CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 96-023

REVISING SITE CLEANUP REQUIREMENTS FOR:

FORD AEROSPACE CORPORATION,
SPACE SYSTEMS/LORAL,
SUN MICROSYSTEMS, and
FAR WESTERN LAND & INVESTMENT, INC.

for the property located at

3825, 3963, and 3977 FABIAN WAY
and 901 SAN ANTONIO ROAD
PALO ALTO
SANTA CLARA COUNTY

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

1. **Site Location**: The subject properties covered by this Order (hereinafter the Site) are located at 3825, 3963, and 3977 Fabian Way and 901 San Antonio Road in Palo Alto (see site map). The area covered by this Order is bordered by the Bayshore Freeway to the north, Fabian Way to the west, Charleston Road to the south, and San Antonio Road to the east excluding the former Chevron service station located at San Antonio Road and East Charleston Road and the two corner lots and the Western States Land Corporation property located at 849 East Charleston Road. The Site covers approximately 47 acres. Current operations at the site consist of fabrication of communications satellites and related communications equipment.

2. **Site History**: Former Ford Aerospace Corporation owned and occupied the large complex from 1959 to 1990. Loral Aerospace Holdings, Inc. purchased the assets of Ford Aerospace Corporation in 1990 and was renamed Space Systems/Loral. Building 3, located at 3825 Fabian Way, is owned by Space Systems/Loral. Buildings 7 and 8 of the facility, at 3977 and 3963 Fabian Way, respectively, are owned by Far Western Land & Investment, Inc. Building 1 and an adjoining parking lot to the south and east, located at 901 San Antonio Road was purchased by Sun Microsystems in 1988 (site map). Space Systems/Loral currently occupies all of the buildings at the site except for Building 1. The former Building 1 is still owned and occupied by Sun Microsystems.

3. **Named Dischargers**: Ford Aerospace Corporation is named as a discharger because it was the entity responsible for the release at the site of chemicals to the soil and groundwater.

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3. **Named Dischargers**: Ford Aerospace Corporation is named as a discharger because it was the entity responsible for the release at the site of chemicals to the soil and groundwater. Space Systems/Loral, Sun Microsystems, and Far Western Land & Investment, Inc. are named as dischargers because they are the current owners of discrete parts of the Site. 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 that party's name to this Order.

   By private agreement, Ford Motor Company assumed responsibility from Loral Aerospace Holdings, Inc. for compliance with Order No. 89-137. This was described in a letter to the Board from Loral Aerospace dated April 22, 1991. Since April 1991, Ford Motor Company has been the sole entity communicating with Board staff on matters related to site investigation and cleanup.

4. **Site Hydrogeology**: The site is underlain by a series of overlapping alluvial fans deposited by east-flowing streams descending from the Santa Cruz mountains. Depth to groundwater is approximately six to eight feet below the ground surface. The A-aquifer is comprised of silty sands and gravel materials found from about 10 to 28 feet below ground surface. The B-aquifer is comprised of silty sands and gravel materials found from about 42 to 55 feet below ground surface. The location and character of the deeper water bearing zones beneath the site are poorly understood. The regional groundwater gradient is northeast toward San Francisco Bay. The groundwater beneath the site is influenced by a foundation dewatering system beneath Building 5 that also functions as a groundwater extraction system to control pollutant plumes.

5. **Remedial Investigation**: Soil and groundwater investigation began in 1987. 24 wells were installed to monitor groundwater quality beneath the site. Historically, the principal VOCs detected at the site are trichloroethylene (TCE) (up to 1 ppm in soil and 1600 ppb in groundwater) and perchloroethylene (PCE) (up to 7.2 ppm in soil and 2300 ppb in groundwater). Other VOCs detected at the site include 1,1,1-trichloroethane, dichloroethylene, chloroform, and Freon 113.

   All source areas in soil have been identified and quantified. Groundwater concentrations have been reduced since remedial measures began. The highest groundwater concentrations for TCE and PCE are currently (December 1995 sampling results) about 670 ppb and 1100 ppb, respectively. The vertical and lateral extent of groundwater contamination has not been adequately addressed. The existence and extent of commingling with other groundwater plumes originating offsite has not been adequately defined.

6. **Interim Remedial Measures**: A groundwater dewatering system located at Building 5 is being used to dewater the building basement and results in the extraction of contaminated groundwater for treatment. Groundwater is being extracted at approximately 70 gallons per minute and treated in an air stripper. The effectiveness of the dewatering/extraction system should be reviewed at this time to evaluate its current performance and to propose

modifications as needed.

Between August 1995 and January 1996, over 5,700 cubic yards of contaminated soil in the vicinity of Buildings 7 and 8 was excavated and treated onsite. Treatment consisted of low temperature thermal desorption to meet a soil cleanup target of 50 ug/kg. After treatment, the soil was returned to the excavation. The dischargers submitted a "Project Summary Report for Soil Remediation at the Former Ford Aerospace Facility, Palo Alto, California," dated February 1, 1996. Soil remediation at the site is complete.

7. **Adjacent Sites**: Monitoring wells reporting VOCs are located at or adjacent to properties that are upgradient of the Site. These properties include (see site map) the KFC site (former Chevron service station), the former Shell service station, the Unocal site, the Arco site, the Microfab site, and the former Advalloy facility (East Charleston, Inc. site). The former Advalloy facility, located immediately south of the site at 844 East Charleston Road is considered a source of groundwater contamination. The Board adopted Site Cleanup Requirements for Advalloy in 1990 and revised these requirements on August 23, 1995, requiring investigation and cleanup at the former Advalloy site as appropriate. Monitoring well data indicate that groundwater pollution from the Advalloy site is impacting the Site.

8. **Regulatory Status**: The Board has adopted the following orders for this site:

   o Site Cleanup Requirements (Order No. 89-137) adopted August 16, 1989
   o Amendment to Site Cleanup Requirements (Order No. 93-091) adopted August 18, 1993
   o General NPDES Permit (Order No. 94-087) issued September 1, 1995

   The intent of this Order is to revise Order Nos. 89-137 and 93-091 to include requirements for completing remedial investigations and evaluating the performance of the groundwater remedial actions.

   In addition, the Department of Toxic Substances Control (DTSC) has issued a RCRA permit to Loral for storage of hazardous wastes at the Building 4 portion of the site. The storage has ceased, but DTSC has documented pollutant releases to soil from the Building 4 area. Soil remediation in the Building 4 area was not required because it was demonstrated through a risk assessment that the soil in the Building 4 area was below threshold levels. As such, DTSC is requiring groundwater in the Building 4 area to be characterized in order to complete the RCRA closure process. In order to eliminate overlapping and redundant regulatory oversight, the intent of this Order is to require groundwater investigation at the Building 4 area that addresses the criteria of both agencies.

9. **Basin Plan**: The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986, and the State Board approved it on May 21, 1987. The Board has amended the Basin Plan several times since then. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters.

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

a. Municipal and domestic water supply
b. Industrial process water supply
c. Industrial service water supply
d. Agricultural water supply

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

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

11. **State Water Board Policies**: State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Non-background cleanup levels 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.

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

12. **Preliminary Groundwater Cleanup Goals**: The discharger will need to make assumptions about future cleanup standards for groundwater in order to determine the necessary extent of remedial investigation, interim remedial actions, and the final cleanup plan. Pending the establishment of site-specific cleanup standards, the following preliminary cleanup goals should be used for these purposes:

    Groundwater: Applicable water quality objectives (e.g. maximum contaminant levels, or MCLs) or, in the absence of a chemical-specific objective, risk-based levels (e.g. drinking water equivalent levels).

13. **Basis for 13304 Order**: The discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.

14. **Cost Recovery**: Pursuant to California Water Code Section 13304, the discharger is hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this order.

15. **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.

16. **Notification**: The Board has notified the discharger and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.

17. **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 their agents, successors, or assigns) shall cleanup and abate the effects described in the above findings as follows:

A. **PROHIBITIONS**

1. The discharge of wastes or hazardous substances in a manner which will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.

2. Further significant migration of wastes or hazardous substances through subsurface transport to waters of the State is prohibited.

3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of wastes or hazardous substances are prohibited.

B. **TASKS**

1. **WORKPLAN TO INVESTIGATE BUILDING 4 RELEASES**

COMPLIANCE DATE: April 1, 1996

Submit a workplan acceptable to the Executive Officer to determine if Building 4 is a source of groundwater contamination. The workplan should specify investigation methods and a proposed time schedule.

2. **FINAL REPORT ON BUILDING 4 INVESTIGATION**

COMPLIANCE DATE: July 1, 1996

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 1 workplan. The technical report should conclude if Building 4 is a source of groundwater contamination and evaluate the effectiveness of the interim remedial measures in controlling potential groundwater pollution from Building 4. In concluding whether or not Building 4 is a source of groundwater pollution, the discharger should determine if there is a statistically significant difference between downgradient and upgradient pollutant concentrations.

3. **WORKPLAN TO COMPLETE REMEDIAL INVESTIGATION**

COMPLIANCE DATE: April 1, 1996

Submit a workplan acceptable to the Executive Officer to complete the definition of the vertical and lateral extent of groundwater pollution. The workplan should identify data gaps, specify investigation methods and a proposed time schedule. Work may be phased to allow the investigation to proceed efficiently.

4. **FINAL REPORT ON VERTICAL AND LATERAL EXTENT OF CONTAMINATION**

COMPLIANCE DATE: December 1, 1996

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 3 workplan. The technical report should define the vertical and lateral extent of pollution down to concentrations at or below typical cleanup standards for groundwater.

5. **EVALUATION OF INTERIM REMEDIAL ACTIONS**

COMPLIANCE DATE: December 1, 1996

Submit a technical report acceptable to the Executive Officer evaluating the performance of the interim groundwater remedial measures. The report should determine if the interim measures are accomplishing onsite source control and regional plume migration control of the contaminants found on the site. The report should also propose modifications as appropriate. Any proposed modification shall include a time schedule for completion.

6. IMPLEMENTATION OF REMEDIAL ACTION MODIFICATIONS

COMPLIANCE DATE: according to time schedule approved in Task 5.

Submit a technical report acceptable to the Executive Officer documenting the implementation of any modifications to the interim groundwater remedial measures proposed pursuant to Task 5.

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

C. PROVISIONS

1. **No Nuisance**: The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in California Water Code Section 13050(m).

2. **Good Operation and Maintenance (O&M)**: The discharger shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.

3. **Cost Recovery**: The 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 discharger over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.

4. **Access to Site and Records**: In accordance with California Water Code Section 13267(c), the dischargers shall permit the Board or its authorized representative:

   a. Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.

   b. Access to copy any records required to be kept under the requirements of this Order.

   c. Inspection of any monitoring or remediation facilities installed in response to this Order.

d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the 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 hydrogeologic documents (plans, specifications, and reports) shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer.

7. **Lab Qualifications**: All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g. temperature).

8. **Document Distribution**: Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies:

   a. Santa Clara County Health Department
   b. Santa Clara Valley Water District

9. **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.

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 Regional Board by calling (510) 286-1255 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.

11. **Secondarily-Responsible Dischargers**: Within 60 days after being notified by the Executive Officer that other named dischargers have failed to comply with this Order, Space Systems/Loral, Sun Microsystems, and/or Far Western Land & Investment, Inc as property owner shall then be responsible for complying with this Order.

12. **Rescission of Existing Order**: This Order rescinds Order Nos. 93-091 and 89-137.

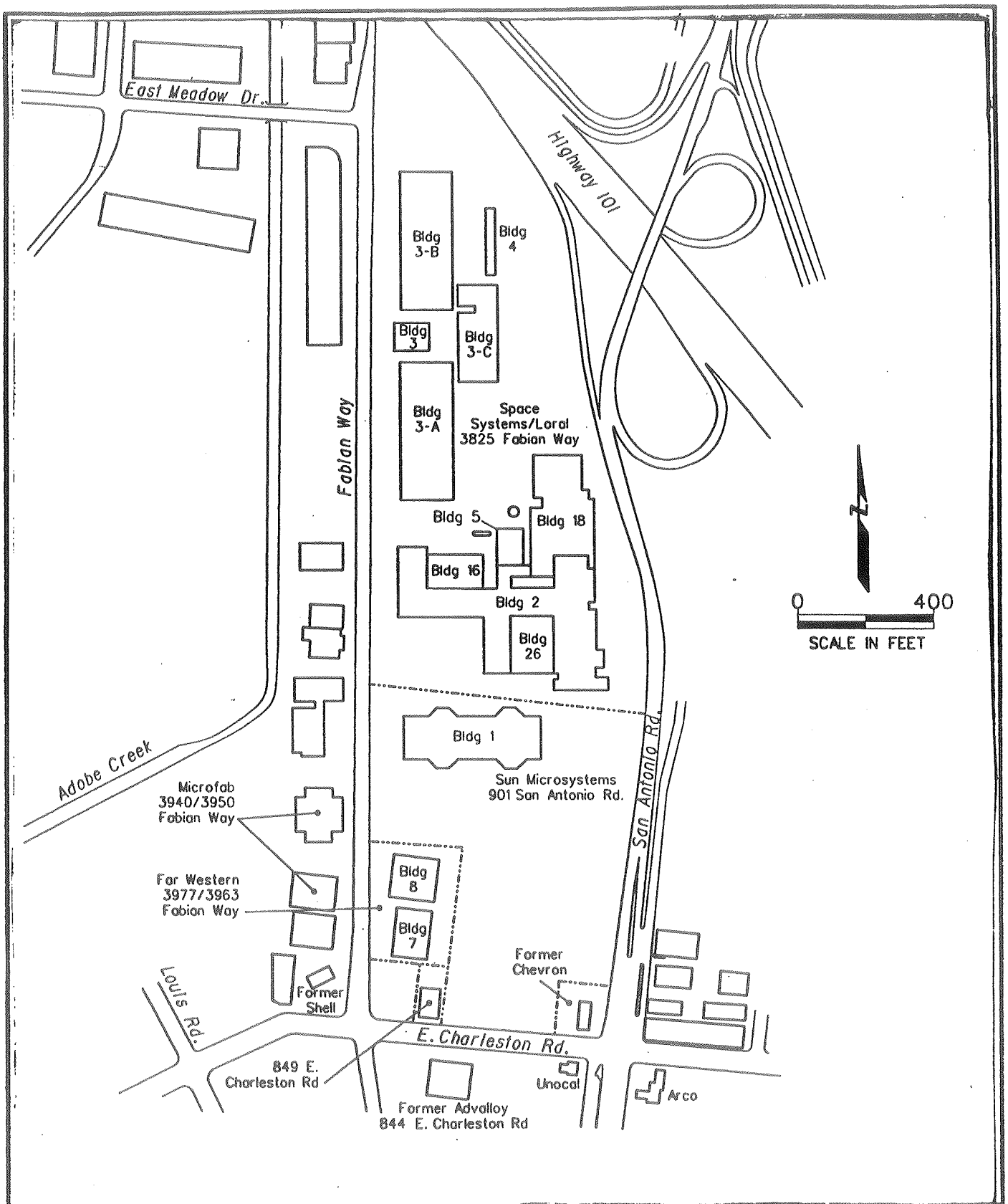
13. **Periodic SCR Review**: The Board will review this Order periodically and may revise it when necessary. The dischargers may request revisions and upon review the Executive Officer may recommend that the Board revise these requirements.

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 February 21, 1996.

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 13267 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY

Attachments: Site Map
Self-Monitoring Program



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

SITE MAP

DRAWN BY:	DATE:	DRWG. NO.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR:

FORD AEROSPACE CORPORATION,
SPACE SYSTEMS/LORAL,
SUN MICROSYSTEMS, and
FAR WESTERN LAND & INVESTMENT, INC.

for the property located at

3825, 3963, and 3977 FABIAN WAY
and 901 SAN ANTONIO ROAD
PALO ALTO
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. 96-023 (Site Cleanup Requirements).

2. **Monitoring**: The dischargers shall measure groundwater elevations quarterly in all monitoring wells (see monitoring well location map), and shall collect and analyze representative samples of groundwater according to the following schedule:

Well #	Sampling Frequency	Analyses	Well #	Sampling Frequency	Analyses
F-1	Q	8010/8240	F-14	Q	8010/8240
F-2	Q	8010/8240	F-15	Q	8010/8240
F-3	Q	8010/8240	F-16	Q	8010/8240
F-4	Q	8010/8240	F-17	Q	8010/8240
F-5	Q	8010/8240	F-18	Q	8010/8240
F-6	Q	8010/8240	F-19	Q	8010/8240
F-8	Q	8010/8240	F-20	Q	8010/8240
F-9	Q	8010/8240	F-21	Q	8010/8240
F-11	Q	8010/8240	F-22	Q	8010/8240

F-12	Q	8010/8240	F-23	Q	8010/8240
F-13	Q	8010/8240	F-24	Q	8010/8240

Key: Q = Quarterly 8010 = EPA Method 8010 or equivalent
8240 = EPA Method 8240 or equivalent

8010/8240 = EPA Method 8240 in lieu of 8010 for fourth quarter

The dischargers shall sample any new monitoring or extraction wells quarterly and analyze groundwater samples for the same constituents as shown in the above table. The dischargers may propose changes in the above table; any proposed changes are subject to Executive Officer approval.

3. **Quarterly Monitoring Reports**: The dischargers shall submit quarterly monitoring reports to the Board no later than 30 days following the end of the quarter (e.g. first quarter report due April 30). The first quarterly monitoring report shall be due on April 30, 1996. 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 be included in the fourth quarterly report each year.

   c. Groundwater Analyses: Groundwater sampling data shall be presented in tabular form, and an isoconcentration map should be prepared for one or more key contaminants for each monitored water-bearing zone, as appropriate. The report shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC data. Historical groundwater sampling results shall be included in the fourth quarterly report each year. The report shall describe any significant increases in contaminant concentrations since the last report, and any measures proposed to address the increases. Supporting data, such as lab data sheets, need not be included (however, see record keeping - below).

   d. Groundwater Extraction: If applicable, the report shall include groundwater extraction results in tabular form, for each extraction well and for the site as a whole, expressed in gallons per minute and total groundwater volume for the quarter. The report shall also include contaminant removal results, from groundwater extraction wells and from

other remediation systems (e.g. soil vapor extraction), expressed in units of chemical mass per day and mass for the quarter. Historical mass removal results shall be included in the fourth quarterly report each year.

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

4. **Violation Reports**: If the dischargers violate requirements in the Site Cleanup Requirements, then the dischargers shall notify the Board office by telephone as soon as practicable once the dischargers have knowledge of the violation. 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.

5. **Other Reports**: The dischargers 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.

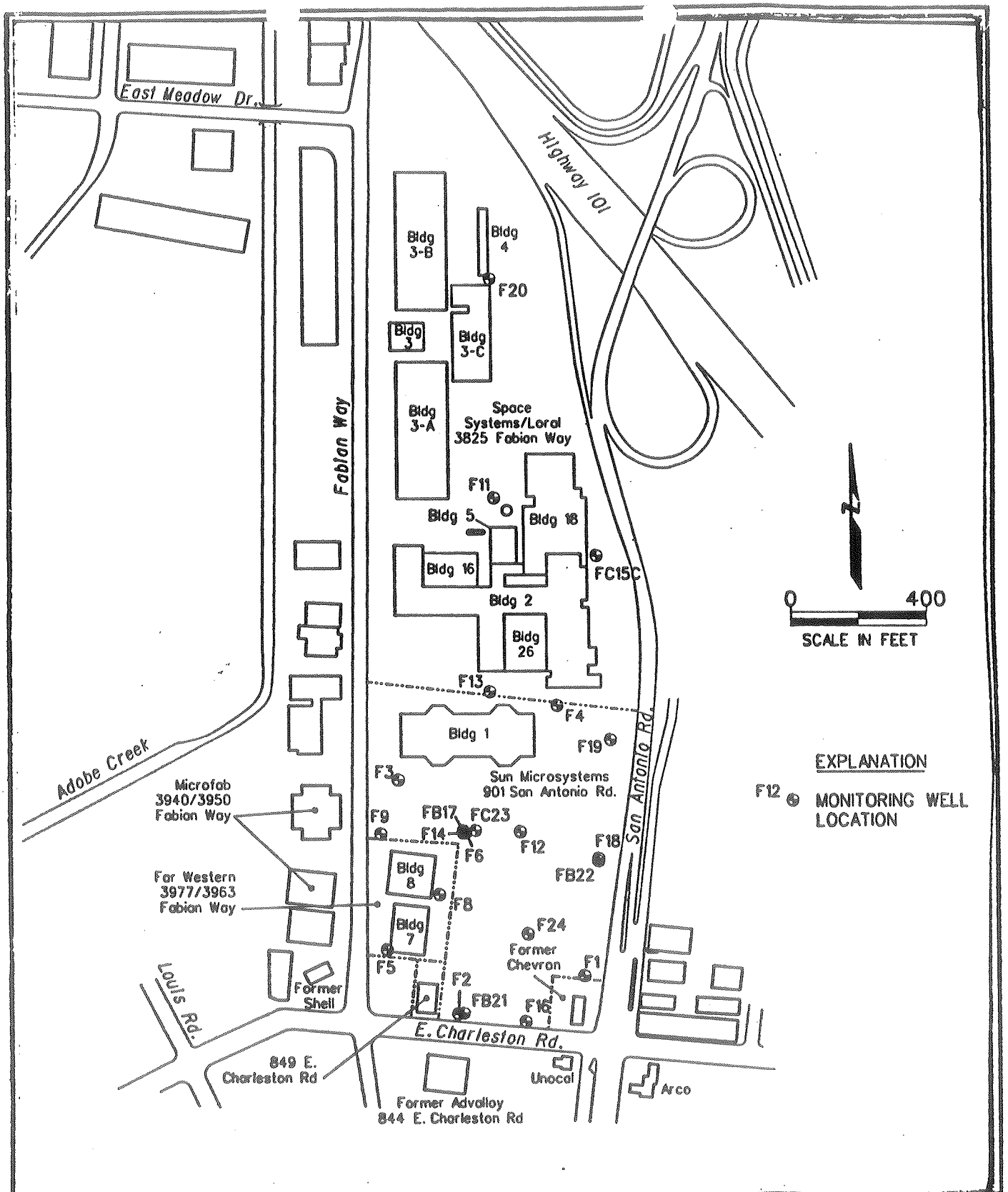
6. **Record Keeping**: The dischargers or their agent shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Board upon request.

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 February 21, 1996.

Loretta K. Barsamian
Executive Officer

Attachments: Monitoring Well Location Map



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

MONITORING WELL LOCATION MAP

DRAWN BY:	DATE:	DRWG. NO.