STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

STAFF SUMMARY REPORT
Laurent Meillier
MEETING DATE: December 10, 2008

ITEM: 7

SUBJECT: **Advalloy, Inc., East Charleston, Inc., and Fairchild Semiconductor Corporation, for the property located at 844 East Charleston Road, Palo Alto, Santa Clara County** – Adoption of Final Site Cleanup Requirements

CHRONOLOGY: January 1990 – Initial Site Cleanup Requirements Adopted
November 1995 – Revised Site Cleanup Requirements Adopted

DISCUSSION: The Revised Tentative Order (Appendix A) sets cleanup standards for the site and requires the dischargers to complete the site investigation, implement the cleanup plan, and conduct a five-year evaluation of cleanup effectiveness.

The site is located near the intersection of East Charleston Road and San Antonio Road in Palo Alto (Appendix E). Fairchild Semiconductor Corporation (Fairchild) occupied the Site between 1957 and 1967. Fairchild manufactured integrated circuits and instrumentation devices and used solvents and acids in its operations. Advalloy, Inc. (Advalloy) occupied the site between 1968 and 1994 when it went bankrupt. Advalloy operated a precision metal stamping facility for the semiconductor industry and used degreasers, paint thinners, acids, and detergents in its operations. East Charleston, Inc., (East Charleston) purchased the property in bankruptcy in 1994.

High concentrations of trichloroethylene (TCE) and associated degradation products (cis-1,2 dichloroethylene and vinyl chloride) have been detected in groundwater at the site and downgradient of the site. East Charleston operated a groundwater extraction and treatment system at the site from 1999 to 2002. Since 2002, East Charleston has implemented an enhanced bioremediation program by injecting cheese whey into the groundwater to promote breakdown of chemicals by naturally occurring bacteria. Additional soil gas and groundwater investigation and cleanup are necessary.

We received comments (Appendix B) on the Tentative Order from five parties: 1) East Charleston, 2) Schlumberger (successor in interest to Fairchild's environmental responsibilities at the site), 3) Ford Motor Company, 4) Taube-Koret Campus for Jewish Life, and 5) Far Western Land and Investment Company. Our response to these comments is contained in Appendix C.

Parties 3), 4), and 5) requested clarifying language on the need for offsite investigation and cleanup and the need to not interfere with risk management measures and remedial actions implemented at downgradient properties. Staff met with these parties and resolved their comments. We made several changes in the Tentative Order to address these comments.

The remaining contested issue is whether or not to name Fairchild as a discharger on the Revised Tentative Order (RTO) (Appendix A). East Charleston commented that we should name Fairchild as a discharger. Schlumberger commented that there is insufficient evidence to name Fairchild as a discharger.

Schlumberger's main comments are:
1) Fairchild's manufacturing and chemical use was on a very small scale that was not large enough to impact soil and groundwater
2) During the four years of Fairchild's manufacturing operations (1957 – 1961), the onsite sewer line was new and should not have leaked
3) Advalloy's chemical use practices can explain all the contamination in soil and groundwater at the site

Staff concludes that there is sufficient evidence to name Fairchild as a discharger and recommends that the Board name Fairchild as a discharger on the RTO. Our rationale for this recommendation is contained in the staff report in Appendix D and can be summarized as follows:
1) Fairchild used acids and solvents such as TCE in its manufacturing processes and discharged these chemicals to the sewer line
2) Sewer lines are prone to leak, and even small solvent releases from a sewer can cause significant water quality impacts
3) The sewer line to which Fairchild discharged shows evidence of corrosion and potential leakage points
4) Groundwater beneath the sewer line is contaminated with TCE

We expect this item to be contested, although testimony will likely focus on this one remaining issue. We have told Schlumberger and East Charleston that the Board chair will set time limits for testimony, and have suggested they use their time to highlight key points in their previous submittals.

RECOMMEN-DATION: Adopt the Revised Tentative Order

FILE No. 43S0246 (LM)
Appendices:
A - Revised Tentative Order
B - Correspondence
C - Response to Comments
D - Staff Report
E - Site Location Map

APPENDIX A

REVISED TENTATIVE ORDER

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

REVISED TENTATIVE ORDER

ADOPTION OF FINAL SITE CLEANUP REQUIREMENTS and RESCISSION OF ORDER NO. 95-222 FOR:

ADVALLOY, INC.
EAST CHARLESTON, INC., AND
FAIRCHILD SEMICONDUCTOR CORPORATION

for the property located at

844 EAST CHARLESTON ROAD
PALO ALTO
SANTA CLARA COUNTY

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

1. **Site Location**: The Site is located at 844 East Charleston Road in Palo Alto (Figure 1). The Site is 0.55 acres and is bounded by East Charleston Road to the north, Fabian Way to the south and existing structures to the east and west. The current two-story Building at the Site occupies approximately 14,600 square feet. Areas surrounding the Building are paved. Land use in the surrounding area is commercial, light industrial and proposed residential.

2. **Site History**: The Building at the Site was constructed in 1957 and was occupied by Fairchild Semiconductor Corporation (Fairchild) until 1967. From 1957 through 1961, Fairchild conducted research and small-scale production of integrated circuits at the Site; from 1961 through 1962, it conducted research and development; and from 1962 through 1967, it conducted instrumentation manufacturing. Fairchild used chlorinated solvents such as trichloroethylene (TCE) and acids in its industrial processes and discharged these chemicals to the Building's northern sanitary sewer.

   Advalloy, Inc. (Advalloy) leased the Site in 1968 and purchased the property in 1971. Advalloy occupied the Site until 1989. Advalloy's industrial activities at the Site involved precision metal stamping for the semi-conductor industry. These activities required the use of chemicals such as degreasers, paint thinners, acids, and detergents. The activities generated a variety of hazardous wastes. Solvents were introduced to the subsurface soils through disposal into the sanitary sewer lines, and possibly a former water drain, that discharged into a sump in the rear of the Building. The sump then discharged into the sanitary sewer along the centerline of Fabian Way to the south of the Site. The depth of

the sanitary sewer and sump varies from about three to five feet below the ground surface. Additional information on Site history is contained in the December 3, 2008, staff report, which the Board hereby incorporates by this reference.

Advalloy declared bankruptcy in 1994. East Charleston, Inc., (East Charleston) acquired the property in bankruptcy in 1994.

3. **Named Dischargers**: Fairchild is named as a discharger because of substantial evidence that it discharged pollutants to soil and groundwater at the Site, including its use of chlorinated solvents and acids in research and small-scale production of integrated circuits and instrumentation, its discharge of waste solvents and acids to the northern sewer line, and the presence of these chlorinated solvents in groundwater in the immediate vicinity and downgradient of the northern sewer line. The rationale for naming Fairchild is contained in the December 3, 2008, staff report, which the Board hereby incorporates by this reference.

   Advalloy is named as a discharger because of substantial evidence that it discharged pollutants to soil and groundwater at the Site and because it owned the property during or after the time of the activity that resulted in the discharge, had knowledge of the discharge or the activities that caused the discharge, and had the legal ability to prevent the discharge.

   East Charleston is named as a discharger because it owned the property during or 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 control 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 Water Board will consider adding that party's name to this Order.

4. **Regulatory Status**: This Site has been subject to the following Orders:
   - Site Cleanup Requirements (Order No. 95-222) adopted on November 15, 1995.
   - Site Cleanup Requirements (Order No. 90-016) adopted on January 17, 1990, and rescinded on November 15, 1995, by Order 95-222.

5. **Site Hydrogeology**: The Site is located on a series of overlapping distal alluvial fans deposited by east-flowing streams descending from the Santa Cruz Mountains. The distal fan/basin environment of deposition generally contains fine-grained, clay-rich sediments except for former channel deposits that contain coarser deposits. The regional topography slopes north-northeast toward San Francisco Bay. The regional groundwater direction is northeast towards San Francisco Bay. The groundwater gradient varies between 0.0025 and 0.005. A water bearing zone (A-aquifer) is found between 6 to 30 feet bgs (below ground surface). A deeper water bearing zone (B-aquifer) is found between 38 to 55 bgs. The C-aquifer has been encountered between 80 and 90 feet bgs. The shallow groundwater (found approximately between 6 and 55 feet bgs) generally occurs and

migrates through a complex network of buried stream channels in a northerly direction.

6. **Remedial Investigation:** VOCs have been detected in soil and shallow groundwater at the Site and in shallow groundwater downgradient of the Site. The primary VOCs detected are trichloroethylene (TCE) and its associated degradation products cis-1,2 dichloroethylene (DCE) and vinyl chloride (VC). In September 2008, TCE, DCE and VC were detected in the onsite A-aquifer at the respective groundwater concentrations of 440 µg/L (ppb), 96 ppb and 1,400 ppb. In October 2008, TCE, DCE and VC were detected in the onsite B-aquifer at the respective groundwater concentrations of 42,000 ppb, 4,300 ppb and 45,000 ppb. The bulk of the contamination is found in the B-aquifer downgradient of the Building. TCE groundwater detections as high as 110,000 ppb were recorded in February 2008 in the B-aquifer north across East Charleston Road directly downgradient of the Site. TCE detections were recorded off-site at concentrations exceeding 1,000 ppb at least 400 feet downgradient and at lower concentrations at least 1,000 feet downgradient of the Site.

   Seventeen monitoring, extraction, and injection wells have been installed at the Site (Figure 1). Two monitoring wells clusters (MW-01 and MW-02) have been installed on the 901 San Antonio Road property downgradient of the Site by the owners. Monitoring well clusters (F25-1 through F25-4, PB1-2 and PB2-1) installed at 3963/3977 Fabian Way have reported TCE and related TCE breakdown products. One A-aquifer well (MW-8) was installed on the 860 East Charleston Road property. Two A-aquifer monitoring wells (MW-4 and MW-5) have been installed upgradient of the Site. The full extent of the groundwater VOC contamination downgradient and cross gradient of the Site in the A- and B- aquifers has not been fully determined. Further investigation is needed to complete the definition of the extent of groundwater pollution at the Site and downgradient of the Site. To the maximum extent possible, proposed remedial actions shall be designed to avoid interference with land uses and operations at downgradient properties.

   Petroleum hydrocarbons have been detected in soil at concentrations up to 21,000 ppm at shallow depths (0.5- 1.0 feet bgs). Lead, chromium and copper have been detected in soils at respective concentrations up to 2,400 ppm, 150 ppm and 97 ppm. The source of the petroleum hydrocarbons and lead is considered to be blow-down from a compressor, and possibly its hydraulic or cooling fluid. Further investigation is needed to accurately determine the extent of contamination in soils in various work areas at the Site.

   The vapor intrusion pathway to indoor air has not been evaluated at the Site or at properties downgradient of the Site that are not the subject of a Risk Management Plan approved by the Water Board. Soil gas sampling is needed to evaluate this pathway.

7. **Adjacent Sites**: Several other sources of VOC pollution exist in the vicinity of the Site (see Figure 1). These sites include:

   <u>North of the Site</u>
   Space Systems/Loral, Inc., occupies two buildings (Buildings 7 and 8) and is located at

3963-3977 Fabian Way. This property is owned by Far Western Land & Investment, Inc., which leased the property from 1959 to 1990 to the former Ford Aerospace Corporation (FAC). FAC operated a research and development facility on this property. Operations included the use of chlorinated solvents in and around Buildings 7 and 8. Ford Motor Company (in coordination with Space Systems/Loral, Inc.) has investigated and remediated PCE discharges at the site and currently conducts groundwater and soil gas monitoring on this property. Groundwater and soil gas below this property is impacted by VOCs. The Water Board regulates the investigation and remedial activities at this property under Site Cleanup Requirements Order No. R2-2007-0022.

East of the Site

TCE has been respectively detected in groundwater in the A- and B- aquifers at concentrations of 9,500 ppb and 16,000 ppb at the former Fairchild and Advalloy Machine Shop, located at 4055-4057 Fabian Way.

8. **Prior Remedial Measures**: East Charleston operated a groundwater extraction and treatment system from 1999 to 2002. Four extraction wells (RW-1A/B, RW-2A/B) were installed on the downgradient (north) side of the Building. Groundwater was initially extracted using the four extraction wells and then augmented with extraction from well IW-1B. Six injection wells (IW-1A/B, IW-2A/B, and IW-3A/B) were installed south of the Building near the upgradient property boundary. The groundwater was treated through two activated carbon vessels. The treated groundwater was then pumped into the injection wells. The cumulative amount of VOCs removed by the treatment system was 489 pounds over this time period, representing a total of 13,863,000 gallons of treated groundwater. Groundwater extraction was discontinued in 2002 due to stabilization and in some cases increases of TCE concentrations in the groundwater.

East Charleston implemented an enhanced bioremediation program in 2002 by injecting diluted cheese whey in the A- and B- aquifers to promote breakdown of VOCs by naturally occurring bacteria. The cheese whey injection promotes anaerobic reductive dechlorination (ARD) of VOCs in groundwater. ARD is a micro-biologically mediated process occurring in oxygen poor environments. VOCs are degraded into a succession of by-products ultimately leading to the production of chloride and ethene/ethane gases. Nine different injection events have occurred since 2002. The average estimated removal for the chlorinated hydrocarbons between 2002 and 2007 are: 93% for TCE, 83.9% for DCE and 74.7% for VC. VOCs concentrations remain high at some B-aquifer locations as monitored in September 2007.

Soil remediation has not been completed at the Site. Additional soil and groundwater remediation is needed to meet cleanup standards at the Site, and the need for additional remediation downgradient of the Site must be evaluated as set forth in this Order.

9. **Environmental Risk Assessment**: East Charleston conducted a human health risk assessment (HHRA) for the Site in 2000. The HHRA was based on VOC concentrations collected in the A-aquifer between 1999 and 2000. Based on current and likely potential future uses of the Site, the following hypothetical human receptors were evaluated in the

HHRA:

- Outdoor Commercial/Construction Worker;
- Indoor Commercial Worker

Because zoning designations prohibit residential use at the Site, a resident receptor was not included in the risk assessment. The HHRA did not calculate cumulative hazard indices for non-carcinogens. Excess cancer risks from assumed exposure to constituents of concern at the Site were reported in the HHRA as follows:

HHRA Exposure Pathways and Health Risks

Exposure Pathway	Carcinogenic Risk (1)
Inhalation in outdoor air (outdoor commercial worker)	4E-8
Inhalation in outdoor air (outdoor construction worker)	2E-07 to 3E-05
Inhalation in indoor air (indoor commercial worker)	4E-06

Table Note:
(1) The constituents of concern in groundwater include Tetrachloroethylene (PCE), TCE, 1,1 DCE, cis-1,2-DCE, 1,2 dichloropropane, 1,2-dichloroethane, 1,1,2-trichloro-1,2,3-trifluoroethane, VC and benzene.

For comparison, the Water Board considers the following risks to be acceptable at remediation sites: a cumulative hazard index of 1.0 or less for non-carcinogens, and a cumulative excess cancer risk of 10-E4 to 10E-6 or less for carcinogens.

Due to excessive risk that will be present at the Site pending full remediation, institutional constraints are appropriate to limit onsite exposure to acceptable levels. Institutional constraints include a deed restriction that notifies future owners of subsurface contamination, prohibits the use of shallow groundwater beneath the Site as a source of drinking water until cleanup standards are met, and prohibits sensitive uses of the Site such as residences and daycare centers.

10. **Remedial Action Plan:** East Charleston submitted its remedial action plan on August 1, 2000, entitled "Proposed Final Remedial Actions and Cleanup Standards." The proposed remedial action at that time was groundwater extraction and treatment. The Remedial Action Plan does not fully address impacts of VOCs discharges from the Site on downgradient properties. After conducting groundwater extraction and treatment for three years, East Charleston submitted an amended remedial action plan in the April 22, 2002, quarterly report entitled "Quarterly Technical Status and Groundwater Self-Monitoring Calendar Quarter January – March 2002." The new proposed remedial action is enhanced bioremediation with injections of carbohydrate solutions such as cheese whey in the A- and B- aquifers. East Charleston proposes to conduct an additional injection event in

2008 utilizing four B-aquifer and three A-aquifer injection points along the front of the Site. Additional groundwater remediation in accordance with the terms of this Order is needed downgradient of the Site.

East Charleston submitted a contaminated soil removal action plan on June 22, 2004, entitled "Removal Action for Mitigation of Subsurface Concerns, 844 East Charleston Road, Palo Alto, California." The proposed removal action estimates that nine cubic feet of contaminated soil needs to be removed from the Site. An "Addendum to Removal Action for Mitigation of Subsurface Concerns and Request for Subsurface Hazardous Materials Closure" report, dated March 23, 2005, was submitted to the Palo Alto Fire Department. This report documents additional investigations and includes a request for subsurface closure issued by the Palo Alto Fire Department to East Charleston issued on September 16, 2003.

11. Basis for Cleanup Standards

a. **General**: State Water Resources Control Board (State Board) Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this groundwater impact 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 shall 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. The previously-cited remedial action plan confirms the Water Board's initial conclusion that background levels of water quality cannot be restored. This Order and its requirements are consistent with Resolution No. 68-16.

State 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.

b. **Beneficial Uses**: The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Water 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 Board, the United States Environmental Protection Agency, and the Office of Administrative Law where required.

State 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. Groundwater underlying and adjacent to the Site qualifies as a potential source of

drinking water.

The Basin Plan designates the following potential beneficial uses of groundwater underlying and adjacent to the site:

- Municipal and domestic water supply
- Industrial process water supply
- Industrial service water supply
- Agricultural water supply

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

c. **Basis for Groundwater Cleanup Standards**: The groundwater cleanup standards for the Site are based on applicable water quality objectives and are the California maximum contaminant levels (CA MCLs). Cleanup to this level will protect beneficial uses of groundwater and will result in acceptable residual risk to humans. Groundwater cleanup standards are shown in section B.2 below.

d. **Basis for Soil Cleanup Standards**: The soil cleanup standards for the Site are based on the protection of ecological receptors, prevention of nuisance conditions, prevention of leaching of contaminants to groundwater, and protection of human health under a commercial/industrial indoor air or direct exposure scenario. The most restrictive of the above factors will apply on a chemical-by-chemical basis. Cleanup to this level will protect beneficial uses of groundwater and will result in acceptable residual risk to human and ecological receptors in a commercial/industrial use scenario. Soil cleanup standards are shown in section B.3 below.

e. **Basis for Soil Gas Cleanup Standards:** The soil gas cleanup standards for the Site are based on the protection of human health under a commercial/industrial indoor air exposure scenario. Soil gas cleanup standards are shown in section B.4 below.

12. **Future Changes to Cleanup Standards**: The goal of this remedial action is to restore the beneficial uses of groundwater underlying and adjacent to the Site. Results from other sites suggest that full restoration of beneficial uses to groundwater as a result of active remediation at this Site may not be possible. If full restoration of beneficial uses is not technologically nor economically achievable within a reasonable period of time, then the dischargers may request modification to the cleanup standards or establishment of a containment zone, a limited groundwater pollution zone where water quality objectives are exceeded. Conversely, if new technical information indicates that cleanup standards can be surpassed, the Water Board may decide that further cleanup actions shall be taken.

13. **Reuse or Disposal of Extracted Groundwater**: Water 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.

14. **Basis for 13304 Order**: California Water Code Section 13304 authorizes the Water Board to issue orders requiring dischargers to cleanup and abate waste where the dischargers have 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.

15. **Cost Recovery**: Pursuant to California Water Code Section 13304, the dischargers are hereby notified that the Water Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Water 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.

16. **CEQA**: This action is an Order to enforce the laws and regulations administered by the Water 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.

17. **Notification**: The Water Board has notified the dischargers 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.

18. **Public Hearing**: The Water Board, at a public meeting, heard and considered all comments pertaining to this discharge.

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 that 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. REMEDIAL ACTION PLAN AND CLEANUP STANDARDS

1. **Implement Remedial Action Plan (RAP):** The dischargers shall continue to implement the 2002 amendment to the RAP related to onsite matters described in finding 10. The dischargers shall propose additional remedial actions in accordance with this Order for areas downgradient of the Site that are affected by discharges from the Site.

2. **Groundwater Cleanup Standards:** The following groundwater cleanup standards shall be met throughout the area of impacted groundwater and in all groundwater monitoring wells identified in the Self-Monitoring Program.

Groundwater Cleanup Standards

Constituent	Groundwater Cleanup Standard (µg/L)	Basis
PCE	5.0	CA MCL
TCE	5.0	CA MCL
DCE	6.0	CA MCL
trans-1,2-dichloroethene (trans-1,2-DCE)	10	CA MCL
VC	0.5	CA MCL
1,2-dichlorobenzene (1,2-DCB)	600	CA MCL
1,4-dichlorobenzene (1,4-DCB)	5.0	CA MCL
TPH-g (gasoline)	210	Drinking Water (1)
TPH-m (middle distillates)	210	Drinking Water (1)

Table Notes:
(1) Drinking water standards based on non-Carcinogenic effects. Values from Water Board Interim Final Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Volume 2, Table F-3 (November 2007).
CA MCL= California Maximum Contaminant Level
µg/L = micrograms per liter
TPH = Total Petroleum Hydrocarbons

3. **Soil Cleanup Standards:** The following soil cleanup standards shall be met throughout the unsaturated zone at the Site. For the purposes of this Order, the unsaturated zone is defined as the zone above the water table's lowest historical or seasonal levels, as documented or anticipated. The cleanup levels shall be confirmed with confirmatory soil samples.

Soil Cleanup Standards

Constituent	Soil Cleanup Standard (mg/kg)	Basis
PCE	0.34	Direct Exposure
TCE	0.46	Leaching
DCE	0.19	Leaching
Trans-1,2-DCE	0.67	Leaching
1,1-Dichloroethane (1,1-DCA)	0.2	Direct Exposure
VC	0.021	Leaching
Gasoline	83	Leaching
middle distillates	83	Leaching
Toluene	2.9	Leaching
Cadmium	1.7	Direct Exposure
Copper	230	Urban Area Toxicity
Cyanide	0.54	Leaching
Lead	260	Direct Exposure
Mercury	1	Direct Exposure
Nickel	150	Urban Area Toxicity
Total Chromium	2,500	Gross Contamination
Zinc	600	Urban Area Toxicity

Table Notes:
Values based on screening for potable groundwater, shallow soils (less than 3 meters bgs) and commercial/industrial land use. Values from the Water Board Interim Final Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Volume 2, Table A-2 (November 2007).
mg/kg = milligrams per kilogram

4. **Soil Gas Cleanup Standards:** Except with respect to those downgradient properties that are the subject of a Risk Management Plan approved by the Water Board, the following soil gas cleanup standards shall be met at the Site and at properties impacted by

discharges at the Site, with the applicable standard based on the land use of the parcel.

Soil Gas Cleanup Standards

Constituent	Commercial Soil Gas Cleanup Standard ($\mu g/m^3$)	Residential Soil Gas Cleanup Standard ($\mu g/m^3$)
PCE	1,400	410
TCE	4,100	1,200
VC	100	31
DCE	20,000	7,300
1,1-DCE	160	49
1,1-DCA	5,100	1,500
1,1,1-Trichloroethane	1,300,000	460,000
Gasoline	29,000	10,000
middle distillates	29,000	10,000
Benzene	280	84
Toluene	180,000	63,000
Ethylbenzene	580,000	210,000
Xylenes	58,000	21,000

Table Notes:
Values based on vapor intrusion into a building. Values from the Water Board Interim Final Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Volume 2, Table E-2 (November 2007).
$\mu g/m^3$ = micrograms per cubic meter

C. TASKS

1. SUPPLEMENTAL REMEDIAL INVESTIGATION WORKPLAN

COMPLIANCE DATE: January 30, 2009

Submit a workplan acceptable to the Executive Officer to complete the definition of the vertical and lateral extent of groundwater and soil gas pollution both at the Site and at properties downgradient of the Site that have been impacted by discharges at the Site. The workplan should specify investigation methods and a proposed time schedule. For soil gas, the workplan should include depth profiling

of soil gas concentrations to further identify pollution sources. Work may be phased to allow the investigation to proceed efficiently, provided that this does not delay compliance. The workplan should include a completion schedule for the construction of the replacement to monitoring well MW-07. To the maximum extent possible, interference with land uses and operations at offsite locations shall be avoided. The workplan shall not propose any investigative activities that could breach or compromise the integrity or functioning of installed or planned remedial or risk management measures at downgradient properties or otherwise alter or interfere with the implementation and function of measures required by Risk Management Plans approved by the Water Board for these downgradient properties.

2. COMPLETION OF SUPPLEMENTAL REMEDIAL INVESTIGATION

COMPLIANCE DATE: June 30, 2009

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

3. COMPLETION OF SOIL REMEDIAL ACTIONS

COMPLIANCE DATE: July 14, 2009

Submit a technical report acceptable to the Executive Officer documenting the completion of remedial actions identified in the 2004 "Removal Action for Mitigation of Subsurface Concerns." The report should document:

a. Removal of all contaminated soils at the Site including the former industrial work areas where soil cleanup standards (see B.3. above) are exceeded such as the former compressor and cladding areas.
b. Abandonment of the floor sump located in the southeast corner of the former hazardous materials storage room, including sealing of the piping leading to and from the sump.

4. FIVE-YEAR STATUS REPORT

COMPLIANCE DATE: August 31, 2009, and every five years thereafter

Submit a technical report acceptable to the Executive Officer evaluating the effectiveness of the approved cleanup plan. The report shall include:

a. Summary of effectiveness in controlling contaminant migration and protecting human health and the environment.

b. Comparison of contaminant concentration trends with cleanup standards.
c. Comparison of anticipated versus actual costs of cleanup activities.
d. Remediation performance data (e.g., groundwater volume treated, contaminant mass removed or destroyed per million gallons treated, mass flux reduction).
e. Cost effectiveness data (e.g., cost per unit mass of contaminant of concern removed or destroyed, cost per unit mass flux reduction).
f. Summary of additional investigations (including results) and significant modifications to remediation systems.
g. Additional remedial actions proposed to meet applicable cleanup standards at the Site and areas downgradient of the Site that are impacted by Site discharges (see B.2. above) including a time schedule. Include the projected removal rate (mass of contaminant/time) of the contaminant of concern in the media of interest with the proposed remedial action. For groundwater, separately determine these removal rates for all impacted groundwater zones. Provide the time (t) at which the cleanup standards will be achieved at the Site and offsite for the contaminant(s) of concern exceeding cleanup standards using the proposed remedial action. To the maximum extent possible, proposed remedial actions shall be designed to avoid interference with land uses and operations at downgradient properties. In no event shall such proposed remedial actions include any actions that could breach or compromise the integrity or functioning of installed or planned remedial or risk management measures at offsite properties, or otherwise alter or interfere with the implementation and function of measures required by Risk Management Plans approved by the Water Board for downgradient properties.

If cleanup standards have not been met and are not projected to be met within a reasonable time, the report shall assess the technical practicability of meeting cleanup standards and may propose an alternative cleanup strategy.

5. PROPOSED INSTITUTIONAL CONSTRAINTS

COMPLIANCE DATE: August 31, 2009

Submit a technical report acceptable to the Executive Officer documenting procedures to be used by the dischargers to prevent or minimize human exposure to soil, soil gas and groundwater contamination prior to meeting cleanup standards. Such procedures shall include a deed restriction applicable to the Site that notifies future owners of subsurface contamination, prohibits the use of shallow groundwater beneath the Site as a source of drinking water until cleanup standards are met, and prohibits sensitive uses of the Site such as residences and daycare centers.

6. IMPLEMENTATION OF INSTITUTIONAL CONSTRAINTS

COMPLIANCE DATE: December 31, 2009

Submit a technical report acceptable to the Executive Officer documenting that the proposed institutional constraints have been implemented.

7. PROPOSED CURTAILMENT

COMPLIANCE DATE: 60 days prior to proposed curtailment

Submit a technical report acceptable to the Executive Officer containing a proposal to curtail remediation. Curtailment includes system closure (e.g., well abandonment), system suspension (e.g., cease enhanced bioremediation but wells retained), and significant system modification (e.g., major reduction of injection of biostimulative whey mixtures, closure of individual injection wells within injection network). The report should include the rationale for curtailment. Proposals for final closure should demonstrate that cleanup standards have been met, contaminant concentrations are stable, and contaminant migration potential is minimal.

8. IMPLEMENTATION OF CURTAILMENT

COMPLIANCE DATE: 60 days after Executive Officer approval of Task 7 workplan

Submit a technical report acceptable to the Executive Officer documenting completion of the tasks identified in the Task 7 workplan.

9. WORKPLAN FOR ALTERNATE REMEDIAL ACTION PLAN

COMPLIANCE DATE: 90 days after required by Executive Officer

Submit a workplan acceptable to the Executive Officer for implementation of an alternate remedial action plan in the event that the remedial activities specified in the Order are not effective in achieving cleanup standards.

10. IMPLEMENTATION OF ALTERNATE REMEDIAL ACTION PLAN

COMPLIANCE DATE: 180 days after Executive Officer approval of Task 9 workplan.

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 9 workplan.

11. EVALUATION OF NEW HEALTH CRITERIA

COMPLIANCE DATE: 90 days after required by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating the effect on the approved cleanup plan of revising one or more cleanup standards in response to revision of drinking water standards, maximum contaminant levels, or other health-based criteria.

12. EVALUATION OF NEW TECHNICAL INFORMATION

COMPLIANCE DATE: 90 days after required by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating new technical information bearing on the approved cleanup plan and cleanup standards for this Site. In the case of a new cleanup technology, the report shall evaluate the technology using the same criteria used in the feasibility study. Such technical reports shall not be requested unless the Executive Officer determines that the new information is reasonably likely to warrant a revision in the approved cleanup plan or cleanup standards.

13. DELAYED COMPLIANCE:

If the dischargers are delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the dischargers shall promptly notify the Executive Officer and the Water Board may consider revision to this Order.

D. 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 dischargers 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 dischargers shall be liable, pursuant to California Water Code Section 13304, to the Water Board for all reasonable costs actually incurred by the Water 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 dischargers 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 dischargers shall permit the Water 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 dischargers.

5. **Self-Monitoring Program**: The dischargers 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 Water 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 Water Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g., temperature).

8. **Document Distribution**: Electronic copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided within two weeks of the established task deadline to the following recipients:
   a. City of Palo Alto, Fire Department
   b. Santa Clara Valley Water District

   The Executive Officer may modify this distribution list as needed.

9. **Reporting of Changed Owner or Operator**: The dischargers shall file a written report on any changes in Site occupancy or ownership associated with the property

described in this Order. This report shall be filed with the Water Board within 30 days following a change in Site occupancy or ownership.

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 dischargers 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 Water 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.

11. **Rescission of Existing Order**: This Order supersedes and rescinds Water Board Order No. 95-222.

12. **Periodic SCR Review**: The Water Board will review this Order periodically and may revise it when necessary.

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 _____.

_____
Bruce H. Wolfe
Executive Officer

==========

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

==========

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR:

ADVALLOY, INC.
EAST CHARLESTON, INC., AND
FAIRCHILD SEMICONDUCTOR CORPORATION

for the property located at

844 EAST CHARLESTON ROAD
PALO ALTO
SANTA CLARA COUNTY

1. **Authority and Purpose**: The Water Board requires the technical reports in this Self-Monitoring Program pursuant to Water Code Sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Water Board Order No. _____ (Final Site Cleanup Requirements).

2. **Monitoring**: The dischargers shall measure groundwater elevations in all monitoring wells and shall collect and analyze representative samples of groundwater according to the following table:

Well #	Monitored Aquifer	Sampling Frequency	Analyses
MW1, MW-8, RW-1A, RW-2A	A	Q	8260, DO, pH, C, T, Tr, ORP, and biogeochem
MW-1B, MW-2B, MW-3B, RW-1B, RW-2B, IW-1B, IW-2B, IW-3B, IW-4B	B	Q	8260, DO, pH, C, T, Tr, ORP and biogeochem
MW-01A, MW-02A, MW-2, MW-3	A	SA	8260, DO, pH, C, T, Tr, ORP and biogeochem

Well #	Monitored Aquifer	Sampling Frequency	Analyses
MW-01B1, MW-01B3, MW-02B1, MW-02B2, Replacement to MW-07*	B	SA	8260, DO, pH, C, T, Tr, ORP and biogeochem
MW-4, MW-5	A	SA	8260, DO, pH, C, T, Tr, ORP and biogeochem

Key: Q= Quaterly; SA = Semi-Annually;
8260 = EPA Method 8260 analysis with only the USEPA Method 8010 compounds reported
DO = Dissolved oxygen
C, T, Tr = Conductivity, temperature, and turbidity
ORP = Oxidation reduction potential
Biogeochem = ethene, ethane, methane, chloride and total organic carbon
* once online

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

4. **Semi-Annual Monitoring Reports**: The dischargers shall submit semi-annual monitoring reports to the Water Board on January 31 and July 31 of each year. The first semi-annual report is due on January 31, 2009. 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 dischargers' 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. Historical groundwater elevations shall also be included.

   c. Groundwater Analyses: Groundwater sampling data shall be presented in tabular form. Timeseries of this data shall be included in a graphical format. An isoconcentration map should be prepared for one or more key contaminants for each monitored water-bearing zone, as appropriate. These isoconcentration maps shall delineate concentrations to their respective groundwater cleanup standard included in section B.2 of the accompanying Water Board Order No. R2-2008-X. The report shall

indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC (Quality Assurance/Quality Control) data. Historical groundwater sampling results shall also be included. Supporting data, such as lab data sheets, need not be included (however, see record keeping - below).

d. Groundwater Remediation Evaluation: As applicable, the report should include the following for each aquifer of interest:

1. Evaluate the spatial stability of the groundwater plume leading edge using the isoconcentration maps included in the report. The report shall compare trichloroethylene (TCE) concentrations in the downgradient sentry wells (MW-01, MW-02 clusters and replacement MW-07) to the TCE groundwater cleanup standards concentrations listed in section B.2.
2. Describe any significant increases in contaminant concentrations since the last report, and any measures proposed to address the increases. Quantify the degree of contaminant concentrations variability between sampling events. The degree of variability may be estimated using statistical tests (e.g., variance, standard deviation, coefficient of variation, and/or interquartile range).
3. Compute the percentage reduction of the contaminants of concern since inception of the remediation action taken. The total percentage concentration reduction is: $100 \times \left[1 - \left(\frac{C_r}{C_0}\right)\right]$ where C_r is the contaminant concentration during the reported sampling period and C_0 is the concentration at the start of the remediation action. Historical removal values shall be included in the semi-annual report.
4. Estimate the time t at which the concentration of the contaminants of concern will reach their respective groundwater cleanup standards in the A- and B- aquifers. This value is estimated using the following equation for a first order rate: $t = \frac{-\ln\left[\frac{C_{goal}}{C_o}\right]}{K_{point}}$ where C_{goal} is the groundwater cleanup standard (section B.2. of the accompanying Water Board Order No. R2-2008-X), C_0 is the concentration at the start of the remediation action, K_{point} is the slope obtained from the best fitted curve of the natural log of the concentration vs. time graph. The monitoring well location where this value of t is computed should be the monitoring well with the highest concentration of the contaminant of concern within the A- and B- aquifers from the most recent sampling dataset.
5. Compute the mass flux F of the contaminants of concern in the A- and B- aquifers along an east-west transect located downgradient of the actively remediated area. F is computed as: $F = Q \times C$ where Q is the aquifer discharge (volume/time) and C is the concentration of the contaminant of concern along the two dimensional transect.
6. Determine the center of mass (R) of the contaminants of concern in the A- and B- aquifers. R is derived from isoconcentration contours of the contaminant of concern using the sampling dataset. The mass of the dissolved contaminant of

concern within each volumetric shell of groundwater saturated soil is calculated and the individual shell masses summed to yield a total dissolved contaminant of concern mass estimate. More specifically the mass of the contaminant of concern is calculated as the product of the mean concentration in the volumetric shell, the saturated soil volume, and a site-specific effective porosity value assumed to be representative of the Site. R is $\frac{\sum m_i r_i}{\sum m_i}$ where r_i is the coordinate position within a volumetric shell of a mass m_i. Alternatively R may be determined graphically.

7. Determine the centerline of the contaminants of concern in the A- and B- aquifers. The centerline of the contaminant of concern may be quantified using graphical or software based methods.

e. Mass Removal Results: If applicable, the report shall include enhanced bioremediation results in tabular form, for each injection well and for the Site as a whole, expressed in mass of biostimulative whey mixtures injected and total groundwater volume remediated semi-annually for the A- and B- aquifers. The report shall also include contaminant removal results from other remediation systems (e.g., soil gas extraction, groundwater extraction), expressed in units of chemical mass removed semi-annually for the A- and B- aquifers. Historical mass removal results shall be included in the semi-annual report.

f. Status Report: The semi-annual report shall describe relevant work completed during the reporting period (e.g., site investigation, interim remedial measures) and work planned for the following semester.

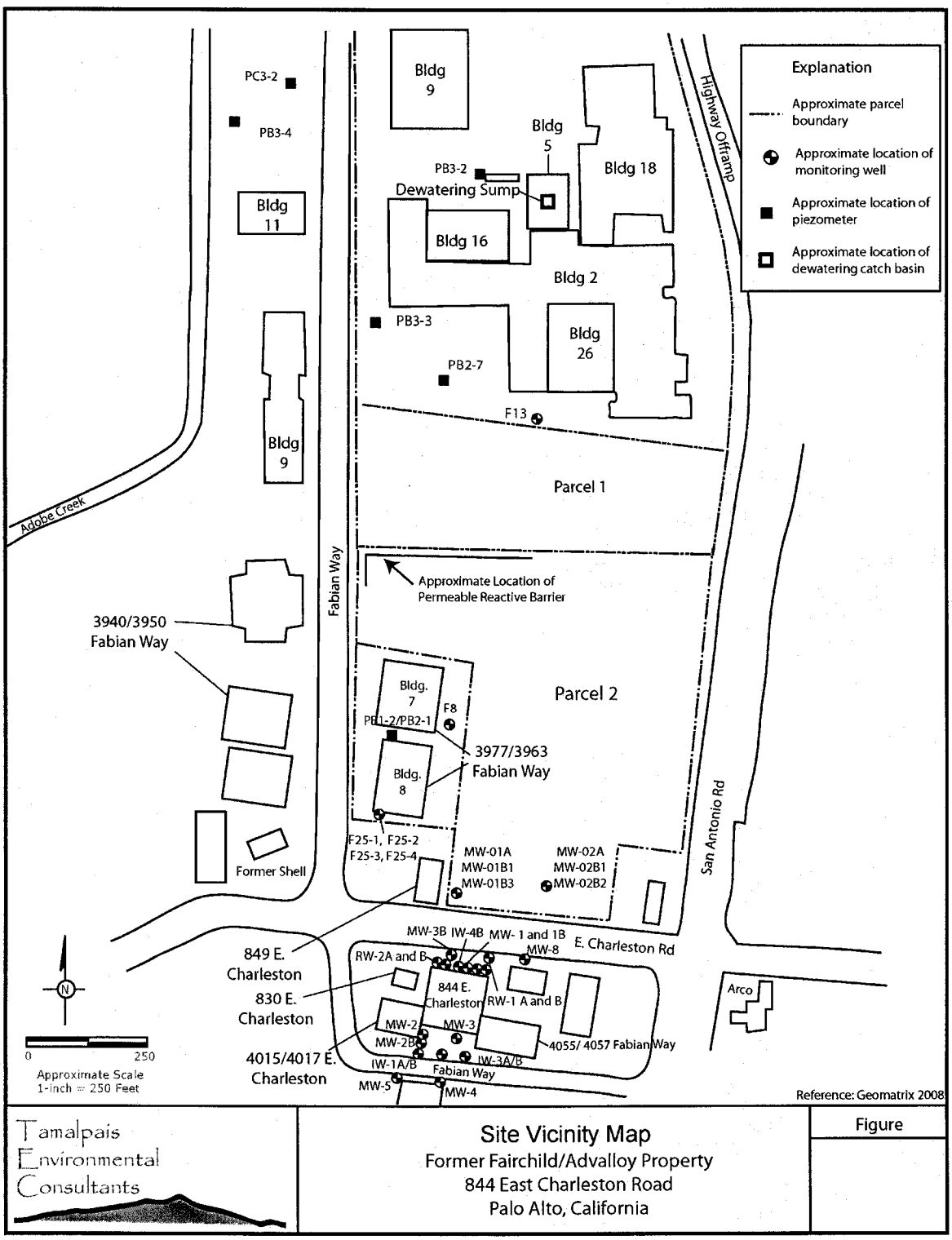
5. **Violation Reports**: If the dischargers violate requirements in the Site Cleanup Requirements, then the dischargers shall notify the Water Board office by telephone as soon as practicable once the dischargers have knowledge of the violation. Water Board staff may, depending on violation severity, require the dischargers to submit a separate technical report on the violation within five working days of telephone notification.

6. **Other Reports**: The dischargers shall notify the Water 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.

7. **Record Keeping**: The dischargers 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 Water Board upon request.

8. **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 dischargers. 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.

Figure 1: Site Vicinity Map



APPENDIX B

CORRESPONDENCE

GREBEN & ASSOCIATES
ATTORNEYS AT LAW

JAN ADAM GREBEN
jan@grebenlaw.com

JENNA L. MOTOLA
jenna@grebenlaw.com

ARLINGTON COURT
1332 ANACAPA STREET, SUITE 110
SANTA BARBARA, CALIFORNIA 93101
TELEPHONE 805-963-9090
FACSIMILE 805-963-9098

SACRAMENTO
WELLS FARGO CENTER
400 CAPITOL MALL, SUITE 1100
SACRAMENTO, CALIFORNIA 95814
TELEPHONE 916.447.4450
FACSIMILE 916.447.2414

July 18, 2008

VIA U.S. MAIL & EMAIL

Laurent Meillier
San Francisco Bay
Regional Water Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

re: 844 East Charleston Road, Palo Alto ("Site")

Dear Mr. Meillier,

We are counsel to East Charleston, Inc. ("ECI"). This letter discusses issues raised by your correspondence of June 19, 2008 in which you enclosed a Tentative Order with respect to the above site. I understand, based on our recent communications, that you will confer with us regarding your thoughts on or proposed revisions to the order prior to the next Board meeting of August 13, 2008. If we are unable to resolve any prospective differences by that time, we have agreed that this matter will be continued to the next Board meeting, scheduled for September 10, 2008, due to the unavailability of Mr. O'Brien and myself on August 13.

We also ask the Board to consider the entire record in its file pertaining to this site, including the fact that ECI is a passive subsequent landlord who purchased the site after contaminants were no longer utilized, making it at worst a secondarily responsible party.

1. Advalloy

We believe Advalloy should remain as a named responsible party. As we have discussed, Advalloy maintains an agent for service of process. This agent, Mr. Veit, has not provided any facts as to why he continues to hold this position despite Advalloy's bankruptcy. Moreover, Advalloy was an active discharger who the Board determined some time ago was the primary PRP. Advalloy manufactured integrated circuit lead frames at the Property and used TCE, TCA, Freon 113, and other solvents in its activities. Apart from this, Advalloy may still have insurance coverage which could assist with cleanup of this site.

2. Schlumberger

We believe Schlumberger Technology Corporation ("Schlumberger")[1] should be added as named

[1] To the extent there are other successors in interest who are also PRP's, we may supplement this letter to identify such parties.

responsible party. Our records indicate that Schlumberger is the successor to Fairchild Semiconductor ("Fairchild"), which operated for 10 years at this site prior to Advalloy. Our reference to Schlumberger in this letter refers to Fairchild's operations at relevant times.

We recognize that the Board previously declined to name Fairchild as a PRP. We believe this decision was incorrect and that subsequent legal enactments support a reconsideration of this issue.

The undisputed facts in the Board's record supporting Schlumberger's inclusion are as follows:

- From 1957 to 1967 Schlumberger conducted a business not just at Advalloy's location but, additionally, a chemical storage and machine shop next door– Schlumberger owned the property as well. Schlumberger used chemicals that have been detected in the soil and groundwater at this location. It is without controversy that disposal methods utilized during this period of time did not include environmentally conscious considerations, meaning that disposal of wastes were directly discharged into the subsurface.

- Schlumberger's machine shop just next door used large quantities of chemicals for baths or dipping equipment. The building, at 4017 Fabian Way, was plumbed to the sump at 844 East Charleston prior to 1968.

- Spent solvents were disposed down the drains inside the building by Schlumberger and discharged to the sanitary sewer. There is no record of treatment of waste.

- Elevated levels of pollutants have been detected near Schlumberger's former chemical storage area and machine shop.

- Schlumberger's records regarding its operations during this time period are incomplete, and primarily relate to 1957-60. The Board, when previously reviewing this matter, believed that Schlumberger's chemical usage increased over time.

- It appears Schlumberger used a sump, which the Board has considered to be a significant source of contamination. Advalloy personnel clearly declared the sump existed when they took tenancy. Schlumberger was not able to rebut this fact for the period of 1965 to 1967.

The most important legal development since this matter was debated in the late 1980s and the 1992 policy of the principles for naming of parties in the adoption of State Water Resources Control Board Resolution 92-49, ("Resolution 92-49") later modified in 1996. This policy established procedures of discharges for identifying which parties should be required to investigate and clean up pursuant to Water Code section 13304, and is uniformly followed by regional water boards.

Resolution 92-49 requires Regional Boards to use relevant evidence such as "(i)ndustry-wide operational practices that historically have led to discharges." (Res. 92-49(I)(A)(4).) The Board's previous determination essentially confirmed its belief that Schlumberger's operational practices, particularly given the time period, would have led to discharges of the constituents at issue. Water Code section 13304 instructs Regional Boards to name "any person...who has caused or permitted...any waste to be discharge or deposited ...into waters of the state. And such naming, according to Resolution 92-49, may specifically consider circumstantial evidence as a basis for requiring an entity to participate in cleanup.

Since its enactment, many decisions have interpreted this Resolution as requiring the naming of Schlumberger under the facts in place here.

In the Matter of the Petitions of County of San Diego, City of National City, and City of National City Community Development Commission [Order No. WQ 96-2], 1996 Cal. ENV LEXIS 3 (1996), the State Board found that the Regional Board appropriately named all parties despite arguments that certain parties only possessed the property for a relatively short period of time, and did not actually discharge pollutants. Id. at 16-17. The State Board reiterated that "[i]t is clear that under Water Code Section 13304, any person whose action is the direct cause of a waste discharge is properly included in a CAO." Id. at 12-13. This clearly includes Schlumberger, who admittedly discharged hazardous substances at the site.

In December 1992, Chief Counsel for the State Board elaborated upon the policy for who should be named in cleanup order in his memorandum to Regional Board Executive Officers entitled, "Responsible Party Orders." In this memo, Chief Counsel William Attwater, states that Regional Boards should "name all persons who have caused or permitted a discharge." The memo further states that Regional Boards should name prior landowners and lessees "if they owned or were in possession of the site at the time of discharge. . ." and that "Corporation should be named even where a dissolved corporation or a successor in interest." We believe this policy provides additional support for the naming of Schlumberger at that site.

3. Site Monitoring Comments

MW- 01A seems to have been listed twice and it should be deleted from the quarterly list.

Additionally, it appears reasonable to have MW-2 and MW-3 move from quarterly to semi-annual monitoring. These wells have had detections of lass than 100 µg/L since 2007.

Once you have considered this letter, please let us know your thoughts.

Very Truly Yours,

Jan A. Greben, Esq.
GREBEN & ASSOCIATES

JAG/cb

cc via email:

Francis Meynard
Aaron O'Brien
Dorothy Dickey, Esq.

Law Office of
Gary J. Grimm

2390 Vine Street
Berkeley, CA 94708
Telephone: (510) 848-4140
Facsimile: (510) 848-4164
Email: gjgrimm@mindspring.com

July 18, 2008

Laurent Meillier. P.G.
Engineering Geologist
Toxics Cleanup Division
San Francisco Bay Regional Water Quality Control Board
1515 Clay St. Suite 1400
Oakland, CA 94612

Re: COMMENTS ON TENTATIVE ORDER ADOPTION OF FINAL SITE CLEANUP REQUIREMENTS and RESCISSION OF ORDER NO. 95-222 FOR: ADVALLOY, INC., AND EAST CHARLESTON, INC. – 844 Charleston Road, Palo Alto

Dear Mr. Meillier:

Thank you for the opportunity to provide written comments on the Tentative Order for Adoption of Final Site Cleanup Requirements for Advalloy, Inc., and East Charleston, Inc., for the property located at 844 East Charleston Road, Palo Alto ("Advalloy Site"). On behalf of Ford Motor Company, I am providing these comments and request that they be made part of the administrative record for these proceedings.

For many years Ford Motor Company has been doing soil and groundwater investigation and remediation at other sites hydrologically downgradient from the Advalloy Site. Consequently, Ford Motor Company has a definite interest in sources of discharges from the Advalloy Site and the manner in which the discharges are investigated and remediated by the Advalloy Site dischargers. The Advalloy Site is a very significant source of VOCs and other contaminants in this area known by the Water Board to affect groundwater at several downgradient properties.

Ford Motor Company appreciates the long and continued cooperative and productive working relationship with you and other Water Board staff members in the regulation of this and related sites in an effort to address water quality issues. In this letter I will describe our comments and the reasons for certain requested revisions to the Tentative Order. Attached is a Technical Memorandum from AMEC Geomatrix dated July 17, 2008 that discusses the technical basis for some of our comments and requested revisions. Finally, I have prepared and attach for your consideration our proposed requested revisions to the Tentative Order in MS word mode as you requested.

General Concerns and Comments

We believe that the Tentative Order is inadequate in three major respects. These general concerns and comments stated below are major shortcomings in the Tentative Order and relate to the specific comments and requested revisions that follow this general description and that are contained in our attached revised Tentative Order.

1) **The Tentative Order fails to accurately acknowledge and describe the known extent of groundwater including downgradient properties impacted by TCE and other VOCs discharged from the Advalloy Site.** The Water Board has many years of history in dealing with this discharge including numerous orders relating to this Site. The attached AMEC Geomatrix Technical Memorandum provides some of these details. More of this information should be included in findings of the Tentative Order.

2) **The Tentative Order fails to require investigations to determine the lateral and vertical extent of groundwater contamination and potentially related soil vapor contamination at downgradient properties know to be impacted by discharges from the Advalloy Site.** This should be more clearly required. These known downgradient impacted properties are described in the attached AMEC Geomatrix Technical Memorandum and should be specifically referenced in the Tentative Order.

3) **The Tentative Order fails to adequately require the remediation of all known and unknown groundwater affected by discharges from the Advalloy Site, including off-site properties.** This should be referenced in the findings and required in the Standards and Tasks of the Tentative Order. The AMEC Geomatrix Technical Memorandum references these properties.

Requested Revisions to Tentative Order

Our specific comments and requested revisions of the Tentative Order that follow from the above described three shortcomings and the information provided in the Technical Memorandum are as follows:

- Finding #1 – The Altaire and TKCJL development projects are constructing proposed residential units on nearby sites. This should be reflected in this finding.

- Finding #5 – Some of the language in this finding relating to the Site hydrology can be misleading and may be oversimplified. We include requested revisions in the attached Tentative Order as recommended in the Technical Memorandum that clarifies the description of groundwater migration pathways from the Site. Furthermore, this finding fails to identify deeper groundwater as a current drinking water source.

- Finding #6, 1st paragraph – This finding significantly understates the known lateral and vertical extent of groundwater impacted by discharges from the Advalloy Site and fails to reference pertinent remedial investigation relating to downgradient properties. We request the following: A) The first sentence should be revised so as to refer to VOC detections in groundwater downgradient of the Site related to the Advalloy discharges as well as in soil and groundwater at the Site. This sentence is an introduction to the following sentences and should more accurately characterize the rest of the paragraph; and B) The description of the extent of the groundwater VOC plume is significantly understated and should be more accurately described as recommended in the Technical Memorandum. We include requested revisions to the Tentative Order.

- Finding #7 – We have several comments and requests relating to this finding: A) This finding attempts to describe VOC pollution at "adjacent" sites but does not also indicate other sites in the vicinity and downgradient that are impacted by discharges from the Advalloy Site. This finding should be expanded in this regard, or could be split into two separate findings; B) This finding states that 901 San Antonio Road is a source of VOCs. This is inconsistent with findings of other Water Board orders and should be deleted; and C) In the reference to the Loral downgradient site, the investigation and remediation activities should be more accurately characterized. It is not necessary to state who conducted the activities. We include requested revisions in the attached Tentative Order to address each of these comments.

- Finding #8 –This finding discusses prior on-site remedial actions and the need for further on-site remedial measures. The finding should be expanded to acknowledge that remedial actions have not been performed off-site and should describe the need for further remedial measures at downgradient affected properties. The Technical Memorandum comments on this issue, and we include requested revisions.

- Finding #10 – The Remedial Action Plan described is inadequate. Our Technical Memorandum supports this conclusion. In view of the discharges at the Site and the identified risks, we believe that the Remedial Action Plan submitted in August 1, 2000 is outdated, is incomplete and falls short of being a comprehensive effort to remediate the VOC impacts at the Site and downgradient of the Site. This responsibility must remain with the Advalloy Site dischargers. We include a requested revision.

- Prohibition A.3 – This prohibition should also include the concept of prohibition of any discharge that will cause a nuisance condition under the California Water Code, as included in similar SCRs issued by the Water Board.

- RAP B.1 – Remediation should be required for off-site areas impacted by the Advalloy discharges as well as on-Site as we have stated in General Comment 3 above.

- Cleanup Standard B.4 – This standard only applies to soil gas on the Advalloy Site, a site with restricted use. However, some reference should also be made with regard to the standard for down-gradient properties, that may not be similarly use restricted, based on use considerations. We include a requested revision.

- Task C.1- Responsibility for investigating the downgradient impacts of the discharges from the Site should remain with the Advalloy dischargers. We include a requested revision that would be consistent with other orders of the Water Board.

- Task C.3 – We believe that this required technical report should also include proposed actions and time schedules for cleanup of any on-Site soil where cleanup standards are exceeded. We include a requested revision.

- A new Task should be added in connection with Tasks C.1 and C.2 to address all required groundwater remediation for off-site and downgradient effects of the Advalloy discharges. As indicated in our General Comment #3 above, no comprehensive remediation plan is currently required for off-site impacted groundwater and potentially related vapor intrusion. This would be consistent with other SCRs issued by the Water Board. This responsibility must remain with the Advalloy dischargers. We have not proposed a revision to the Tentative Order in this regard as Water Board staff can best formulate and place this Task.

- Task 4g – We believe that this task should address all impacted groundwater. We include a requested revision.

- Self-Monitoring Program – The Advalloy Site dischargers should assume responsibility for more of the off-site monitoring relating to the Site discharges. The Technical Memorandum addresses this issue, and we request that these six monitoring locations be added to the SMP.

We appreciate your consideration of these comments and our proposed revisions to the Tentative Order for the Advalloy Site. Lester Feldman of AMEC Geomatrix and I would like to meet with you to discuss these comments. Please contact Lester at (510) 663-4240, or me regarding any questions you may have and to arrange a meeting.

Sincerely,

Gary J. Grimm

cc Bruce Wolfe, Executive Officer
Lester Feldman, AMEC Geomatrix
Matthew Dodt, Ford Motor Company

Enclosures: AMEC Geomatrix Technical Memorandum
Comments on Advalloy Tentative Order

BARG
COFFIN
LEWIS &
TRAPP
ATTORNEYS
LLP

350 California Street
22nd Floor
San Francisco, CA
94104-1435
tel 415 228 5400
fax 415 228 5450
www.bcltlaw.com

August 20, 2008

Laurent Meillier, PG
Engineering Geologist
Toxics Cleanup Division
San Francisco Bay Regional Water
Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: 844 East Charleston Road, Palo Alto, California; Adoption of Final Site Cleanup Requirements and Rescission of Order No. 95-222 For Advalloy, Inc., and East Charleston, Inc.

Dear Mr. Meillier:

We are writing on behalf of Schlumberger Technology Corporation ("Schlumberger") in support of the Regional Water Quality Control Board, San Francisco Bay Region (the "Water Board") staff conclusion that Fairchild Semiconductor Corporation ("Fairchild") should not be named a discharger at the 844 East Charleston Road Site, located in Palo Alto, California ("Site"). Schlumberger is the successor-in-interest to certain environmental liabilities of Fairchild, which conducted limited operations in a building at the Site for approximately ten years between 1957 and 1967.

The Water Board is currently evaluating a Tentative Order for the Final Site Cleanup Requirements ("Tentative Order") at the Site. The Tentative Order, naming Advalloy Inc. ("Advalloy") and East Charleston, Inc. ("ECI") as responsible parties, was distributed by the Water Board for comments in June 2008. We were informed, by e-mail dated July 22, that counsel for ECI, the current owner of the Site, requested that the Water Board add Schlumberger as a responsible party. On August 5, we received a draft Response to Comments on the Tentative Order from Water Board staff, which concluded there was "no new information since 1990 that would cause us to name Fairchild as a discharger." We concur with the staff's conclusion that there is a lack of any new information or any substantive change in the law to support the naming of Fairchild as a discharger at the Site.

In an attempt to persuade the Water Board to reopen this matter and name Fairchild as a discharger, ECI has recycled old arguments previously considered, and rejected, by the Water Board. ECI has failed to provide any evidence, new or otherwise, demonstrating that Fairchild is responsible for any discharge at the Site or cite to any convincing change in the law that would require the Water Board to reassess its prior conclusion that Fairchild should not be named as a responsible party.

The Water Board conducted an extensive investigation of the Site in the late 1980s, including a thorough examination of Fairchild's occupancy. The Water Board's review included the consideration numerous historic documents and sworn affidavits from Fairchild employees with knowledge of the Site. This evidence indicated that there had been no chemical leaks or spills resulting in contamination during Fairchild's operations. At the time, the Water Board Executive Officer's summary of the evidence concluded that:

> ... there was no documented discharge to the environment during Fairchild's occupancy of the Site.

January 17, 1990 Regional Water Quality Control Board Executive Office Summary Report at 1. In light of the evidence, the Water Board staff recommended that "Fairchild not be named on the order." *January 17, 1990 Regional Water Quality Control Board, Minutes of the Regular Meeting* at 9. By a 4-1 vote at its meeting on January 17, 1990, the Water Board adopted Site Cleanup Requirements Order No. 90-016 naming Advalloy as the sole discharger at the Site. *Id.* at 10. That Order included the following finding:

> Additionally, the records indicate that Fairchild used some of the chemicals that have been detected in the site's soil and groundwater. However, based on the available history of chemical usage, storage and handling at the site Fairchild is not considered a discharger.

Order No. 90-016 at Finding 7. Reviewing exactly the same factual information available today, the Water Board in 1990 conclusively determined that Fairchild should not be named as a discharger at the Site.

ECI attempts have the Water Board reconsider its position by alleging that legal developments since the early 1990s have somehow changed the applicable standard for a determination of whether Fairchild is a responsible party at the Site. This is incorrect. To conclude that Fairchild was a discharger, and should therefore be named as a responsible party in a cleanup and abatement order, the Water Board must still satisfy the same legal standard applicable in 1990 by showing that Fairchild:

> ... caused or permitted, causes or permits, or threatens to cause or permit any 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 ...

Cal. Water Code § 13304(a). This showing must be supported by the weight of evidence in the record. *See* Cal. Water Code § 13330; Cal. Civ. Proc. Code § 1094.5(c).

None of the three legal documents cited by ECI support naming Fairchild as a discharger. First, ECI cites State Water Resources Control Board Resolution 92-49 ("*Resolution 92-49*"), which provides procedures, to be applied uniformly across the State, to identify responsible parties required to investigate and cleanup contaminated sites. The resolution allows regional boards to consider "[i]ndustry-wide operation practices that historically have led to discharges" in identifying responsible parties for cleanup orders. *Resolution 92-49* at I.A.4. Although this resolution was not in effect at the time of the Water Board's investigation of the Site in 1990, the Water Board explicitly considered circumstantial evidence, including industry-wide practices, in evaluating Fairchild's activities at the Site. However, the Water Board also considered the voluminous *site-specific* factual record on Fairchild's chemical handling practices presented in sworn affidavits provided by persons with knowledge. Considered together, the Water Board concluded there was no evidence of a discharge during Fairchild's occupancy at the Site. Therefore, as noted by the draft Response to Comments, the Water Board's investigation and adoption of the 1990 Order was consistent with the requirements of Resolution 92-49.

Second, ECI points to the decision in *Matter of the Petitions of County of San Diego, City of National City, and City of National City Community Dev. Commission,* Order No. WQ 96-2, 1996 Cal. Env. Lexis 3 (1996), as supporting its position that Fairchild should be named a responsible party. In that decision the State Board upheld the naming of the City of National City Community Development Commission ("CDC") as a responsible party for a landfill site. Although the CDC did not directly discharge pollutants, it owned the closed, contaminated, landfill for a two year period and took actions that the Board concluded evidenced an "intent to assume responsibility" for the environmental cleanup. *See* 1996 Cal. Env. Lexis at 16. In contrast, there is no evidence that contamination at the 844 East Charleston Road Site was caused by Fairchild, or that the Site was contaminated when Fairchild ceased its operations and vacated the Site. To the contrary, the Water Board previously concluded that contamination was caused by Advalloy and, potentially, other subsequent occupants of the Site. Furthermore, this is not a case where Fairchild has evidenced an "intent to assume responsibility" for a cleanup for which it is not responsible.

Finally, ECI argues that a 1992 memorandum, "Responsible Party Orders," issued by the State Board Chief Counsel supports naming Fairchild as a discharger at the Site. This memo merely states the position that Regional Boards should name all persons who have "caused or

permitted a discharge," including former landowners and lessees. The memo is entirely irrelevant to this analysis because there remains no evidence that Fairchild "caused or permitted" any discharge at the Site.

There is no legal basis to name Fairchild as a discharger unless there is evidence of an actual discharge at the Site during the period of Fairchild's operations. ECI attempts to recycle arguments made by Advalloy nearly twenty years ago, and has not presented any new factual or technical evidence concerning Fairchild historic operations. In its detailed review of all available evidence in 1990, the Water Board determined that there was insufficient evidence to name Fairchild as a discharger. Absolutely no new evidence has been submitted here and the Water Board's 1990 determination remains valid and applicable today. Schlumberger, therefore, urges the Water Board to reject ECI's request to revisit this issue and name Schlumberger, as a successor to Fairchild, a responsible party at this Site.[1]

Please do not hesitate to contact me with any further questions or follow-up about these comments.

Sincerely,

J. Tom Boer, Esq.

JTB/af
cc: A. Bourgeois (Schlumberger)
D. Hiller (Schlumberger)
J. Ferguson (Schlumberger)
J. Greben (Greben & Associates)
G. Grimm (Law Office of Gary J. Grimm)

[1] If the Water Board concludes otherwise, Schlumberger requests an opportunity to review and comment on the Tentative Order for the Adoption of Final Site Cleanup Requirements.

Law Office of
Gary J. Grimm

2390 Vine Street
Berkeley, CA 94708
Telephone: (510) 848-4140
Facsimile: (510) 848-4164
Email: gjgrimm@mindspring.com

September 18, 2008

Laurent Meillier, P.G.
Engineering Geologist
Toxics Cleanup Division
San Francisco Bay Regional Water Quality Control Board
1515 Clay St., Suite 1400
Oakland, CA 94612

Re: COMMENTS ON REVISED TENTATIVE ORDER ADOPTION OF FINAL SITE CLEANUP REQUIREMENTS and RESCISSION OF ORDER NO. 95-222 FOR: ADVALLOY, INC., and EAST CHARLESTON, INC. – 844 East Charleston Road, Palo Alto

Dear Mr. Meillier:

Thank you for the opportunity to provide further written comments on the revised Tentative Order for Adoption of Final Site Cleanup Requirements for Advalloy, Inc., and East Charleston, Inc., for the property located at 844 East Charleston Road, Palo Alto ("Advalloy Site"). I am providing these comments on behalf of Ford Motor Company and request that they be made part of the administrative record for these proceedings.

We appreciate your coordination of the meeting among all the interested parties that was held at your offices on September 4, 2008. We think that this was a very productive meeting. At that meeting you extended the time for submission of written comments on the revised Tentative Order to September 18 COB with regard to off site environmental investigation/remediation. We believe that your revisions that are included in the revised Tentative Order satisfactorily address the concerns we expressed in our July 18, 2008 comment letter, and we have no further requested revisions at this time.

Since the September 4 meeting, we have had discussions with other parties that attended the meeting with regard to further revisions that they would like to make to the revised Tentative Order. These discussions have been productive and have eliminated and/or narrowed our disagreements with regard to their intended requested revisions. We have only seen their proposed draft revisions and will not have the opportunity to provide further written response to their final proposed revisions. Thus, we make our comments

in this letter based upon the intended requested revisions that were previously provided to us, with the assumption that they will be submitted to the Water Board in that final form.

TKCJL and Altaire/BUILD Proposal

With regard to the intended revisions to be proposed by TKCJL and Altaire/BUILD, we have had discussions with them over the course of the last week on this subject. We hope that the new language that they have requested in Tasks C.1 and C.4.g. will address concerns regarding maximizing use of existing data, prevention of interference with land use and operations at off site locations and prevention of any breach or compromise of remedial and risk management measures at all off site locations.

Ford Motor Company has no objections to the revisions proposed in their markup of the revised Tentative Order that was provided to us and other parties on September 15. On one specific item, the C.1, 2,3&4 modified compliance dates, we take no position. We understand that with regard to Task C.2 compliance dates, the practical opportunities for this work is diminishing rapidly as development proceeds. However, we believe that the staff is in the best position to determine these dates. The Water Board in other orders has typically required the earliest dates practicable that the dischargers can achieve for phased completion of investigative and remedial actions. We are not in a position to know whether the dates in C.1-4 are practicable time frames for completion of possible investigative/remedial activities.

Far Western Proposal

With regard to the intended revisions to be proposed by Far Western, we received their proposed revisions yesterday and have only had brief discussions with them. We have comments on only two of these proposed revisions. We note that if staff accepts any of these proposed revisions, they will have to be reconciled with the TKCJL and Altaire/BUILD comments for consistency.

We have no objections to the requested revisions in Finding #8, B.1, B.4, Task C.1 and Task C.4.g.

With respect to the proposed changes in the last paragraph of Finding #6, we object to the exclusion of this location (site subject to Order R2-2007-022) from the coverage of this finding with regard to discharges that affect downgradient locations. This location may need soil vapor evaluation and/or sampling in order to understand current and/or future potential health risks resulting from the Advalloy Site discharges.

With respect to the proposed changes in Finding #10, we object to the inference of limitations on the location of possible groundwater remedation. We prefer the existing language in the revised Tentative Order or the language proposed in the TKCJL and Altaire/BUILD markup. Other proposed revisions to which we have not objected (B.1 and Task C.4.g) would provide assurances of avoiding interference with off site land uses and operations. This proposed change is unnecessary.

In conclusion, we appreciate your consideration of these comments. If you have any questions, do not hesitate to contact Lester Feldman at (510) 663-4240 or myself. We look forward to seeing the final version of the Tentative Order.

Sincerely,

Gary J. Grimm

cc Bruce Wolfe, Executive Officer
Lester Feldman, AMEC Geomatrix
Matthew Dodt, Ford Motor Company

Allen Matkins

Allen Matkins Leck Gamble Mallory & Natsis LLP
Attorneys at Law
Three Embarcadero Center, 12th Floor | San Francisco, CA 94111-4074
Telephone: 415.837.1515 | Facsimile: 415.837.1516
www.allenmatkins.com

Cathy A. Hongola
E-mail: chongola@allenmatkins.com
Direct Dial: 415.273.7470 File Number: C1278-002/SF747144.03

Via Messenger

September 18, 2008

Laurent Meillier, P.G.
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: 844 E. Charleston Avenue, Palo Alto, California
Revised Tentative Order

Dear Mr. Meillier:

Enclosed please find a redline markup of the draft Revised Tentative Site Cleanup Requirements Order that you circulated to interested stakeholders via e-mail on September 5, 2008. The comments reflected in this markup are confined to the topic of offsite environmental investigations. I submit these comments on behalf of the Taube-Koret Campus for Jewish Life and sister entities that have an interest in the development of 901 San Antonio Road, Parcel 2, in Palo Alto, together with the owners of 901 San Antonio Road, Parcel 1.[1]

Please note that in our comment on paragraph B.4 of the draft order, we have suggested two alternatives. Our preference is for the first alternative, but if that is unacceptable, the language suggested in the second alternative would suffice.

With respect to deadlines under section C, we have lined out dates that appear to be unworkable because of the passage of time since the order was drafted. The designation of deadlines for deliverables is, of course, a matter for the discretion of the Water Board and its staff. You will note that we did not line out a deadline of February 27, 2009 for completion of investigative work at the TKCJL, Altaire or BUILD locations, if in fact such work is found to be necessary and can be conducted in a manner that is consistent with the other terms of the Order as

---

[1] The entities with an interest in 901 San Antonio Road, Parcel 2, are the Albert L. Schultz Jewish Community Center, the Oshman Family Jewish Community Center, Moldaw Family Residences at 899 Charleston, and 899 Charleston LLC. The owners of 901 San Antonio Road, Parcel 1, are Bridge Urban Infill Land Development (BUILD), 901 San Antonio Road LLC, and RHNC/MFP Palo Alto LLC., developer of the Altaire Townhomes.

we have proposed that it be revised. We refrained from proposing that this date be altered simply in order to illustrate the fact that practical opportunities for conducting investigative work at these locations are diminishing rapidly as development at these locations proceeds. It should not be assumed that any particular investigative step is now appropriate or feasible at Parcels 1 or 2 of 901 San Antonio Road, or would remain appropriate or feasible by February 2009 or any other date in the future.

The comments reflected in the attached proposed revision are based in part upon the comments submitted by Geosyntec Consultants through its letter to Water Board staff on July 31, 2008 and the comments submitted by GrafCon through its letter to Water Board staff on August 20, 2008. As described in these letters, the TKCJL, Altaire, and BUILD redevelopment projects have been carefully designed and constructed, using stringent engineering and institutional controls and with Water Board oversight, to protect future site users from risks of exposure to hazardous substances. Prior to the Water Board's approval of those engineering and institutional controls, which are part of the Final Risk Management Plans for these properties, these properties were thoroughly investigated under the review and approval of the Water Board and the results of those investigations were thoroughly evaluated. In light of this, any additional investigative or remedial activities on the TKCJL, Altaire, and BUILD properties should only be required if absolutely necessary, and in no event can the engineering and institutional controls (e.g. the vapor barrier and soil vapor collection system) that are already in place, or that will be built into the redevelopment projects at these properties, be compromised. Geosyntec's July 31, 2008 letter and GrafCon's August 20, 2008 letter are attached hereto and hereby incorporated by reference with these comments.

Thank you for the opportunity to provide these comments on the Tentative Order.

Very truly yours,

Cathy A. Hongola

Enclosures

cc: Russ Southland
John Igoe
Alan Sataloff
Daniel Ruth
Nancy Bice
Tom Graf
David Cooke
Gary Grimm
Lester Feldman

Matt Dodt
Ken Busch
Ben Metcalf
Nicholas Targ
Ed Firestone
Jeff Farrar
Francis Meynard
Peter Krasnoff
Aaron O'Brien
Jacob Foraker
Jan Greben
Tom Boer
George Cook
Peter Bennett

Laurent Meillier - 844 E. Charleston Road, Palo Alto - Far Western Comments on revised tentative order

From: <Efirestone@aol.com>
To: <LMeillier@waterboards.ca.gov>
Date: 9/18/2008 10:38 AM
Subject: 844 E. Charleston Road, Palo Alto - Far Western Comments on revised tentative order
CC: <gjgrimm@mindspring.com>, <Efirestone@aol.com>, <chongola@allenmatkins.com>, <nicholas.targ@hklaw.com>, <rsouthland@srgnc.com>, <tegraf@hotmail.com>, <kbusch@srgnc.com>, <NBice@Geosyntec.com>, <pbennett@geomatrix.com>, <bmetcalf@bridgehousing.com>, <gcook@valleywater.org>, <asataloff@paloaltojcc.org>, <Lester.Feldman@amec.com>, <mdodt@ford.com>, <aaron@tamenv.com>, <foraker.jake@ssd.loral.com>, <PeterK@westenvironmental.com>, <fmeynard@pacamgroup.com>, <Jan@GrebenLaw.com>, <jtb@bcltlaw.com>, <Jeff@main-main.com>, <dcooke@allenmatkins.com>, <Katherine.Super@tetratech.com>
Attachments: AdvalloyRTOFarWesternCommentsfinal.pdf

Laurent Meillier P.G.
Engineering Geologist
Enforcement Section
Groundwater Protection and Waste Containment Division
San Francisco Bay Regional Water Quality Control Board

Dear Laurent:

Please find attached to this e-mail a pdf version of suggested changes to the Revised Tentative Order ("RTO") for the property located at 844 East Charleston Road in Palo Alto, CA ("Site") submitted by Far Western Land and Investment Company, Inc. ("Far Western"). As you have requested, the changes were made to the MS Word version of the document using Track Changes.

Far Western submitted an earlier version of its suggested changes to the RTO to all interested parties earlier this week; this version has only very slight modifications from that version. Far Western's comments also reflect its review of changes to the RTO suggested by others earlier this week - some of these suggestions have been incorporated into the attachment. However, Far Western has no comment with respect to changes proposed by others that affect locations other than the Far Western properties.

As you will note, Far Western's comments are consistent with the positions Far Western advocated at the meeting at the Regional Board's offices on September 4, 2008: Far Western supports the need for remediation of chemicals at the Advalloy Site; Far Western supports the need for work to reduce/eliminate the migration of chemicals from the Advalloy Site; if down-gradient investigation or remedies are necessary/appropriate, they must be undertaken consistent with present and future land uses of down-gradient properties; the dischargers under Order No. R2-2007-022 (Ford Aerospace Corporation, Space Systems/Loral Inc. and Far Western) are currently performing work pursuant to that Order and nothing in the Advalloy Order should conflict with or contradict the provisions of Order No. R2-2007-022 or the work underway pursuant to Order No. R2-2007-022.

Please note that the change to the first paragraph of Finding #10 has been drafted to connote the concept that remedial actions should be considered that will remediate downgradient locations without the need to put remedies on the downgradient locations themselves. Such remedies include, for example, PRBs, nutrient injections, chemical oxidation, other in situ approaches, etc., that could be placed at the Site or upgradient of downgradient locations.

Finally, Far Western takes no position on compliance dates or on the naming of an additional discharger (Far Western will not be submitting comments on this last item).

Sincerely,

Edward A. Firestone
Attorney at Law
775 Guinda St.
Palo Alto, CA 94301

office 650-327-0277
cell 650-269-4561

****

BARG
COFFIN
LEWIS &
TRAPP
ATTORNEYS
LLP

350 California Street
22nd Floor
San Francisco, CA
94104-1435
tel 415 228 5400
fax 415 228 5450
www.bcltlaw.com

October 20, 2008

Via E-mail and Hand Delivery

Laurent Meillier, PG
Engineering Geologist
Toxics Cleanup Division
San Francisco Bay Regional Water
Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: 844 East Charleston Road, Palo Alto, California; Adoption of Final Site Cleanup Requirements and Rescission of Order No. 95-222 For Advalloy, Inc., and East Charleston, Inc.

Transmittal of Weiss Associates *Technical Review: ECI Allegations Regarding Fairchild Discharges to Soil and Ground Water at 844 East Charleston Road, Palo Alto, California*

Dear Mr. Meillier:

I am transmitting, on behalf of Schlumberger Technology Corporation ("Schlumberger), the enclosed technical report prepared by Weiss Associates responding to the allegations made by East Charleston, Inc. ("ECI"), that Fairchild Semiconductor Corporation ("Fairchild") should be added as a discharger to the Final Site Cleanup Requirements Order ("Order") being considered by the San Francisco Regional Water Quality Control Board ("Water Board") for the 844 East Charleston Road, Palo Alto, California Site ("Site"). Schlumberger is the successor-in-interest to certain environmental liabilities of Fairchild, which conducted limited operations in a building at the Site for approximately ten years between 1957 and 1967. As detailed in the enclosed Technical Report, ECI has failed to provide any new, defensible, technical or factual evidence that justifies naming Fairchild as an RP at the Site.

The Water Board has conducted extensive investigations of the Site, beginning in the late 1980s. The original Order for the Site, No. 90-016, was adopted by the Water Board in January 1990 and named only Advalloy as a responsible party. In the course of the Water Board's

investigation of the Site in the late 1980s, voluminous evidence was submitted demonstrating that Fairchild was not responsible for groundwater contamination. The Executive Officer's summary of the evidence concluded that:

> ... there was no documented discharge to the environment during Fairchild's occupancy of the Site.

January 17, 1990 Regional Water Quality Control Board Executive Office Summary Report at 1. After a thorough review of the evidence, the Water Board staff recommended that "Fairchild not be named on the order." *January 17, 1990 Regional Water Quality Control Board, Minutes of the Regular Meeting* at 9. By a 4-1 vote at its meeting on January 17, 1990, the Water Board adopted a cleanup order that did not name Fairchild as a responsible party for the Site. *Id.* at 10. The initial Order for the Site was revised in November of 1995, when the Water Board issued Order 95-222 naming ECI as a responsible party. During the proceedings on the 1995 Order, ECI alleged that Fairchild contributed to on-site contamination. *November 7, 1995 Letter from Stephen Morse, Water Board, to Ronald Hothem, East Charleston, Inc.* at 2 (Comment f). The Water Board concluded, however, that ECI failed to present any "new information that would justify reopening [the] issue" of naming Fairchild as a discharger at the Site.

Earlier this year, the Water Board issued notice of a tentative Final Site Cleanup Requirements Order. The initial comment period on that Order closed on July 19, 2008. As I have noted in prior correspondence, Schlumberger did not comment at the time because it reasonably understood that there was no basis to name it, or Fairchild, as a discharger at the Site. At the close of the initial comment period in July, ECI submitted comments requesting that the Water Board reconsider its prior determination not to name Fairchild as a discharger. As detailed in my letters dated August 20 and 27, the allegations submitted by ECI were merely recycled from prior comments considered, and rejected, by the Water Board in the 1990 and 1995 proceedings.

Despite the close of the comment period, on September 4, 2008, ECI sought to overcome the fatal deficiencies in its prior comments by making a technical presentation to staff at the Water Board regarding what it characterized as "new evidence" of why Fairchild should be named a discharger. The "new evidence" consisted of a PowerPoint presentation by ECI's consultant, without any backup documentation. At that same meeting, the Water Board announced that the comment period would be reopened to accept yet another round of comments on naming Fairchild as a discharger at the Site. Schlumberger was provided no advance notice that a technical presentation would be made, or that the Water Board intended to reopen the comment period to accept the presentation and additional information.

ECI has had more than thirteen years in the period between issuance of revised order No. 95-222 in November of 1995, and notice of the Water Board's consideration of the current Order, to develop evidence to support naming Fairchild as a discharger at the Site. Nevertheless, ECI's comments submitted during the comment period that closed in July provided no new information and were clearly insufficient to support naming Fairchild on the Order. ECI is the only party that submitted comments requesting that Fairchild be named on the Order. Despite ECI's extensive knowledge of the Site as the current owner, and ample opportunity to investigate any alleged contribution by Fairchild over the past decade, the Water Board decided to reopen the comment period and give ECI yet another opportunity to develop new claims and allegations to support its continuing effort to have the Water Board reverse its prior conclusion and name Fairchild as a responsible party. Providing ECI with repeated opportunities to develop its arguments, and respond to Fairchild's legitimate defenses, is an abuse of discretion and violates Schlumberger's due process rights.

To conclude that Fairchild was a discharger, and should therefore be named as a responsible party in a cleanup and abatement order, the Water Board must satisfy the applicable legal standard by showing that Fairchild:

> ... caused or permitted, causes or permits, or threatens to cause or permit any 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 ...

Cal. Water Code § 13304(a). This showing must be supported by the weight of evidence in the record. *See* Cal. Water Code § 13330; Cal. Civ. Proc. Code § 1094.5(c). The Water Board has already considered and rendered a decision on the voluminous information about Fairchild's former occupancy of the Site during its prior proceedings in 1990 and 1995. To name Fairchild as a responsible party under the current Order would require the Water Board to identify new information, neither available nor considered during the prior proceedings, that shows a discharge of waste into the waters of the State during Fairchild's occupancy. Naming Fairchild as a responsible party without new information would be an abuse of discretion and arbitrary and capricious.

ECI has failed to provide any new factual information or reliable technical analysis that supports naming Fairchild as a discharger. As discussed in the enclosed report, the vast majority of the information in ECI's September presentation is recycled from prior proceedings and was readily available in both 1990 and 1995. The core of ECI's allegations, that Fairchild discharged TCE from the cast iron sewer line running from the building at the Site to the East Charleston Road, fails to provide a legitimate basis to name Fairchild as a discharger. This allegation relies entirely on a video-taped inspection of the sewer line in 2008, performed more than forty years after Fairchild departed the Site. Whether that inspection reveals a corroded and leaking sewer

line is, at best, inconclusive. However, regardless of whether the sewer line is corroded, evidence of a leak in a cast iron sewer line *more than forty years* after the departure of party cannot be a reasonable basis for naming that party a discharger. This is particularly relevant in this matter, where the intervening owner and operator, Advalloy, had a numerous violations for poor and unsafe hazardous materials handling and storage practices, as well as documented discharges, over its more than twenty years at the Site. To conclude that Fairchild is a responsible party on the basis of a sewer line investigation conducted decades after their occupancy would be arbitrary and capricious and an abuse of discretion.

Naming Fairchild based on the allegations made by ECI would also be contrary to the standards routinely employed by the Water Board in identifying responsible parties at other Sites. The Water Board, in naming responsible parties at other Sites, relies on actual evidence of a discharge. Such evidence routinely includes leaking underground storage tanks, leaking sumps, specifically identified spills, leaks, or discharges, or current ownership interest in a property. There is no similar evidence connecting Fairchild to this Site.

Despite ECI's attempt to cloud the factual issues through the reintroduction of historical evidence already considered by the Water Board, and an unsupportable technical analysis, there is no basis to name Fairchild as a discharger unless there is evidence of an actual discharge at the Site during the period of Fairchild's operations. There was no evidence in 1990 or 1995 that Fairchild ever discharged hazardous substances at the Site. ECI has provided no new evidence that justifies naming Fairchild as a responsible party.

Per your correspondence of September 25, 2008, addressing the length of the comment period on this issue, Schlumberger will evaluate any comments submitted by other parties alleging that Fairchild is a discharger at the Site and provide a response to the Water Board no later than Monday, November 3, 2008. At that time, Schlumberger will also provide its comments on the scope of the tentative Order. If you have any questions, I can be reached at (415) 228-5400 with regard to the technical report.

Sincerely,

J. Tom Boer

cc: A. Bourgeois, Schlumberger
J. Ferguson, Schlumberger

Enclosure

BARG
COFFIN
LEWIS &
TRAPP
ATTORNEYS
LLP

350 California Street
22nd Floor
San Francisco, CA
94104-1435
tel 415 228 5400
fax 415 228 5450
www.bcltlaw.com

November 3, 2008

Via E-mail and U.S. Mail

Laurent Meillier, PG
Engineering Geologist
Toxics Cleanup Division
San Francisco Bay Regional Water
Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: 844 East Charleston Road, Palo Alto, California; Adoption of Final Site Cleanup Requirements and Rescission of Order No. 95-222 For Advalloy, Inc., and East Charleston, Inc.

Comments of Schlumberger Technology Corporation in Response to Allegations of Fairchild Discharges to Soil and Groundwater

Dear Mr. Meillier:

On behalf of Schlumberger Technology Corporation ("Schlumberger), I am submitting final comments in response to allegations made by East Charleston, Inc. ("ECI"), that Fairchild Semiconductor Corporation ("Fairchild") should be added as a discharger to the Final Site Cleanup Requirements Order ("Order") being considered by the San Francisco Regional Water Quality Control Board ("Water Board") for the 844 East Charleston Road, Palo Alto, California Site ("Site"). Schlumberger is the successor-in-interest to certain environmental liabilities of Fairchild, which conducted limited operations in a building at the Site for approximately ten years between 1957 and 1967.

After evaluating the thorough record documenting Fairchild's limited historical chemical usage, the Water Board has twice rejected naming Fairchild as a discharger at the Site. Nevertheless, ECI has made yet another attempt to convince the Water Board to revisit its prior determinations and name Fairchild as a responsible party on a cleanup order. As there is no basis to reconsider allegations already evaluated in the prior proceedings, only new information not previously considered by the Water Board is relevant to the current inquiry.

The vast majority of the information presented by ECI, however, consists of recycled content from the prior proceedings. ECI's only "new" information consists of its claim that the front sewer line to East Charleston Road must have leaked during Fairchild's tenancy and that Fairchild's historical chemical usage must have been greater than previously reported. ECI's allegations are inconsistent with the historic record and are not supported by reliable factual evidence or technical analysis. For the reasons discussed herein, as well as in our prior correspondence to the Water Board, and the *Technical Review: ECI Allegations Regarding Fairchild Discharges to Soil and Groundwater at 844 East Charleston Road, Palo Alto, California* prepared by Weiss Associates ("Weiss Report), there is no reliable evidence upon which the Water Board could conclude that Fairchild was a discharger at the Site. To the contrary, as was the case in 1990, the best evidence demonstrates that Fairchild conducted a limited, small-scale research and development operation at the Site, used only minimal amounts of chemicals over a relatively short time period, and had responsible chemical handling practices.

As the current Site owner, ECI has had more than a decade to develop evidence to support its allegation that Fairchild should be named a discharger. Despite all of this time, ECI's allegations consist of unsupported conjecture and thinly documented technical claims. ECI's comments have been presented in the following four submissions to the Water Board:

A. **ECI's July 2008 Comments**. These initial allegations by ECI recycled prior claims made about Fairchild, twice rejected by the Water Board, and failed to contain any technical analysis of the Site. As addressed in my letters dated August 20 and 27, these comments lacked of any new information or any substantive change in the law to support naming Fairchild as a discharger. Water Board Staff came to the same conclusion in their August draft Response to Comments on the Tentative Order.

B. **September 4, 2008 Presentation**. ECI's consultant, WEST, made a PowerPoint presentation to Water Board Staff on September 4, 2008. At the time of the presentation the comment period on the Order had already been closed for about six weeks. No party was informed that new information would be accepted by the Water Board or that the comment period would be reopened. Nevertheless, after hearing the presentation, the Water Board reopened the comment period, accepted the presentation into the administrative record, and provided an additional opportunity for ECI and other parties to comment on naming Fairchild as a discharger.

   Almost all of the information in the PowerPoint presentation was merely repackaged historical information that has already been thoroughly considered by the Water Board in prior proceedings for this Site. Despite the technical nature of ECI's presentation, no

technical report or underlying studies, that substantiate ECI's allegations, have been provided to the Water Board.

C. **September 20, 2008 E-Mail from ECI's Consultant to the Water Board.** ECI responded to questions about its September 4 presentation posed by the Water Board Staff in this e-mail to Laurent Meillier. This e-mail was not provided to Schlumberger until after the October 20 deadline for comments. In its e-mail, ECI recognizes that the rear sewer line at the Site was in fact replaced by Advalloy in the mid-1980s. As such, ECI's comparison of the condition of front and rear sewer lines in its September 4, 2008 presentation, to support its claim that Fairchild corroded the front line, was erroneous. In fact, the replacement of the rear sewer line provides evidence that Advalloy discharged a highly corrosive mix of chemicals during its operations at the Site.

D. **High-Resolution Sewer Video DVDs submitted on October 16, 2008.** ECI only submitted high resolution videos of its sewer investigation in response to Schlumberger's request. As discussed in section 4.2.1.1 of the Weiss Report, the high resolution video reveals that the video-still in ECI's presentation, allegedly showing the failure of the sewer line, had been inverted. As such, the alleged "corrosion" in the sewer line was at the top (*i.e.*, soffit), not bottom (*i.e.*, invert), of the pipe. Additionally, after review of the high resolution video, whether the discoloration in the pipe at this location is evidence of exposed soil is inconclusive at best.

ECI has not submitted a technical report or any technical analysis to support its allegation that Fairchild should be named as a discharger at the Site. Similarly, with the exception of the sewer videos, ECI has submitted absolutely *no* new factual information about Fairchild's tenancy. In contrast, Schlumberger has submitted a thorough technical analysis by Weiss Associates, addressing each of ECI's allegations. As opposed to ECI's thinly supported claims, the best evidence of operations during Fairchild's tenancy are the declarations and historical Fairchild documents submitted during the 1990 proceeding. There is no rationale basis to disregard the description of Fairchild's historic operations as described in those documents.

The entirety of ECI's allegations rely on its claim that the recent sewer video investigation conclusively demonstrates that Fairchild was a source for discharges of chlorinated solvents nearly half a century ago at the Site. ECI has also sought to bolster its case by inflating the volume of solvent usage during Fairchild's tenancy. Examples of the many weaknesses in ECI's allegations include:

1. **ECI's Sewer Video Does Not Provide a Basis to Name Fairchild as a Discharger.**

The sewer video submitted by ECI was taken in August of 2008. Fairchild discontinued its minimal usage chemicals at the Site in 1961. Therefore, the sewer video represents the condition of the pipe *forty seven* years after Fairchild discontinued its use of small quantities of chemicals, and forty one years after Fairchild vacated the Site altogether. For that reason alone, the results of the sewer video fail to provide any reasonable basis to conclude that there may have been a leak during Fairchild's tenancy. No discharger has ever been named by a Regional Board based on such tenuous evidence.

There are, however, additional facts that undermine ECI's reliance on the sewer video. The sewer line was new when Fairchild first occupied the Site and Fairchild only discharged small quantities of chemicals over a short period to the sewer. Therefore, to conclude that the sewer line is a source of contamination at the Site, the Water Board would have to find that Fairchild's minimal chemical usage corroded the new sewer line in four years, resulting in a leak no later than 1961. This is not supported by the technical evidence. Additionally, despite the age of the sewer pipe, ECI has only identified *one* location in the entire sewer line that it alleges has exposed soil. Given that the sewer line is now more than fifty years old, any observed failure and/or corrosion can reasonably be attributed to its age.

However, if acids caused a failure in the building's front sewer line, the most reasonable conclusion is that the leak must have resulted from Advalloy discharges. Unlike the case with Fairchild, there is substantial evidence to support a conclusion that Advalloy caused any corrosion observed in the front sewer line:

- Advalloy operated at the Site for decades and used significant quantities of chlorinated solvents and industrial acids;
- Advalloy had poor waste management practices and was repeatedly cited for various environmental violations;
- Advalloy used significant quantities of acids at the Site. Some of these acids, such as hydrochloric acid, would corrode cast iron at a much greater rate than the hydrofluoric acid used by Fairchild;
- The 1990 Water Board proceeding focused on the use of the sump at the rear of the building and did not examine Advalloy's discharges of acids or chlorinated solvents to the front of the building;

- The factual evidence demonstrates that Advalloy, in fact, "rotted out" its rear sewer line through its discharges of chemicals, necessitating replacement of the piping in the mid-1980s; and

- Advalloy operated an "acid bath" at the Site. The historic location of Advalloy's acid bath is in the immediate vicinity of the entry point used by ECI for Sewer Video No. 2. The most reasonable conclusion, therefore, is that Advalloy discharged its acid bath, at least on occasion, to the front of the building through the sewer line.

2. Hydrofluoric Acid Would Not Have Caused a Leak in the Cast Iron Sewer Pipe.

As noted in numerous ECI and historic documents, the sewer line under the building at the Site, connecting to vitrified clay pipe, is cast iron. As discussed in Section 4.2 of the Weiss Report, hydrofluoric acid is not particularly corrosive on cast iron. ECI has presented no technical evidence on the rate at which hydrofluoric acid will corrode cast iron, any data on the thickness of the cast iron sewer line, or any technical analysis demonstrating that Fairchild's limited use of hydrofluoric acid could reasonably have led to failure of the cast iron sewer line during the brief period of chemical usage at the Site. Despite an apparent request for more specific information from the Water Board, ECI's September 20, 2008 e-mail includes only a qualitative discussion of the potential for hydrofluoric acid to corrode cast iron pipe and fails to include any quantitative technical analysis or documentation on the rate at which such corrosion would be expected to occur.

As discussed in the Weiss Report, hydrofluoric acid is comparatively more corrosive to duriron than it is to cast iron. The available evidence indicates that Fairchild used duriron pipe as a replacement for PVC to transport waste *above ground* within the building. As such, if any portion of pipe were to have leaked during Fairchild's tenancy, it would have been the exposed duriron pipe. Such a leak would have been observed by Fairchild employees. However, as discussed below, there is no evidence of such a leak during Fairchild's tenancy.

Finally, the single failure of the sewer line identified by ECI, at 57 feet in Sewer Video No. 2, is on the top (*i.e.*, soffit) portion of the pipe. ECI does not provide any technical explanation for how the extremely low volume of hydrofluoric acid used by Fairchild could have resulted in the corrosion of the top of the sewer line, more than fifty feet from the point of discharge. The only reasonable conclusion is that Fairchild's limited discharges to the newly installed sewer line were insufficient to cause significant corrosion, much less failure, of the pipe.

3. Fairchild Only Used Small Quantities of Chemicals at the Site.

During proceedings before the Water Board on the 1990 Order, Fairchild submitted two declarations detailing the company's historic operations at the Site. Julius Blank, a founder of Fairchild and a pioneer of the semiconductor revolution, stated under oath that:

- "Fairchild's semiconductor research and production activities were conducted on an *extremely* small scale at 844 East Charleston Road during the time that I was employed there. In particular, the use of chemicals in those activities was very limited." Declaration of Julius Blank ¶ 9 (emphasis added).

- Only a "small quantity of waste acids [were] produced ..." *Id.*, ¶ 10.

- "To my knowledge, Fairchild's wet chemical use for semiconductor research and limited production at [844] East Charleston ceased in 1961 when Fairchild's research and development activities relocated." *Id.*, ¶ 20.

- "To the best of my recollection, there were no chemical spills inside or outside the 844 East Charleston building during the time I was employed there." *Id.*, ¶ 14.

Mr. Blank's statement was corroborated by Jeffrey Wilson, who was responsible for setting up semiconductor testing and assembly lines for Fairchild. Mr. Wilson stated under oath that:

- "[*W*]*et chemical usage was confined to six to eight small rooms* in the center of the 844 East Charleston building." Declaration of Jeffrey Wilson ¶ 5 (emphasis added).

- "[A]cids and solvents were used in semiconductor research and limited production on a *very small scale* ..." *Id.*, ¶ 6 (emphasis added).

- "To the best of my recollection, there were no leaks in the piping that carried waste chemicals to the sanitary sewer system, nor any chemical spills inside or outside the 844 East Charleston building during the time that I was employed there." *Id.*, ¶ 9.

- "... Fairchild's wet chemical usage at 844 East Charleston Road ceased with the departure of the research and development activities in 1961." *Id.*, ¶ 11.

Mr. Wilson and Mr. Blank were both present during the relevant time period and their statements are consistent with other historical records about Fairchild's use of the Site. As such, these declarations are the best evidence of Fairchild's activities. ECI has made allegations that Fairchild's chemical usage and scope of operations were much greater than represented in these declarations and the historic documentation. These allegations, however, are unsupported by reliable evidence. ECI has not provided any statements, nor have they provided any historical documentation, that refutes either the Blank or Wilson declarations. There is, therefore, no basis to disregard the detailed description of Fairchild's activity at the Site as set forth in these declarations.

4. Limited Use of Solvents Could Have Weakened PVC Piping.

As discussed in Section 4.1 of the Weiss Report, as well as other technical studies submitted to the Water Board by Schlumberger, limited quantities of TCE and/or low concentrations of several solvents in combination would have resulted in the reported weakening to the PVC pipe used by Fairchild in a controlled experiment with the Palo Alto Building Department. ECI's claim that the weakening of the PVC pipe resulted from the use of significant quantities of TCE contradicts the reliable factual evidence about the historic scope of Fairchild's activities at the Site. Beyond the conclusory statements in its presentation, ECI has not provided the Water Board with any technical analysis or documentation to support its allegation that the only potential cause of the weakened PVC was the use of large quantities of concentrated chlorinated solvents.

The technical analysis in the Weiss Report demonstrates that low quantities of TCE could have caused the weakening of the PVC piping in a short time period. Alternatively, the disposal of small quantities of a combination of solvents (*e.g.,* dilute TCE and acetone) could have caused the observed weakening in the PVC piping. This analysis is consistent with the factual evidence about Fairchild's limited, small-scale, operation at the Site. In contrast, accepting ECI's undocumented conjecture requires the unwarranted rejection of historic information about Fairchild's operations.

5. ECI Fails to Provide Any Reasonable Technical Explanation for the Distribution of Contamination at the Site Attributed to the Sewer Line.

ECI has not provided the Water Board with a site conceptual model that reasonably explains how the front sewer line could have acted as a source of contamination at the Site. As discussed in the Weiss Report, contamination at the front of the Site is concentrated in the lower water bearing zone ("B Zone"). However, if the sewer line had been a source, higher concentrations of chlorinated solvents would be expected in the

higher water bearing zone ("A Zone"), in the vicinity of the sewer line. In fact, concentrations of chlorinated solvents are about an order of magnitude higher in the B Zone than the A Zone. As such, the pattern of contamination at the Site is not consistent with a release from the sewer line. Nevertheless, even if such a pattern were present, the most reasonable conclusion is that Advalloy, not Fairchild, would have been responsible for the discharge.

Finally, as discussed in my comments dated October 20, 2008, we are very concerned about the procedural irregularities that have occurred in this matter. The Water Board has provided ECI with repeated opportunities to develop and rehabilitate its arguments in favor of naming Fairchild as a discharger. In addition to the issues I previously raised, I am particularly troubled by the Water Board's October 27, 2008 request to ECI to provide additional evidence to bolster its allegations against Fairchild.

On October 20, per the schedule set by the Water Board, Schlumberger provided timely comments responding to allegations that Fairchild be named as a discharger. ECI, however, failed to provide any additional comments or technical analysis to support its allegations prior to the close of the comment period. On October 27, after receiving and reviewing Schlumberger's comments, the Water Board requested that ECI provide yet more information to support its claims against Fairchild. The scope of the Water Board request is also particularly concerning because it sought information on topics not previously raised by any commentator. For instance, the inquiry sought information related to whether Fairchild discharged to the rear of the building at the Site. That issue was thoroughly explored during the 1990 proceedings, and no commentator has raised it in the current proceeding. In fact, ECI explicitly stated at the September 4, 2008 meeting that it was not alleging that Fairchild discharged any chemical waste to the rear of the Site.

ECI's response to the Water Board's October 27 inquiry was submitted after the close of the applicable comment period. Assuming that the Water Board is accepting these comments into the Administrative Record despite the agreed upon schedule, this will be the second re-opening of the comment period for ECI to submit comments in support of naming Fairchild as a discharger. I did not receive a copy of ECI's submission until after 5:30 PM on Friday, October 31 – one business day prior to the deadline for Schlumberger's final comments. We have not had time to perform a complete review of ECI's additional comments. Therefore, if the Water Board intends to accept these comments into the Administrative Record, we request that Schlumberger be given the opportunity to provide an additional written response by November 7, 2008.

ECI's October 27 submission, therefore, is merely the latest in the Water Board's repeated requests to ECI for additional information to support its allegations against Fairchild,

accompanied with another reopening of the comment period to accept such information. These irregularities threaten Schlumberger's due process rights and cast a shadow on the administrative process.

Schlumberger has no comments at this time on the content of the Order.

I look forward to discussing the Site with Water Board Staff on November 7, 2008. In the meantime, if you have any questions about this letter, or any other matter, I can be reached at (415) 228-5400.

Sincerely,

J. Tom Boer

cc: A. Bourgeois, Schlumberger
J. Ferguson, Schlumberger

GREBEN & ASSOCIATES
ATTORNEYS AT LAW

JAN ADAM GREBEN
jan@grebenlaw.com

JENNA L. MOTOLA
jenna@grebenlaw.com

ARLINGTON COURT
1332 ANACAPA STREET, SUITE 110
SANTA BARBARA, CALIFORNIA 93101
TELEPHONE 805-963-9090
FACSIMILE 805-963-9098

SACRAMENTO
WELLS FARGO CENTER
400 CAPITOL MALL, SUITE 1100
SACRAMENTO, CALIFORNIA 95814
TELEPHONE 916.447.4450
FACSIMILE 916.447.2414

November 3, 2008

VIA U.S. MAIL & EMAIL

Laurent Meillier
San Francisco Bay
Regional Water Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

re: 844 East Charleston Road, Palo Alto ("Site")

Dear Mr. Meillier,

We represent East Charleston, Inc. ("ECI"). This correspondence, as well as the attached letter from WEST Environmental Services & Technology, Inc. ("WEST"), reflects ECI's response to the submittal offered by Schlumberger Technology Corporation ("Schlumberger") on October 20, 2008. To avoid a repetitive record, ECI will not reiterate what it has previously provided, but only offers rebuttal on discrete points to ensure a complete record.

The gist of Schlumberger's submittal is that the former operator Advalloy is primarily responsible. This argument is irrelevant, as discussed in State Water Resources Control Board- Policy for Responsible Party Orders (1992), as to a determination by the San Francisco Regional Board ("the Board") as to whom to name in an amended CAO. ECI does not dispute that Advalloy was a discharger. Instead, the relevant inquiry here should be how, if at all, Schlumberger is able to rebut the fact that the sewer video and other information establishes that Fairchild solvents were released from the sewer. This is particularly important in context with the sworn statements offered by Fairchild (Schlumberger's predecessor) personnel over the past two decades that Fairchild discharged untreated acids and solvents to these sewers. Stated another way, the sewer video, if Fairchild's statements are true, cannot be rebutted as to releases that occurred during Fairchild's tenancy, and Schlumberger fails to meet or adequately address this burden.

To attempt to rebut such a threshold, Schlumberger offers an extensive—and largely irrelevant--report from Weiss Associates. For the legal reasons discussed in this correspondence and previously provided, and the technical authority provided in the accompanying report from WEST as well as its September 4, 2008 presentation, it is incumbent that the Board amend the Site Cleanup Requirement Order to include Schlumberger as successor to Fairchild.

Report of Weiss Associates:

The submittal was prepared by and/or supervision of Richard Weiss, a certified engineering geologist

and professional geologist in California. Despite not being a licensed civil engineer, a significant protion of Mr. Weiss's report pertains to engineering rather than to geology.

As such, Mr. Weiss's opinions violate California Business & Professions Code section 7839 which prohibits a geologist from practicing civil engineering. Work that is characterized as "civil engineering" includes, in part, "the following studies or activities in connection with fixed works for... drainage, ... water supply, ... municipal improvements, ... purification of water, [and] sewerage: a) the economics of, the use and design of, materials of construction and the determination of their physical qualities..."

As is presented in WEST responses, the preparation of the Weiss report by an improperly licensed professional has led to erroneous and technically unsupportable representations regarding the behavior of materials of construction. Mr. Weiss' analysis, including opinions on the potential for corrosion of the sewer, the amount of solvent necessary to cause the documented pipe failure, require a civil engineering registration. It would appear appropriate– and a legal obligation– for the San Francisco RWQCB ("the Board") to disregard Mr. Weiss's submittal, to the extent that any portion of Mr. Weiss' technical opinions are related to the practice of civil engineering.

Adequacy of Information for Naming of Schlumberger:

Schlumberger's counsel, Mr. Boer, in his letter of October 20, 2008, cites no authority for his inferred assertion that the Board cannot now consider new evidence. His two chief arguments appear to be that such action would violate due process, and the new evidence he cites–WEST's sewer video– is insufficient.

As to the first contention, there is no authority, nor is any cited by Mr. Boer, that a Board cannot consider revising a CAO when new evidence is produced. In fact the opposite is true: "Once a cleanup and abatement order is issued, there is ample opportunity for the discharger to present its views and seek revision or rescission of the order. After reviewing a cleanup and abatement order issued by the Regional Board Executive Officer, the discharger may submit comments and request changes in the order. The Executive Officer may amend the order in response. The discharger may also request an opportunity to be heard by the Regional Board, which may amend or rescind the order." [*In the Matter of the Petition of BKK Corporation*, 1986 Cal. ENV LEXIS 15, 6-7 (1986)]. Further, in reaching its decision to not include Fairchild Regional Board staff specifically acknowledged that this "position may be change if investigation at this site, or at neighboring sites once occupied by Fairchild, discover specific evidence that Fairchild discharged chemicals into the environment."

As to the second contention that the sewer video cannot be relied on, Board matters are conducted in conformity with Gov. Code section 11513. [*See* 23 CCR 648 (a)] Gov. Code section 11513 (c) establishes that "any relevant evidence shall be admitted if it is the sort of evidence on which responsible persons are accustomed to rely in the conduct of serious affairs." Sewer inspection videotapes taken decades after discharges have ceased have been used by Regional Boards to attribute liability to parties in cleanup orders. [*See* CAO-R5-2004-43] In addition, sewer videotapes taken decades after releases ceased have also been accepted by state and federal courts in assigning liability from sewer releases. Accordingly, the sewer video is appropriate evidence for the Board to consider.

As outlined in State Water Resources Control Board Resolution 92-49, Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304, "the Regional Water Board "shall any relevant evidence, whether direct or circumstantial, including but not limited to...documentation of historical activities, chemical use, storage or disposal information...[and] industry wide operational practices that historically have led to discharges such as leakage of pollutants from wastewater collection and conveyance systems." For example, this Regional Board has recently named as a PRP a party due to the following: 1) the PRP used and stored a chlorinated solvent; 2) the PRP stored chemicals found

in the subsurface in drums near a source area; and 3) the highest concentrations were found near the historical storage area. [*Perkin-Elmer Corporation, Applera Corporation, and JR Realty 32, LLC, R2-2007-0040;* Staff Summary Report, May 9, 2007] In the matter of 844 East Charleston Road, we have much more direct evidence including: 1) documented discharge of both solvents and acids to onsite sewers; 2) corroded sewers where the acids were discharged; 3) the highest concentrations are beneath and near the area where solvents would have leaked from the sewer.

For all the reasons discussed, it is respectfully requested that the Board follow Resolution 92-49, given the clear and unrebutted evidence of releases from Fairchild, and name its successor, Schlumberger, as a responsible party in its prospective amended CAO.

Very Truly Yours,

Jan A. Greben, Esq.
GREBEN & ASSOCIATES

JAG/cb

Enclosure

cc via email:

Francis Meynard
Peter Krasnoff
Aaron O'Brien

Law Office of
Gary J. Grimm

2390 Vine Street
Berkeley, CA 94708
Telephone: (510) 848-4140
Facsimile: (510) 848-4164
Email: gjgrimm@mindspring.com

November 3, 2008

Laurent Meillier, P.G.
Engineering Geologist
Toxics Cleanup Division
San Francisco Bay Regional Water Quality Control Board
1515 Clay St., Suite 1400
Oakland, CA 94612

Re: Comments on Revised Tentative Order
Adoption of Final Site Cleanup Requirements and
Rescission of Order No. 95-222 for: ADVALLOY, INC., and
EAST CHARLESTON, INC. – 844 East Charleston Road, Palo Alto

Dear Mr. Meillier:

This letter is in response to the invitation contained in your September 25, 2008 email for interested parties to submit comments by November 3, 2008 in response to comments received by October 20, 2008 on naming additional discharger(s). We appreciate your careful delineation of the filing deadlines and the appropriate subjects for these comments.

As you know, we have previously indicated on behalf of Ford Motor Company that we have no comment on the issue of naming additional dischargers to the order. Therefore, we did not file comments by your October 20 deadline regarding naming additional dischargers. However, we note that in the Schlumberger documents submitted to the Water Board on October 20, 2008, Tom Boer's cover letter states that they will file response relating not only to comments submitted by other parties regarding naming other dischargers to the order, but "will also provide its comments on the scope of the tentative Order." These latter comments are not within the scope of comments that you have requested in your written communications to interested parties. We therefore object to any written comments at this late date regarding the "scope" of the Tentative Order that may be filed with the November 3 responses. If for some reason they accepted into the record at this time, we would request addition time to file written response to the comments.

The explicit comment procedure that you have so carefully delineated is important in providing each of the interested parties equal opportunity to participate in the process so as to insure the fairness of the process and a legally sound administrative record. We hope that Water Board staff will continue to carefully follow this process. Thank you again for all your work and attention to this site and neighboring sites.

Sincerely,

Gary J. Grimm

cc Matt Dodt
Lester Feldman

GREBEN & ASSOCIATES
ATTORNEYS AT LAW

JAN ADAM GREBEN
jan@grebenlaw.com

JENNA L. MOTOLA
jenna@grebenlaw.com

ARLINGTON COURT
1332 ANACAPA STREET, SUITE 110
SANTA BARBARA, CALIFORNIA 93101
TELEPHONE 805-963-9090
FACSIMILE 805-963-9098

SACRAMENTO
WELLS FARGO CENTER
400 CAPITOL MALL, SUITE 1100
SACRAMENTO, CALIFORNIA 95814
TELEPHONE 916.447.4450
FACSIMILE 916.447.2414

December 2, 2008

VIA EMAIL & U.S. MAIL

Laurent Meillier
San Francisco Bay
Regional Water Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

re: 844 East Charleston Road, Palo Alto ("Site")

Dear Mr. Meillier,

We write on behalf of East Charleston Inc. to address assertions made by Schlumberger's counsel, Mr. Boer, in correspondence subsequent to October 21. In particular, we respond to the argument that there is inadequate data to support naming Fairchild.

Mr. Boer's characterization that no party has ever been named on similar evidence is incorrect. Regional Boards, including the San Francisco Bay Region, have included dischargers based on less explicit data. *See In re Applera Corporation and JR Realty #2, LLC*, Order No. R2-2007-0040 (naming Applera Corp. as a responsible party for subsidiary's activities at site from 1963 to 1984).

In Order No. R2-2007-0040, the Regional Board identified three precedent conditions to support naming discharges, i.e., use and storage of the subject chemicals, stored chemicals near the source area and location of the highest concentrations coincided with storage area.

At this Site, we have more definitive data including: documented use and storage of TCE, documented discharge of TCE to the sewer lines; documented discharge of acids to cast iron sewer pipes; highest concentrations in shallow groundwater near the subject sewer line.

Similarly, in distinguishing itself from other sites, Fairchild's previous attorneys offered to the Regional Board that in Lynch Circuits, "the former occupant was named as a discharger based on a known release of chemicals through a corroded sanitary sewer line during the former occupants tenancy." (Landels, Ripley Diamond, Letter to Thomas R. Benz, September 15, 1989 at 2). In the subject communication, Fairchild's attorneys represented that the "small quantities of waste chemicals generated at the facility were disposed of through sinks to an onsite wastewater neutralization system, which discharged to the Palo Alto municipal wastewater treatment system." However, as was subsequently disclosed, there was no such neutralization system and as further explained by WEST, the supposed neutralization by dilution would never have worked.

As explained by Fairchild's previous attorneys to "name Fairchild as a discharger in the final SCRs order under Section 13304 of the Porter-Cologne Water Quality Control Act (the "Porter-Cologne Act"), the

RWQCB bears the burden of showing that Fairchild has: "caused or permitted, or threatens to cause or permit any 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."

This showing must be supported by the weight (i.e., preponderance) of the evidence. *See* Cal. Water Code §13330; Cal. C.C.P. §1094.5(c). In other words, the RWQCB may name Fairchild as a discharger in the final SCRs order the Advalloy site if there is more evidence than not that Fairchild's actions caused or permitted a discharge to the occur at the site.

In *In the Matter of the Petition of EXXON COMPANY*, WQ 85-7, the State Board explains that "it is appropriate and responsible for a Regional Board to name all parties for which there is reasonable evidence of responsibility, even in cases of disputed responsibility. However, there must be a reasonable basis on which to name each party. There must be substantial evidence to support a finding of responsibility for each party named. This means credible and reasonable evidence which indicates the named party has responsibility."

At this time, despite numerous technical arguments and submittals made by Fairchild and Schlumberger attorneys and consultants, it is undisputed that Fairchild caused TCE to be discharged to the onsite sewers and caused highly corrosive acids to be discharged to the same cast iron sewers. Further, the evidence, including the recent sewer video, undeniably shows corrosion to the same sewers, that can and has only been explained as having originated from Fairchild's discharge of acid wastes to this line.

Given this information, and the distributions of TCE found near the location of the subject sewer, there is more than adequate evidence to meet the Regional Board's burden for naming Fairchild.

Attached is WEST's response to related assertions made by Schlumberger's consultant, Weiss Associates.

Very Truly Yours,

Jan A. Greben, Esq.
GREBEN & ASSOCIATES

JAG/cb
Enclosure

cc via email:

Francis Meynard
Peter Krasnoff
Aaron O'Brien
Stephen Hill
John Wolfenden
Tom Boer, Esq.
Henry Veit
Gary Grimm
Lester Feldman
Matt Dodt
Joe Ferguson
Dieter Hiller
Ed Firestone

BARG
COFFIN
LEWIS &
TRAPP
ATTORNEYS
LLP

350 California Street
22nd Floor
San Francisco, CA
94104-1435
tel 415 228 5400
fax 415 228 5450
www.bcltlaw.com

December 2, 2008

Via E-mail and U.S. Mail

Laurent Meillier, PG
Engineering Geologist
Toxics Cleanup Division
San Francisco Bay Regional Water
Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: 844 East Charleston Road, Palo Alto, California; Adoption of Final Site Cleanup Requirements and Rescission of Order No. 95-222 For Advalloy, Inc., and East Charleston, Inc.

Comments of Schlumberger Technology Corporation in Response to ECI Submissions between October 21 and November 7, 2008

Dear Mr. Meillier:

In accordance with your e-mail of November 20, 2008, I am transmitting additional comments on behalf of Schlumberger Technology Corporation ("Schlumberger") in connection with the Regional Water Quality Control Board's ("Water Board") consideration of naming additional responsible parties on the proposed Final Site Cleanup Requirements Order ("Order") for the 844 East Charleston Road, Palo Alto Site ("Site"). These comments respond to the new information submitted to the Water Board staff by East Charleston, Inc. ("ECI"), and its consultant WEST, between October 21 and November 7, 2008. Schlumberger is the successor-in-interest to certain environmental liabilities of Fairchild, which conducted limited operations in a building at the Site for approximately ten years between 1957 and 1967. Fairchild has shown extensive cooperation in addressing hazardous contamination at locations where it bears responsibility. Naming Fairchild as a responsible party at this Site, however, would be unsupportable and unjust. Extensive evidence indicates that contamination at the Site was

caused by Advalloy. No reliable evidence supports the conclusion that Fairchild contributed to the contamination of the Site.

To conclude that Fairchild was a discharger, and should therefore be named as a responsible party on the Order, the Water Board must satisfy the applicable legal standard by showing that Fairchild:

> ... caused or permitted, causes or permits, or threatens to cause or permit any 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 ...

Cal. Water Code § 13304(a). This showing must be supported by the weight of evidence in the record. *See* Cal. Water Code § 13330; Cal. Civ. Proc. Code § 1094.5(c). The State Water Resources Control Board ("State Board") has opined that "[t]here must be substantial evidence to support a finding of responsibility for each party named" on a cleanup and abatement order. *See In the Matter of the Petitions of Aluminum Co. of America, et al.*, Order No. WQ 93-9 at 7 (citation omitted). The State Board has further interpreted this requirement to mean "*credible and reasonable* evidence which indicates that the named party has responsibility." *See In the Matter of the Petition of Exxon Company, U.S.A. et al,* Order No. WQ-85-7 at 12 (emphasis added).

Parties opposed to naming Fairchild on the Order do not have the burden of showing that Fairchild did not "cause[] or permit[] ... any waste to be discharged ... into waters of the state." Rather, to support naming Fairchild as a responsible party, there must be a preponderance of evidence in the administrative record that Fairchild caused or permitted a discharge at the Site. There is no such preponderance of evidence in this matter.

As discussed in my prior correspondence, this is the third effort to have Fairchild named as a responsible party for cleanup of the Site. The Water Board rejected the two prior attempts to have Fairchild added to orders in 1990 and 1995. To name Fairchild under the current Order would require the Water Board to identify new information, neither available nor considered during the prior proceedings, that shows a discharge of waste into the waters of the State during Fairchild's occupancy. Naming Fairchild as a responsible party without new information would be an abuse of discretion and arbitrary and capricious.

Despite its sweeping allegations, ECI has failed to provide any new factual information or reliable technical analysis that supports naming Fairchild as a discharger. With the exception of some limited material in response to the Water Board's inquiries on October 31, 2008, ECI did not file a written report outlining its allegations until its November 3, 2008 rebuttal. In response to Schlumberger's concern that ECI was submitting its allegations without any

reasonable opportunity for comment, the Water Board Staff extended the comment period through December 2. I am enclosing the following in response to ECI's allegations made between October 31 and November 7, 2008:

- Technical Evaluation of ECI Comments on Allegations of Fairchild's Responsibility for Discharges to Soil and Ground Water – October 21 to November 7, 2008 – at 844 East Charleston Road, Palo Alto, California (Weiss Associates, December 2, 2008); and

- Letter Report Regarding Service Lateral Review and Report for 844 E. Charleston Road, Palo Alto, California (InfraMetrix, December 2, 2008).

These technical reports confirm that ECI has provided the Water Board with inaccurate and technically unsupportable allegations in its continuing effort to have Fairchild named on the Order. In sum, ECI's allegations are neither credible nor reasonable.

Just as the factual basis to name Fairchild is lacking, the legal authorities cited by Mr. Jan Greben in his letter of November 3, 2008, do not support naming Fairchild as a responsible party at this Site. For example, although sewer videos may be relevant evidence in appropriate cases, the sewer video submitted by ECI fails to support allegations made against Fairchild for a number of reasons, including its poor quality and lack of clear evidence of a leak in the relevant pipe. As discussed in the attached reports, other methods are available to perform a more reliable and comprehensive sewer investigation. Relying upon blurry, ambiguous video, taken in 2008, of an uncleaned sewer lateral that is more than fifty years old cannot provide "substantial evidence" of a discharge by Fairchild in, or prior to, 1961.

Even a confirmed leak in the front sewer lateral would be insufficient to support naming Fairchild as a discharger. A clearly identified breach of the sewer lateral in 2008, more than fifty years after its installation would not be indicative of a breach of the pipe in, or prior to, 1961, when Fairchild ceased its use of organic solvents at the Site. However, ECI has not provided evidence of a confirmed leak in the sewer lateral. Nor is there any evidence, such as soil gas monitoring or other similar testing, indicating that the sewer lateral is even a potential source of contamination at the Site.

Mr. Greben's only citation to support his argument that sewer videos have been used by Regional Boards to attribute liability is cleanup order R5-2004-43. The scope and extent of the sewer assessment in that order was markedly different, including a higher quality investigation involving extensive soil gas monitoring tying identified leaks in the sewer line to areas of contamination and the identification of soil in the vicinity of the sewer line with concentrations of contaminants of concern. In contrast, no testing in the immediate vicinity of the sewer line

shows that it is a source, higher levels of contamination at the Site are upgradient of the sewer lateral, and evidence indicates that contamination is from discharges attributable to Advalloy.

Similarly, Mr. Greben cites *Perken-Elmer Corporation, et al.*, R2-2007-0040 for the proposition that responsible parties have been named on cleanup orders with less direct evidence than allegedly supports naming Fairchild. In *Perken-Elmer*, the responsible party occupied a site that had never been used for an industrial purpose and conducted extensive manufacturing operations for decades. There was no evidence that any subsequent party contributed to the contamination. In contrast, at this Site, the Water Board has already determined that Advalloy is responsible for extensive organic solvent contamination. Furthermore, Fairchild only used the Site for limited purposes, for a limited period of time, as opposed to conducting extensive manufacturing operations.

For all the reasons discussed in this and prior submissions, we respectfully request that the Water Board reject ECI's unsubstantiated request and decline to name Fairchild as a responsible party on the Order.

Sincerely,

J. Tom Boer

cc: A. Bourgeois, Schlumberger
J. Ferguson, Schlumberger

Enclosures.

APPENDIX C

RESPONSE TO COMMENTS

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

RESPONSE TO COMMENTS

TO: Bruce H. Wolfe
Executive Officer

Date: December 3, 2008
File No. 43S0246 (LM)

FROM: Laurent Meillier
Laurent Meillier
Engineering Geologist

CONCUR: John D. Wolfenden
John D. Wolfenden
Section Leader
Toxics Cleanup Division

John D. Wolfenden FOR
Stephen A. Hill
Division Chief
Toxics Cleanup Division

SUBJECT: **Response to Comments on Tentative Order for Final Site Cleanup Requirements, 844 East Charleston Road (Site), Palo Alto, Santa Clara County**

This document provides the response to comments received on the Tentative Order (TO) for the Final Site Cleanup Requirements for the subject Site. On June 19, 2008, staff distributed the TO to the appropriate parties for comments. On July 18, 2008, we received comments on the TO from the following parties:

- Greben & Associates – Counsel representing East Charleston, Inc.
- Gary J. Grimm – Counsel representing Ford Motor Company.

On August 20, 2008, we received comments on the TO from the following party:

- Barg, Coffin, Lewis & Trapp – Counsel representing Schlumberger Limited.

On September 5, 2008, staff re-opened the public comment period for two limited issues:

1) Offsite investigation and cleanup and
2) Naming additional dischargers.

On September 18, 2008, we received comments on the offsite investigation and cleanup portion of the Revised Tentative Order (RTO) from the following parties:

- Allen Matkins – Counsel representing Taube-Koret Campus for Jewish Life and sister entities that have an interest in the development of 901 San Antonio Road, Parcel 2, in Palo Alto, together with the owners of 901 San Antonio Road, Parcel 1[1].

[1] The entities with an interest in 901 San Antonio Road, Parcel 2, are the Albert L. Schultz Jewish Community Center, the Oshman Family Jewish Community Center, Moldaw Family Residences at 899 Charleston, and 899 Charleston LLC. The owners of 901 San Antonio Road, Parcel 1, are Bridge Urban Infill Land Development (BUILD), 901 San Antonio Road LLC, and RHNC/MFP Palo Alto LLC., developer of the Altaire Townhomes.

- Edward A. Firestone – Counsel representing Far Western Land and Investment Company, Inc.
- Gary J. Grimm – Counsel representing Ford Motor Company.

On October 20, 2008, we received comments on naming additional discharger(s) on the RTO from the following parties:

- Greben & Associates – Counsel representing East Charleston, Inc., transmitting videos of the sewer line.
- Barg, Coffin, Lewis & Trapp – Counsel representing Schlumberger Limited. Attached to this letter was a Weiss Associates technical report.

On November 3, 2008, we received comments on naming additional discharger(s) on the RTO from the following parties:

- Greben & Associates – Counsel representing East Charleston, Inc., Attached to this letter was a West Environmental technical report.
- Barg, Coffin, Lewis & Trapp – Counsel representing Schlumberger Limited.
- Gary J. Grimm – Counsel representing Ford Motor Company.

On December 2, 2008, we received comments on naming additional discharger(s) on the RTO from the following parties:

- Greben & Associates – Counsel representing East Charleston, Inc. Attached to this letter was a West Environmental technical report.
- Barg, Coffin, Lewis & Trapp – Counsel representing Schlumberger Limited. Attached to this letter was a Weiss Associates technical report and an InfraMetrix technical report.

East Charleston, Inc.
Comments received on July 18, October 20, November 3 and December 2, 2008.

1) ***Comment:*** Keep Advalloy as a discharger on the TO.

Response: Comment noted. Advalloy remains as a discharger on the RTO.

2) Comment: Add Schlumberger Limited (Schlumberger) as a discharger for the Site.

Response: Comment noted. We have added Fairchild Semiconductor Corporation as a discharger on the RTO. See the December 3, 2008, staff report for more information.

3) Comment: Delete MW-01 A from the quarterly monitoring list. Change the monitoring frequency of MW-3 from quarterly to semi-annual monitoring.

Response: Comment noted. We made the requested changes to the RTO.

Schlumberger Limited
Comments received on August 20, October 20, November 3 and December 2, 2008.

1) Comment: There is insufficient evidence to name Fairchild Semiconductor Corporation (Fairchild) as a discharger. The arguments against naming Fairchild as a Discharger include:

- Fairchild's manufacturing and chemical use was on a very small scale that was not large enough to impact soil and groundwater.
- During the four years of Fairchild's manufacturing operations (1957 – 1961), the sewer line was new and should not have leaked.
- Advalloy's chemical use practices can explain all the contamination in soil and groundwater at the Site.
- If Fairchild caused discharges to soils and groundwater from the northern sewer line, then groundwater concentrations should be higher in the A-zone than the B-zone.

Response: We disagree. Staff recommends that the Water Board name Fairchild as a discharger in the RTO. See the December 3, 2008, staff report for more information.

<u>901 San Antonio Road Parcels 1 and 2</u>
Comments received on September 18, 2008:

1) Comment: Finding #6

A) Clarify that the vapor intrusion pathway has been evaluated at certain downgradient locations where an approved Risk Management Plan is in place.
B) State that soil gas sampling would not be needed at locations where an approved Risk Management Plan is in place.

Response:

A) Comment noted. Finding #6 was modified as suggested.
B) We disagree. The soil gas plume needs to be fully characterized in order to select the best cleanup alternative and to monitor long term cleanup progress. Thus, no change to the RTO was made.

2) Comment: Finding #8 – Clarify the need for evaluation of additional remediation measures downgradient of the Site as set forth in this Order.

Response: Comment noted. Finding #8 was modified as suggested.

3) Comment: Finding #10: – Clarify that groundwater remediation downgradient of the Site should be in accordance with the terms of this Order.

Response: Comment noted. Finding #10 was modified as suggested.

4) Comment: RAP B1 – Additional remedial actions should be in accordance with the terms of this Order.

Response: Comment noted. Section B1 was modified as suggested.

5) Comment: RAP B4 – Indicate that the soil gas cleanup standards are not applicable to those downgradient properties with a Risk Management Plan approved by the Water Board.

Response: Comment noted. The soil gas cleanup standards were modified to exclude downgradient properties that are subject of a Risk Management Plan approved by the Water Board.

6) Comment: All applicable tasks with a submittal deadline – Adjust the task due dates in light of the revised Board meeting date.

Response: Comment noted. The task due dates were modified as appropriate.

7) Comment: Task C1 – Clarify that the investigation workplan should address locations downgradient of the Site that have been impacted by discharges at the Site. State that the investigative activities shall not interfere with risk management measures and remedial actions implemented at downgradient properties.

Response: Comment noted. Task C1 was modified as suggested.

8) Comment: Task C2 – Replace "typical cleanup standards" with "applicable cleanup standards."

Response: Comment noted. Task C2 was modified as suggested.

9) Comment: Task C4 – State that the remedial actions shall not interfere with risk management measures and remedial actions implemented at downgradient properties.

Response: Comment noted. Task C4 was modified was modified as suggested.

Far Western Land and Investment Company, Inc.
Comments received on September 18, 2008.

1) Comment: Finding # 6 – Exclude downgradient locations subject to Water Board Order R2-2007-022 from evaluating the vapor intrusion pathway to indoor air, and soil gas sampling.

Response: We disagree. The locations subject to Water Board Order R2-2007-022 may need soil vapor evaluation and/or sampling to determine current and/or future potential health risks. Thus, no change to the RTO was made.

2) Comment: Finding # 8 – Clarify the need for evaluation of additional remediation measures downgradient of the Site as set forth in this Order.

Response: Comment noted. Finding #8 was modified to note the need to evaluate downgradient remediation.

3) Comment: Finding # 10 – Clarify that groundwater remediation downgradient of the Site should be in accordance with the terms of this Order.

Response: Comment noted. Finding #10 was modified to note that groundwater remediation is needed downgradient of the Site in accordance with the Order.

4) Comment: RAP B1 – State that remedial actions shall be designed and operated to avoid interference with present land uses and operations at offsite locations. Require cooperation of the named Site dischargers with offsite owners to accommodate potential future land uses.

Response: Comment noted. This comment was addressed in revisions to tasks C1 and C4.

5) Comment: RAP B4 – Indicate that the soil gas cleanup standards shall be met solely at the Site based on the land use of the Site.

Response: We disagree. The soil gas cleanup standards need to apply to other properties impacted by discharges at the Site, except where there is an approved Risk Management Plan. Thus, no change to the RTO was made.

6) Comment: Task C1 – Indicate that interference with land uses and operations at offsite locations shall be avoided.

Response: Comment noted. Task C1 was modified to note the need to minimize interference with downgradient properties.

7) Comment: Task C4 – State that proposed remedial actions shall be designed and operated to avoid interference with present land uses and operations at offsite locations.

Response: Comment noted. Task C4 was modified to address this concern.

Ford Motor Company
Comments received on July 18, 2008.

1) Comment: Finding #1 – Add proposed residential use to the land-use sentence.

Response: Comment noted. Finding #1 of the RTO was modified to reference the proposed residential land use in the surrounding area.

2) Comment: Finding #5 – Clarify groundwater migration pathways at the Site, and identify deeper groundwater as a drinking water source.

Response: Comment noted. Finding #5 of the RTO was modified to acknowledge the complex nature of the hydrogeology where the shallow (approximately 6 to 55 feet bgs) groundwater is found. We acknowledge the presence of a deep groundwater aquifer found between 80 and 90 feet bgs.

3) Comment: Finding #6– State that VOC (volatile organic compound) impacts from the Site's discharges to deep (depths greater than approximately 80 feet below ground surface) groundwater are currently unknown. Indicate that the Site's VOC discharges extend downgradient.

Response: Comment noted. The detections of trichloroethylene (TCE) in groundwater downgradient from the Site may originate from the following sources:

a) Microbiologically mediated degradation of tetrachloroethylene (PCE) resulting in the formation of TCE;
b) TCE discharges originating from 844 East Charleston Road subsequently impacting groundwater below downgradient properties;
c) Currently unidentified sources of TCE originating from off-site discharges.

The contributions of these potential various sources to groundwater quality downgradient of the Site is unknown. The extent of the TCE groundwater plume downgradient of the Site needs to be accurately delineated. Finding #6 of the RTO was modified to include our current understanding of the extent of TCE impacts to groundwater quality at the Site and off-site.

4) Comment: Finding #7 – A) Include downgradient properties impacted by VOC discharges from Advalloy.
B) Delete 901 San Antonio Road as a source site.
C) Clarify Space Systems/Loral's downgradient activities.

Response: A) We disagree. The purpose of this finding is to briefly describe any nearby pollution sites whose contamination or cleanup activities affect the Site (or are affected by pollution from the Site), including current status of investigation/cleanup. It is not the purpose of this finding to list non-source sites affected by the Site. Thus, no change to the RTO was made.

B) Comment noted. 901 San Antonio Road has been deleted as a source site.

C) Comment noted. We clarified the status of activities at Space Systems/Loral.

5) Comment: Finding #8 – Additional soil and groundwater remediation is needed at downgradient properties impacted by the Site's discharges.

Response: Comment noted. Finding #8 of the RTO was modified to indicate that soil and groundwater remediation is needed at the Site and downgradient of the Site.

6) Comment: Finding #10 – State that the Remedial Action Plan does not address impacts of discharges from the Site on downgradient properties.

Response: Comment noted. Finding#10 of the RTO was modified to indicate that additional groundwater remediation is needed downgradient of the Site.

7) Comment: Prohibition A.3 – Add nuisance condition to the prohibition.

Response: We disagree. This is the standard finding used in site cleanup orders. This prohibition prohibits further migration of contaminants, whether or not that contaminant migration causes a condition of nuisance. Thus, no change to the RTO was made.

8) Comment: RAP B.1 – Require remediation for off-site areas impacted by the Site discharges.

Response: Comment noted. Section B.1. of the RTO was modified to reference additional remedial actions required downgradient of the Site.

9) Comment: Cleanup Standard B.4 – State that soil gas standards for downgradient properties impacted by discharges from the Site should be determined based on land use considerations.

Response: Comment noted. Section B.4. of the RTO was modified to indicate that soil gas cleanup standards are based on the land use of the parcel.

10) Comment: Task C.1 – Include a requirement to investigate the downgradient impacts of the discharges from the Site.

Response: Comment noted. Task C.1. of the RTO was modified to explicitly include definition of pollution both at the Site and downgradient of the Site.

11) Comment: Task C.3 – Require actions and a time schedule for cleanup of any on-site soil where cleanup standards are exceeded.

Response: Comment noted. Task C.3. of the RTO was modified to include all contaminated soil.

12) Comment: Add a task to require remediation for off-site groundwater impacts from Advalloy discharges.

Response: Comment noted. Task C.4.g. was modified to require a proposal for additional remedial actions for areas downgradient of the Site that are impacted by Site discharges.

13) Comment: Self-Monitoring Program – Add six downgradient monitoring wells locations to the Self Monitoring Program.

Response: We disagree. The evidence to date is not sufficient to indicate the magnitude of groundwater quality impacts caused by the Site's discharges at these proposed monitoring locations. However, Water Board staff will evaluate updating the self monitoring program as new information becomes available. Thus, no change to the RTO was made.

Comments received on September 18, 2008.

1) Comment: Finding #6 – Do not exclude properties subject to Order R2-2007-022 from coverage from this finding.

Response: Comment noted. We did not exclude properties subject to Order R2-2007-022 in Finding #6.

2) Comment: Finding #10 – Do not limit the location of possible groundwater remediation.

Response: Comment noted. Finding #10 was modified to note that additional groundwater remediation downgradient of the Site should be in accordance with the terms of the Order.

APPENDIX D

STAFF REPORT

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

TO: Bruce H. Wolfe
Executive Officer

Date: December 3, 2008
File No. 43S0246 (LM)

FROM: Laurent Meillier
Laurent Meillier
Engineering Geologist

CONCUR: John D Wolfenden
John D. Wolfenden
Section Leader
Toxics Cleanup Division

John D Wolfenden FOR
Stephen A. Hill
Division Chief
Toxics Cleanup Division

SUBJECT: Recommendation to Name Fairchild Semiconductor Corporation as a Discharger, 844 East Charleston Road, Palo Alto, Santa Clara County

I. Summary

Staff recommends that the Water Board name Fairchild Semiconductor Corporation (Fairchild) as a discharger in the Site Cleanup Requirements for 844 East Charleston Road in Palo Alto (Site). This recommendation is a change from staff's recommendation to not name Fairchild when the Board considered site cleanup requirements for the Site in 1990. The two new pieces of information we now have that caused us to change our recommendation are: 1) based on our experience with other cases and industry-wide experience, we now know that sanitary sewer lines are prone to leak, and 2) a recent sewer video shows the sanitary sewer line that Fairchild discharged to has corrosion, which further indicates that leaks could have occurred during Fairchild's occupancy.

II. Background

The 14,600 square foot building at the Site (Figure 1) was constructed in 1957. Fairchild began leasing the Site on October 15, 1957. In 1959 at this Site, Fairchild completed the first integrated circuit that could be produced commercially. It consisted of a complete electronic circuit inside a small silicon chip. From 1957 through 1961, Fairchild conducted research and small-scale production of integrated circuits at the Site; from 1961 through 1962, it conducted research and development; and from 1962 through 1967, it conducted instrumentation manufacturing. Fairchild's lease on the Site terminated on October 14, 1967.

Advalloy, Inc., (Advalloy) leased the Site in 1968 and purchased the Site in 1971. Advalloy occupied the Site until 1989. Advalloy conducted precision metal stamping for the semi-conductor industry. Advalloy declared bankruptcy in 1994. Advalloy discharged its industrial wastes through a sump located in the southern portion of the Site (Figure 2). East Charleston, Inc., (East Charleston) acquired the Site in bankruptcy in 1994. The Site is currently used for storing furniture for real estate staging.

On January 17, 1990, the Water Board adopted initial Site Cleanup Requirements Order No. 90-016. This Order required Advalloy to complete the characterization of groundwater impacts at the Site, identify the source of this groundwater pollution, propose and implement interim remedial actions, and propose final remedial actions. On November 15, 1995, the Water Board adopted revised Site Cleanup Requirements Order No. 95-222. This Order required Advalloy and East Charleston to complete the remedial investigation, propose and implement interim remedial actions, and propose final remedial actions.

III. Summary of 1990 Board Decision to Not Name Fairchild as a Discharger

During the January 17, 1990, Board meeting, both Advalloy and Fairchild presented arguments on the issue of naming Fairchild as a discharger. In a January 1990 report, Water Board staff summarized its recommendation for not naming Fairchild as a discharger at that time.

The 1990 report notes that:
1) Fairchild used VOCs that were found in the soil and groundwater;
2) Fairchild discharged its VOCs through the sanitary sewer;
3) Fairchild stored VOCs and acids on the site;
4) Industry chemical handling practices were poor at that time.
However, Water Board staff recommended that Fairchild not be named as a discharger in Site Cleanup Requirements Order No. 90-016. This decision was based on the absence of any known spills or releases to the environment during Fairchild's occupancy of the property. The 1990 staff report also indicated that "there does not seem to be a clear picture of Fairchild chemical and amount of manufacturing". The report indicates that that "there was no significant treatment of waste" at the Site during Fairchild's occupancy.

No one has contested naming Advalloy as a discharger in any of the Board decisions. Advalloy used chlorinated solvents in its precision metal stamping for the semi-conductor industry and discharged these solvents to the southern sanitary sewer network. The southern sanitary sewer network leaked and caused a discharge to groundwater.

IV. New Information

The following new information was made available to Water Board staff as staff prepared an update to the Site Cleanup Requirements.

- An August 29, 2008, video of the underground sanitary sewer lines at four locations at the Site.
- Recent Water Board case experience where discharge of chlorinated solvents to the sanitary sewer line was the source of a discharge to soil and groundwater.

V. Arguments for Naming Fairchild as a Discharger

The arguments for naming Fairchild as a discharger include:

- Fairchild used chlorinated solvents (including TCE) and acids in its manufacturing processes.
- Fairchild discharged chlorinated solvents and acids to the sanitary sewer.
- A video of the sanitary sewer line that Fairchild discharged to shows evidence of corrosion and potential leakage points.
- Sanitary sewer lines are prone to leak.
- TCE is present in groundwater in the immediate vicinity of the sanitary sewer line.

Fairchild Used Chlorinated Solvents in Its Manufacturing Processes

Fairchild's manufacturing processes of innovative integrated circuits required the testing of various highly specialized processes. Julius Blank, a former employee of Fairchild, indicated in a declaration made in 1989 that: "Fairchild's researchers experimented with various methods of lapping, polishing, etching and cleaning fragments of the silicon crystal slices. Some of these processes involved the use of acids and solvents, including trichloroethylene ("TCE"), in very small quantities. Because the research was directed at finding the best chemicals for these processes, various chemicals were constantly being tried and accepted or rejected for further use. Research on lapping, polishing, etching and cleaning of the silicon slice fragments took place in six to eight small rooms added by Fairchild in two rows down the center of the building."

Fairchild chemical use history during its operations indicated that it used the same solvents that were found in soil and groundwater beneath the Site. Chemical inventory records dated November 1957 indicate that trichloroethylene, carbon tetrachloride, nitric acid and hydrofluoric acid 48% were stored at the Site in cases ranging between gallons to pints size bottles depending on the chemical. The record for November 1957 shows a total of 126 lbs of nitric acid, 50 liters of hydrofluoric acid 48% and 22 liters of TCE were stored at the Site. This November 1957 chemical inventory information is an estimate for the first year of operation. Fairchild's chemical use during the production years of 1958 through 1961 was likely greater. Chemical handling practices conducted by Fairchild are not clearly known during their leasing of the Site.

A May 1958 Fairchild letter to the Palo Alto Building Department indicates that polyethylene and PVC piping was unsuitable for sink drains installed at the Site where organic solvents were used. The letter notes that "polyethylene sinks are standing up under hard usage of both acids and solvents with no visible sign of serious deterioration. This is probably due to the fact that no fluid can collect in the sink and is allowed to drain freely."

A November 1989 letter from Landels, Ripley & Diamond representing Fairchild indicated that "Fairchild's former employees also recall that the small amount of solvents and acids remaining in the Petri dishes at the conclusion of the experiments were disposed of through the sink drains in the center rooms to the sanitary sewer lines following acid neutralization by dilution in flow-through catch basins below the sinks."

In October 1964, Fairchild issued a letter to the Palo Alto Fire Department highlighting steps recently taken to eliminate Fairchild's violations of the fire code. For example, the letter states that "Gallon containers of solvent have been placed in the storage sheds awaiting purchase of safety containers."

Overall, the emerging semiconductor industry did not have consistent and documented chemical handling practices in the 1950's and 1960's. Manufacturing activities during this time pre-dated our understanding of the potential for soil and groundwater contamination from these activities. Regulators didn't require extensive reporting on these activities due to the lack of knowledge at the time of their potential impacts to soil and groundwater.

Fairchild Discharged Chlorinated Solvents and Acids to the Sanitary Sewer

Fairchild's manufacturing activities at the Site discharged chlorinated solvents and acidic solutions to the northern sanitary sewer network. Water Board staff reviewed a map submitted by Advalloy to the Palo Alto Regional Water Quality Control Plant and blueprints available for the Site. The northern network of pipes and drains is physically separated from the southern sanitary sewer network that Advalloy used for manufacturing activities. Advalloy reportedly only used the southern sanitary sewer network for discharge of industrial wastes. Advalloy reportedly used the northern network for its sanitary waste discharges. There is no documented use of this northern section of the sanitary system for industrial waste disposal by Advalloy. Figure 2 is a diagram of the sanitary sewer lines at the Site.

Sanitary Sewer Line Corrosion and Potential Leakage Points Observed on Video

ECI's consultant filmed a video of four different locations of the sewer lines at the Site on August 29, 2008. The video revealed varying degrees of corrosion and potential leakage points in all the sewer lines. The northern section of the sewer line where Fairchild discharged appeared to have corrosion. It had corrosion pits on all sides throughout its entire length. In some instances, zones of seemingly bare soils were observed on the video recording. In some areas of the northern sewer network, the lines appear to have lost their spherical shape and show an oval shape that could be caused by weakening of the sewer pipe wall (Figure 3). An apparent leak area was observed immediately prior to a northwesterly turn in the pipe at the 57-foot mark where fluid velocities could be reduced due to the turn in the pipe. This apparent leak area is also marked on Figure 2.

The acid / solvent waste stream that Fairchild discharged to the sanitary sewer could have caused enough corrosion for leaks to occur during Fairchild's occupancy. Leaks could have also occurred through pipe joints or some of the defects seen in the sanitary sewer video.

On November 21, 2008, Water Board staff met with Rich Cunningham, Public Works Manager of the City of Albany and current chair of the Collection Systems Committee of the Bay Area Clean Water Agencies, to view the sanitary sewer line video. Staff discussed the corroded nature of the cast iron sanitary sewer pipe with Mr. Cunningham. Staff learned from him that the corrosion appears to be classic wear patterns of normal corrosion for a fifty-year-old cast iron sanitary sewer pipe. The small indentation-marks in the sides of the pipe along its total length

appear to be the cast iron pipe slowly delaminating. There do not appear to be signs of significant acid-based corrosion along the length of the pipe which would be indicated with distinct troughing or tunneling along the length of the pipe. There appears to be bare soil at the 57-foot marker and a trough at the 58-foot marker, but these are unusual in that they are an isolated occurrence and not consistent throughout the length of the pipe. One possible cause for these occurrences could be an external disturbance to the pipe at this location. Regardless of the origin of the apparent defects at 57 and 58 feet, the defects could be a source of leakage from the pipe.

Sanitary Sewer Lines are Prone to Leak

It is the experience of Water Board staff, based on many years of overseeing contaminated site investigation and cleanup, that sanitary sewer lines are prone to leak and even small VOC releases from a sanitary sewer can cause significant water quality impacts and soil contamination. Because of this experience, current investigative practices usually include collecting soil, soil gas, and groundwater samples around and beneath sanitary sewer lines. Staff conducted an internal survey of active cleanup sites we oversee to identify cases where leaks from sanitary sewer lines were the source of discharges to soil and groundwater. Ten such cases were reported in the survey (Table 1).

High Levels of Groundwater Contamination Near Sanitary Sewer Line

Groundwater in the vicinity of the sanitary sewer line Fairchild discharged to is contaminated with TCE, which is a chemical Fairchild discharged to the sanitary sewer during its occupancy of the Site. A shallow water bearing zone (A-aquifer) is found between 6 to 30 feet below ground surface (bgs). A deeper water bearing zone (B-aquifer) is found between 38 to 55 bgs. The C-aquifer is found between 80 and 90 feet bgs. The primary volatile organic compounds (VOCs) detected in groundwater beneath the Site are trichloroethylene (TCE) and its associated degradation products: cis-1,2 dichloroethylene (DCE) and vinyl chloride (VC). In September 2008, TCE, DCE and VC were detected in the onsite A-aquifer at the respective groundwater concentrations of 440 ppb, 96 ppb and 1,400 ppb (Figure 4). In October 2008, TCE, DCE and VC were detected in the onsite B-aquifer at the respective groundwater concentrations of 42,000 ppb, 4,300 ppb and 45,000 ppb in the northern portion of the Site (Figure 5). The bulk of the contamination is currently found in the B-aquifer.

The higher TCE concentration found in the B-aquifer may be caused by the difference in the horizontal groundwater velocity between the A- and B-aquifers, the characteristics of TCE, the heterogeneous geological conditions, and the age of the releases. The horizontal groundwater velocity for the A- and B-aquifers have been calculated at 1.9 – 2.5 ft/day and 0.27 feet/day, respectively. The slower groundwater velocity in the B-aquifer may slow down TCE dilution in the B-aquifer, resulting in higher VOC concentrations in groundwater.

TCE is heavier than water (specific gravity 1.46) and has a low solubility value (1,110 mg/L). Therefore, TCE is classified as a dense nonaqueous phase liquid, or DNAPL. This class of chemicals will tend to sink through the water column until they encounter a barrier (such as an aquitard) that is sufficiently impermeable to stop transport. The behavior of DNAPL in groundwater partly explains the higher TCE detections in the B-aquifer.

VI. Arguments against Naming Fairchild as a Discharger

The arguments against naming Fairchild as a discharger include:

- Fairchild's manufacturing and chemical use was on a very small scale that was not large enough to impact soil and groundwater.
- During the four years of Fairchild's manufacturing operations (1957 – 1961), the sanitary sewer line was new and should not have leaked.
- Advalloy's chemical use practices can explain all the contamination in soil and groundwater at the Site.
- If Fairchild caused discharges to soils and groundwater from the northern sanitary sewer line, then groundwater concentrations should be higher in the A-zone than the B-zone.

Small Scale Manufacturing and Chemical Uses Conducted by Fairchild at the Site

Fairchild conducted limited manufacturing at the Site that did not require the use of large quantities of chlorinated solvents. According to former Fairchild employees, chemical uses were minimal. Mr. Blank stated that chemicals such as solvents were applied "to the silicon slice fragments in small petri dishes." Mr. Wilson stated that "solvent recovery was not practiced due to the extremely small quantities of waste, solvents produced." He further stated that "limited production activities" took place to the east and west of the center rooms in the 844 East Charleston Road building.

Experiments conducted at the Site were held using stringent chemical handling practices, which prevented chemical spills at the Site. The Palo Alto Fire department does not have a record of any spills during Fairchild's occupancy of the property.

Any chemical waste generated by Fairchild was first transported in an above ground piping system that would have made any leaks easily detectable. Waste was carried above ground within the building in a high silicon content Duriron pipe (14.5% silicon) whereas waste was carried below the building in cast-iron sanitary sewer (2 % silicon) pipes. Duriron pipes are usually of smaller diameter and thinner walled. Hydrofluoric acid (HF) is used in etching glass and silicon wafers. Therefore, due to its higher silicon content, Duriron would have been more susceptible to leaks than the cast iron sanitary sewer pipe. Since there were no above ground leaks noticed in the Duriron piping, it's unlikely that below ground leaks occurred in the cast iron pipe.

Sanitary Sewer Line was New During Fairchild's Use

The sanitary sewer line was new when Fairchild first occupied the building. It is unlikely that Fairchild's small chemical usage corroded the new sanitary sewer line in the four years of Fairchild's manufacturing use (1957 – 1961). The sanitary sewer video from 2008 was taken 41 years after Fairchild vacated the Site. It is unreasonable to conclude that the current sanitary sewer line condition is representative of the time during Fairchild's use of the sanitary sewer line.

Advalloy's Chemical Use Caused Soil and Groundwater Contamination

Advalloy's chemical use practices can explain all the contamination in soil and groundwater at the Site. Advalloy used TCE in its precision and metal stamping activities for the semi-conductor and defense industries. Numerous notices and violations of hazardous materials handling practices have been documented by the City of Palo Alto during Advalloy's use of the property. East Charleston does not contest the fact that Advalloy is a discharger at the site.

Despite the absence of documentation, Advalloy may have used the northern sanitary sewer network for the disposal of its industrial wastes and subsequently caused additional degradation to the drains network.

Low A-aquifer Concentrations Do Not Indicate Release from Sanitary Sewer Line

If Fairchild caused discharges to soils and groundwater from the northern sanitary sewer line, then groundwater concentrations should be higher in the A-aquifer than the B-aquifer. But this is not the case. Chlorinated solvents concentrations are an order of magnitude higher in the B-aquifer than the A-aquifer. The pattern of contamination at the site is not consistent with a release from the sanitary sewer line.

VII. Discussion

In order to name Fairchild as a discharger, the Board must find that Fairchild caused or permitted waste to be discharged or deposited where it is, or probably will be, discharged into waters of the State. Whether a person caused or permitted such waste discharges has been broadly construed by the State Water Resources Control Board (State Water Board) and the courts to include owners and operators at the time of discharge. Further, the State Water Board has held, "Generally speaking it is appropriate and responsible for a regional board to name all parties for which there is reasonable evidence of responsibility, even in the cases of disputed responsibility. There must be substantial evidence to support a finding of responsibility for each party named. This means credible and reasonable evidence which indicates the named party has responsibility." In the Matter of Exxon Company, Order No. WQ 85-7.

State Water Board Resolution 92-49 provides instructions on the kinds of evidence that will support the naming of a party to a cleanup order. It states that a regional water board shall:

A. Use any relevant evidence, whether direct or circumstantial, including, but not limited to, evidence in the following categories:

1. Documentation of historical or current activities, waste characteristics, chemical use, storage or disposal information, as documented by public records, responses to questionnaires, or other sources of information;

2. Site characteristics and location in relation to other potential sources of a discharge;

3. Hydrologic and hydrogeologic information, such as differences in upgradient and downgradient water quality;

4. Industry-wide operational practices that historically have led to discharges, such as leakage of pollutants from wastewater collection and conveyance systems, sumps, storage tanks, landfills, and clarifiers;

5. Evidence of poor management of materials or wastes, such as improper storage practices or inability to reconcile inventories;

6. Lack of documentation of responsible management of materials or wastes, such as lack of manifests or lack of documentation of proper disposal;

7. Physical evidence, such as analytical data, soil or pavement staining, distressed vegetation, or unusual odor or appearance;

8. Reports and complaints;

9. Other agencies' records of possible or known discharge; and

10. Refusal or failure to respond to Regional Water Board inquiries.

The arguments in section V. above for naming Fairchild as a discharger provide sufficient evidence to find that Fairchild caused a release to soil and groundwater.

We conclude that the arguments against naming Fairchild as a discharger carry less weight than the arguments for naming Fairchild as a discharger, as discussed below.

a) Regarding the volume of Fairchild's chemical usage, Fairchild's production was reportedly small-scale, but it was a production facility nonetheless. We only have a chemical use estimate from the first month of Fairchild's operation at this site. Fairchild's chemical usage was likely greater in subsequent production years.

b) Regarding the sanitary sewer line being new during Fairchild's tenure, it is true that a newer sanitary sewer line should be less susceptible to leakage. However, the acid / solvent waste stream that Fairchild discharged to the sanitary sewer could have caused enough corrosion for leaks to occur during Fairchild's occupancy. Leaks could have also occurred through pipe joints or some of the defects seen in the sanitary sewer video. It is now considered common knowledge in the investigation and cleanup field that sanitary sewer lines receiving acid / solvent discharges are prone to leaking.

c) It is not possible to tell exactly when the corrosion occurred based on a video of a 50-year-old pipe. However, the combination of the following factors, when collectively taken together, are enough to recommend that Fairchild be named as a discharger on the Site Cleanup Requirements: Fairchild used acids and solvents in its manufacturing processes and discharged these chemicals to the sanitary sewer line; sanitary sewer lines are prone to leak; the sanitary sewer line Fairchild discharged to was corroding during its life; and groundwater beneath the sanitary sewer line is contaminated with TCE.

d) Regarding Advalloy's chemical usage being adequate to explain the TCE found in soil and groundwater, it is possible that the TCE found in soil and groundwater could be caused by Advalloy. However, it is more likely that the TCE found in A-aquifer well RW-2A on the northwest of the Site would be from a discharge from the northern side of the building, which is where Fairchild discharged to the sanitary sewer. A section of the line with what appears to be a leak area and bare soil is 12 feet cross gradient from B-aquifer monitoring well MW-3B where TCE concentrations of up to 42,000 ppb were detected, and is 44 feet cross gradient from A-aquifer monitoring well RW-2A where TCE concentrations of up to 120,000 ppb were detected.

e) Regarding a reasonable explanation for why TCE is found at roughly an order of magnitude higher concentration in the B-zone than in the A-zone, it is not uncommon for TCE to sink to lower groundwater zones because TCE is heavier than water. The higher TCE concentration found in the B-aquifer may be caused by the difference in the horizontal groundwater velocity between the A- and B-aquifers, the chemical characteristics of TCE, the heterogeneous geological conditions, and the age of the releases.

VIII. Conclusion

Based on a review of all relevant information (including the Site history), and in light of the available new information (including the current knowledge that sanitary sewer lines are prone to leak and the video showing corrosion in the sanitary sewer line Fairchild discharged to) staff recommends that the Water Board name Fairchild as a discharger in the Site Cleanup Requirements.

Attachments:
Table 1: List of Water Board Cases where Leaks from Sanitary Sewer Lines were the Source of Discharges to Soil and Groundwater
Figure 1: Site Vicinity Map
Figure 2: Sanitary Sewer Lines and Piping Network below the Site
Figure 3: Video Image of Sanitary sewer Line at 57 feet Interval Showing Corroded Section of Line Used by Fairchild.
Figure 4: A-Aquifer TCE Concentrations in Groundwater (September 2008)
Figure 5: B-Aquifer TCE Concentrations in Groundwater (October 2008)

Table 1: List of Water Board Cases where Leaks from Sanitary Sewer Lines were the Source of Discharges to Soil and Groundwater

Sites Where Sanitary Sewer Line Caused VOC Discharge to Subsurface		
Site	**Case Manager**	**Comments**
1114 Branham Lane, San Jose	Dave Barr	Dry cleaner with highest level of contamination under sanitary sewer line
Roy's Dry Cleaner, Redwood City	Dave Barr	Dry cleaner with leaking sanitary sewer line causing high groundwater contamination
Electroglas, Santa Clara	Dave Barr	Release of PCE from sanitary sewer line caused groundwater contamination
Sunnyvale Town Center Mall	Nathan King	Dry cleaner with high groundwater contamination under sanitary sewer line
Marin Cleaners	Ralph Lambert	Dry cleaner with high groundwater contamination along sanitary sewer line
IBM, San Jose	Max Shahbazian	TCE impacted soil and groundwater around sanitary sewer line
Heon's Dry Cleaner, Marin County	John Jang	Dry cleaner where leaking sanitary sewer line contributed to groundwater contamination
Royal Crown Cleaners, Sonoma	John Jang	Dry cleaner where leaking sanitary sewer line contributed to groundwater contamination
Teledyne, Mountain View	Roger Papler	High TCE concentrations beneath sanitary sewer line
Montwood, Mountain View	Roger Papler	Breaks in sanitary sewer line upgradient of high TCE groundwater contamination
Hewlett Packard, Palo Alto	Roger Papler	Accidental discharge of TCE to storm sewer caused TCE release to groundwater

Figure 1: Site Vicinity Map

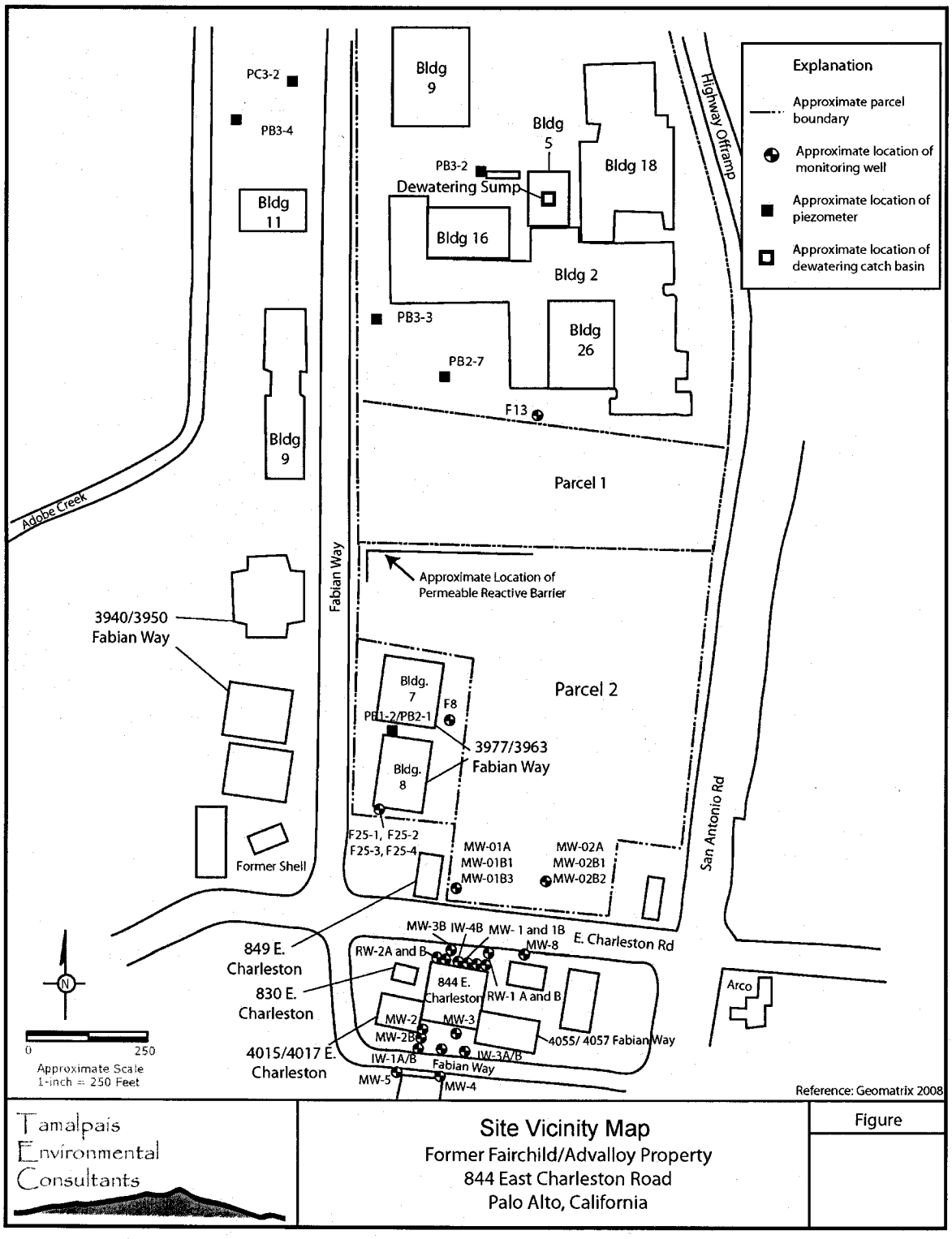


Figure 2: Sanitary Sewer Lines and Piping network below the Site

Approximate Location of the 57 feet benchmark Indicating Pipe Perforation

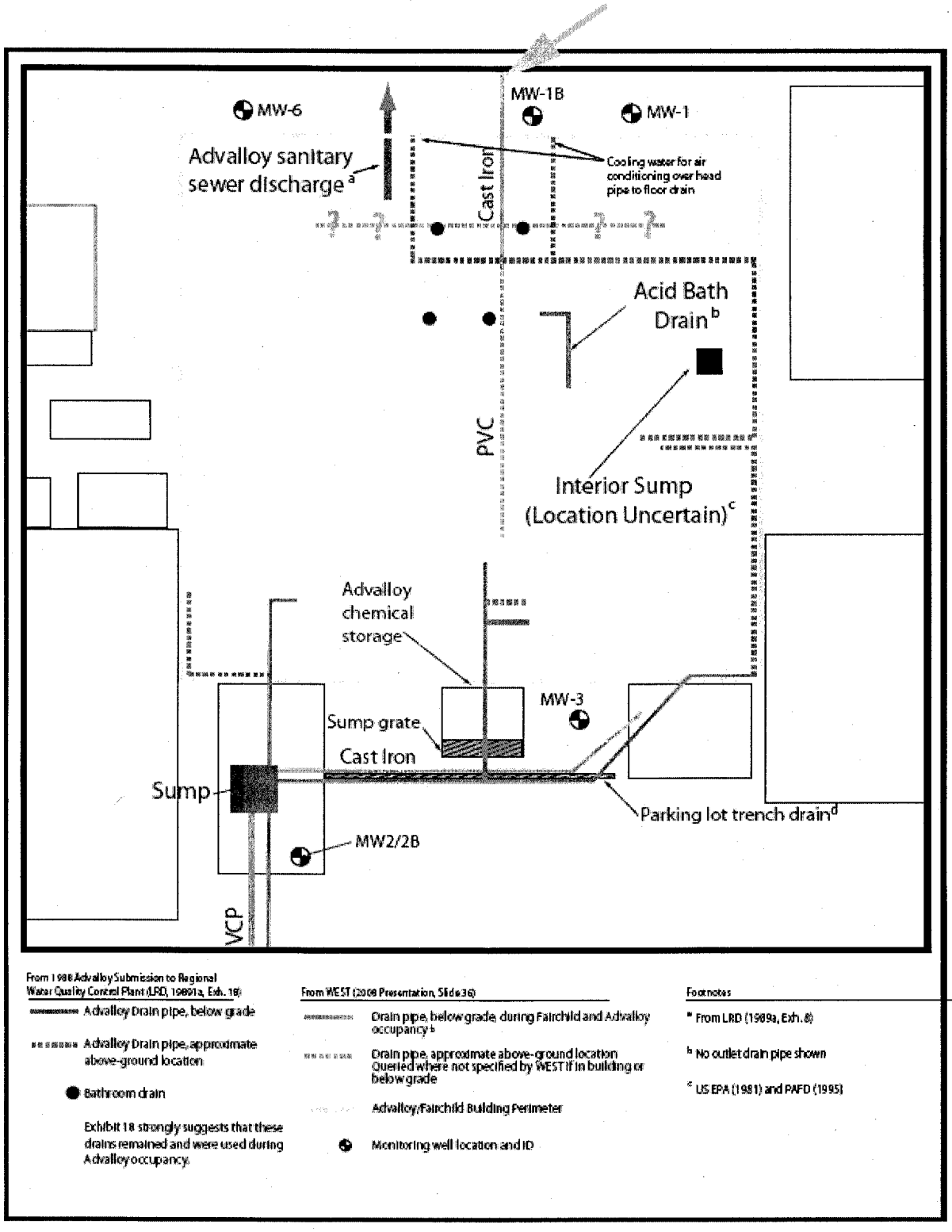
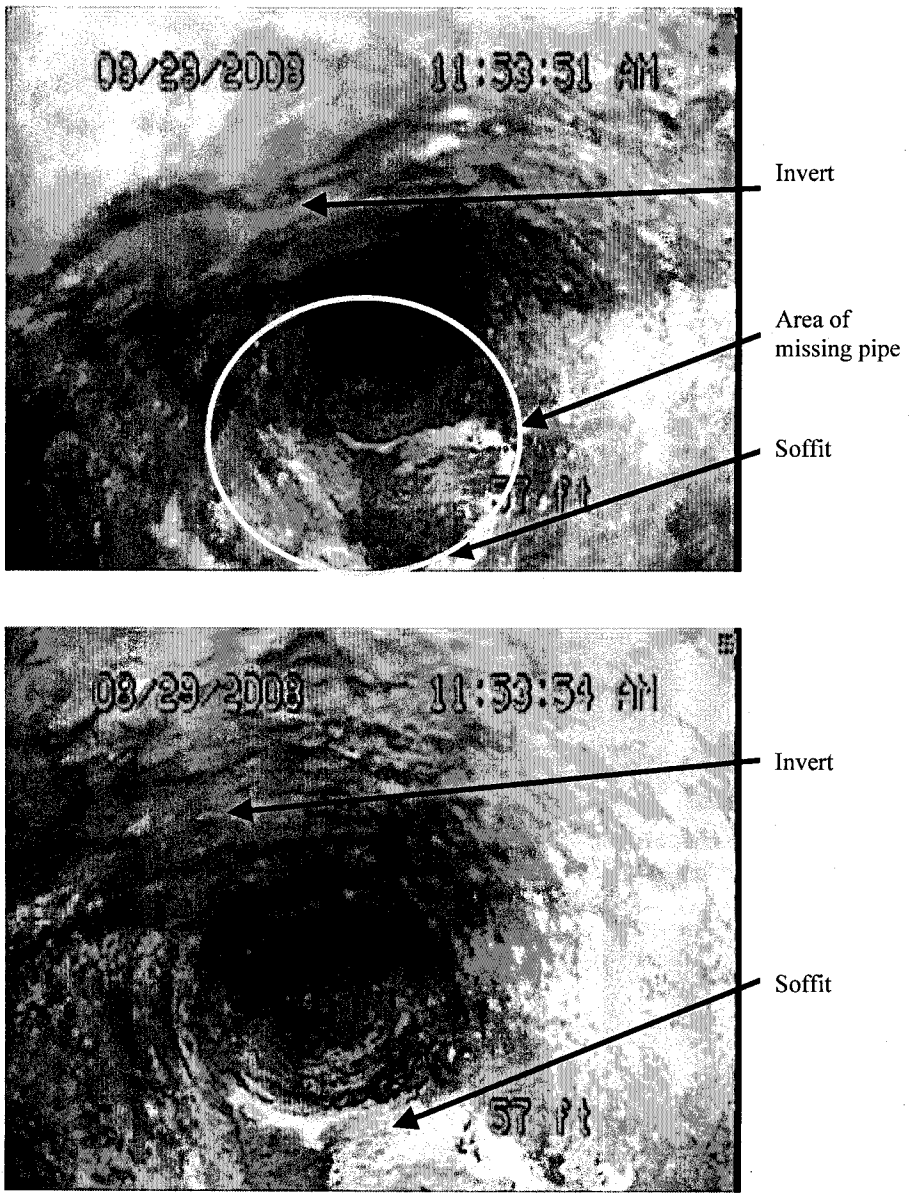


Figure 3: Video Image of Sanitary Sewer Line at 57 feet Interval Showing Corroded Section of Line Used by Fairchild

Invert: Bottom portion of the inside open section of a pipe.
Sofit: Top portion of the inside open section of a pipe.



Note: Due to a video recording artifact, the top of the sanitary sewer line is depicted in the bottom of the pictures included in Figure 3 above. Pipe orientation is determined by fluxing fluid through the pipe during video recording.

Figure 4: A- Aquifer TCE Concentrations in Groundwater (September 2008)

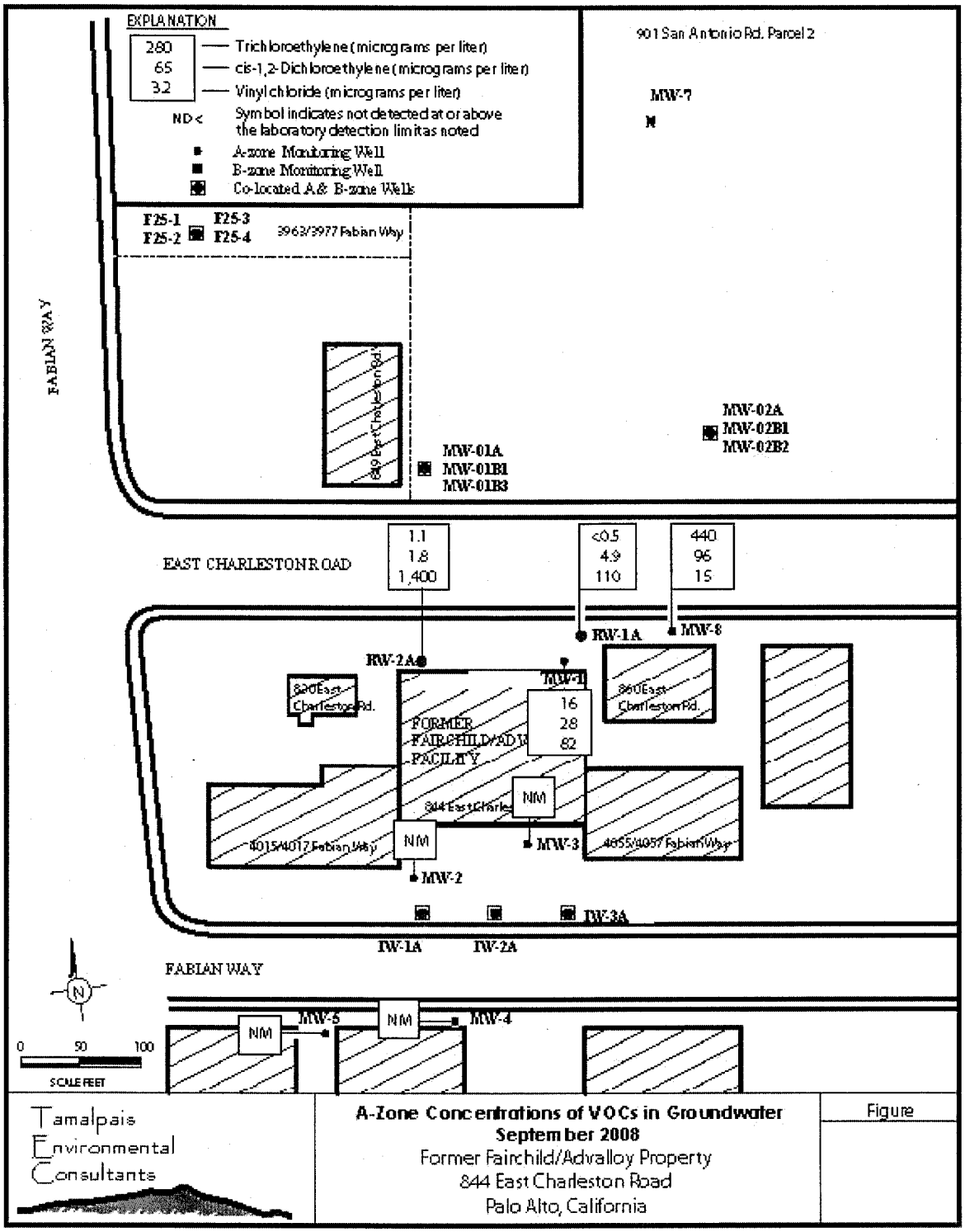
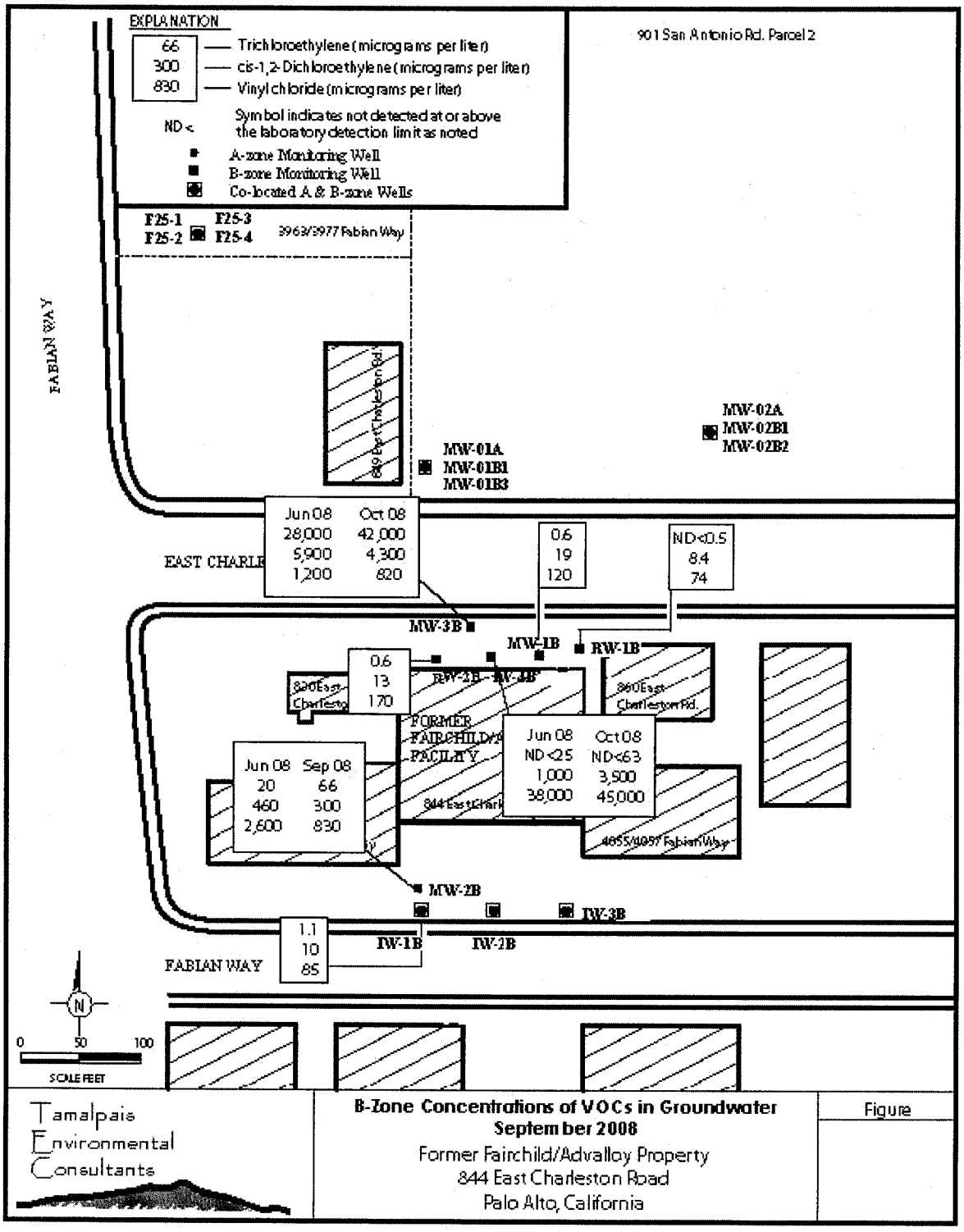


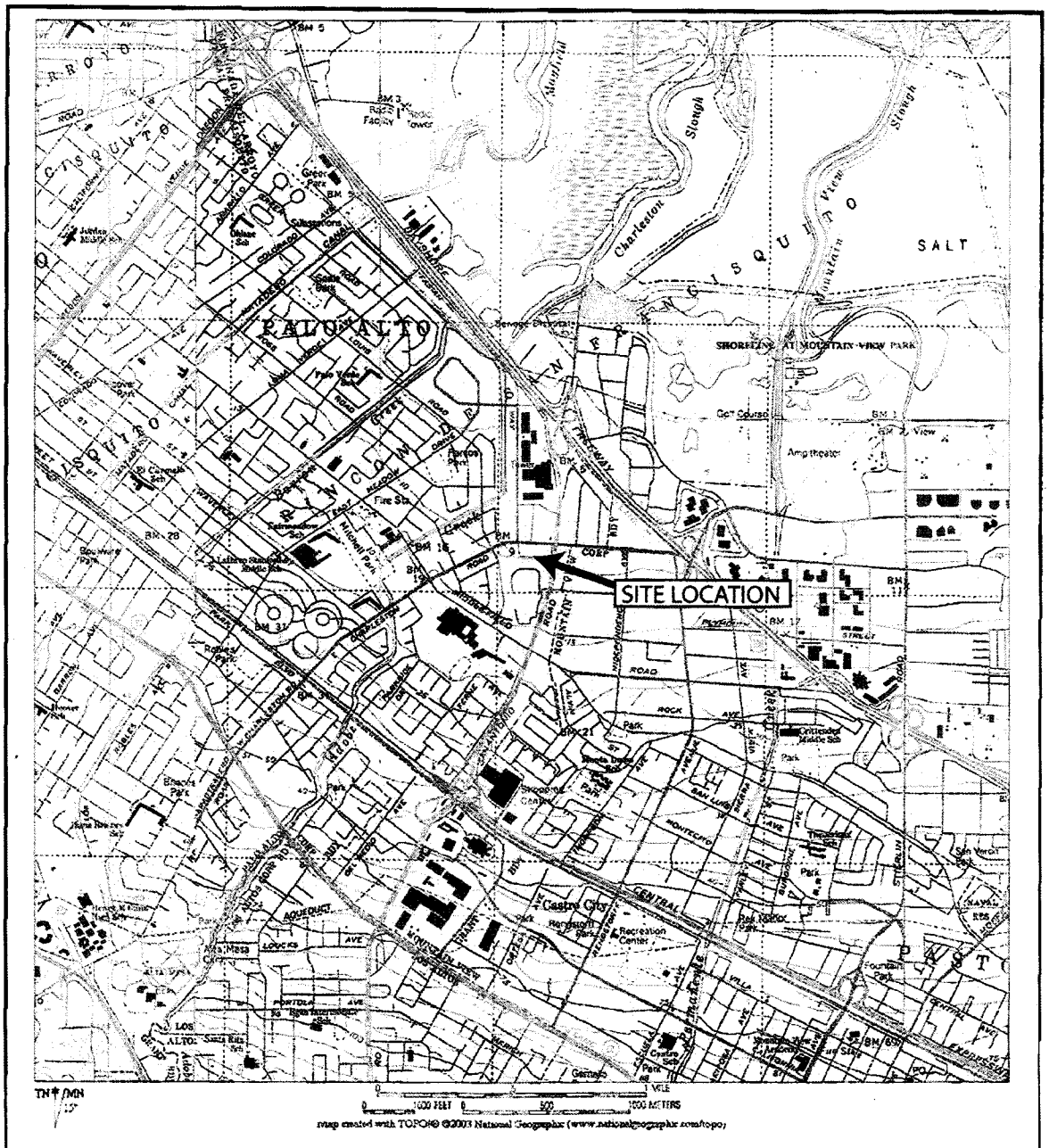
Figure 5: B- Aquifer TCE Concentrations in Groundwater (October 2008)



APPENDIX E

SITE LOCATION MAP

Attachment E: Site Location Map



Tamalpais Environmental Consultants	SITE LOCATION MAP FORMER FAIRCHILD/ADVALLOY PROPERTY Palo Alto, California	-