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3315 Almaden Expressway, Suite 34
San Jose, California 95118
(408) 264-7723 FAX (408) 264-2435

TO: MR. LARRY SETO
ALAMEDA COUNTY HEALTH CARE SERVICE
80 SWAN WAY
ROOM 200
OAKLAND, CA 94621

DATE: [REDACTED]
PROJECT NUMBER: 69034.05
SUBJECT: ADDENDUM TWO TO WORK PLAN

FROM: JOEL COFFMAN
TITLE: ASST. PROJECT GEOLOGIST

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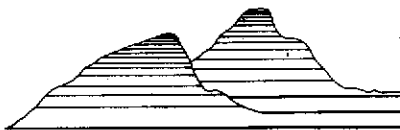
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Applied GeoSystems, Inc.

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**ADDITIONAL INFORMATION
INTERIM PRODUCT RECORD**

at

ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

AGS 69034.05

Prepared for
ARCO Products Company
P.O. Box 5811
San Mateo, California 94402

by

RESNA/Applied GeoSystems

May 18, 1991



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May 15, 1991
AGS 69034.05

Mr. Chuck Carmel
ARCO Products Company
P.O. Box 5811
San Mateo, California 94402

Subject: Addendum Two to Work Plan for Interim Product Recovery at ARCO Station
601, 712 Lewelling Boulevard, San Leandro, California.

Mr. Carmel:

As you requested, this letter has been prepared to serve as **Work Plan** (RESNA/Applied GeoSystems [AGS] 69034-4W, March 21, 1991) and is in response to the results of previous investigations conducted at the site indicating the **presence of floating product in two monitoring wells (MW-1 and MW-3)**. The location of the subject site is shown on the Site Vicinity Map, Plate 1. AGS' approach to work and the project task recommended to initiate interim remediation of floating hydrocarbon product at this site consists of the installation of total fluids recovery pumps in monitoring wells MW-1 and MW-3. The locations of existing monitoring wells, station building, underground storage tanks and other pertinent features are shown on Plate 2, Generalized Site Plan.

The following is a brief summary of previous work performed at the site by AGS:

In August 1989, AGS performed a limited environmental site assessment to evaluate the presence of hydrocarbons in the soil in the vicinity of the underground storage tanks prior to removal of four underground gasoline-storage tanks and one underground waste-oil-storage tank. Five soil borings were drilled and sampled, soil samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and the gasoline constituents benzene, toluene, ethylbenzene and total xylenes (BTEX). Selected soil samples collected from the boring near the waste-oil tank were also analyzed for total oil and grease (TOG) and halogenated volatile organics (VOC). A report was prepared including laboratory results and conclusions (AGS Limited Environmental Site Assessment, November 9, 1989).

In November 1989, GeoStrategies Inc. (GSI) of Hayward, California, prepared a Work Plan for ARCO and in January 1990, GSI observed removal of the four gasoline and one waste-

oil underground storage tanks. GSI collected soil samples from the excavation for laboratory analyses and prepared a report of the results for ARCO (GSI reports dated November 14, 1989 and June 29, 1990).

In June 1990, AGS conducted further subsurface environmental assessment which included drilling and sampling three soil borings, construction of three ground-water monitor wells in the borings, development and sampling of the wells, laboratory analyses of soil and ground-water samples, and preparation of report including laboratory results and conclusions (AGS Subsurface Environmental Assessment, December 14, 1990). The ground-water gradient was interpreted to be to the southwest. Quarterly ground-water monitoring and sampling was initiated in July 1990. Approximately 5 gallons floating hydrocarbon product have been bailed and removed from the site to date.

Work proposed in Addendum One to Work Plan is awaiting permission authorization from an offsite property owner for installation of an offsite monitoring well and should proceed shortly. The Work Plan and Addendum One to Work Plan was approved by Larry Seto of the Alameda County Health Care Services Agency on April 18, 1991.

Recommendations

AGS recommends the following work at the site based on previous investigations:

Install a total fluids recovery system to pump ground water from monitoring wells MW-1 and MW-3 as a means of interim remediation at the site. System will be installed to remove gasoline hydrocarbon impacted ground water from the onsite monitoring wells upon obtaining proper permits for temporary onsite product-storage, electrical equipment and hookups, and plumbing connections.

The extraction system will include an electric total fluids canister pump, ~~loading and removes product and water, creating a local cone of depression in the ground water table to promote product migration to the extraction wells (MW-1 and MW-3).~~ Also included in the system are a storage tank for recovered fluids, level switches, flow meter, PVC-encased hoses, and an activated carbon vent breather mounted on the storage tank. The total fluids recovery pump will be equipped with an explosion-proof motor.

Recovered fluids will be passed to an onsite holding tank and stored onsite for a period not to exceed 90 days and is periodically pumped and transported from the site by a licensed liquid hazardous waste hauler.

Monthly water-level measurements and quarterly ground-water sampling, initiated in August 1990, will continue at this site.

A report will be submitted describing the installation of the product recovery systems and product recovered will be reported on a monthly basis.

Work proposed in this Addendum Two to Work Plan will be performed in accordance to the protocol in the Work Plan (AGS, March 21, 1991) and the Site Safety Plan. A Preliminary Time Schedule (Plate 3) to install this interim remediation system has been attached to this Addendum. Subsequent addenda to the Work Plan will be prepared and submitted to ARCO and the regulatory agencies as necessary to describe future work to further delineate and remediate gasoline hydrocarbons in soil and ground water at the site.

Copies of this Addendum should be forwarded to:

Ms. Penny Silzer
Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

Mr. Guy Telham
San Leandro Fire Department
835 East 14th Street
San Leandro, California 94577

Mr. Larry Seto
Alameda County Health Care Services Agency
Hazardous Materials Division
80 Swan Way; Room 200
Oakland, California 94621

Addendum Two to Work Plan
ARCO Station 601, San Leandro, California

May 15, 1991
AGS 69034.05

If you should have any questions or comments about this Addendum to Work Plan, please call us at (408) 264-7723. Thank you.

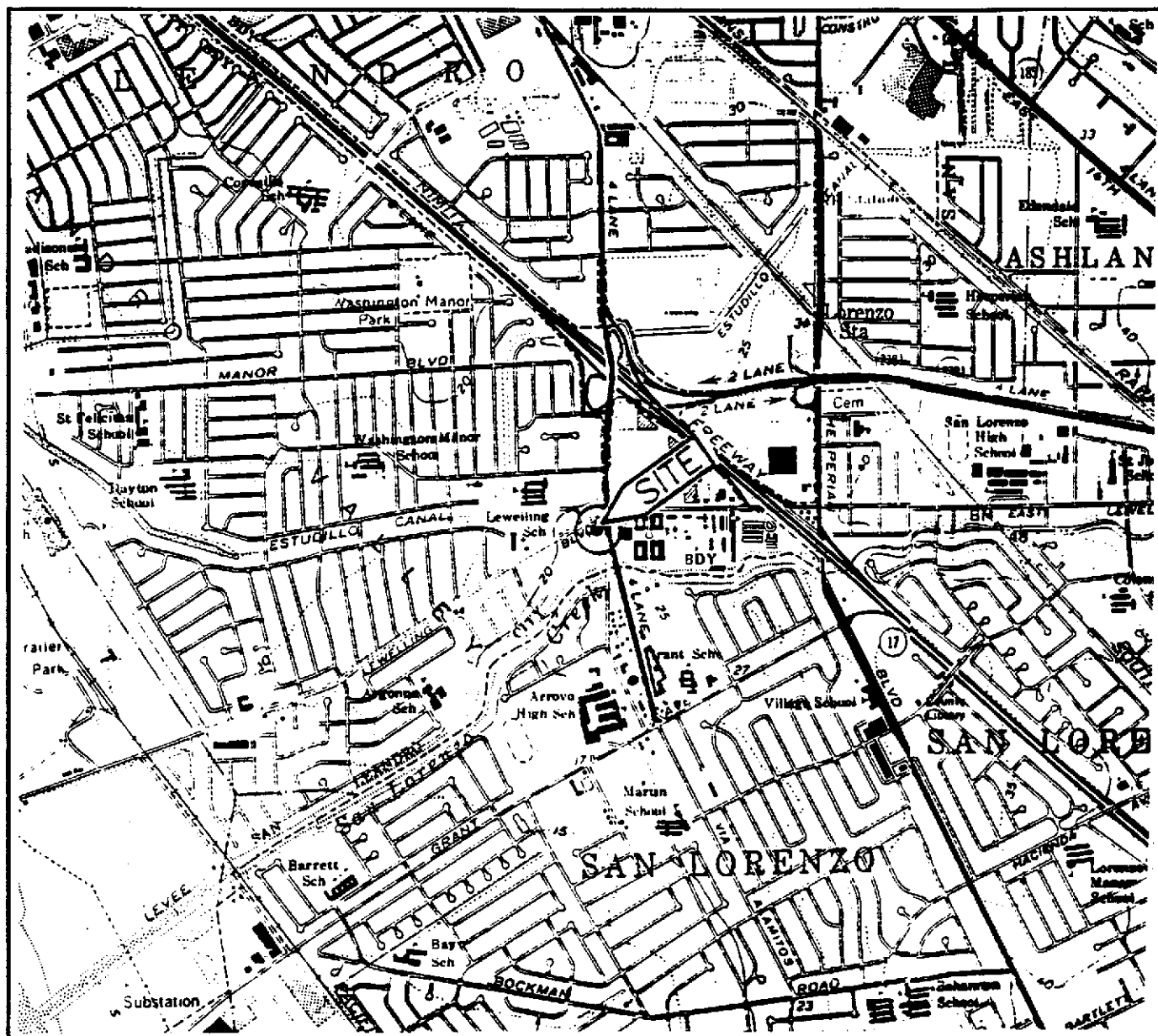
Sincerely,
RESNA\Applied GeoSystems



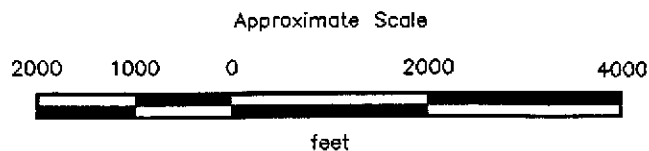
Joel Coffman
Assistant Project Geologist

Enclosures: Plate 1, Site Vicinity Map
 Plate 2, Generalized Site Plan
 Plate 3, Preliminary Time Schedule

cc: H.C. Winsor, ARCO



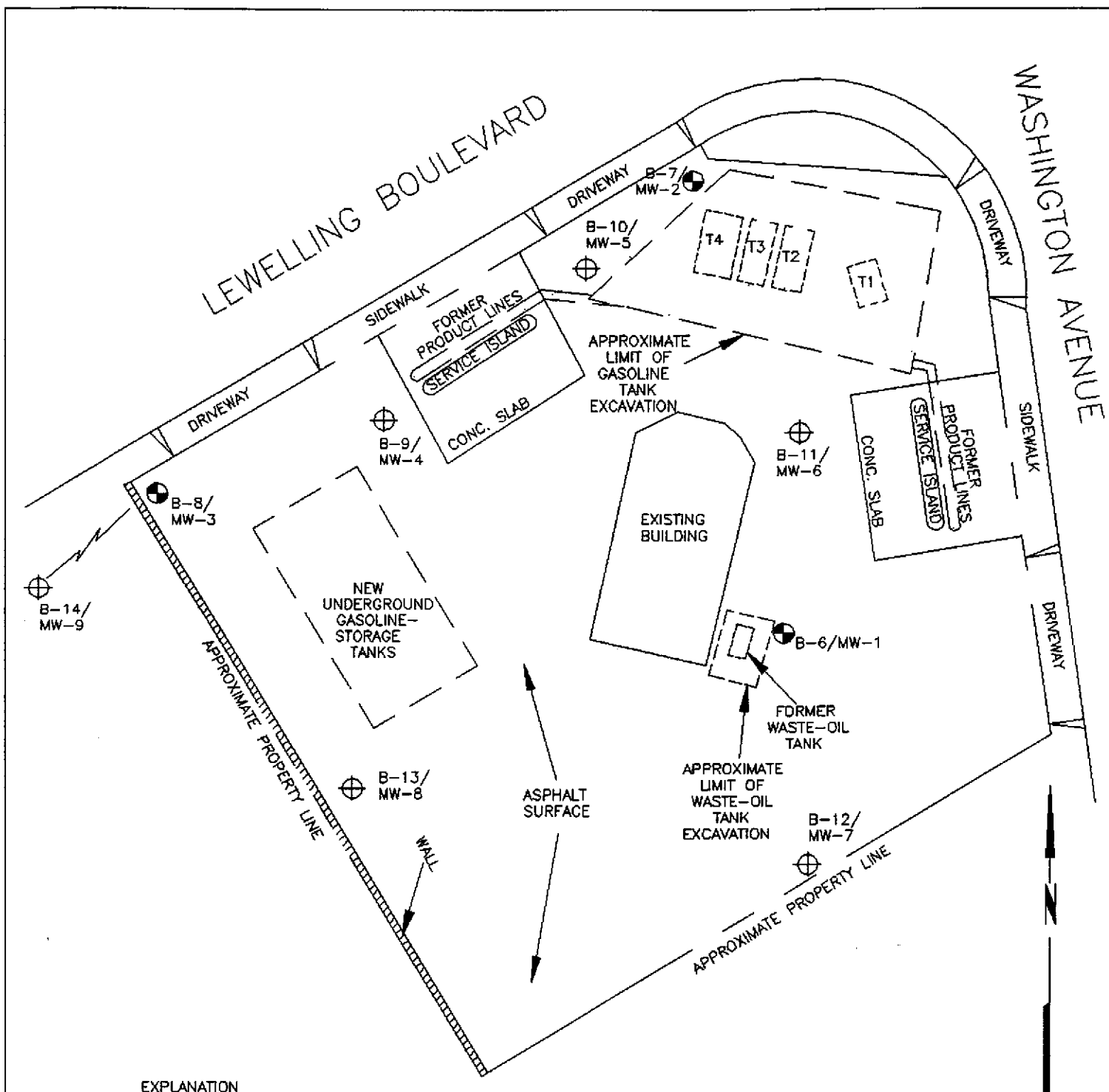
Source: U.S. Geological Survey
7.5-Minute Quadrangles
Hayward/San Leandro
California.
Photorevised 1980



PROJECT 69034-5

SITE VICINITY MAP
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
1



EXPLANATION

- = Proposed vapor/ground-water well
 = Ground-water monitoring well
 (Applied GeoSystems, June 1990)

Approximate Scale



Source: Surveyed by Ron Archer, Civil Engineer Inc.



PROJECT 69034-5

GENERALIZED SITE PLAN
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
2

STEP 1:

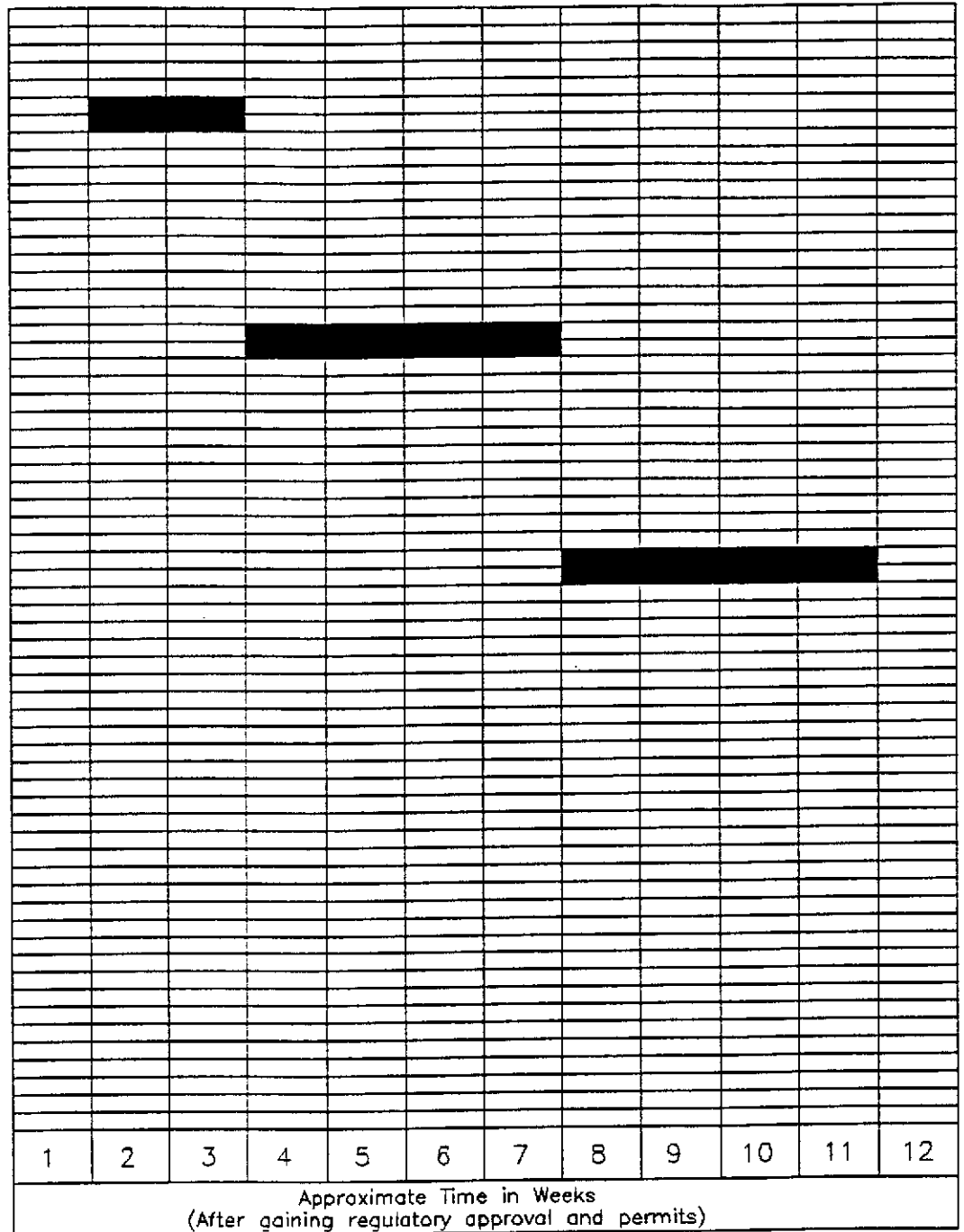
Acquire Permits from
City of San Leandro
Fire Department

STEP 2:

Install Interim Total
Fluids Removal System

STEP 3:

Report Preparation of
Installation of System



PROJECT

69034-5

PRELIMINARY TIME SCHEDULE
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE

3