

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

ORDER No. R2-2007-0040

ADOPTION OF SITE CLEANUP REQUIREMENTS FOR:

**APPLERA CORPORATION and
JR REALTY #2, LLC**

for the property located at

2690 CASEY AVENUE
MOUNTAIN VIEW
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Board), finds that:

1. **Site Location:** The subject property (hereinafter "Site") is located at 2690 Casey Avenue in Mountain View just north of Highway 101 (Figure 1). The 3.5 acre Site contains a 50,000 square-foot industrial/commercial building. The property is bordered by 1201 San Antonio Road and 2639 Terminal Boulevard to the north, Broderick Way to the east, Casey Avenue to the south, and San Antonio Road to the west (Figure 2). The Site is about one mile south of San Francisco Bay. Charleston Slough (which is connected to San Francisco Bay) is about 1000 feet to the northwest and Shoreline Lake is about 1000 feet to the east. Shoreline Park is located about 350 feet to the north. The local area is used primarily for commercial and industrial purposes, and for parkland.
2. **Site History:** The Site was vacant land prior to 1963 when the current building was constructed. Perkin-Elmer Corporation (Perkin-Elmer) operated a stainless steel vacuum pump systems manufacturing facility from 1963 to 1984. Perkin-Elmer's former facility had a machine shop, a waste storage area, an aluminum cleaning area, and outdoor chemical storage and treatment areas. Perkin-Elmer also operated a 1,000-gallon underground storage tank (UST) and several above ground storage tanks. Perkin-Elmer used tetrachloroethene (PCE), sodium hydroxide, ammonia, methanol, and various acid solutions in its operations (Safety Specialists, Inc report, January 26, 1984). Perkin-Elmer stored PCE and other chemicals in a 1,000-gallon UST, several above ground storage tanks, and in 55-gallons drums. Perkin-Elmer is now owned by Applera Corporation (Applera). From 1984 to 2001, Sun Microsystems (Sun) leased the site. From mid 1884 through early 1989, Sun performed manufacturing and/or computer assembly on portions of the property. After 1989, the property was used solely for office

and storage purposes. The building was vacant from 2001 until 2006 but it is now occupied by Google. JR Realty #2, LLC bought the property in 2001.

3. **Named Dischargers:** Applera Corporation is named as a discharger because of substantial evidence that Perkin-Elmer Corporation (a company acquired by Applera Corporation) discharged pollutants to soil and groundwater at the Site, including chlorinated solvents from Perkin-Elmer's stainless steel vacuum pump systems manufacturing operations, the presence of these same pollutants in soil and groundwater, and because Perkin-Elmer had knowledge of the discharge or the activities that caused the discharge, and had the legal ability to prevent the discharge.

JR Realty #2, LLC is named as a discharger because it owned the property after the time of the activity that resulted in the discharge, has knowledge of the discharge or the activities that caused the discharge, and has the legal ability to prevent the discharge.

If additional information is submitted indicating that other parties caused or permitted any waste to be discharged on the site where it entered or could have entered waters of the State, the Board will consider adding those parties' names to this order.

4. **Regulatory Status:** This Site is currently not subject to Board order.
5. **Site Hydrogeology:** The topography is relatively flat with a gentle slope towards the north. The Site is approximately 5 feet above mean seal level, and it appears to have been created by importing fill material on top of the historical Bay margin sediments. There are three discontinuous groundwater-bearing zones. The first is a perched zone located at the interface of the fill material and native clay at depths of approximately 12 - 15 feet below ground surface (bgs). The second is a shallow sand and gravel water-bearing zone from 20 - 24 feet bgs. The third is a deeper, secondary water-bearing zone consisting of sand and gravel encountered at depths between approximately 40 - 53 feet bgs. Groundwater occurs initially at approximately 20-24 feet below ground surface (bgs) and rises to a level of about 11-12 feet bgs within 30 minutes, suggesting artesian conditions. This suggests that the uppermost water-bearing zone is presently under confined or semi-confined conditions.
6. **Remedial Investigation:** Since 1999, several investigations have taken place to determine the nature and extent of the contamination. These investigations have found significant concentrations of Volatile Organic Compounds (VOCs) in soil and groundwater in two areas of the property: the western side of the Site building and along the northern property line area. The contaminants consist primarily of tetrachloroethylene (PCE), and its breakdown products, as trichloroethylene (TCE), cis-1,2-dichloroethylene (DCE), and vinyl chloride. Groundwater and soil contamination has migrated off-site and the extent of the contamination has not been determined.

Historically, the highest concentration of PCE (6,600,000 $\mu\text{g}/\text{kg}$) in soil at the Site was detected in a sample collected on the western side of the building located at 2690 Casey Avenue property. In the area along the property line, the highest concentration of volatile organic compounds (VOC), 210,280 $\mu\text{g}/\text{kg}$ of total VOCs as PCE, was detected in a soil sample collected at about 10 feet south of the property boundary, at 10 feet below ground surface at the Site. Because of the high specific gravity of PCE (1.6 at 20°C) and low viscosity, when a release happens, PCE sinks at the point of release. The fact that the highest concentration of PCE in soil along the property line is found 10 feet south of the property line indicates the PCE release was from Perkin-Elmer.

The highest concentrations of VOCs at the Site during the recent groundwater monitoring events (June 2006) were 170 micrograms per liter ($\mu\text{g}/\text{l}$) of PCE and 560 $\mu\text{g}/\text{l}$ of TCE. For the last 7 years, the highest PCE concentration in groundwater was present at up to 9,000 $\mu\text{g}/\text{L}$ on the western side of Casey Avenue property. The highest current concentration of PCE in groundwater is 2,700 $\mu\text{g}/\text{L}$ approximately 180 feet down gradient of the property line area. This distance is explained by the more than 30 years time frame between the time of release (1963 – 1984) and the present. For comparison, the maximum contaminant levels considered safe for drinking water are liter 5 $\mu\text{g}/\text{l}$ for PCE, and 5 $\mu\text{g}/\text{l}$ for TCE.

Soil gas samples collected at five feet below ground surface show two hot spots (concentrations > 10,000 ppb) on the northern side of the property line to the NW of the former drum storage area and two more under the property line. The northern hot spots are approximately 10 feet and 20 feet from the property line. This distance is explained by the more than 30 years time frame between the time of release and the present. As the groundwater plume migrates, soil gas continues to be emitted from the groundwater plume causing a soil gas plume to exist above the groundwater plume.

Additional information on the source, distribution and fate of PCE and TCE at the Site and the downgradient properties is presented in the staff Memorandum issued on October 5, 2006, the Supplemental Memorandum issued on April 5, 2007, and the Response to Comments document issued on April 27, 2007 which are incorporated by reference.

7. **Interim Remedial Measures:** In 1984, the former 1000 gallon UST located on the west side of the building was excavated and hauled off site. A soil excavation program was performed in the area of the former UST (western side of the Site building) in 2001.
8. **Basin Plan:** The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water

quality objectives. The Basin Plan was duly adopted by the Water Board and approved by the State Water Resources Control Board, Office of Administrative Law and the U.S. EPA, where required.

The potential beneficial uses of groundwater underlying and adjacent to the site include:

- a. Municipal and domestic water supply
- b. Industrial process water supply
- c. Industrial service water supply
- d. Agricultural water supply
- e. Freshwater replenishment to surface waters

At present, there is no known use of groundwater underlying the site for the above purposes.

9. **Other Board Policies:** Board Resolution No. 88-160 allows discharges of extracted, treated groundwater from site cleanups to surface waters only if it has been demonstrated that neither reclamation nor discharge to the sanitary sewer is technically and economically feasible.

Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally-high contaminant levels.

10. **State Water Board Policies:** State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives. Given the Board's past experience with groundwater pollution cases of this type, it is unlikely that background levels of water quality can be restored. This initial conclusion will be verified when a remedial action plan is prepared. This order and its requirements are consistent with Resolution No. 68-16.

State Water Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304," applies to this discharge. This order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

11. **Preliminary Cleanup Goals:** The discharger will need to make assumptions about

future cleanup standards for soil and groundwater, in order to determine the necessary extent of remedial investigation, interim remedial actions, and the draft remedial action plan. Pending the establishment of site-specific cleanup standards, the following preliminary cleanup goals should be used for these purposes:

- a. **Groundwater:** Applicable water quality objectives (e.g. lower of primary (toxicity) and secondary (taste and odor) maximum contaminant levels, or MCLs) or, in the absence of a chemical-specific objective, equivalent drinking water levels based on toxicity and taste and odor concerns.
 - b. **Soil:** Applicable screening levels as compiled in the Water Board's draft Environmental Screening Levels¹ (ESLs) document or its equivalent. Soil screening levels are intended to address a full range of exposure pathways, including direct exposure, indoor air impacts, nuisance, and leaching to groundwater. For purposes of this subsection, the discharger should assume that groundwater is a potential source of drinking water.
12. **Basis for 13304 Order:** California Water Code Section 13304 authorizes the Board to issue orders requiring a discharger to cleanup and abate waste where the discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.
 13. **Cost Recovery:** Pursuant to California Water Code Section 13304, the discharger is hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this order.
 14. **CEQA:** This action is an order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.
 15. **Notification:** The Board has notified the discharger and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.
 16. **Public Hearing:** The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

¹ Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final – February 2005. San Francisco Bay Regional Water Quality Control Board.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the dischargers (or their agents, successors, or assigns) shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. The discharge of wastes or hazardous substances in a manner which will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.
2. Further significant migration of wastes or hazardous substances through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of wastes or hazardous substances are prohibited.

B. TASKS

1. **REMEDIAL INVESTIGATION WORKPLAN**

COMPLIANCE DATE: July 1, 2007

Submit a workplan acceptable to the Executive Officer to define the vertical and lateral extent of soil and groundwater pollution. The workplan should specify investigation methods and a proposed time schedule. Work may be phased to allow the investigation to proceed efficiently, provided that this does not delay compliance.

2. **COMPLETION OF REMEDIAL INVESTIGATION**

COMPLIANCE DATE: October 15, 2007

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 1 workplan. The technical report should define the vertical and lateral extent of pollution down to concentrations at or below typical cleanup standards for soil and groundwater.

3. **INTERIM REMEDIAL ACTION WORKPLAN**

COMPLIANCE DATE: December 1, 2007

Submit a workplan acceptable to the Executive Officer to evaluate interim remedial action alternatives and to recommend one or more alternatives for implementation. The workplan should specify a proposed time schedule. Work may be phased to allow the investigation to proceed efficiently. If groundwater extraction is selected as an interim remedial action, then one task will be the completion of an NPDES permit application for discharge of extracted, treated groundwater to waters of the State. The application must demonstrate that neither reclamation nor discharge to the sanitary sewer is technically or economically feasible.

4. **COMPLETION OF INTERIM REMEDIAL ACTIONS**

COMPLIANCE DATE: April 1, 2008

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 3 workplan. For ongoing actions, such as soil vapor extraction or groundwater extraction, the report should document start-up as opposed to completion.

5. **DRAFT REMEDIAL ACTION PLAN INCLUDING DRAFT CLEANUP STANDARDS**

COMPLIANCE DATE: June 1, 2008

Submit a technical report acceptable to the Executive Officer containing:

- a. Results of the remedial investigation
- b. Evaluation of the installed interim remedial actions
- c. Feasibility study evaluating alternative final remedial actions
- d. Risk assessment for current and post-cleanup exposures
- e. Recommended final remedial actions and cleanup standards
- f. Implementation tasks and time schedule

Item c should include projections of cost, effectiveness, benefits, and impact on public health, welfare, and the environment of each alternative action.

Items a through c should be consistent with the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300), CERCLA guidance documents with respect to remedial investigations and feasibility studies, Health and Safety Code Section 25356.1(c), and State Board Resolution No. 92-49 as amended ("Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304").

Item e should consider the preliminary cleanup goals for soil and groundwater identified in finding 12 and should address the attainability of background levels of water quality (see finding 11).

6. **Delayed Compliance:** If the discharger is delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the discharger shall promptly notify the Executive Officer and the Board may consider revision to this Order.

C. PROVISIONS

1. **No Nuisance:** The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in California Water Code Section 13050(m).
2. **Good Operation and Maintenance (O&M):** The discharger shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.
3. **Cost Recovery:** The discharger shall be liable, pursuant to California Water Code Section 13304, to the Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the site addressed by this Order is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the discharger over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.
4. **Access to Site and Records:** In accordance with California Water Code Section 13267(c), the discharger shall permit the Board or its authorized representative:
 - a. Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
 - b. Access to copy any records required to be kept under the requirements of this Order.

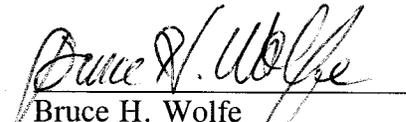
- c. Inspection of any monitoring or remediation facilities installed in response to this Order.
 - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.
5. **Self-Monitoring Program:** The discharger shall comply with the Self-Monitoring Program as attached to this Order and as may be amended by the Executive Officer.
6. **Contractor / Consultant Qualifications:** All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer.
7. **Lab Qualifications:** All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g. temperature).
8. **Document Distribution:** Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies:
- a. City of Mountain View
 - b. County of Santa Clara, Department of Environmental Health
 - c. Santa Clara Valley Water District
- The Executive Officer may modify this distribution list as needed.
9. **Reporting of Changed Owner or Operator:** The discharger shall file a technical report on any changes in site occupancy or ownership associated with the property described in this Order.
10. **Reporting of Hazardous Substance Release:** If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the discharger shall report such discharge to the Water Board by calling (510) 622-2300 during regular office hours (Monday through Friday, 8:00 to 5:00).

A written report shall be filed with the Board within five working days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.

This reporting is in addition to reporting to the Office of Emergency Services required pursuant to the Health and Safety Code.

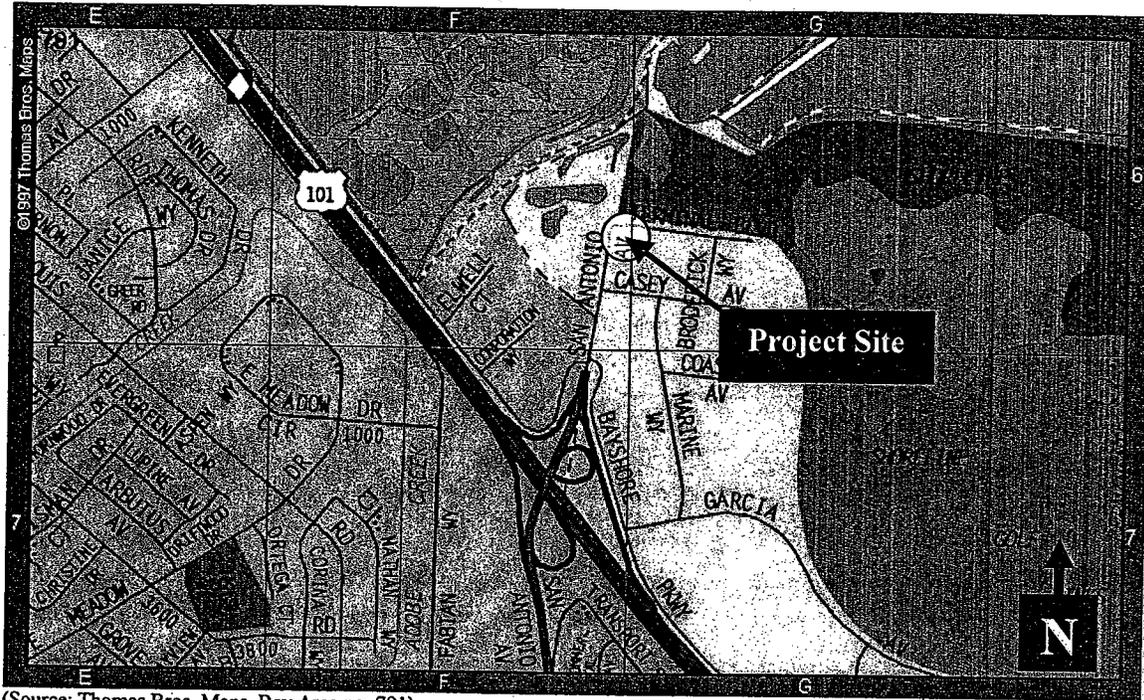
13. **Periodic SCR Review:** The Board will review this Order periodically and may revise it when necessary. The discharger may request revisions and upon review the Executive Officer may recommend that the Board revise these requirements.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on May 9, 2007.


Bruce H. Wolfe
Executive Officer

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FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT
YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO:
IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE
SECTIONS 13268 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR
INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY
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Attachments: Figure 1. Site Location
Figure 2. Site Map
Self-Monitoring Program



(Source: Thomas Bros. Maps, Bay Area pg. 791)

**Site Vicinity Map
1201 San Antonio Road
Mountain View, California**

Figure 1.

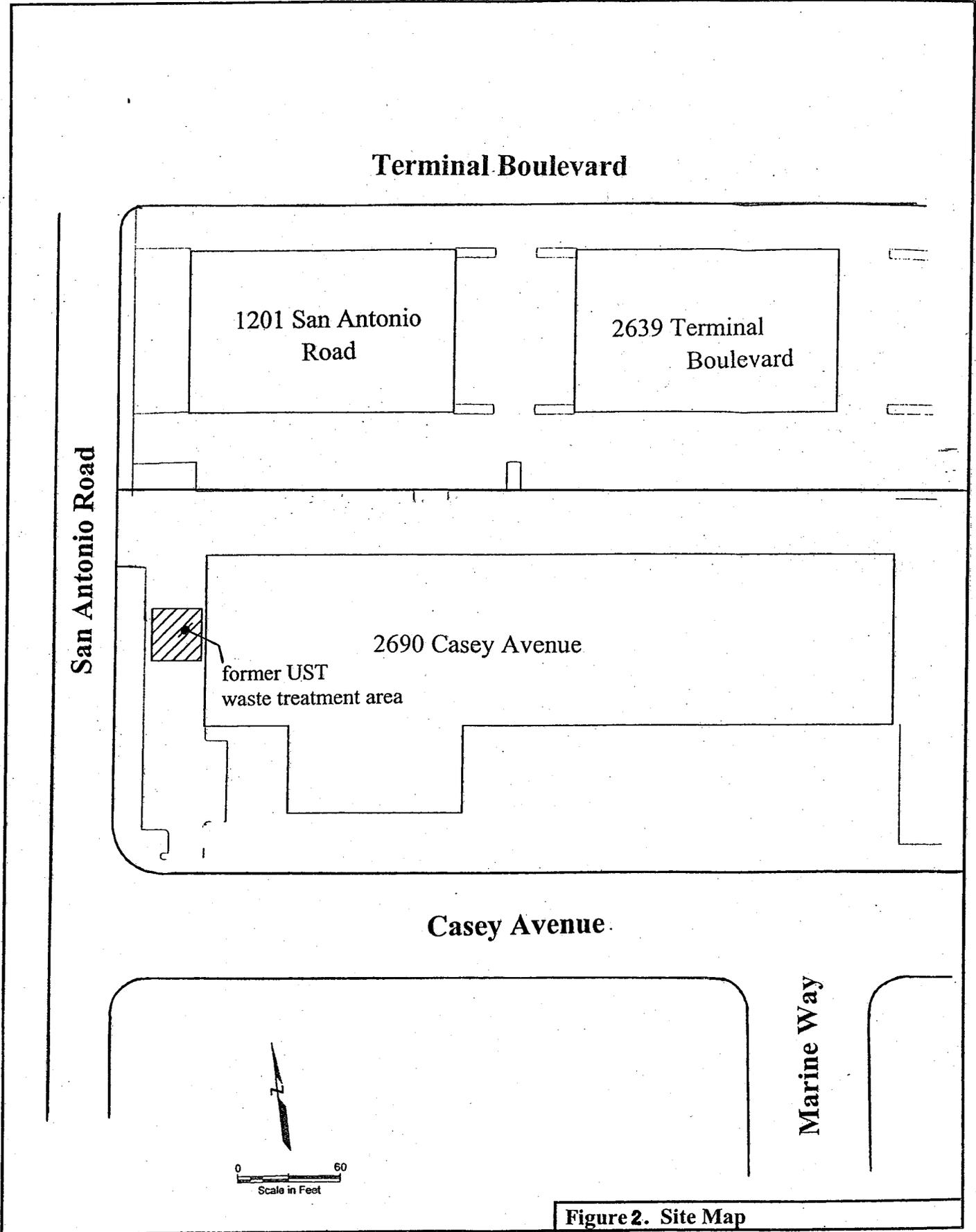


Figure 2. Site Map

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR:

APPLERA CORPORATION and
JR REALITY #2, LLC

for the property located at

2690 CASEY AVENUE
MOUNTAIN VIEW
SANTA CLARA COUNTY

1. **Authority and Purpose:** The Board requests the technical reports required in this Self-Monitoring Program pursuant to Water Code Sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Board Order No. R2-2007-0040 (site cleanup requirements).
2. **Monitoring:** The discharger shall measure groundwater elevations quarterly in all monitoring wells, and shall collect and analyze representative samples of groundwater according to the following schedule:

Well #	Sampling Frequency	Analyses
MW-1, MW-3A, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-12, MW-13, GW-1, GW-2, GW-3, GW-4, GW-5, GW-6	Semi-Annually	VOCs – Method 8260 or equivalent
MW-1, MW-3A, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-12, MW-13, GW-1, GW-2, GW-3, GW-4, GW-5, GW-6	Semi-Annually	Natural attenuation parameters (pH, methane, dissolved oxygen, carbon dioxide, oxidation/reduction potential, total alkalinity, nitrate, sulfate, chloride, total iron, dissolved iron)

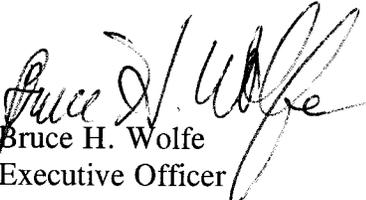
The discharger shall sample any new monitoring or extraction wells quarterly and analyze groundwater samples for the same constituents as shown in the above table.

The discharger may propose changes in the above table; any proposed changes are subject to Executive Officer approval.

3. **Annual Monitoring Reports:** The discharger shall submit annual monitoring reports to the Board no later than 30 days following the end of each calendar year. The reports shall include:
 - a. **Transmittal Letter:** The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall be signed by the discharger's principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.
 - b. **Groundwater Elevations:** Groundwater elevation data shall be presented in tabular form, and a groundwater elevation map should be prepared for each monitored water-bearing zone.
 - c. **Groundwater Analyses:** Groundwater sampling data shall be presented in tabular form, and an isoconcentration map should be prepared for one or more key contaminants for each monitored water-bearing zone, as appropriate. The report shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC data. Historical groundwater sampling results shall be included.
 - d. **Groundwater Extraction:** If applicable, the report shall include groundwater extraction results in tabular form, for each extraction well and for the site as a whole, expressed in gallons per minute and total groundwater volume for the quarter. The report shall also include contaminant removal results, from groundwater extraction wells and from other remediation systems (e.g. soil vapor extraction), expressed in units of chemical mass per day and mass for the quarter. Historical mass removal results shall also be included.
 - e. **Status Report:** The annual report shall describe relevant work completed during the reporting period (e.g. site investigation, interim remedial measures) and work planned for the reporting period.
4. **Violation Reports:** If the discharger violates requirements in the Site Cleanup Requirements, then the discharger shall notify the Board office by telephone as soon as practicable once the discharger has knowledge of the violation. Board staff may, depending on violation severity, require the discharger to submit a separate technical report on the violation within five working days of telephone notification.

5. **Other Reports:** The discharger shall notify the Board in writing prior to any site activities, such as construction or underground tank removal, which have the potential to cause further migration of contaminants or which would provide new opportunities for site investigation.
6. **Record Keeping:** The discharger or his/her agent shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Board upon request.
7. **SMP Revisions:** Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the discharger. Prior to making SMP revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.

I, Bruce H. Wolfe, Executive Officer, hereby certify that this Self-Monitoring Program was adopted by the Board on May 9, 2007.


Bruce H. Wolfe
Executive Officer