

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 99-053

ADOPTION OF FINAL SITE CLEANUP REQUIREMENTS FOR:

TransTechnology Corporation,
SRI International, and
City and County of San Francisco Water Department

for the property located at

Calaveras Reservoir Facility
End of Marsh Road
Five Miles East of the City of Milpitas
Santa Clara County

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

1. **Site Location:** The Calaveras Reservoir Facility, hereinafter called the Site, consists of approximately 3.2 acres of open range land and is located approximately 5 miles east of Interstate Highway 680 at the south end of San Francisco Bay. The Site is immediately south of the Calaveras Reservoir, in the Diablo Mountain Range. Site location maps are presented as Figures 1 and 2.
2. **Site History:** The City and County of San Francisco (City) has been and is the current owner of the Site. The Site was leased from the City by the Stanford Research Institute (SRI) in 1948 and subsequently developed in 1958. SRI conducted chemistry research at the Site. From 1972 to 1982 SRI subleased the Site to an ordnance device manufacturing company called Space Ordnance Systems (SOS). The successor to SOS is TransTechnology (TTC). In 1982 Quantic Industries purchased the SOS operation at the Site and directly negotiated a new lease from the City. Quantic Industries sold its name in January 1993, and took the name of QI Holdings Inc. for purpose of liquidation of property and operations. In May 1993 operations at the Site ceased and QI Holdings Inc. retained responsibility for closing the Site. In 1995, SRI and TTC through a settlement agreement with QI Holdings, Inc. agreed to perform future monitoring at the Site.

Principal historic activities at the Site included the design, development, commercial manufacturing, and testing of various pyrotechnic, propellant, and explosive technologies/products.

3. **Named Dischargers:** Stanford Research Institute and TransTechnology are named as dischargers because of (1) evidence that they assumed responsibility for the presence of, trichloroethene (TCE), (2) the presence of TCE in soil in the immediate vicinity of the former leak detection sump (FLDS), and (3) the presence of TCE in groundwater at and down-gradient of the FLDS and fire protection tank.

The City and County of San Francisco is named as a secondary discharger because it owned the property during and after the time of the activity that resulted in the discharge, had knowledge of the activities that caused the discharge, and had the legal ability to prevent the discharge. The City and County of San Francisco will be responsible for compliance only if the Board or Executive Officer finds that other named dischargers have failed to comply with the requirements of this Order.

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

4. **Regulatory Status:** This site is currently not subject to Board Order.
5. **Site Hydrogeology:** Based on evaluations of the stratigraphic and hydraulic data, the Site is underlain by an unconfined aquifer. The saturated portion of the water table aquifer consists primarily of poorly and well sorted gravels with variable amounts of sand and clay. Based on several years worth of monitoring well data, it is apparent that the Calaveras Reservoir directly controls the groundwater flow patterns and water table fluctuations beneath the Site. The water levels have fluctuated over 120 feet from 1988 to 1995, and thus, it is estimated that the magnitude of the water table fluctuations beneath the Site have also been on the order of 120 feet over the same 7-year period.
6. **Remedial Investigation:** In July and August of 1994, Treadwell & Rollo, Environmental and Geotechnical Consultants on behalf of QI Holdings, Inc., performed a Remedial Investigation at the Site. Iconco, a demolition contractor, demolished and removed Building 7, associated outbuildings, the septic/effluent tank, and the Underground Fire Protection Water Tank (UFPWT).

The septic/effluent tank was removed in one piece, with no breaks and staining observed, no odors were noticed. The interior of the UFPWT was inspected prior to removal and no cracks or breaks were observed. Chemical odors were noticed in soil near the piping inlet to the UFPWT. These impacted soils were excavated and stockpiled adjacent to the tank and were subsequently disposed of off Site. No staining or odors were observed beneath the base of the tank. After the demolition of the Building 7 structure, subsurface piping beneath the building slab was removed, no breaks or odors were observed beneath the piping.

A total of 50 subsurface soil samples were collected as part of the Remedial Investigation. Twenty-nine samples were collected from beneath the floor slab of Building 7, with 28 being collected from beneath drains or at locations along the subsurface piping. The results of the analyses indicated that four VOCs were frequently detected in the soils: TCE, PCE, 1,1,1-TCA, and methylene chloride. The presence of methylene chloride may have been due to laboratory contamination. Freon 113 was detected in two locations, cis-1,2-DCE, chlorobenzene, and 1,2-dichlorobenzene were detected in one location. Lead was detected at eight locations, all results being less than the California TTLC. Previous investigations had found TCE as high as 11,000 µg/kg in soil (one location), however the TCE average concentration in soil was approximately 100 µg/kg.

As part of the Remedial Investigation, four monitoring wells were installed. Groundwater samples were analyzed for VOCs, PNAs, metals, and total petroleum hydrocarbons. The only organic compounds detected in groundwater samples were TCE and Freon 113. The highest concentration of TCE was found to be 33 µg/L, the CA MCL is 5 µg/L. Freon 113 was detected at 2 µg/L, significantly below the CA MCL of 1,200 µg/L. Barium was the only metal detected, at a maximum concentration of 100 µg/L, below the CA MCL and EPA MCL of 1,000 µg/L.

Several additional investigations have been conducted since the RI was completed in 1994. These investigations have included the installation of several additional monitoring wells. However, no significant contamination has been discovered.

7. **Risk Assessment:** In July 1997, Conestoga-Rovers & Associates (CRA), submitted on behalf of TTC and SRI, the Focused Feasibility Study (FFS). The evaluation of risk was completed as a part of the FFS. The human health risk assessment was conducted in order to evaluate the following risk hypothetical scenarios:

- human health risks associated with potential potable use of untreated surface water from the assumed mixing zone within the Calaveras Reservoir based on the calculated maximum potential concentrations of TCE and 1,1-dichloroethene (1,1-DCE);

	MEAN CANCER RISK	RME CANCER RISK
TCE	9.18×10^{-8}	2.24×10^{-7}
1,1-DCE	2.86×10^{-6}	6.97×10^{-6}
TOTAL	2.95×10^{-6}	7.20×10^{-6}

- human health risks associated with potential future potable use of the shallow Site groundwater (i.e., <50 foot bgs) based on maximum observed concentrations of TCE and 1,1-DCE: and

	MEAN CANCER RISK	RME CANCER RISK
TCE	3.28×10^{-6}	7.99×10^{-6}
1,1-DCE	9.30×10^{-5}	2.27×10^{-4}
TOTAL	9.62×10^{-5}	2.35×10^{-4}

For the above hypothetical scenarios the non-carcinogenic hazard indices were below 1.0, the level of concern. The estimated maximum cumulative lifetime cancer risks associated with the hypothetical consumption of untreated surface water from the Calaveras Reservoir, immediately adjacent to the Site, are estimated to be 3.0×10^{-6} for the most likely exposure scenario, defined as Mean and 7.2×10^{-6} for the Reasonable Maximum Exposure (RME), both of which are within the U.S. EPA's acceptable risk range of 1.0×10^{-6} to 1.0×10^{-4} . The actual lifetime cancer risk would be several orders of magnitude lower when Site-related compounds are diluted in the reservoir.

By comparison, the estimated maximum cumulative lifetime cancer risks associated with the hypothetical future consumption of groundwater from the Site are estimated in the FFS to be 9.6×10^{-5} Mean and 2.4×10^{-4} RME. More recent (July 1998) data indicate a cumulative lifetime cancer risk of 1.9×10^{-6} Mean and 7.0×10^{-6} RME, both within the U.S. EPA's acceptable range of 1.0×10^{-6} to 1.0×10^{-4} .

Therefore, the current and future risks associated with groundwater at the Site and Site-related chemicals that may be present in the Calaveras Reservoir surface water are considered to be acceptable.

8. **Feasibility Study:** The following five alternatives were evaluated based upon their potential as remedial options:

- Alternative 1 – Monitored Natural Attenuation;
- Alternative 2 – In Situ Groundwater Air Sparging Treatment;
- Alternative 3 – Iron Treatment Wall;
- Alternative 4 – Hydraulic Containment (Mass Removal) of Areas With Higher TCE Concentrations; and
- Alternative 5 – Downgradient Hydraulic Containment of TCE Plume.

The detailed analysis of alternatives consisted of the evaluation of each alternative in terms of the following seven evaluation criteria:

1. overall protection of human health and the environment;
2. compliance with applicable or relevant and appropriate requirements (ARARs);
3. short-term impacts and requirements;
4. long-term impacts and permanence;
5. reduction of toxicity, mobility, and volume;
6. implementability and technical practicability; and
7. cost.

Based upon the evaluation presented in the FFS, Monitored Natural Attenuation (Alternative 1) has been recommended as the preferred alternative to address the environmental and human health concerns at the Site. Based on the low concentrations of Site-related parameters, and the historical rate of contaminant decrease, Monitored Natural Attenuation (MNA) would achieve MCLs within a reasonable timeframe (for the purpose of alternative evaluation in the FFS, CRA estimated that approximately 4 years would be required to achieve MCLs). Human health risks are currently acceptable and potential future health risks associated with the consumption of groundwater at the Site could be prevented, if necessary, by restricting groundwater uses until MCLs are achieved by natural attenuation.

The implementation of Alternatives 2, 3, 4, or 5 would not significantly decrease the timeframe to achieve MCLs in the groundwater beyond that which can be achieved with natural attenuation. A reduction in the estimated timeframe of 4 years for MNA is not considered to be necessary nor cost-effective given the acceptable health risks identified for the Site.

The implementation of Alternatives 3 or 5 to mitigate the off-Site migration of Site-related compounds to the Calaveras Reservoir is not necessary as the actual contaminant flux to the reservoir is essentially non-measurable. The current and future human health risks associated with the consumption of Site-related compounds in the water from the reservoir are acceptable.

MNA would include the implementation of a Groundwater Monitoring Program to track the progress of contaminant reduction via biodegradation and to act as an early warning system if the potential for off-Site impacts are identified. A Contingency Plan would be developed and implemented if off-Site impacts are identified by the Groundwater Monitoring Program.

This Board finds MNA acceptable. The results of sampling and analysis of natural attenuation parameters as outlined in the MNA Proposal, were submitted in December

1998. These results indicate that groundwater conditions beneath the Site are favorable for the aerobic cometabolic biodegradation of TCE and its degradation products. In addition to biodegradation other processes such as advection and adsorption are considered to be dominant natural attenuation mechanisms for TCE at the Site.

9. **Cleanup Plan:** On behalf of TTC and SRI, CRA prepared a proposal for the proposed components for the Monitored Natural Attenuation Remedy. The May 29, 1998 document (as augmented by the August 7, 1998 submittal) proposes a program that includes five components:

- MNA parameter monitoring;
- performance groundwater and surface water monitoring program;
- development of a Contingency Plan;
- implementation of a statistical evaluation of natural attenuation trends for a TCE trigger in groundwater; and
- establishment of trigger levels for surface water quality.

MNA parameter monitoring: The sampling for natural attenuation parameters was conducted in July 1998. The results indicated that TCE concentrations within the plume are decreasing, this (first line of evidence), in combination with conditions that are favorable to the aerobic biodegradation of TCE (second line of evidence), provide strong evidence that MNA is appropriate at the Site.

Performance Groundwater and Surface Water Monitoring Program: The Performance Groundwater and Surface Water Monitoring Program (SMP) will be conducted to demonstrate that natural attenuation is occurring according to expectations, to identify any potentially toxic biodegradation transformation products, to detect if the plume is expanding, and to ensure that the Calaveras Reservoir is not impacted by TCE or its biodegradation products.

Development of a Contingency Plan: The requirement of a contingency plan will provide "backup" active remediation for immediate implementation should natural attenuation fail to perform as anticipated. Failure of natural attenuation for the Site will be defined as an exceedance of the trigger levels, as defined below. The Contingency Plan will be Hydraulic Containment as presented as Alternative 4 in the FFS. However, the selection of the contingency remedy will be flexible to allow for the incorporation of any new information about Site risks and technologies.

Implementation of a Statistical Evaluation of Natural Attenuation Trends for a TCE Trigger in Groundwater: To demonstrate the effectiveness of natural attenuation at the Site, a statistical trend analysis of TCE concentrations at groundwater monitoring wells

will be performed. The preferred statistical test is linear regression analysis with 95 percent confidence intervals. As detailed in both the May 29, 1998, August 7, 1998 submittals and the attached Self-Monitoring Program (SMP), a statistical assessment of newly acquired TCE data in relation to the trend established for each of the wells will be conducted annually following the semi-annual monitoring events. The trigger for groundwater at the Site will be a change in trend that indicates that TCE is no longer decreasing at a rate that will result in achieving MCLs within a reasonable time frame within the plume. However, the evaluation must consider the overall trend within the plume [as opposed to any particular monitoring well].

Establishment of Trigger Levels For Surface Water Quality: In the case of the Calaveras Reservoir surface water, the proposed trigger levels for implementation of the Contingency Plan to assure no further degradation of the beneficial uses of the Calaveras Reservoir is the detection of TCE or 1,1-DCE at or above the detection limit of 1 µg/L.

10. **Basis for Cleanup Standards**

- a. **General:** State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives. The previously-cited cleanup plan confirms the Board's initial conclusion that background levels of water quality cannot be reasonably restored, but the proposed plan will at least achieve MCLs to maintain the drinking water beneficial use. 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 Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. A summary of regulatory provisions is contained in Title 23, California Code of Regulations, Section 3912. The Basin

Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters.

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 total dissolved solids (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:

- o Municipal and domestic water supply
- o Industrial process water supply
- o Industrial service water supply
- o Agricultural water supply
- o Freshwater replenishment to surface waters

The existing and potential beneficial uses of the Calaveras Reservoir include:

- o Municipal and domestic supply
- o Agricultural supply
- o Groundwater recharge
- o Wildlife habitat
- o Cold freshwater and warm freshwater habitat
- o Preservation of rare and endangered species

- c. **Basis for Groundwater Cleanup Standards:** The groundwater cleanup standards for the site are based on applicable water quality objectives and are the more stringent of EPA and California primary maximum contaminant levels (MCLs). Cleanup to this level will also result in acceptable residual risk to humans.
11. **Reuse or Disposal of Extracted Groundwater:** 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.
 12. **Basis for 13304 Order:** 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.

13. **Cost Recovery:** Pursuant to California Water Code Section 13304, the dischargers are hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order.
14. **CEQA:** This action is an Order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.
15. **Notification:** The Board has notified the 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.
16. **Public Hearing:** The 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 its agents, successors, or assigns) shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

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

B. CLEANUP PLAN AND CLEANUP STANDARDS

1. **Implement Cleanup Plan:** The dischargers shall implement the cleanup plan described in finding 9 and as detailed in CRA's May 29, 1998 and August 7, 1998 submittals.
2. **Groundwater Cleanup Standards:** The following groundwater cleanup standards shall be met within four years of the effective date of this Order or the shortest reasonable time thereafter as determined by the Board in all wells identified in the Self-Monitoring Program:

Constituent	Standard (ug/l)	Basis
TCE	5	MCL
1,1-DCE	6	MCL

C. TASKS

1. **IMPLEMENTATION OF MONITORED NATURAL ATTENUATION PROGRAM**

COMPLIANCE DATE: October 20, 1999

Submit a technical report acceptable to the Executive Officer documenting completion of necessary components identified in the Cleanup Plan, as established in Finding 9. The Contingency Plan component described in the report shall state that the Responsible Party will implement it upon order by the Board and any one of the following triggering events:

1. A change in trend indicating that TCE and 1,1-DCE will not achieve MCL within four years (based on the slope of the regression line) or the shortest reasonable time thereafter as determined by the Board. The evaluation must consider the overall trend in the plume, as opposed to any one particular monitoring well;
2. Detection of TCE, 1,1-DCE or vinyl chloride related to the Site in the surface water of the nearby Calaveras Reservoir at or above the detection limit of 1 µg/L;
3. In response to revision of drinking water standards, maximum contaminant

levels, or other health based criteria, the Regional Board determines that active remediation is necessary.

Regional Board staff shall review annual status reports to assess the technical practicability of achieving the cleanup standards. Should the Regional Board determine that MCLs are not projected to be met within four years or the shortest reasonable time thereafter as determined by the Board, the primary responsible party shall be required to immediately implement the Contingency Plan. If required, the primary responsible party shall submit a Remedial Action Plan based on the Contingency Plan no later than 60 days after receiving notification by the Regional Board. The Remedial Action Plan shall be implemented no later than 90 days after receiving approval from the Regional Board.

2. ANNUAL STATUS REPORT

COMPLIANCE DATE: Annually beginning October 20, 2000

Submit a technical report acceptable to the Executive Officer evaluating the effectiveness of the approved cleanup plan. This report may be submitted in conjunction with the SMP. The report should 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. Summary of additional investigations (including results) and significant modifications to the Cleanup Plan
- d. Additional remedial actions proposed to meet cleanup standards (if applicable) including time schedule

If cleanup standards have not been met and are not projected to be met within the 4-year timeframe, the report should assess the technical practicability of meeting cleanup standards and may propose an alternative cleanup strategy.

3. PROPOSED CURTAILMENT

COMPLIANCE DATE: 60 days prior to proposed curtailment

After one year's monitoring demonstrating that all wells at the site are at or below MCLs, the responsible party may submit a technical report acceptable to the

Executive Officer containing a proposal to curtail the monitoring of natural attenuation. 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.

4. **IMPLEMENTATION OF CURTAILMENT**

COMPLIANCE DATE: 60 days after Executive Officer approval

Submit a technical report acceptable to the Executive Officer documenting completion of the tasks identified in Task 3.

5. **EVALUATION OF NEW HEALTH CRITERIA**

COMPLIANCE DATE: 90 days after requested
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.

6. **EVALUATION OF NEW TECHNICAL INFORMATION**

COMPLIANCE DATE: 90 days after requested
by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating new technical information which bears on the approved cleanup plan and cleanup standards for this site. In the case of a new cleanup technology, the report should 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.

At such time new analytical methods with lower detection limits are promulgated by the Board for the analysis of VOCs, they shall be incorporated into the monitoring plan. Any detection in the surface water's of the nearby reservoir of TCE, 1,1-DCE or vinyl chloride related to the Site under the new analytical protocols shall be evaluated by the Board and will trigger the Contingency Plan if determined to be necessary by the Board.

7. **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 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 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 Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the site addressed by this Order is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the 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 Board or its authorized representative (SRI and TTC):
 - 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. **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.
6. **Lab Qualifications:** All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g. temperature).
7. **Document Distribution:** Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies:
 - a. County of Santa Clara – Department of Environmental Health
 - b. Santa Clara Valley Water District
 - c. Alameda County Health Agency-Department of Environmental Health
 - d. Alameda County Water District
8. **Reporting of Changed Owner or Operator:** The dischargers shall file a technical report on any changes in site occupancy or ownership associated with the property described in this Order.
9. **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 Regional Board by calling (510) 622-2369 during regular office hours (Monday through Friday, 8:00 to 5:00).

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

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

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

I, Loretta K. Barsamian, 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 July 21, 1999.



Loretta K. Barsamian
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

Attachments: Site Location Maps
Self-Monitoring Program

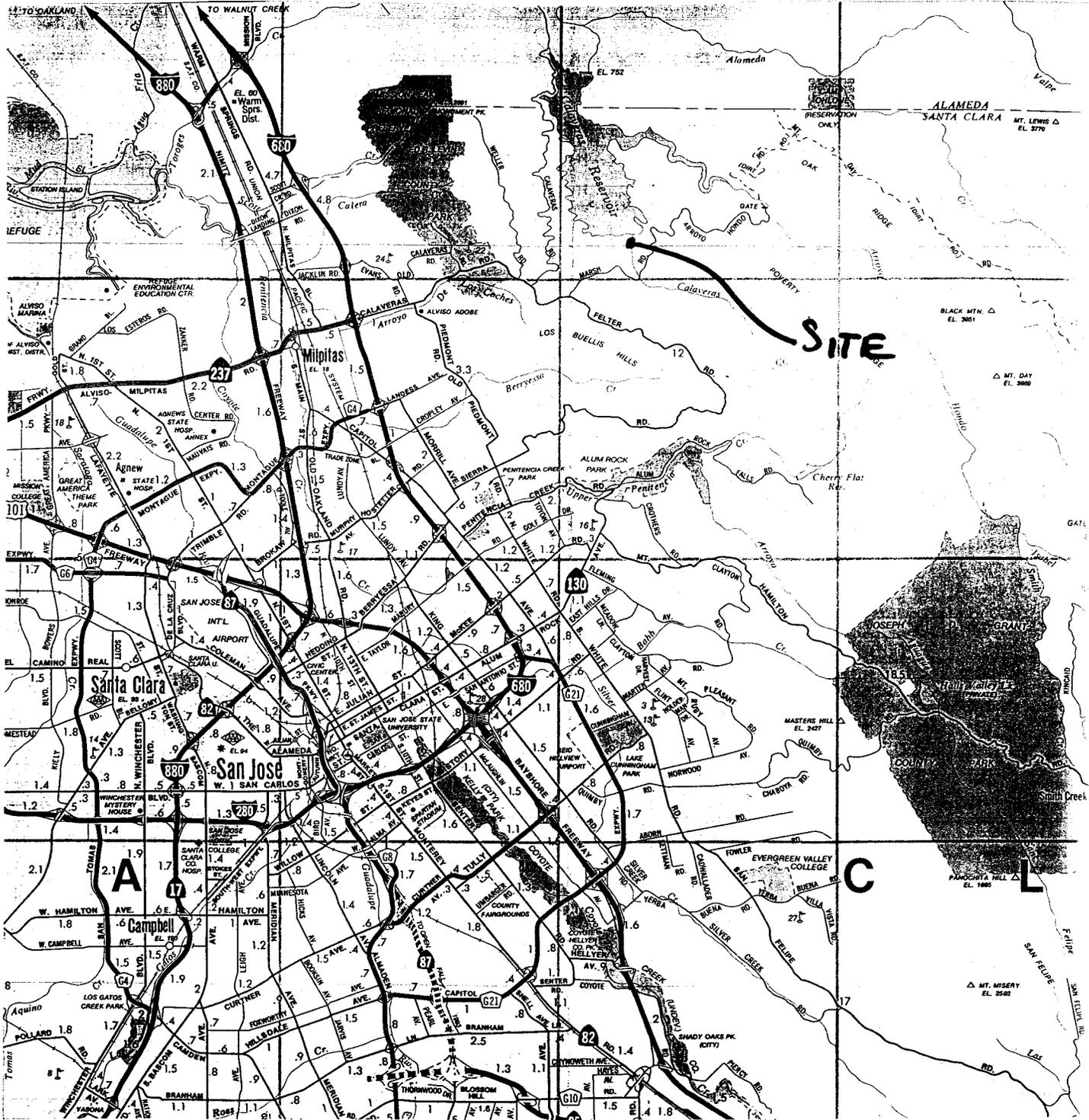
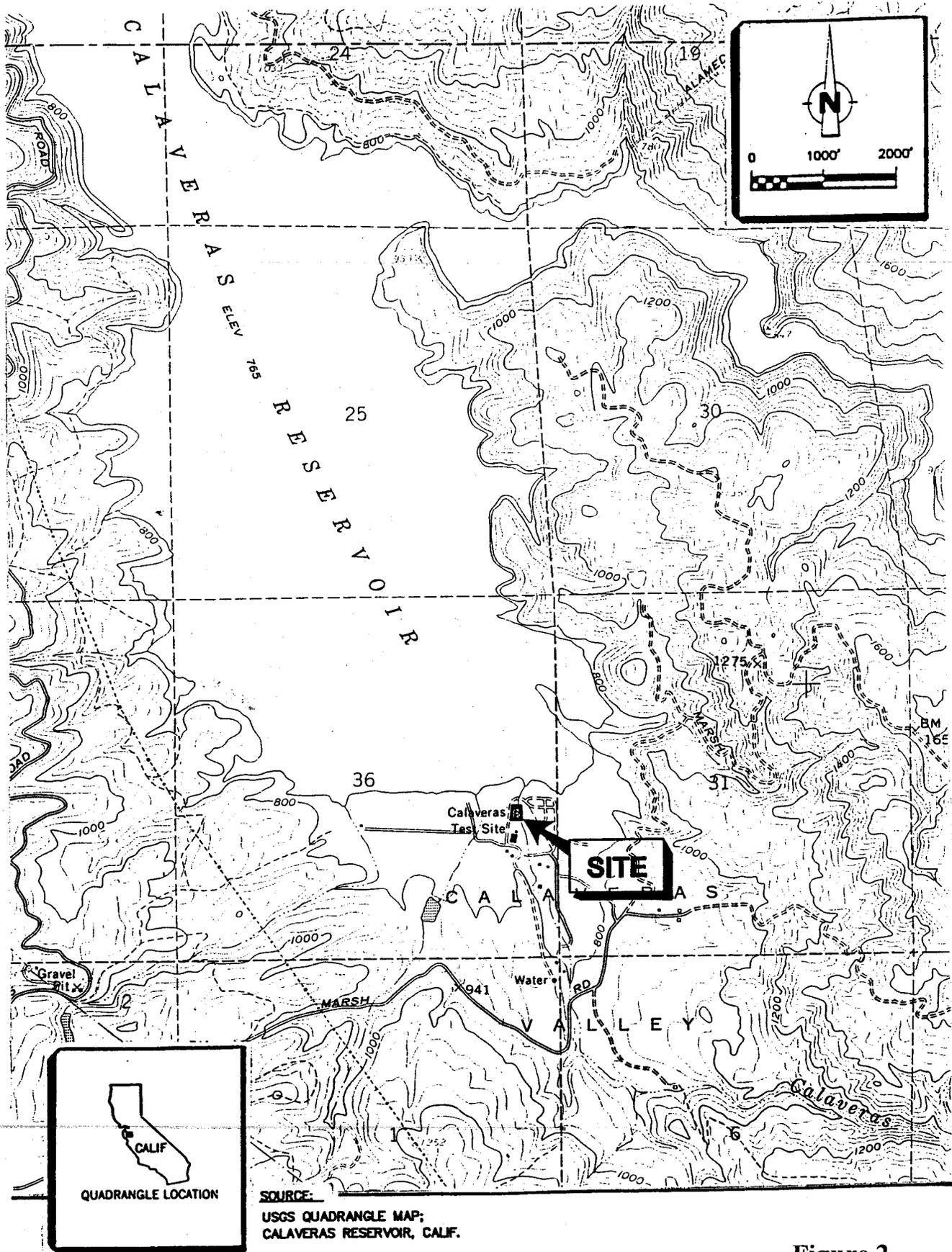


Figure 1
 SITE LOCATION
 CALAVERAS RESERVOIR SITE



SOURCE:
USGS QUADRANGLE MAP;
CALAVERAS RESERVOIR, CALIF.

Figure 2
SITE LOCATION
CALAVERAS RESERVOIR SITE

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR:

TransTechnology Corporation,
SRI International, and
City and County of San Francisco Water Department

for the property located at

Calaveras Reservoir Facility
End of Marsh Road
Five Miles East of the City of Milpitas
Santa Clara County

1. **Authority and Purpose:** The Board requests the technical reports required in this Self-Monitoring Program pursuant to Water Code Sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Board Order No. 99-053 (final site cleanup requirements).
2. **Monitoring:** The discharger shall measure groundwater elevations semi-annually in all monitoring wells, and shall collect and analyze representative samples of groundwater according to the following table:

Well #	Sampling Frequency	Analyses	Well #	Sampling Frequency	Analyses
MW1	SA	8010			
MW4	SA	8010			
MW8S-96	SA	8010			
MW9-96	SA	8010			

Key: Q = Quarterly 8010 = EPA Method 8010 or equivalent
 SA = Semi-Annually 8020 = EPA Method 8020 or equivalent
 A = Annually 8240 = EPA Method 8240 or equivalent

One surface water sample shall be collected from the Calaveras Reservoir on a semi-annual basis in conjunction with the semi-annual performance monitoring program for groundwater. Surface water samples shall be analyzed for VOCs according to EPA Method 8010.

3. **Semi-annual Monitoring Reports:** The discharger shall submit semi-annual monitoring reports to the Board no later than 60 days following the end of the sampling event. The first semi-annual monitoring report **shall be due on October 20, 1999**. The reports shall include:
- a. **Transmittal Letter:** The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall be signed by the discharger's principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.
 - b. **Groundwater Elevations:** Groundwater elevation data shall be presented in tabular form, and a groundwater elevation map shall be prepared for each monitored water-bearing zone. Historical groundwater elevations shall be included in the second semi-annual report each year.
 - c. **Groundwater and Surface Water Analyses:** Groundwater and surface water sampling data shall be presented in tabular form. An isoconcentration map shall be prepared for one or more key contaminants (i.e., trichloroethene (TCE)) for groundwater, as appropriate. The report shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC data. Historical groundwater and surface water sampling results shall be included in each semi-annual report. Supporting data, such as lab data sheets, need not be included (however, see record keeping - below).
 - d. **Evaluation of Groundwater Analytical Results:** To demonstrate the effectiveness of natural attenuation at the Site, a statistical trend analysis of TCE concentrations at groundwater monitoring wells MW1, MW4, MW8S-96, and MW9-96 shall be performed on an annual basis. The results of this evaluation shall be presented in the semi-annual monitoring report for the second semi-annual monitoring event each year.

A statistical assessment of newly acquired TCE data in relation to the trend established for each of the four wells shall be conducted using linear regression with 95 percent confidence intervals at the end of every two semi-annual monitoring events. The regression line and associated confidence intervals shall be re-calculated for each well on an annual basis using the newly acquired data for the two semi-annual sampling events. TCE concentrations shall be compared to the 95 percent confidence intervals and the slope of the new regression line shall be compared to the slope of the former regression line.

TCE concentrations that fall below the upper 95 percent confidence interval established for each well, will indicate that the new TCE data are consistent with the observed decreasing trend established by the regression line. This will be considered evidence of a continued decrease in TCE concentrations.

Exceedances of the upper 95 percent confidence interval shall be evaluated to determine how the rate of change in TCE concentrations has been affected at each well location. Exceedances of the upper 95 percent confidence interval at a particular well may be the result of one of the following factors:

- an anomolous result (i.e., an outlier) due to factors such as sampling or laboratory error;
- an occasional failure of an individual monitoring result to lie within the 95 percent confidence intervals (i.e., this is expected to occur 5 percent of the time); or
- a significant elevation in TCE concentration.

Outliers shall be determined by comparison to the TCE results for the other monitoring events. If it is determined that a result is an outlier it will be eliminated from further statistical evaluation. An actual exceedance of the upper 95 percent confidence interval at a particular well location will not, necessarily, indicate that TCE concentrations are no longer decreasing at that location. An exceedance of the upper 95 percent confidence interval may be the result of one of the following factors:

- a reduction in the rate of decrease in TCE from the historical trend (i.e., TCE concentrations are still decreasing but at a reduced rate);
- a leveling off of the rate of decrease in TCE (i.e., TCE concentrations have stabilized); or
- an increasing trend in TCE concentrations.

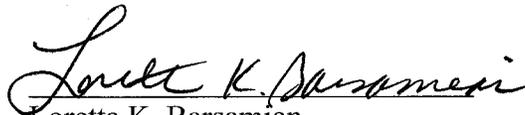
The slope of the new regression line shall be compared to the slope of the former regression line to determine changes, if any, in the rate of decrease of TCE concentrations. The trigger for the implementation of a groundwater contingency at the Site shall be a change in trend (or slope) that indicates that TCE is no longer decreasing at a rate that will result in achieving MCLs within a reasonable time frame within the plume (i.e., the slope of the regression line is zero or increasing). However, the evaluation shall consider the overall trend within the plume. For example, if, after re-calculating the regression lines, TCE concentrations are found not to be decreasing at a sufficient rate at a particular well location, but are found to be significantly decreasing throughout the majority of the plume, the overall effectiveness of natural attenuation in reducing TCE concentrations within the plume shall be considered the determining factor in deciding the need for the implementation of contingency remedial measures for groundwater.

- e. Evaluation of Surface Water Analytical Results: The proposed trigger level for surface water shall be the detection of TCE or 1,1-dichloroethene (1,1-DCE) at or above the detection limit of 1 ug/L for these compounds. If TCE or 1,1-DCE is detected, a second confirmatory surface water sample shall be collected immediately following receipt of the final analytical report for the initial positive result. If TCE or 1,1-DCE is detected in the confirmatory sample, active remedial measures, as specified in the Contingency Plan, shall be implemented to prevent

the migration of TCE or 1,1-DCE to the reservoir. Active remedial measures shall continue until TCE or 1,1-DCE is not detected in the reservoir as indicated by the semi-annual sampling program.

- 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 6 month period.
4. **Violation Reports:** If the discharger violates requirements in the Site Cleanup Requirements, then the discharger shall notify the Board office by telephone as soon as practicable once the discharger has knowledge of the violation. Board staff may, depending on violation severity, require the discharger to submit a separate technical report on the violation within five working days of telephone notification.
5. **Other Reports:** The discharger shall notify the Board in writing prior to any site activities, such as construction or underground tank removal, which have the potential to cause further migration of contaminants or which would provide new opportunities for site investigation.
6. **Record Keeping:** The discharger or his/her agent shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Board upon request.
7. **SMP Revisions:** Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the discharger. Prior to making SMP revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.

I, Loretta K. Barsamian, Executive Officer, hereby certify that this Self-Monitoring Program was adopted by the Board on July 21, 1999.


Loretta K. Barsamian
Executive Officer