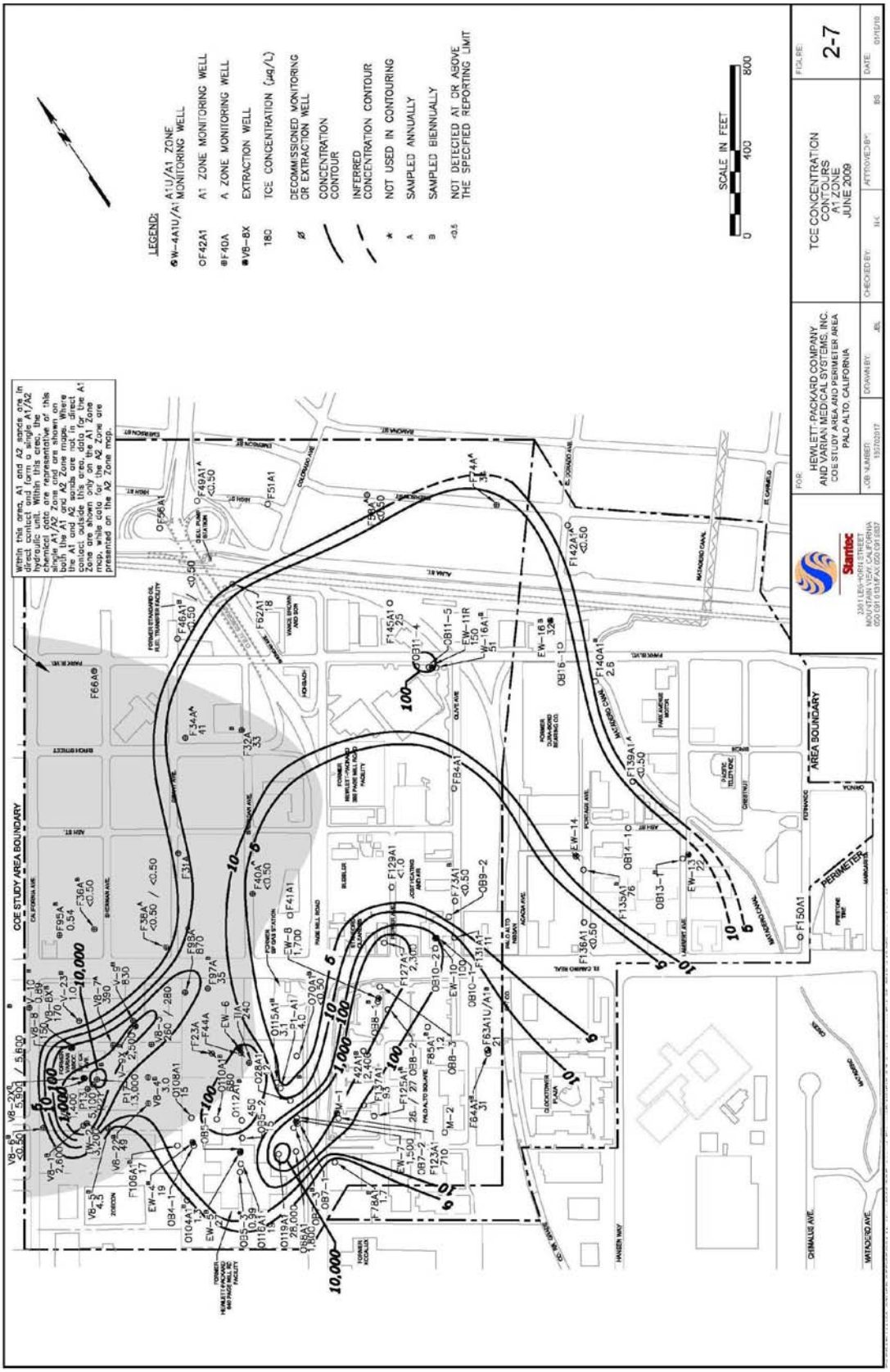
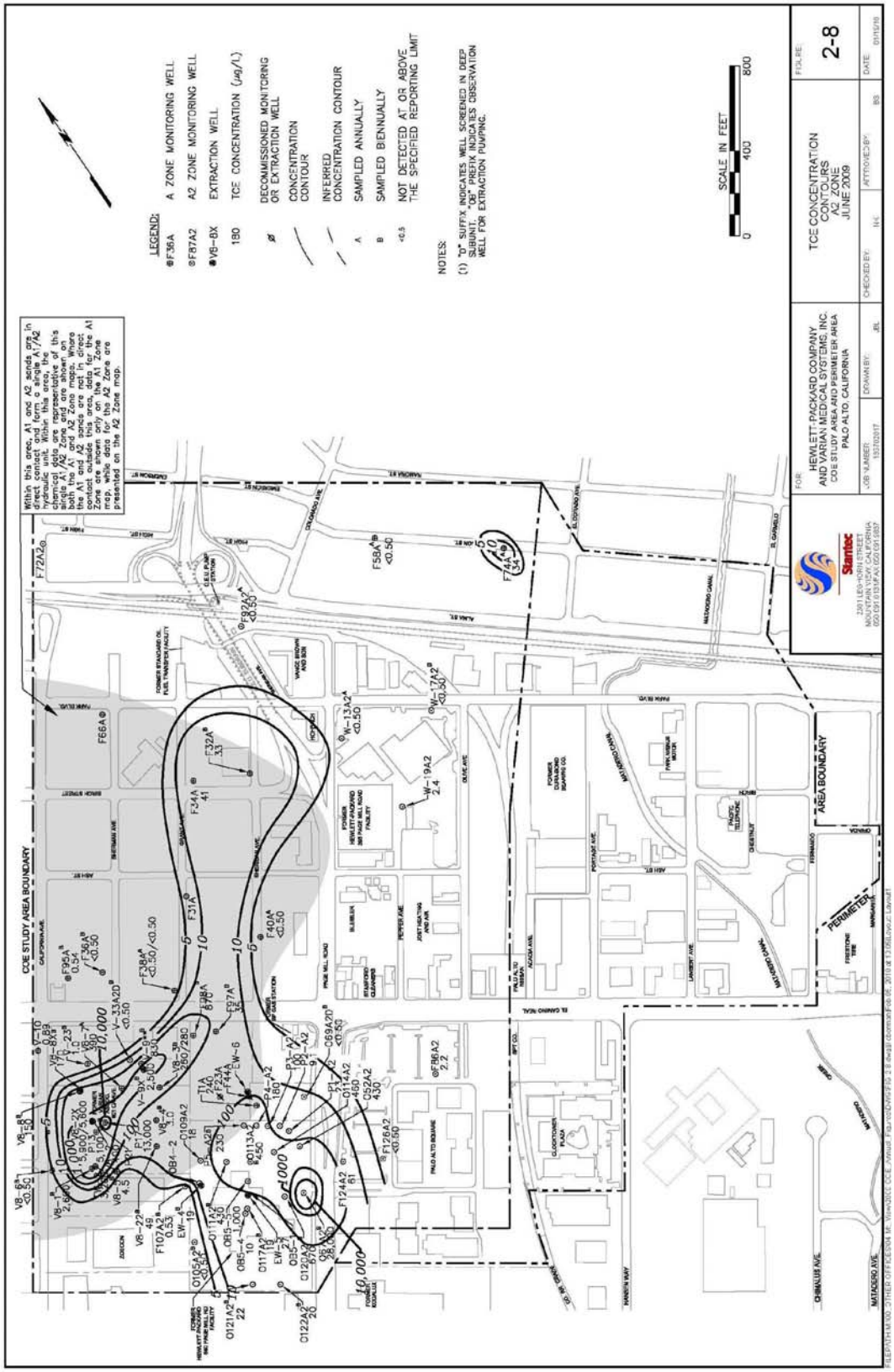


Figure 4. Estimated TCE Contour Map A2 Zone, June 2009



APPENDIX A. TITLE SEARCH

FTGIS RDGFP

CLTA RECORDED DOCUMENT GUARANTEE

NO. 0626014886 LIABILITY 25,000.00 FEE $ 315.00

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY

a Corporation, of Minneapolis, Minnesota

SUBJECT TO THE TERMS, LIMITATIONS AND CONDITIONS OF THE APPLICATION FOR THIS GUARANTEE

EXECUTED ON THE February DAY OF 5th, 2010,

WHICH APPLICATION, OR COPY THEREOF, IS ATTACHED HERETO AND MADE A PART HEREOF

GUARANTEES

Stantec Consulting Corporation,

HEREIN CALLED THE ASSURED, against actual loss not exceeding the liability amount stated above which the Assured shall sustain by reason of any incorrectness in the assurances set forth in Schedule A.

Any claim or other notice to the Company shall be in writing and shall be addressed to the Company at the address below.

THIS GUARANTEE IS NOT VALID AND THE COMPANY SHALL HAVE NO LIABILITY HEREUNDER UNLESS THE APPLICATION REFERRED TO ABOVE, OR A COPY THEREOF, AND SCHEDULE A ARE ATTACHED HERETO.

Dated: February 5th, 2010 at 8:00:00 AM

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
A Corporation
400 Second Avenue South, Minneapolis, Minnesota 55401
(612) 371-1111

Countersigned:

By _____ Validating Officer

By _____ President

Attest _____ Secretary

CLTA Recorded Document Guarantee Form 27 (5-16-90)

CLTA RECORDED DOCUMENT GUARANTEE **Order No.** 0626014886

Schedule A

The assurances referred to on the face page are, that, based on a search of the records indicated in the Application referred to on the face page hereof, the following identified and attached documents constitute all of the Designated Documents requested in the Application.

Designated Documents:

1. Terms and provisions as contained in an instrument,

   Entitled : Covenant and Environmental Restriction on Property
   Executed By : Agilent Technologies, INC. and California Regional Water Quality Control Board for the San Francisco Bay Region
   Dated : March 2, 2006
   Recorded : March 14, 2006 in Official Records under Recorder's Serial Number 18842554

2. Document : Grant Deed
   Grantor : Agilent Technologies, Inc., a Delaware corporation
   Grantee : Whisman Ventures LLC, a California limited liability company
   Recorded : May 17, 2006, Recorded Serial No. 18937538

3. Agreement for : Subordination, Non-Disturbance and Attornment Agreement
   Executed By : Agilent Technologies, Inc., a Delaware corporation
   and Between : Whisman Ventures LLC, a California limited liability company

   On the terms, covenants and conditions contained therein,

   Dated : May 16, 2006
   Recorded : May 17, 2006 in Official Records under Recorder's Serial Number 18937540

4. Agreement for : Access Agreement
   Executed By : Agilent Technologies, Inc., a Delaware corporation
   and Between : Whisman Ventures LLC, a California limited liability company

   On the terms, covenants and conditions contained therein,

   Dated : May 17, 2006
   Recorded : May 26, 2006 in Official Records under Recorder's Serial Number 18951653

5. Deed of Trust to secure an indebtedness of the amount stated below and any other amounts payable under the terms thereof,

Amount	:	$100,000,000.00
Trustor/Borrower	:	Whisman Ventures LLC, a California limited liability company
Trustee	:	First American Title Insurance Company
Beneficiary/Lender	:	Metropolitan Life Insurance Company, a New York Corporation
Dated	:	October 29, 2007
Recorded	:	October 29, 2007 in Official Records under Recorder's Serial Number 19632753
Returned to	:	555 West Fifth Street, 40th floor, Los Angeles, CA 90013

In Connection therewith, said trustors executed an Assignment of Rents,

Dated	:	October 29, 2007
Recorded	:	October 29, 2007 in Official Records under Recorder's Serial Number 19632754

640 PMR 0626014928-BC

Order No: _____

APPLICATION FOR THE ISSUANCE OF A CLTA RECORDED DOCUMENT GUARANTEE

Applicant, for the purpose of purchase, sale, lease or loan, is in the process of investigating the prior ownerships and uses of the Subject Property. As only a component of that investigation, Applicant hereby requests the Company to furnish Applicant with a Recorded Document Guarantee, which Guarantee will set forth and attach copies of the Designated Documents. The Guarantee is being provided to Applicant solely for the purpose of facilitating any innocent landowner or purchaser defenses which may be available under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended. It is provided for the sole use and benefit of Applicant and may not be used or relied upon by any other party.

1. The following terms when used in the Application and the Recorded Document Guarantee shall mean:

   a. **Applicant** - The party or parties which have executed this Application and which are shown as the Assured in the Guarantee.

   b. **CERCLA** - Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended.

   c. **Company** – Old Republic National Title Insurance Company

   d. **Designated Documents** - Those documents specifically designated by Applicant in paragraphs 3a or 3b, and in Paragraph 4 and which describe the Subject Property or any portion thereof and which are not Excluded Documents.

   e. **Excluded Documents** - Any of the following:

      (i) documents indexed in the Company's title plant records by name only,

      (ii) documents pertaining to an estate or interest in minerals, gas and oil, or other hydrocarbon substances,

      (iii) documents pertaining to water rights, claims or title to water, or

      (iv) documents recorded or indexed outside the chain of title, whether or not the documents impart constructive notice to purchasers of the Subject Property for value and without knowledge.

   f. **Guarantee** - Recorded Document Guarantee.

   g. **Land Records** - Those records in which under state statutes the Designated Documents must be recorded in order to impart constructive notice to purchasers of the Subject Property for value and without knowledge.

h. **Subject Property** - The real property described in the Application, but not including any severed mineral estate.

2. The Subject Property is described as follows: 650 Page Mill Road / 640 Page Mill Road Palo Alto, CA & APN: 142.20.089

3. Applicant hereby requests the Company to issue the Guarantee identifying only the following Designated Documents which are:

a. X currently posted in the Company's title plant and which were recorded in the Land Records from 1/1/2003 through present.

b. X recorded and indexed in the grantor-grantee indices in the Land Records of Santa Clara County, State of California from 1/1/2003 through present.

4. Designated Documents as defined in paragraph 1(d) above:

a. _____ Deeds

b. _____ Leases and Subleases

c. _____ Mortgages/Deeds of Trust

d. _____ Environmental Protection Liens recorded pursuant to CERCLA

e. X All documents

5. Applicant specifically instructs the Company to disclose in the Guarantee only the Designated Documents indicated above. Applicant understands that during the course of searching the records covered by the Guarantee the Company may find or have knowledge of documents of a type other than the Designated Documents requested by Applicant. Even if the Company knows or would have reason to know Applicant may have an interest in these other documents, Applicant imposes no duty or responsibility on the Company to disclose those documents or their content to Applicant either through the Guarantee or otherwise.

6. BY THE EXECUTION AND SUBMISSION OF THIS APPLICATION TO THE COMPANY, APPLICANT ACKNOWLEDGES AND SUBMITS:

a. That the Company's sole obligation under the Guarantee, and this Application, shall be to conduct a search in accordance with the terms and provisions of this Application and to furnish copies of the Designated Documents to Applicant as a part of the Guarantee. The Company shall have no obligation to read, examine, or interpret the Designated Documents.

b. That the Company shall not be obligated under this Guarantee to pay any costs, attorneys' fees, or expenses incurred in any action, proceeding, or other claim brought against Applicant.

c. That the Guarantee is limited in scope and is not an abstract of title, title opinion, preliminary or title report, or commitment to issue title insurance.

d. That the Guarantee is not to be relied upon by Applicant or any other person as a representation of the status of title to the Subject Property.

e. That Applicant shall have no right of action against the Company, whether or not based on negligence, except under the terms and provisions of, and subject to all limitations of this Application and the Guarantee.

f. That the Guarantee is not valid and the Company shall have no liability thereunder unless this Application is attached thereto.

g. That the Guarantee does not assure that Applicant will be entitled to any innocent landowner or purchaser defenses which may be available under CERCLA.

LIMITATION OF LIABILITY

APPLICANT RECOGNIZES THAT IT IS EXTREMELY DIFFICULT, IF NOT IMPOSSIBLE, TO DETERMINE THE EXTENT OF DAMAGES WHICH COULD ARISE FROM ERRORS OR OMISSIONS IN THE GUARANTEE. APPLICANT RECOGNIZES THAT THE FEE CHARGED IS NOMINAL IN RELATION TO THE POTENTIAL LIABILITIES PURSUANT TO CERCLA. THEREFORE, APPLICANT UNDERSTANDS THAT THE COMPANY IS NOT WILLING TO PROCEED IN THE PREPARATION AND ISSUANCE OF THE REQUESTED GUARANTEE UNLESS THE COMPANY'S LIABILITY IS STRICTLY LIMITED. APPLICANT AGREES WITH THE PROPRIETY OF THIS LIMITATION AND AGREES TO BE BOUND BY ITS TERMS.

THIS LIMITATION IS AS FOLLOWS:

APPLICANT AGREES, AS PART OF THE CONSIDERATION FOR THE ISSUANCE OF THIS GUARANTEE, THAT THE COMPANY SHALL BE LIABLE TO APPLICANT UNDER THIS GUARANTEE ONLY IN THE EVENT THAT ENVIRONMENTAL HAZARDOUS WASTE OR TOXIC SUBSTANCE CLEAN-UP COSTS OR PENALTIES ARE ACTUALLY IMPOSED ON APPLICANT, OR AGAINST THE SUBJECT PROPERTY, SOLELY BY REASON OF AN ERROR OR OMISSION BY THE COMPANY IN FAILING TO IDENTIFY AND ATTACH THE DESIGNATED DOCUMENTS TO THE GUARANTEE, WHICH ERROR OR OMISSION BY THE COMPANY HAS CAUSED APPLICANT TO FAIL TO COMPLY WITH THE REQUIREMENTS FOR DUE DILIGENCE INQUIRY OF PRIOR OWNERSHIPS AND USES IN CONNECTION WITH THE INNOCENT LANDOWNER OR PURCHASER DEFENSES UNDER CERCLA; AND THEN THE LIABILITY SHALL BE A ONE-TIME PAYMENT TO APPLICANT OF $_____.

ACCORDINGLY, APPLICANT REQUESTS THAT THE GUARANTEE BE ISSUED WITH THIS LIMITATION AS A PART OF THE CONSIDERATION THAT APPLICANT GIVES THE COMPANY TO PREPARE AND ISSUE THE GUARANTEE.

APPLICANT CERTIFIES THAT HE HAS READ AND UNDERSTANDS ALL OF THE TERMS, LIMITATIONS AND CONDITIONS OF THIS APPLICATION.

Executed this 8 day of February, 2010.

Nak Kim
Applicant
Stantec Consulting Corp.

[This application must be signed by the Applicant itself or an attorney at law representing the Applicant.]

APPENDIX B. DATA TABLES

Table B1 - TCE Concentrations in Off-Property Down-gradient Wells

Well No.	12/2005	12/2006	12/2007	12/2008	12/2009[2]
A1U Zone					
EW-1* (d)	480	NS	NS	NS	NS
EW-2* (d)	26	NS	NS	NS	NS
EW-9* (d)	23	NS	NS	NS	NS
EW-12* [(1)]	11	3.3	5.0	3.2	13
EW-15*	12	NS	16	NS	35
F21A1U [(2)]	67	NS	24	70	88
F22A1U [(2)]	200	NS	280	240	240
F29A1U	NS	NS	26	24	18
F43A1U (d)	3.2	NS	NS	NS	NS
F45A1U (d)	150	NS	NS	NS	NS
F53A1U	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
F54A1U	< 0.50	NS	< 0.50	NS	< 0.50
F57A1U	< 0.50	NS	< 0.50	< 0.50	< 0.50
F59A1U	NS	66	96	NS	92
F61A1U	180	NS	100	82	96
F75A1U [(3)]	1.1	NS	0.68	NS	0.91
F77A1U	47	NS	44	NS	32
F88A1U	18	NS	17	NS	36
F130A1U	39	NS	21	NS	18
F138A1U	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
F141A1U	0.97	0.80	0.91	1.0	0.91
F143A1U	< 0.50	NS	< 0.50	NS	< 0.50
SH1	16	NS	16	NS	17
VB-1	98	NS	90	NS	93
A1U/A1 Zone					
F63A1U/A1	27	NS	34	NS	21
A1 Zone					
EW-8*	1,500	NS	3,200	2,200	1,700
EW-10*	39	NS	77	140	100
EW-13*	23	NS	22	NS	22
EW-14* (d)	87	75	NS	NS	NS
EW-16*	49	NS	41	NS	32
F42A1	980	NS	2,600	2,600	2,400
F46A1	< 0.50	NS	< 0.50	NS	< 0.50
F49A1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
F62A1	83	90	75	82	18
F64A1	37	NS	36	NS	31
F73A1	< 2.5	NS	< 0.50	< 0.50	< 0.50
F78A1	3.7	NS	1.9	NS	1.7
F85A1	4.1	NS	8.6	8.3	1.2
F106A1	15	NS	11	NS	17
F123A1	74	NS	4,600	2,600	710
F125A1	40	NS	30	32	27
F127A1	470	410	970	1,900	2,300
F129A1	< 2.5	NS	< 1.0	< 1.0	< 1.0
F131A1 [(2)]	40	NS	16	NS	11
F135A1	68	NS	95	NS	76
F136A1	< 0.50	NS	< 0.50	NS	< 0.50
F137A1	NS	NS	NS	200	93

Well No.	12/2005	12/2006	12/2007	12/2008	12/2009[2]
F139A1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
F140A1	1.7	NS	2.8	NS	2.6
F142A1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
F145A1	34	NS	160	NS	25
A2 Zone					
F86A2	NS	NS	< 0.50	< 0.50	2.2
F92A2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
F107A2	0.64	NS	< 0.50	NS	0.53
F124A2	< 0.50	NS	61	42	61
F126A2	NS	NS	< 0.50	< 0.50	< 0.50
V-9X [(2)]	4.4	NS	54	NS	2,500
A2D Zone					
V-33A2D	< 0.50	NS	< 0.50	NS	< 0.50
A1/A2 Zone					
F23A (d)	48	NS	NS	NS	NS
F32A	7.1	NS	130	NS	33
F34A	58	47	51	47	41
F36A	6.6	NS	5.1	NS	< 0.50
F38A	0.65	0.68	6.9	0.52	< 0.50
F40A	< 0.50	8.8	< 0.50	7.1	< 0.50
F58A	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
F74A	22	NS	NS	23	34
F95A	0.69	NS	0.53	NS	0.54
F97A [(2)]	15	NS	17	NS	35
F98A [(2)]	75	NS	330	NS	870
V-9 [(2)]	NS	NS	140	NS	830
V-10	1.3	NS	1.9	NS	0.89
V-23	2.5	NS	1.7	NS	1.0
B Zone					
F33B	< 0.50	NS	< 0.50	NS	< 0.50
F133B	< 0.50	NS	< 0.50	NS	< 0.50
F151B	< 0.50	NS	< 0.50	NS	< 0.50
395 PMR Wells					
A1U Zone					
RW-1*	73	NS	47	NS	27
RW-2*	55	NS	49	NS	23
RW-4*	24	NS	43	NS	38
RW-5* [(4)]	44	NS	51	NS	35
RW-6*	39	NS	51	NS	41
OB11-2 [(5)]	NS	NS	<1,000	<50	7.6
W-3A1U	100	87	150	140	130
W-7A1U	81	NS	59	NS	45
W-10A1U	25	NS	50	NS	34
W-11A1U	52	NS	45	NS	48
W-12A1U-R	51	NS	57	NS	45
A1 Zone					
EW-11R	150	150	160	140	150
W-16A1	85	NS	67	NS	51
A2 Zone					
W-13A2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

Well No.	12/2005	12/2006	12/2007	12/2008	12/2009[2]
W-17A2	< 0.50	NS	< 0.50	NS	< 0.50
W-19A2	7.5	6.6	5.2	3.0	2.4

Notes:
Unless otherwise noted, data were collected during June annual sampling event.
All concentrations reported in µg/L.
NS = Not sampled
* = Groundwater extraction well
(d) = Well destroyed
(1) Includes data from July 2006
(2) Includes data from July 2007
(3) Includes data from September 2007
(4) Includes data from April 2009
(5) Includes data from October 2007, May 2008, April 2009

Table B2. TCE Concentrations in Source Area Wells

Well No.	12/2005	12/2006	12/2007	12/2008	12/2009[2]
A1 Zone					
EW-7	620	550	370	2,400	1,500
O28A1	24	NS	NS	12	12
O68A1	26	2,100	1,600	1,800	1,800
O70A1	< 0.50	NS	< 0.50	NS	< 0.50
O104A1	< 0.50	NS	3.6	NS	1.3
O108A1 (1)	15	NS	7.5	NS	15
O110A1	66	NS	620	NS	680
O112A1	15	NS	29	NS	450
O115A1	3.5	NS	3.3	NS	3.1
O116A1	440	87	290	32	19
O119A1	16,000	16,000	9,900	27,000	28,000
OB5-2	NS	NS	19	19	15
OB5-3	NS	NS	11	2.6	0.99
P1-A1	NS	NS	5.3	5.4	4.0
A2 Zone					
EW-6	290	NS	NS	NS	NS
O52A2	520	690	930	470	430
O67A2	15,000	85,000	47,000	18,000	28,000
O105A2	< 0.50	NS	< 0.50	NS	< 0.50
O109A2	16	NS	28	NS	18
O111A2	510	NS	460	NS	430
O113A2	770	NS	340	310	450
O114A2	840	NS	980	720	460
O117A2	37	49	50	25	19
O120A2	2,100	1,000	1,400	1,000	670
O121A2	14	NS	9.7	NS	22
O122A2	40	NS	27	NS	20
OB5-4	NS	NS	6.7	23	10
OB5-5	NS	NS	980	1,300	1,000
P1-A2	NS	NS	19	39	23
P2-A2	NS	NS	6.3	110	9.1
P3-A2	NS	NS	110	220	100
P4-A2	NS	NS	280	160	180
P5-A2	NS	NS	300	270	230
A2D Zone					
O69A2D	< 0.50	NS	< 0.50	NS	< 0.50
A1/A2 Zone					
EW-4*	17	NS	15	NS	19
EW-5* (2)	52	NS	35	48	27
F44A (d)	260	NS	NS	NS	NS
T1A	8.2	29	12	NS	240
T2A (d)	< 10	NS	NS	NS	NS

B Zone					
O17B	< 0.50	NS	< 0.50	NS	< 0.50
O100B	< 0.50	NS	< 0.50	NS	< 0.50
O118B	< 0.50	NS	< 0.50	< 0.50	< 0.50
O152B	NS	NS	NS	NS	< 0.50

Notes:
Unless otherwise noted, data were collected during June annual sampling event.
All concentrations reported in µg/L
* = Groundwater extraction well
NS = Not Sampled
(d) = Well has been destroyed pursuant to Water Board authorization.
(1) Includes data from July 2007
Includes data from February 2008

Table B3. VOC Levels in Soil Gas Samples at Off-Property Study Area

Date of Sampling	Location	PCE	TCE	cis-1,2-DCE[1]	vinyl chloride
4/9/08	1 (6 feet)	<14	220	<8.0	<7.7
4/9/08	1 (11 feet)	<32	2,100	<18	<18
4/9/08	1 (11 feet)	<42	2,600	<24	<23
4/8/08	2 (6.5 feet)	<15	<11	<8.2	<7.9
4/10/08	3 (6 feet)	<18	<14	<10	<9.7
4/10/08	3 (13 feet)	<14	<11	<7.9	<7.6
4/10/08	4 (6 feet)	<14	<11	<7.9	<7.6
4/10/08	4 (11 feet)	<14	11	<7.9	<7.6
4/8/08	5 (6 feet)	<26	<21	<15	<14
4/8/08	6 (6.5 feet)	<14	<11	<7.9	<7.6
4/8/08	7 (6.5 feet)	<14	<11	<7.9	<7.6
4/7/08	8 (6 feet)	120	<11	<7.9	<7.6
4/7/08	9 (6 feet)	<14	41	<7.9	<7.6
4/7/08	9 (6 feet)	<14	44	<8.1	<7.8
4/7/08	10 (6 feet)	<22	<17	<12	<12
4/7/08	11 (7 feet)	<17	<13	<9.4	<9.0
4/8/08	12 (7.5 feet)	<19	<15	<11	<10
4/9/08	13 (6 feet)	<14	<11	<7.9	<7.8
4/9/08	13 (15.5 feet)	260	<16	<12	<11
4/9/08	14 (6.5 feet)	<22	<17	<12	<12
Commercial RSL	-	21	613	-	279
Commercial ESL	-	1,400	4,100	20,000[2]	100

Notes:
[1] No carcinogenic RSL available
[2] Non carcinogenic RSL
Concentrations in micrograms per cubic meter
ND< = Not detected less than detection limit

APPENDIX C – PUBLIC NOTICE

Pulse

A weekly compendium of vital statistics

Palo Alto
June 22-28
Violence related
Battery 3
Domestic violence 6
Theft related
Commercial burglaries 1
Credit card forgery 3
Grand theft 2
Identity theft 1
Petty theft 3
Residential burglaries 1
Shoplifting 5
Theft undefined 2
Vehicle related
Auto theft 1
Bicycle theft 5
Suspended license 2
Misc. traffic 5
Theft from auto 1
Vehicle accident/minor injury 4
Vehicle accident/property damage 5
Vehicle tow 5
Alcohol or drug related
Drunk in public 5
Drunken driving 1
Possession of drugs 2
Miscellaneous
Found property 3
Indecent exposure 1
Lost property 5
Psych. subject 2
Suspicious circumstances 1
Vandalism 5
Warrants/other agency 8

Menlo Park
June 24-26
Violence related
Assault 1
Battery 3
Domestic violence 1
Robbery 1
Theft related
Attempted burglary 1
Cancelled case 1
Domestic disturbance 1
Fraud 2
Grand theft 1
Petty theft 3
Possible fraud 1
Vehicle related
Auto recovery 2
Auto theft 1
Driving w/ suspended license 5
Driving without license 2
Vehicle accident/no injury 2
Abandoned vehicle tow 1
Tow request 1
Alcohol or drug related
Drug activity 5
Drunken driving 3
Possession of drugs 1
Miscellaneous
Coroner case 1
Disturbance 2
Juvenile disturbance 1
Lost property 1
Mental evaluation 1
Probation violation 2
Pursuit 1
Vandalism 2
Solicitor 1
Suspicious circumstances 2
Warrant arrest 3

Atherton
June 24-30
Theft related
Grand theft 1
Vehicle related
Parking/driving violation 3
Suspicious vehicle 15
Vehicle accident/no injury 4
Vehicle code violation 1
Miscellaneous
Animal call 1
Be on the lookout 2
Building/perimeter/area check 10
Citizen assist 9
Construction complaint 1
Construction site checks 1
Disturbing noise/lights 2
Fire call 2
Foot patrol 2
Found property 2
Fraudulent/fictitious use of 2
Hang up 2
Lost property 1
Medical aid 1
Missing person 1
Outside assistance 16
Public intoxication 1
Suspicious circumstances 9

(continued on page 14)

Foothill-De Anza Community College District

NOTICE OF PUBLIC HEARING

Please take notice that on Monday, August 2, 2010 at 6 p.m., in the Foothill-De Anza Community College District Board Room, 12345 El Monte Road, Los Altos Hills, California 94022, the District's Board of Trustees will conduct a public hearing.

The Foothill-De Anza Community College Board of Trustees will consider adopting a resolution proposing to establish a Special Tax to be submitted for voter approval on November 2, 2010, in an amount not to exceed $69 per year (estimated annual collection of $6,900,000) for up to 6 years for a variety of educational programs, including maintaining math, science, writing and other core academic courses that prepare students to transfer to four-year colleges and universities; preserving job training programs that prepare students for careers in technology, engineering, nursing, paramedics, and science; keeping community college libraries open and maintaining library services; maintaining programs that provide equal access to classes for students with disabilities; providing affordable course offerings to meet growing student demand; and attracting and retaining qualified instructors and support staff.

Additional information may be obtained by contacting Linda Thor, Chancellor at the address shown above or at 650-949-6100.

NOTICE OF A SPECIAL PUBLIC MEETING of the Palo Alto Planning & Transportation Commision

Please be advised the Planning and Transportation Commission (P&TC) shall conduct **a special meeting at 6:00 PM, Wednesday, July 14, 2010** in the Civic Center, Council Chambers, 1st Floor, 250 Hamilton Avenue, Palo Alto, California. Any interested persons may appear and be heard on these items.

Staff reports for agenized items are available via the City's main website at **www.cityofpaloalto.org**, and also at the Planning Department Front Desk, 5th Floor, City Hall, after 2:00 PM on the Friday preceding the meeting date. Copies will be made available at the Development Center should City Hall be closed on the 9/80 Friday.

NEW BUSINESS.
Public Hearing:

1. **Comprehensive Plan Update:** Study session to discuss sustainability topics that will guide preparation of sustainability goals, policies, and programs for inclusion within the draft Comprehensive Plan update.

Questions. Any questions regarding the above applications, please contact the Planning Department at (650) 329-2440. The files relating to these items are available for inspection weekdays between the hours of 8:00 AM to 5:00 PM. This public meeting is televised live on Government Access Channel 26.

ADA. The City of Palo Alto does not discriminate against individuals with disabilities. To request accommodations to access City facilities, services or programs, to participate at public meetings, or to learn more about the City's compliance with the Americans with Disabilities Act of 1990 (ADA), please contact the City's ADA Coordinator at 650.329.2550 (voice) or by e-mailing ada@cityofpaloalto.org.

...

Curtis Williams, Director of Planning and Community Environment

Answers to this week's puzzles, which can be found on page 47

V	U	V	U	Z	E	L	A	
O	N	E	L	I	T	E	R	
N	E	X	T	P	A	G	E	
A	V	E	I	L				
G	E	R	M	I	E	R		
E	N	S	A	N	G	U	I	N
			E	G	M	O	N	T
P	I	T						
O	C	H	O					
S	E	R	F					
T	W	O	F	O	L	D		
C	A	T	E	R	A			
A	T	T	R	I	T			
R	E	L	E	N	T			
D	R	E	D	G	E			

			C	H	A	S	M	S
			R	E	C	T	A	L
			I	C	H	I	R	O
			C	H	I	L	I	S
A	K	E	E	L	A	H		
V	E	N	I					
E	R	N	E					
S	E	R						
G	E	S	T	A	T	I	O	N
O	M	I	C	R	O	N		
L	E	A	S	E				
A	T	A	L	A	N	T	A	
S	H	R	U	G	G	E	D	
C	O	M	P	E	E	R	S	

2	3	8	1	9	6	5	4	7
7	1	5	8	4	2	3	6	9
9	6	4	7	5	3	2	8	1
1	8	7	3	6	4	9	5	2
5	2	6	9	7	8	1	3	4
4	9	3	5	2	1	6	7	8
8	5	9	6	1	7	4	2	3
6	7	2	4	3	9	8	1	5
3	4	1	2	8	5	7	9	6

California Regional Water Quality Control Board

San Francisco Bay Region
1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
http://www.waterboards.ca.gov/sanfranciscobay

PUBLIC NOTICE
REGIONAL WATER BOARD BEGINS THIRD FIVE-YEAR REVIEW OF CLEANUP AT THE COE SUPERFUND SITE
640 Page Mill Road
Palo Alto, Santa Clara County

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board) and the U.S. Environmental Protection Agency have begun the third five-year review of cleanup actions undertaken at the COE Superfund site (Site) in Palo Alto. The review will evaluate whether the cleanup actions for the Site remain protective of human health and the environment.

FIVE-YEAR REVIEW PROCESS

When the cleanup remedies leave some waste in place or the remedy will take longer than five years to complete, the Superfund law requires an evaluation of the protectiveness of remedial systems every five years, until the Site has been cleaned up sufficiently to allow unrestricted access. The purpose of the five-year review is to understand how the constructed remedy is operating and to measure the progress towards achieving the Site's cleanup standards.

The Regional Water Board will look at the movement and/or breakdown of the Site's remaining contaminants, the operation of groundwater treatment systems, the application and monitoring of the deed restriction, and changes in scientific knowledge about site contaminants and exposure pathways. The Regional Water Board project manager will talk with company representatives, other regulatory authorities, and interested members of the public. The review will be completed by September 30, 2011.

CLEANUP PLAN

To achieve Site cleanup, Hewlett-Packard was required to implement the following remedies:
1) Soil vapor extraction and treatment
2) Groundwater extraction and treatment
3) Deed restriction prohibiting the use of contaminated groundwater for any use
4) Long-term groundwater monitoring

COMMUNITY INVOLVEMENT

The Regional Water Board is always interested in hearing from the public. If you have any issues or concerns about the COE cleanup plan, and particularly if you have direct knowledge regarding the operation or implementation of the remedy, the Regional Water Board would like to talk with you. Please contact the project manager at the number below. Also contact the project manager if you would like to be included in our mailing list and receive future fact sheets.

FOR MORE INFORMATION

For a copy of the report and other Site documents, please visit the Regional Water Board's website at: https://geotracker.waterboards.ca.gov/search.asp. Enter the unique Case/Global ID number for this Site which is 43S0005[illegible]. Then click on "Report", and then on "Site Maps/Documents." You may also review the five-year review report and other Site documents at the Regional Water Board offices at 1515 Clay Street, Suite 1400, Oakland, CA 94612 - phone (510) 622-2300.

CONTACT INFORMATION

For additional information: contact Regional Water Board project manager Roger Papler at (510) 622-2435, or rpapler@waterboards.ca.gov