

TRANSMITTAL

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

TO: MR. GIL WISTAR
ALAMEDA COUNTY HEALTH AGENCY
HAZARDOUS MATERIALS DIVISION
80 SWAN WAY, ROOM 200
OAKLAND, CA 94621

DATE:
PROJECT NUMBER: 69034.04
SUBJECT: WORK PLAN AND ADDENDUM ONE TO
WORK PLAN

FROM: JOEL COFFMAN
TITLE: ASST. PROJECT GEOLOGIST

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☒ Reports ☐ Specifications

☐ Letters ☐ Change Orders ☐ _____

COPIES	DATED	NO.	DESCRIPTION
1	3/21/91	69034.04W	WORK PLAN FOR SUBSURFACE INVESTIGATIONS AND REMEDATION AT ARCO STATION 601, 712 LEWELLING BOULEVARD, SAN LEANDRO, CA.
1	3/21/91	69034.4	ADDENDUM ONE TO WORK PLAN

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

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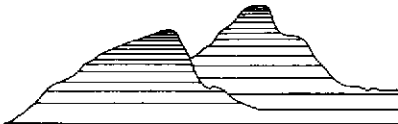
☐ For your files ☐ _____

REMARKS:

PER ARCO'S AUTHORIZATION WORK PLAN AND ADDENDUM ONE TO
WORK PLAN HAVE BEEN FORWARDED FOR YOUR REVIEW.

Copies: 1 to AGS project file no. 69034.04 SJ READER'S FILE

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



Applied GeoSystems

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

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ADDENDUM ONE TO WORK PLAN

at

ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

AGS 69034.04

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

by

RESNA/Applied GeoSystems

APPROVED FOR



Applied GeoSystems

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

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March 21, 1991
AGS 69034.04

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

Subject: Addendum One to Work Plan 69034-4W for Subsurface Investigations and Remediation at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California.

Mr. Carmel:

As you requested, this letter has been prepared to serve as an addendum to the Work Plan (RESNA/Applied GeoSystems [AGS] 69034-4W, February 1991) for the subject site and is in response to the results of the AGS Subsurface Environmental Assessment Report (AGS 69034-2, December 14, 1990). The location of the subject site is shown on the Site Vicinity Map, Plate 1. ~~Investigations and remediation at this site include the following:~~ performing a well research of Alameda Flood Control and Water Conservation District (AFCWCD) records for all water supply and monitoring wells within a 1/2-mile radius of the subject site, performing a records research of San Leandro Fire Department, AFCWCD, and California Regional Water Quality Control Board (CRWQCB) files for nearby and upgradient sites, ~~performing~~ sampling additional soil borings, ~~installing~~ vapor extraction and ground-water monitoring wells, developing and sampling the monitoring wells, surveying the monitoring wells for top-of-casing elevations, performing a vapor extraction test, ~~performing laboratory analyses of~~ soil, vapor, and ground-water samples, and preparing reports of the findings, conclusions and recommendations.

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

In August, 1989, AGS performed a limited environmental site assessment to evaluate possible 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, conclusions and recommendations for future work (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, conclusions, and recommendations for future work (AGS Subsurface Environmental Assessment, December 14, 1990). The ground-water gradient was interpreted to be to the southwest.

PROPOSED WORK

Applied GeoSystems recommends the following work at the site based on previous investigations:

- Step 1 Submit a Work Plan and Addendum to Work Plan to Alameda County Health Agency (ACHA) describing proposed work for the subject site.
- Step 2 Perform a well research of AFCWCD records for all water supply and monitoring wells within 1/2-mile radius of the subject site.
- Step 3 Perform a records research of San Leandro Fire Department, AFCWCD, and CRWQCB files for nearby and upgradient sites which may be potential secondary sources for hydrocarbons detected in the soil and ground water at the site.
- Step 4 Drill and obtain soil samples for soil classification and laboratory analysis from five onsite soil borings (B-9 through B-13) and from one offsite boring (B-14) as shown on Plate 2, Proposed Borings/Monitoring Wells. Drill borings B-9 through B-14 up to 5 feet into a possible perching or confining

layer beneath the first encountered ground water (total depths of approximately 20 feet below the ground surface). Install five vapor extraction/ground-water monitoring wells (MW-4 through MW-8) and one offsite ground-water monitoring well (MW-9) with 4-inch diameter well casing in borings B-9 through B-14, respectively. The purpose of these proposed vapor extraction/monitoring wells is to delineate the extent of floating petroleum product previously encountered in wells MW-1 and MW-3, to evaluate the extent of petroleum hydrocarbons and waste-oil related hydrocarbons in the soil and shallow groundwater at the site, to confirm the gradient of the shallow ground water, and to provide vapor-extraction points to perform a soil-vapor extraction test to collect data for subsequent installation of an interim soil-vapor extraction remediation system.

- Step 5 Submit selected soil samples from borings B-9 through B-14 for analysis to a State-certified laboratory for TPHg and BTEX by Environmental Protection Agency (EPA) Method 5030/8015/8020, and selected soil samples from borings B-12 and B-13 for analysis of total petroleum hydrocarbons as diesel (TPHd) by EPA Method 3510/8015 and TOG by EPA Method 5520EF.
- Step 6 Contract a licensed surveyor to survey wellhead elevations to a U.S. Coast and Geodetic Survey Datum.
- Step 7 Develop vapor-extraction/monitoring wells MW-4 through MW-8 and ground-water monitoring well MW-9.
- Step 8 Measure depths-to-water, record visual evidence of floating product in initial ground-water samples, and purge and collect ground-water samples for laboratory analysis from ground-water monitoring wells MW-1 through MW-9. Submit ground-water samples to a State-certified laboratory for analysis for TPHg and BTEX by EPA method 5030/8015/602, following chain-of-custody protocol.
- Step 9 Perform a soil-vapor extraction performance test using vapor extraction. [REDACTED] The vacuum pump will be connected by a rigid line to a well and evacuate air from soil in the vicinity of the well through the well screen portion to be located above static ground-water level. This procedure will be repeated at different flow

rates and vacuum pressures to evaluate the maximum capacity and maximum radius of influence of vapor extraction at the site.

Vapor-phase total volatile hydrocarbon concentrations (in parts per million [ppm]) from each vapor extraction/monitor well tested will be monitored with a flame ionization detector (FID) or organic vapor meter (OVM) and recorded during the performance test. Additionally, vapor samples will be collected throughout all phases of the test for possible laboratory analysis, these samples will be submitted to a State-certified laboratory for analysis for TPHg and BTEX by EPA Method 5030/8015/8020.

An internal combustion (I.C.) engine will be used at the discharge point to minimize emissions of hydrocarbons into the atmosphere. The I.C. emissions will be monitored with a FID or OVM. A report will be prepared summarizing the results of the soil-vapor extraction performance test.

- Step 10 Prepare a report to include results of the assessment, our conclusions, and recommendations for possible future work at the subject site.

Field work proposed in this Addendum to Work Plan will be performed according to the Field Methods included in Appendix A of the Work Plan for Subsurface Investigations and Remediation for the subject site, dated March 21, 1991. A preliminary Time Schedule (Plate 3) to perform Steps 1 through 10 has been attached to this addendum. Subsequent addenda to the Work Plan will be prepared and submitted to regulatory agencies as necessary to describe future work proposed at the site.

Copies of this Addendum should be forwarded to:

Ms. Penny Silzer
Regional Water Quality Control Board
San Francisco Bay Region
1800 Harrison Street, 7th Floor
Oakland, California 94612

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

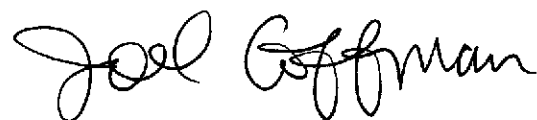
March 21, 1991
AGS 69034.04

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

Mr. Gil Wistar
Alameda County Health Agency
Hazardous Materials Division
80 Swan Way; Room 200
Oakland, California 94621

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



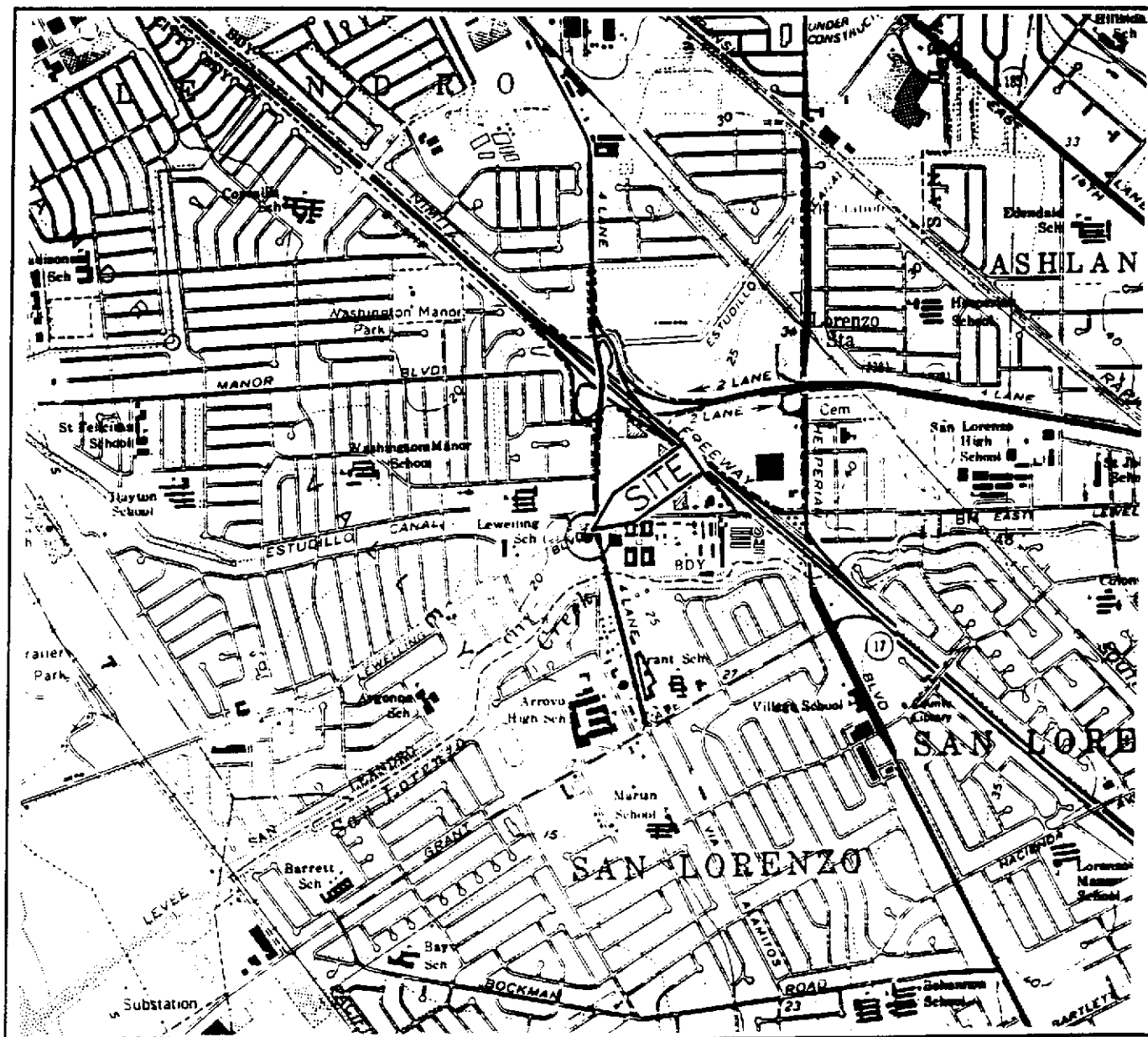
Joel Coffman
Assistant Project Geologist



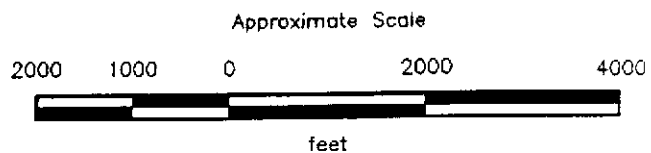
Greg Barclay
General Manager

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

cc: H.C. Winsor, ARCO



Source: U.S. Geological Survey
7.5-Minute Quadrangles
Hayward/San Leandro,
California.
Photorevised 1984



PROJECT 69034-4W

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

PLATE
1

TASK 1
Addendum to Work Plan

TASK 2
Well Research

TASK 3
Records Search

TASK 4, 5, and 6
Field Work, Soil Borings,
Wells

TASK 7
Laboratory Analysis of
Soil Samples

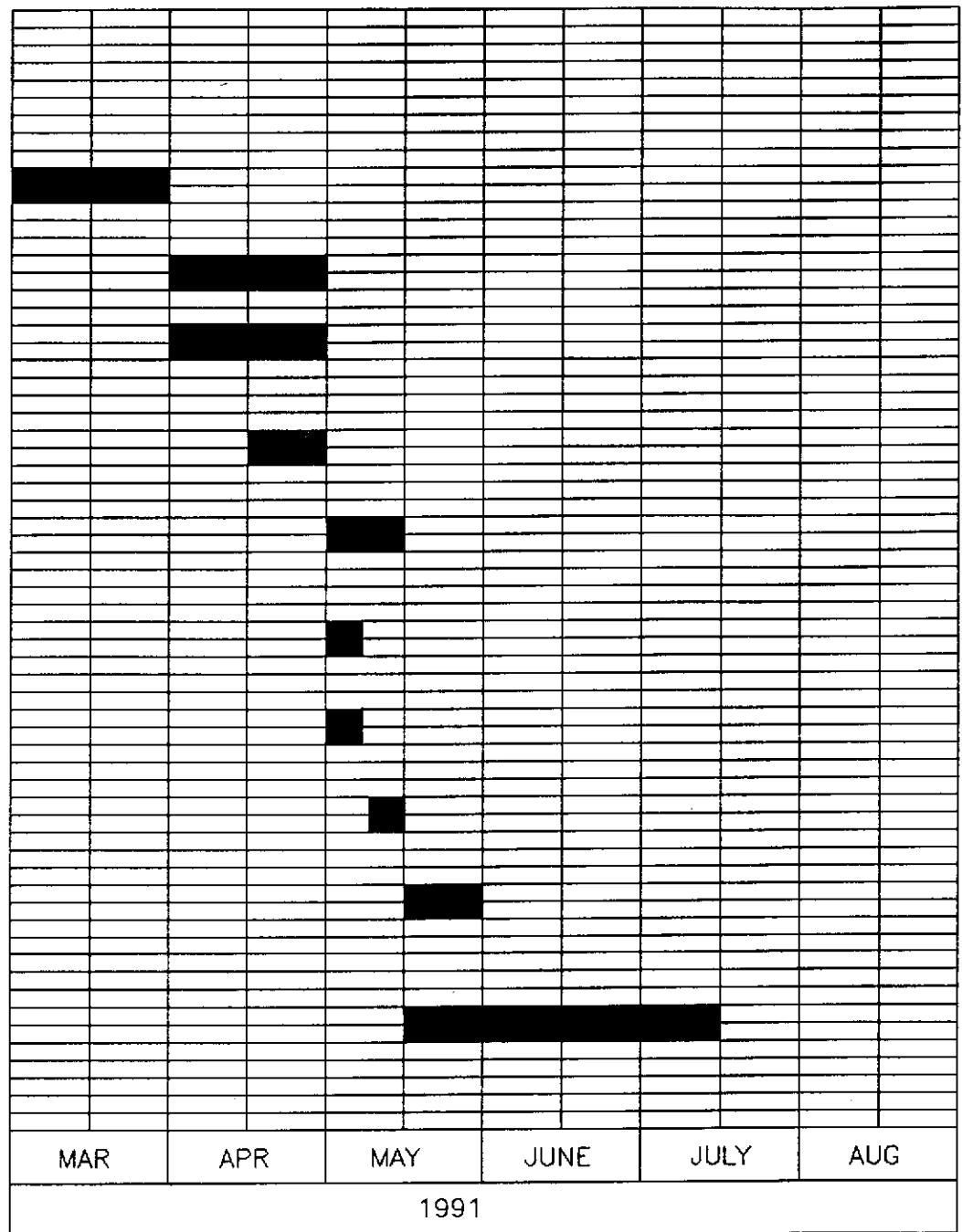
TASK 8
Survey Well Elevations

TASK 9
New Well Development

TASK 10
Field Work, Ground-
Water Sampling

TASK 11
Laboratory Analysis of
Ground-Water Samples

TASK 12
Report Preparation



PROJECT 69034-4

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

PLATE
3