Applied GeoSystems, Inc.
A RESNA Company

RESNA
Working To Restore Nature

3315 Almaden Expressway, Suite 34
San Jose, CA 95118
Phone: (408) 264-7723
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TRANSMITTAL

TO: MR. LARRY SETO
ALAMEDA COUNTY HEALTH CARE SERVICES
AGENCY-HAZ. MAT. DIVISION
80 SWAN WAY, ROOM 200
OAKLAND, CALIFORNIA 94621

DATE: 9/24/91
PROJECT NUMBER: 69036.02
SUBJECT: ARCO STATION 2035 LOCATED AT 1001 SAN PABLO AVENUE, ALBANY, CALIF.

FROM: JOEL COFFMAN
TITLE: PROJECT GEOLOGIST

WE ARE SENDING YOU [XX] Attached [ ] Under separate cover via _____ the following items:

[ ] Shop drawings [ ] Prints [XX] Reports [ ] Specifications

[ ] Letters [ ] Change Orders [ ] _____

COPIES	DATED	NO.	DESCRIPTION
1	9/24/91		FINAL-ADDENDUM TWO TO WORK PLAN FOR SUBSURFACE INVESTIGATION AND REMEDIATION FOR THE ABOVE SUBJECT SITE.

THESE ARE TRANSMITTED as checked below:

[ ] For review and comment [ ] Approved as submitted [ ] Resubmit ___ copies for approval

[ ] As requested [ ] Approved as noted [ ] Submit___ copies for distribution

[ ] For approval [ ] Return for corrections [ ] Return ___ corrected prints

[XX] For your files [ ] _____

REMARKS: THIS REPORT HAS BEEN FORWARDED TO YOU AT THE REQUEST OF MR. CHUCK CARMEL OF ARCO PRODUCTS COMPANY.

Copies: 1 to AGS project file no. 69036.02

SAN JOSE READER'S FILE

*Revision Date: 10/15/90
*File Name: TRANSMT.PRJ

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ADDENDUM TWO TO WORK PLAN FOR SUBSURFACE INVESTIGATIONS AND REMEDIATION

at

ARCO Station 2035
1001 San Pablo Avenue
Albany, California

69036-2

Prepared for
ARCO Products Company
P.O. Box 6411
Artesia, California 90702-6411

by

RESNA

September 24, 1991

Applied GeoSystems, Inc.
A RESNA Company

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Working To Restore Nature

3315 Almaden Expressway, Suite 34
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September 24, 1991
69036-2

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

Subject: Addendum Two to Work Plan for Subsurface Investigations and Remediation at ARCO Station 2035, 1001 San Pablo Avenue, Albany, California.

Mr. Carmel:

As you requested, this letter has been prepared to serve as Addendum Two to the Work Plan (RESNA/Applied GeoSystems [RESNA] 69036-2, April 29, 1991) for the subject site, and is in response to the results of the Applied GeoSystems Limited Environmental Site Assessment Report (AGS 69036-1, January 24, 1990), the letter from Alameda County Health Care Services Agency (ACHCSA) to ARCO Products Company (ARCO) requesting a plan of correction (March 28, 1991), and the results of the investigation related to the underground gasoline-storage tank removal and replacement (RESNA, September 11, 1991).

At the request of Mr. Larry Seto of the ACHCSA, Addendum Two to Work Plan has been prepared and supersedes Addendum One to Work Plan (RESNA, April 29, 1991) in an effort to accelerate investigation and initiate interim remediation (as necessary) at the site. The location of the subject site is shown on the Site Vicinity Map, Plate 1.

RESNA's recommended approach and project tasks to perform this phase of subsurface investigation at this site include the following: performing a well research of Alameda County Flood Control and Water Conservation District (ACFCWCD) records for water supply and monitoring wells within a 1/2-mile radius of the subject site, performing a records research of City of Albany Fire Department and ACFCWCD files for nearby and upgradient sites to locate possible offsite sources of gasoline hydrocarbons, drilling and sampling four additional soil borings (B-8 through B-11), installing one 6-inch recovery well (RW-1) in boring B-8 and three 4-inch groundwater monitoring wells (MW-1 through MW-3) in the borings B-9 through B-11, developing, sampling, and measuring water levels in the monitoring wells, surveying the monitoring wells for top-of-casing elevations relative to mean sea level datum by a licensed surveyor, performing laboratory analyses of soil and

groundwater samples, performing an aquifer pump test using recovery well RW-1 as a pumping well, initiate the permitting process for eventual discharge of recovered and treated groundwater, and preparing a report of the findings, conclusions and recommendations. The purpose of this work is to evaluate further the extent of gasoline hydrocarbons in the soil and investigate the possible impact of gasoline hydrocarbons in the groundwater, and to provide information necessary for remediation system design at the site.

PROPOSED WORK

RESNA recommends the following work at the site based on the previous investigation:

Step 1: submit Addendum Two to Work Plan to ACHCSA describing the proposed work for this phase for the subject site;

Step 2: perform a well research of ACFCWCD records for all water supply and monitoring wells within 1/2-mile radius of the subject site;

Step 3: research records of City of Albany Fire Department and ACFCWCD to identify potential offsite sources of gasoline hydrocarbons;

Step 4: update the site safety plan, obtain permits for installation of recovery/monitoring wells, and drill and obtain soil samples for soil classification and laboratory analysis from four onsite soil borings (B-8 through B-11) as shown on Plate 2, Proposed Borings/Monitoring Wells. Drill borings B-8 through B-11 up to 5 feet into a possible perching or confining layer beneath the first encountered groundwater (total depths of approximately 35 feet below the ground surface). Install one 6-inch diameter groundwater recovery well (RW-1) in boring B-8 and three 4-inch diameter groundwater monitoring wells (MW-1 through MW-3) in borings B-9 through B-11. These recovery/monitoring wells will be located to investigate the presence of gasoline hydrocarbons in the inferred upgradient and downgradient directions of the gasoline tanks, to enable evaluation of the gradient of first groundwater beneath the site, and provide a possible extraction point for groundwater recovery;

Step 5: submit selected soil samples, under Chain of Custody Record, from borings B-8 through B-11 to a State-certified laboratory for analysis for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by Environmental Protection Agency (EPA) methods 5030/8015/8020;

Step 6: survey the recovery/monitoring wells to a National Geodetic Vertical Datum for elevation relative to mean sea level (msl);

Step 7: develop the recovery/monitoring wells;

Step 8: measure depths-to-water, record visual evidence of floating product in initial groundwater samples, and purge and collect groundwater samples for laboratory analysis from wells RW-1 and MW-1 through MW-3. Submit groundwater samples to a State-certified laboratory for analysis for TPHg and BTEX by EPA methods 5030/8015/602. Chain of Custody Records will be maintained for all samples;

Step 9: perform a pump test using recovery well RW-1 as the pumping well. Data obtained from this pumping test permits the determination of the sustainable pumping rate from the pumping well and an estimate of the hydraulic conductivity and storativity of the aquifer. The information is also used to determine the zone of capture of the extraction well and the feasibility of groundwater extraction as an effective means of remediation at the site;

Step 10: initiate National Pollution Discharge Elimination System (NPDES) or other permit application process for eventual discharge of recovered and treated groundwater; and,

Step 11: prepare a report to include results of the investigation, our conclusions, and recommendations for possible future work at the site.

Field work proposed in this Addendum Two to Work Plan will be performed according to the Field Methods included in Appendix A of the above referenced Work Plan for Subsurface Investigations and Remediation for the subject site. A preliminary time schedule to perform Steps 1 through 11 is shown on Plate 3. Subsequent addenda to the Work Plan will be prepared and submitted to ARCO and proper regulatory agencies as necessary to describe future work proposed at the site.

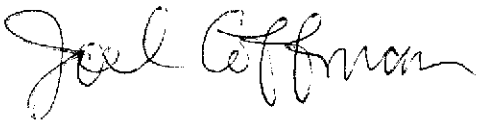
Copies of this Addendum Two should be forwarded to:

Mr. Lester Feldman
Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

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

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

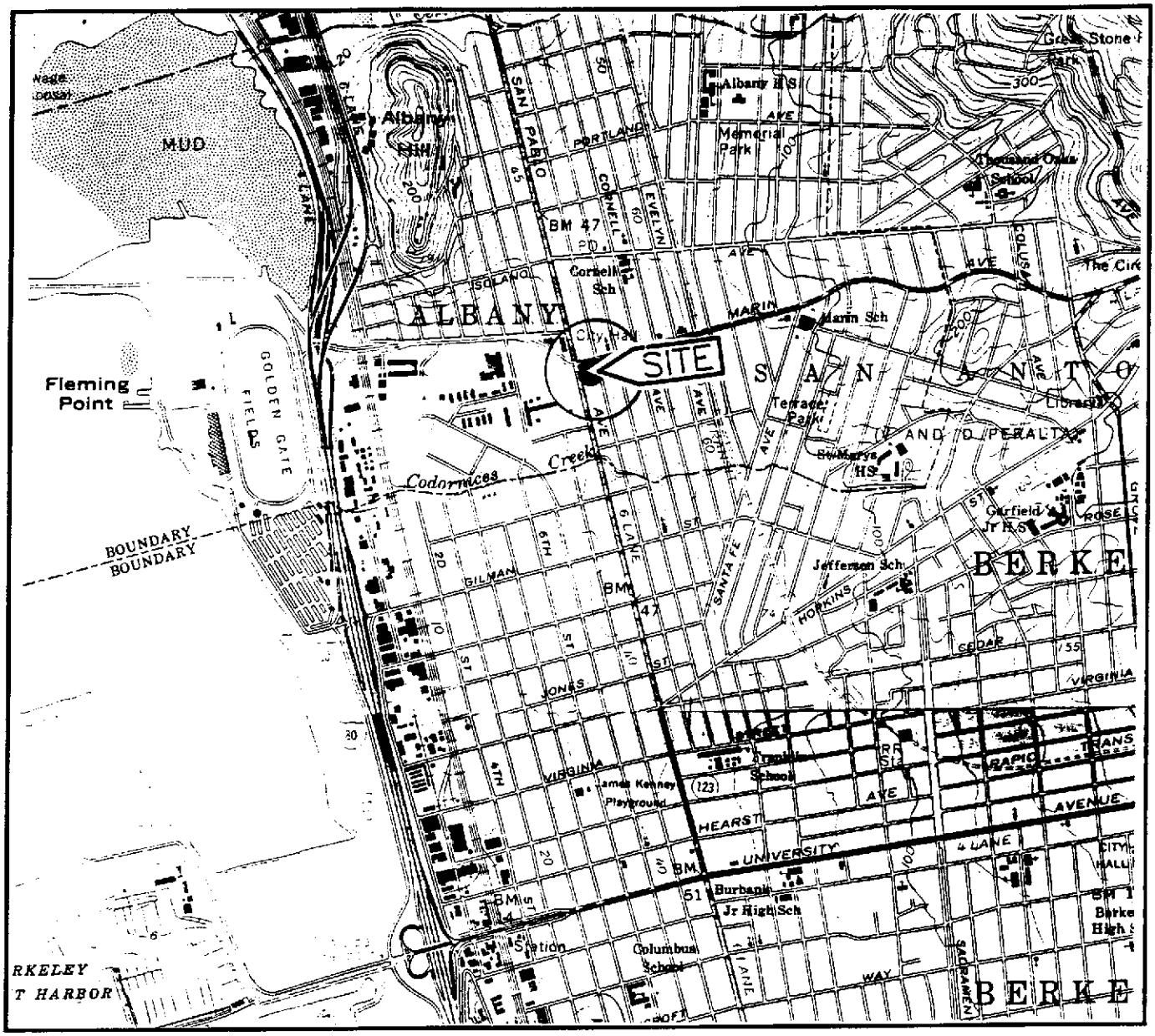
Sincerely,
RESNA\Applied GeoSystems



Joel Coffman
Project Geologist

Enclosures: Plate 1, Site Vicinity Map
Plate 2, Proposed Boring/Monitoring Well Locations
Plate 3, Preliminary Time Schedule

cc: H.C. Winsor, ARCO Products Company



Source: U.S. Geological Survey
7.5-Minute Quadrangles
Richmond/Oakland West
California.
Photorevised 1980

N

Approximate Scale

2000 1000 0 2000 4000

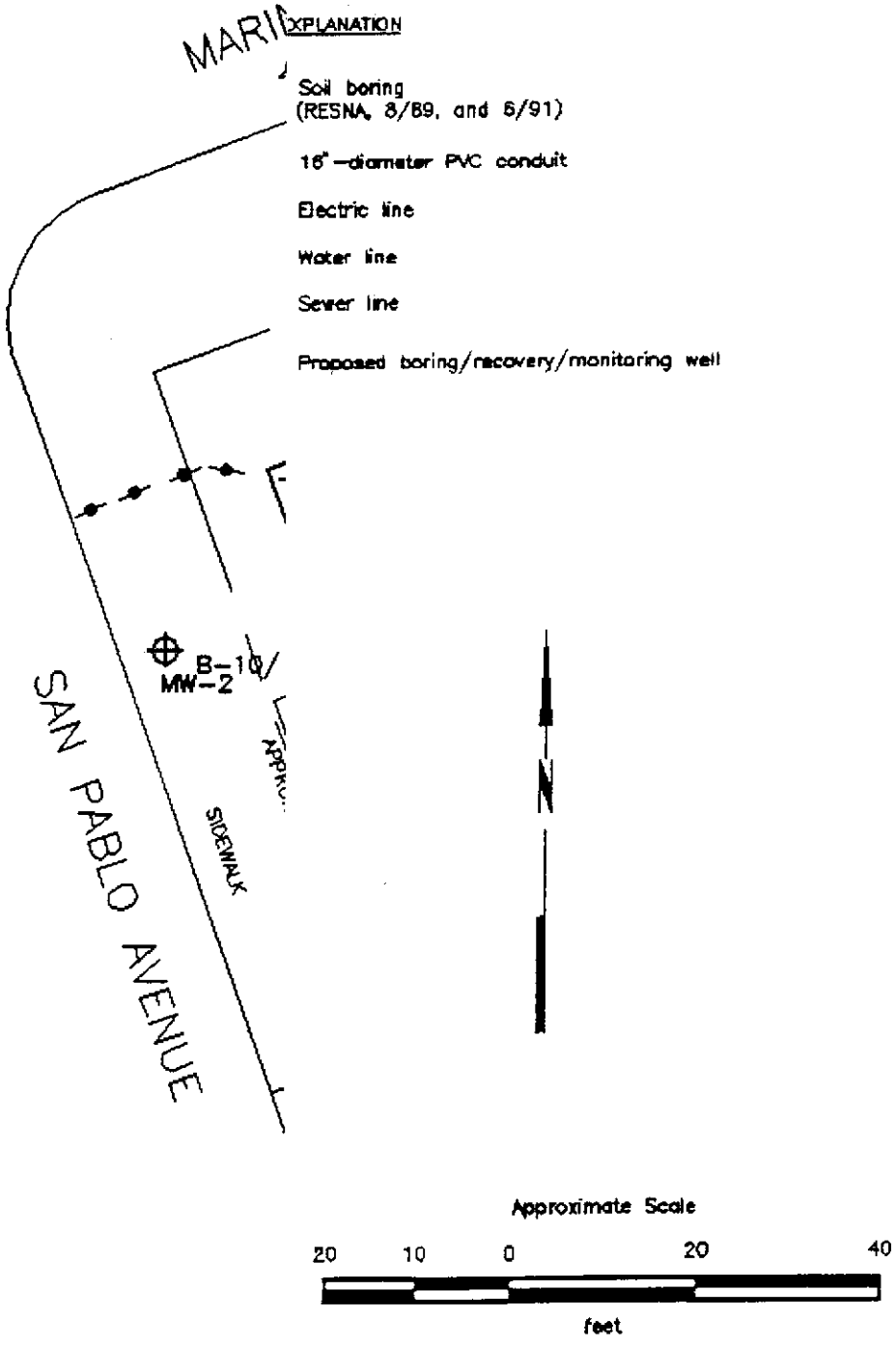
feet

Applied GeoSystems

PROJECT 69036-2

SITE VICINITY MAP
ARCO Station 2035
1001 San Pablo Avenue
Albany, California

PLATE
1



urce: Modified from plan supplied by ARCO.

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PROJECT 69036.02

PLATE 2

STEP 1:
Submit Addendum Two to Work Plan

STEP 2 & 3:
Perform well and records research

STEP 4:
Update Site Safety Plan and drill borings/install wells

STEP 5:
Submit soil samples for Laboratory Analysis and receive results

STEP 6:
Survey wells

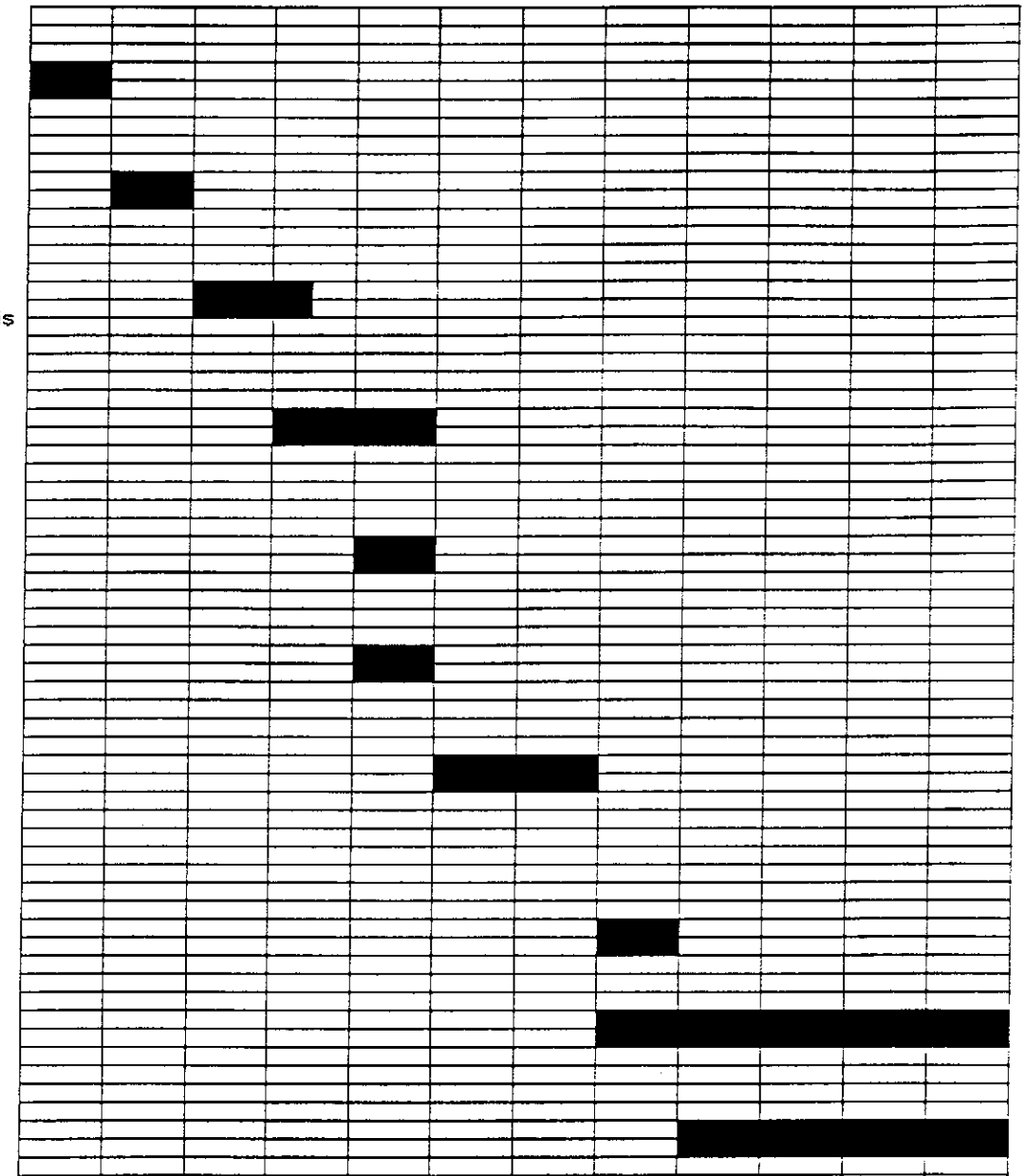
STEP 7:
Develop wells

STEP 8:
Measure water levels and sample wells, submit water samples for Laboratory Analysis and receive results

STEP 9:
Perform pump test

STEP 10:
Initiate NPDES Permitting process

STEP 11:
Prepare Report



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PROJECT **69036.02**

PRELIMINARY TIME SCHEDULE
ARCO Station 2035
1001 San Pablo Avenue
Albany, California

PLATE
3