Original

GeoStrategies Inc.

REPORT FOR WASTE-OIL TANK REMOVAL ACTIVITIES
at
ARCO Station 2111
1156 Davis Street
San Leandro, California

7940.04

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

by
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STATE OF CALIFORNIA

September 27, 1994

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REPORT FOR WASTE-OIL TANK
REMOVAL ACTIVITIES
at
ARCO Station 2111
1156 Davis Street
San Leandro, California

For ARCO Products Company

INTRODUCTION

At the request of ARCO Products Company (ARCO), GeoStrategies Inc. (GSI) observed the excavation, and removal of the former 280-gallon waste-oil tank, and collecting soil samples from the tank pit for laboratory analyses at the subject site. This work was performed as outlined in GSI's *Letter Work Plan for Waste-Oil Tank Removal Activities* dated May 4, 1994. This letter report summarizes the work performed, laboratory analytical results of the samples collected during the excavation within the former waste-oil tank pit, and waste-oil tank replacement at the site.

SITE DESCRIPTION AND BACKGROUND

General

ARCO Service Station 2111 is an active Smog Pros Service Station located at the northwestern corner of the intersection of Davis and Preda Streets in San Leandro, California, as shown on Figure 1, Site Vicinity Map. The site is located in a residential and light commercial area. A Shell Oil Company service station is located directly across Davis Street from the subject site. The schematic layout of the service station and the immediate area including location of the waste-oil tank and other pertinent site features is presented on Figure 2, Site Plan.

Regional and Local Hydrogeology

The site is located within the East Bay Plain and is situated in the San Francisco Bay depression that is in part an irregular down-dropped block bordered by northwest trending faults. The site is at an elevation of approximately 35 feet above mean sea level (msl) and is approximately 1¾-mile west of the Hayward Fault Zone. The subsurface soils in the vicinity of the site consist of highly permeable Pleistocene alluvium composed of poorly consolidated to unconsolidated clay, silt, sand, and gravel. The alluvium was derived mainly from the Diablo Range and represents coalescing alluvial fans (Alameda County Flood Control and Water Conservation District, June 1988). Groundwater flow direction in the area is generally inferred from topography to be to the west toward San Francisco Bay, but may have components to the north and east due to recharge areas along the Hayward Fault Zone and shallow, unconnected, perched water-bearing zones.

PREVIOUS ENVIRONMENTAL WORK

Previous environmental work related to soil sampling during the drilling of soil borings at the site is discussed in detail in the *Report of Initial Subsurface Investigation (GSI, March 31, 1994).*

FIELD WORK

Waste-Oil Tank Removal Activities

All field work performed by GSI personnel was conducted in accordance with the *Site Safety Plan dated August 12, 1994.* Field methods used during the field work are summarized in Appendix A, Field Methods.

On August 15, 1994, GSI field personnel observed the removal of one 280-gallon waste-oil tank by Gettler-Ryan Inc. (G-R) of Dublin, California, at the

subject site. In addition, Mr. Karl Busché of the City of San Leandro Fire Department (CSLFD) was present to observe the removal of the waste-oil tank and to visually inspect the tank for any holes or failures. Many pin-sized holes and a few holes greater than 1 centimeter in diameter were observed on the top portion of the tank. The former tank was approximately 48 inches in diameter and 40 inches in length, and was set at an approximately depth of nine feet below grade (fbg). The former waste-oil tank was transported by H & H Shipping to their facility in San Francisco, California, for disposal. A copy of the tank waste Manifest is attached in Appendix B.

Soil beneath the former tank was a sandy silt with gravel and was stained. Field flameionization detector (FID) readings of the soil ranged from 150 to 200 ppm. Upon removal of the 280-gallon former waste-oil tank, over-excavation activities were performed August 15 and 16, 1994. This included excavating to a total width of seven feet by a length of eleven feet by a total depth of approximately 18.5 fbg. The location of the former waste-oil tank and former waste-oil tank pit is shown on Figure 2.

Excavated soil which were stained, had a waste-oil hydrocarbon odor, or indicated FID readings greater than 50 ppm were segregated and placed on and covered with visquene from soil which did not indicate these parameters. The soil was stockpiled onsite pending proper disposal.

Upon gaining approval from the Alameda County Health Care Services Agency (ACHCSA) and CSLFD, G-R field personnel placed a new 600-gallon waste-oil tank in the excavated tank pit on September 12, 1994. Clean fill was placed in the excavation and compacted to an approximate depth of ten fbg, prior to placement of the new tank.

Soil Sampling and Description

A total of seven soil samples were collected from beneath the former waste-oil tank. Sample locations and depths are shown on Figure 3, Soil Sampling Locations. Sample WO-1 was collected approximately one foot below the former waste-oil tank at 9.5 fbg. Four soil samples were collected from the bottom sidewalls of the excavation, and include: WO-W (collected from the west end of the pit at approximately 10.5 fbg), WO-N (collected at the north end of the pit at approximately 14 fbg), WO-E (collected at the east end of the pit at approximately 10 fbg), and WO-S (collected from the south end of the pit at approximately 12.5 fbg). Samples WO-B and WO-B2 were collected from beneath the former tank at depths of approximately 14.5 and 18.5 fbg. Each sample was collected using a backhoe, and a 2-inch diameter brass tube was pushed into soil closest to the teeth of the backhoe bucket. The sample ends were then covered with aluminum foil, capped, and placed in an ice chest for temporary preservation, and the sample location and depth recorded.

LABORATORY METHODS

Soil samples collected were preserved as required by the applicable analytical method and delivered, with Chain-of-Custody Records, to Sequoia Analytical Laboratory or Redwood City, California, a State-certified laboratory (Hazardous Waste Testing Laboratory Certification #1210) for soil analysis.

Soil Samples from Former Tank Pit

Soil samples collected from beneath the former waste-oil tank were analyzed in accordance with Alameda County Health Care Services Agency (ACHCSA) requirements for waste-oil constituents. Samples WO-W, WO-N, WO-E, WO-S, and WO-B were analyzed for total petroleum hydrocarbons as diesel (TPH-D) and total petroleum hydrocarbons as motor oil (TPH-MO) using Environmental Protection Agency (EPA) modified Methods 5030/8015 on a 24-hour

turnaround. Sample WO-1 was analyzed for TPH-D and total petroleum hydrocarbons as gasoline (TPH-G) using modified EPA Methods 3550/8015, total recoverable petroleum hydrocarbons (TRPH) using Standard Method (SM) 5520E&F, volatile organic compounds (VOCs) using EPA Method 8240, polychlorinated biphenals (PCBs) and base/acid neutrals (BNAs) using EPA Method 8270, and metals cadmium (Cd), chromium (Cr), nickel (Ni), lead (Pb), and zinc (Zn) using the EPA 6010/7010 analytical series on a 24-hour turnaround.

Sample WO-B2 was analyzed on standard turnaround for TPH-D, TPH-MO, and TPH-G using EPA modified Methods 5030/8015, TRPH using SM 5520E&F, VOCs using EPA Method 8240, PCBs and BNAs using EPA Method 8270, and metals Cd, Cr, Ni, Pb, and Zn using the EPA 6010/7010 analytical series.

Soil Stockpile Samples

On September 14, 1994, eight soil samples (CCS-1A through 1D and CCS-2A-2D) were collected from the approximately 50 cubic yard soil stockpiles generated during the waste-oil tank removal and over-excavation activities at the site. These samples were submitted under Chain-of-Custody Record to Sequoia Analytical, composited in the laboratory, and analyzed for the following: TPH-G and TPH-MO using modified EPA Method 8015; benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8020; TRPH using SM 5520E&F; CAM metals for Soluble Threshold Limit Concentration (STLC) using the EPA 6010/7010 analytical series; and reactivity, corrosivity, and ignitability (RCI). Samples CSS-2A through 2D were collected from the stockpiled soil indicating staining, waste-oil hydrocarbon odor, or FID readings greater than 50 ppm. Samples CCS-1A through 1D were collected from the stockpile which did not indicate hydrocarbon impaction. The purpose for these analyses was to determine the proper method for disposal of the soil stockpiles. Currently, the stockpiled soil is awaiting disposal. The Chain-of-Custody Form is attached in Appendix C.

RESULTS OF LABORATORY ANALYSES

Soil Samples from Former Tank Pit

Analytical results of soil samples collected from the former waste-oil tank pit are summarized in Table 1. Laboratory results of soil samples collected from the bottom sidewalls (WO-W, WO-E, and WO-S) indicated not detected concentrations for TPH-D (less than 1 part per million [ppm]) and TPH-MO (less than 10 ppm). Laboratory analytical results of sample WO-N indicated low concentrations of TPH-D (2.8 ppm) and TPH-MO (12 ppm) and sample WO-B indicated detectable concentrations of TPH-D (660 ppm) and TPH-MO (800 ppm), respectively.

Analytical results of soil samples WO-1 and WO-B2 indicated not detected concentrations of VOCs (less than 0.5 ppm) and PCBs/BNAs (less than 5 ppm). Metals were detected at low to moderate concentrations in samples WO-1 and WO-B2. TPH-MO was detected in sample WO-B2 at a concentration of 2,000 ppm. TRPH was detected in samples WO-1 (7,900 ppm) and WO-B2 (2,800 ppm), TPH-D was detected in samples WO-1 (780 ppm) and WO-B2 (400 ppm), and TPH-G was detected in samples WO-1 (310 ppm) and WO-B2 (130 ppm).

Soil Stockpile Samples

Analytical results of composited soil stockpile samples (CCS-1A through 1D and CCS-2A through 2D) indicated the following: Not detected concentrations of VOCs and PCBs/BNAs and composite sample CCS-1A through 1D were not reactive with sulfide, cyanide, or water, indicated a flashpoint greater than 100 degrees celsius, and a pH of 8.0 units. TRPH was detected in samples CCS-1A-1D (960 ppm) and CCS2A-2D (2,300 ppm), and TPH-MO was detected in samples CCS-1A-1D (840 ppm) and CCS-2A-2D (1,400 ppm), respectively. Analytical results indicated not detected to low concentrations of TPH-G, BTEX,

and Title 22 metals. The results of laboratory analyses of soil samples are summarized in Table 1. Chain-of-Custody Reports and copies of laboratory reports for soil samples are included in Appendix C.

DISCUSSION

Waste-Oil Impacted Soil

Waste-oil hydrocarbons appear to have impacted soil to the north on the bottom sidewall and directly beneath the former tank to the total excavated depth of 18.5 fbg. Field results from the initial subsurface investigation conducted in March 1994, *Initial Subsurface Investigation Report dated March 31, 1994*, indicated that first encountered groundwater was at approximately 20 fbg; therefore, the excavation was approximately 1½ feet above groundwater. Analytical results indicate that waste-oil hydrocarbons may have migrated vertically beneath the former waste-oil tank. TPH-D and TPH-G concentrations appeared to decrease with depth, while TPH-MO concentrations increased.

LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental geological practice in California at the time of this investigation was performed. This investigation was conducted solely for the purpose of evaluating environmental conditions of the soil with respect to hydraulic oil related hydrocarbons at the site. No soil engineering or geotechnical references are implied or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary away from the available data points.

DISTRIBUTION

It is recommended that copies of this report be forwarded to:

Ms. Susan Hugo
Alameda County Health Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

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

Mr. Karl Busché
City of San Leandro Fire Department
835 East 14th Street
San Leandro, California 94577

REFERENCES

Alameda County Flood Control and Groundwater Conservation District, June 1988. Geohydrology and Groundwater - Quality Overview, East Bay Plain Area, Alameda County, California 205 (J) Report. pp. 22-65.

GSI, March 31, 1994. Report of Initial Subsurface Investigation at ARCO Station 2111, 1156 Davis Street in San Leandro, California. GSI Project No. 7940.03.

GSI, May 4, 1994. Letter Work Plan for Waste-Oil Tank Removal Activities at ARCO Station 2111, 1156 Davis Street, San Leandro, California. GSI Project No. 4940.704.

Helley, E.S., K.R. Lajoie, W.E. Spangle, and M.L. Blair. 1979. Flatland deposits of the San Francisco Bay Region, California. U.S. Geological Survey Professional Paper 943.

TABLE 1

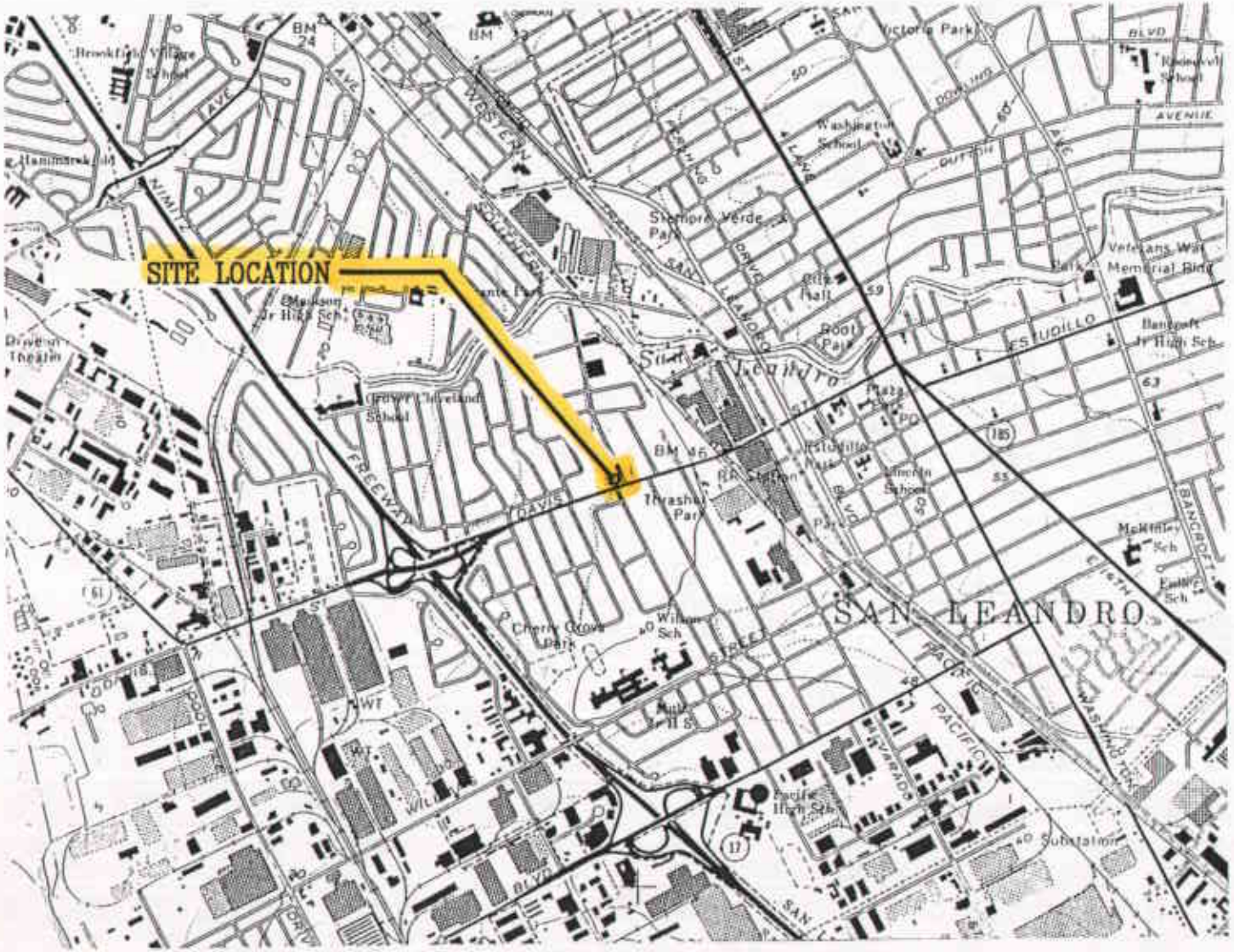
ANALYTICAL RESULTS OF SOIL SAMPLES
COLLECTED FROM BENEATH THE FORMER WASTE-OIL TANK
AT ARCO STATION 2111
1156 Davis Street
San Leandro, California

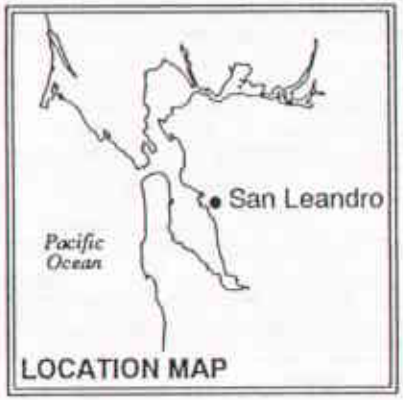
Sample ID	Date	Depth feet	TPHmo (ppm)	TPHd (ppm)	TPHg (ppm)	TRPH (ppm)	VOCs (ppm)	PCBs/BNAs (ppm)	Cadmium (ppm)	Chromium (ppm)	Nickel (ppm)	Lead (ppm)	Zinc (ppm)
WO-E	8/15/94	10	<10	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
WO-W	8/15/94	10.5	<10	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
WO-N	8/15/94	14	12	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
WO-S	8/15/94	12.5	<10	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
WO-1	8/15/94	9.5	NA	780	310	7,900	<2.5 <0.5	<5.0	0.79	38	34	56	50
WO-B	8/15/94	14.5	800	660	NA	NA	NA	NA	NA	NA	NA	NA	NA
WO-B2	8/16/94	18.5	2,000	400	130	2,800	<2.5	<5.0	0.90	46	8.6	55	53
CCS-1A-1D	9/14/94	---	840	NA	5.7	960	<0.5	<0.5	<0.01	0.13	0.81	0.27	4.4
CCS-2A-2D	9/14/94	---	1,400	NA	6.1	2,300	<0.5	<0.5	0.011	0.11	0.96	1.4	0.63

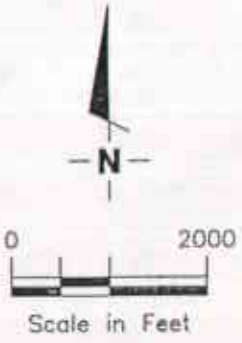
stockpile

TPHmo = Total petroleum hydrocarbons reported as motor oil by Standard Method (SM) 5520E&F.
TPHd = Total petroleum hydrocarbons reported as diesel by Environmental Protection Agency (EPA) Methods 5030/8015 (modified).
TPHg = Total petroleum hydrocarbons reported as gasoline by EPA Methods 5030/8015 (modified).
TRPH = Total recoverable petroleum hydrocarbons by SM 5520E&F.
VOCs = Volatile organic compounds by EPA Method 8240.
PCBs/BNAs = Polychlorinated biphenals and base/acid neutrals by EPA Method 8270.
ppm = Parts per million.
Metals were analyzed using EPA Methods 6010/7010 series.

Notes: 1.All data listed as <x indicates a not detected concentration.







GeoStrategies Inc.

VICINITY MAP
ARCO Service Station #2111
1156 Davis Street
San Leandro, California

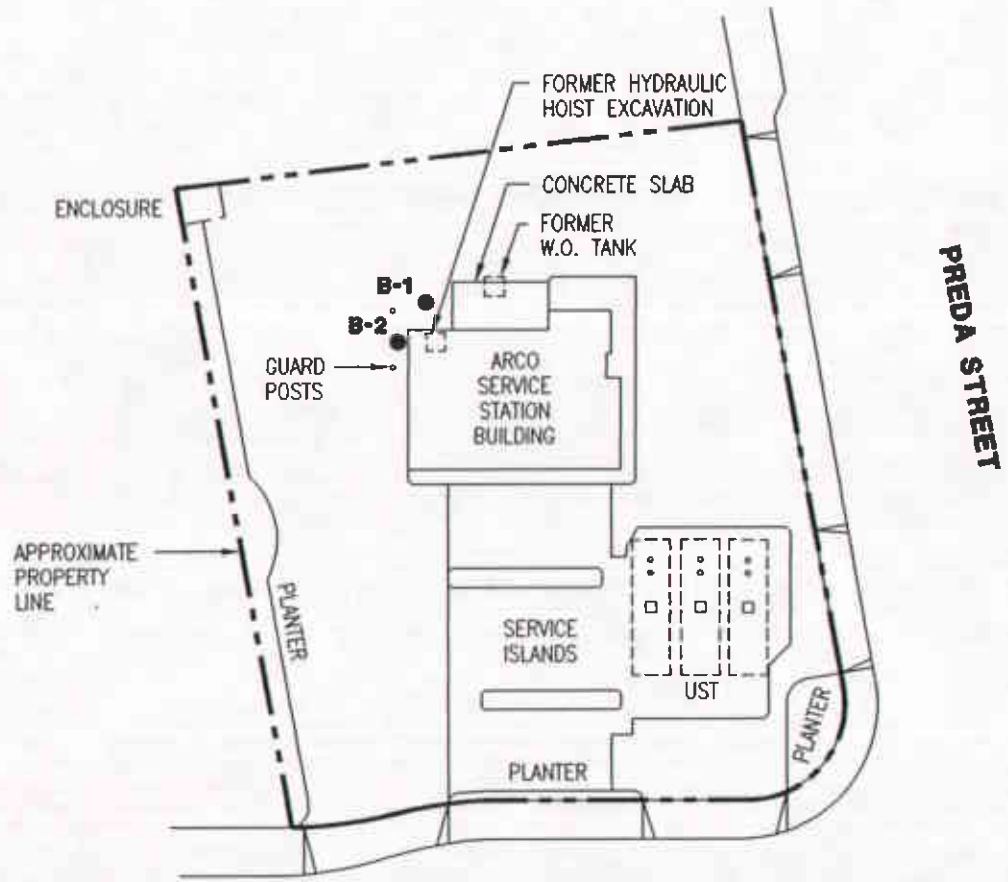
FIGURE 1

JOB NUMBER 4940

REVIEWED BY

DATE 1/94

REVISED DATE



EXPLANATION

● Soil boring

Base Map: ARCO Petroleum Products Company conversion to MP & G tune-up dwg. dated 6/6/85 sht. 1 of 1.

N

0 40

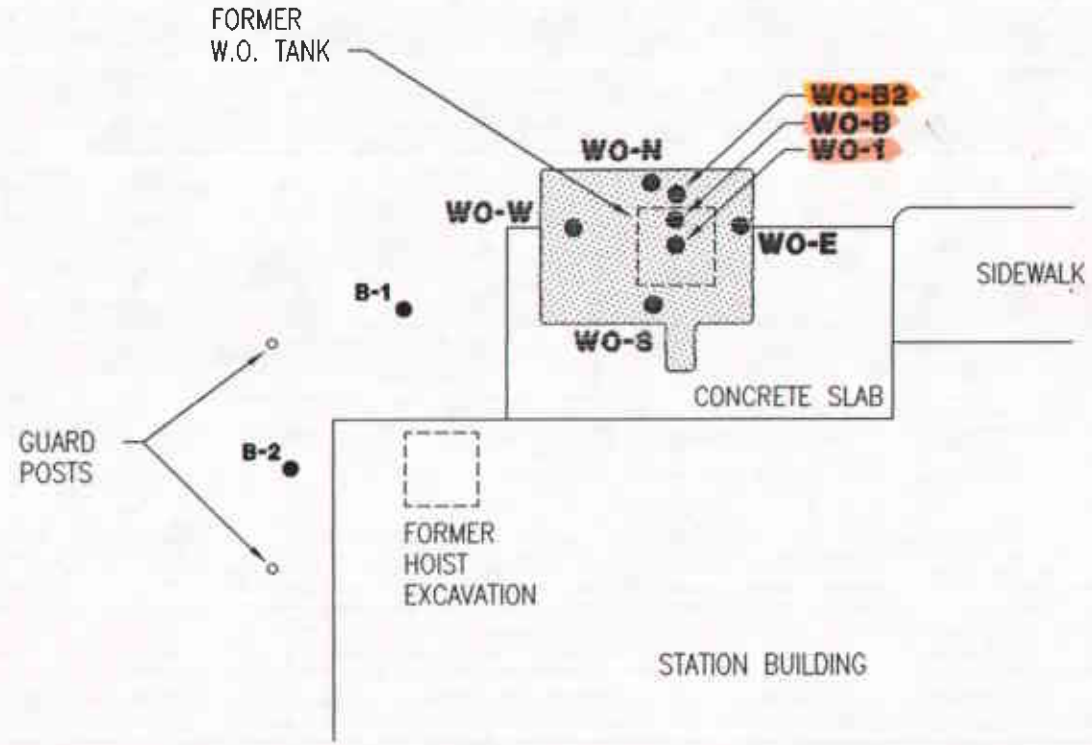
Scale in Feet

GeoStrategies Inc.

SITE PLAN
ARCO Service Station #2111
1156 Davis Street
San Leandro, California

FIGURE 2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
4940704		9/94	



EXPLANATION

- Soil boring
- Soil sample
- Excavation

SAMPLE NO.	DEPTH
WO-E	10'
WO-W	10.5'
WO-N	14'
WO-S	12.5'
WO-1	9.5'
WO-B	14.5'
WO-B2	18.5'

TPH-mo TPH-D TPH-G BTEX

— 780 310 7900

800 660 — —

2000 400 130 2800

N

0 10

Scale in Feet

GeoStrategies Inc.

SOIL SAMPLING PLAN
ARCO Service Station #2111
1156 Davis Street
San Leandro, California

FIGURE
3

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
4940704		9/94	

APPENDIX A

FIELD METHODS

FIELD METHODS

The following presents GSI'S field methods for a typical site investigation involving hydrocarbon-impacted soil and/or groundwater.

Site Safety Plan

The Site Safety Plan describes the safety requirements for the evaluation of waste-oil hydrocarbons in soil at the site. The site Safety Plan is applicable to personnel of GSI and G-R. GSI's personnel and subcontractors of GSI scheduled to perform the work at the site are briefed on the contents of the Site Safety Plan before work begins. A copy of the Site Safety Plan is available for reference by appropriate parties during the work. A site Safety Officer is assigned to the project.

Soil Excavation

Permits are acquired prior to the commencement of work. Excavated soil is evaluated using a field calibrated (using isobutylene) Foxboro flameionization detector (FID). This evaluation is done upon arrival of the soil at the ground surface in the excavator bucket by removing the top portion of soil from the bucket, and then placing the intake probe of the OVM against the surface of the soil in the bucket. Field instruments such as the FID are useful for measuring relative concentrations of vapor content, but cannot be used to measure levels of waste-oil hydrocarbons with the accuracy of laboratory analysis. Samples are taken from the soil in the bucket by driving laboratory-cleaned brass sleeves into the soil. The samples are sealed in the sleeves using aluminum foil, plastic caps, and aluminized duct tape; labeled; and promptly placed in iced storage. If field subjective analyses suggest the presence of gasoline hydrocarbons in the soil, additional excavation and soil sampling is performed, using similar methods. The excavation is backfilled or fenced prior to departure from the site.

Sampling of Stockpiled Soil

One composite soil sample, consisting of four soil samples, is collected from each 50 cubic yards of stockpiled soil, and for each individual stockpile less than 50 cubic yards. Soil samples are obtained by first evaluating relatively high, average, and low areas of hydrocarbon concentration by digging approximately one to two feet into the stockpile and placing the intake probe of a field calibrated FID against the surface of the soil; and then collecting one sample from the "high" reading area, and three samples from the "average" areas. Samples are collected by removing the top one to two feet of soil, then driving laboratory-cleaned brass sleeves into the soil. The samples are sealed in the sleeves using aluminum foil, plastic caps, and aluminized duct tape; labeled; and promptly placed in iced storage for transport to the laboratory, where compositing is performed.

Sample Labeling and Handling

Sample containers are labeled in the field with the job number, unique sample location, depth, and date, and promptly placed in iced storage for transport to the laboratory. A Chain of Custody Record is initiated by the field geologist and updated throughout handling of the samples, and accompanies the samples to a laboratory certified by the State of California for the analyses requested. Samples are transported to the laboratory promptly to help ensure that recommended sample holding times are not exceeded. Samples are properly disposed of after their useful life has expired.

APPENDIX B

WASTE MANIFEST

1100 On SITE

Erickson Inc. CUSTOMER SERVICE ORDER

Job No.: 85927-0-00 KBR

255 Parr Blvd., Richmond, CA 94801 (510) 235-1393
13736 Slover Ave., Fontana, CA 92335 (909) 355-5601
1350 E. Greg St., Ste 3, Sparks, NV 89431 (702) 358-5551
503 W. 400 South, Salt Lake City, UT 84101 (801) 359-6861

Driver Daily Time Sheet

Milkrun ☐ yes

Date: 94/08/15

M T W T F SAT SUN
Shift: GY D S

Driver Name: R. Haney Emp. No: 20166 Manifest No.: 93238775

Customer Name: 3137 - GETTLER-RYAN Customer Order No.:

Jobsite Name & Address: 1156 DAVIS ST. X FREDA
ARCO STA# 2111
SAN LEANDRO, CA 94577

Release No.: 3070.01

Contact Name: DENNY

Contact Phone: (510) 551-7555

Services Performed: TRANSPORT & DISPOSE OF 1-550 GAL W.O., STEEL TANK

Additional Information: TRANS 1-550 GAL TK
1 ~~-10 YD~~ FB 1-40

Driver's Comments:

Waste Material: U.S.T = 14316 Profile/ W.S.#:

Today's Origin: Today's Destination: Our P.O.#

Disposal Site: RICHMOND Appointment Date & Time: No. of Loads: No. of Drums:

Truck No. 1FOU Trailer No.

Hub Reading: Begin Ending Total:

Total Time: Start 9:00 AM/PM Stop AM/PM Total:

Job Site: Arrive 11:00 AM/PM Depart 1:30 AM/PM Total:

Disposal Site: Arrive AM/PM Depart AM/PM Total:

Meals: Stop#1 Start#1 Stop#2 Start#2 Total: ( )

TOTAL PAY – THIS JOB: hrs. ST OT DT miles

OFFICE USE ONLY

Truck EMS #

Payroll					Billing – Only If Different From Payroll				
Miles	Class	ST	OT	DT	Miles	Class	ST	OT	DT

Dispatcher's Approval

Did you perform your pre-trip equipment inspection? ☑ yes ☐ no

ROLL OFF CONTAINER INFORMATION

Container No.	Container Pick Up Point	Disposal Site	Container Drop Off Point

ADDITIONAL INFORMATION

EMS #		Qty.		Amount
85010	Tyvek		@	
97200	Subsistence		@	
99152	Washouts		@	
99260	Neutralizations		@	
2016	Box Liners		@	
2017	End Dump Liner		@	
99218	Bridge Fees		@	
99218	Bridge Fees		@	

CUSTOMER SIGNATURE ACKNOWLEDGES WORK PERFORMED AT JOB SITE ONLY

Customer Representative Signature: Dennis Gan

Erickson Driver Signature: R. Haney

Customer Representative – Please Print Name: DENNIS GAN

WHITE – Payroll Copy YELLOW – Billing Copy PINK – Dispatch Copy GOLDENROD – Customer Copy

State of California—Environmental Protection Agency
Form Approved OMB No. 2050-0039 (Expires 9-30-94)
Please print or type. *Form designed for use on elite (12-pitch) typewriter.*

See Instructions on back of page 6.

Department of Toxic Substances Control
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
CAL000085057	3817715		

GENERATOR

3. Generator's Name and Mailing Address
ARCO Products
4 Centerpointe Drive, La Palma, CA 90623-1066

4. Generator's Phone (714) 670-5611

A. State Manifest Document Number: 93238775

B. State Generator's ID:

5. Transporter 1 Company Name: Erickson Inc.

6. US EPA ID Number: CAD009466392

C. State Transporter's ID: 430808

D. Transporter's Phone: 510-235-1393

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address
Erickson, Inc.
255 Parr Blvd.
Richmond, CA. 94801

10. US EPA ID Number: CAD009946392

G. State Facility's ID:

H. Facility's Phone: (510)235-1393

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Number
a. NON-RCRA Hazardous Waste Solid Waste Empty Storage Tank.	001	T	280	P	State 512 EPA/Other NONE
b.					State EPA/Other
c.					State EPA/Other
d.					State EPA/Other

J. Additional Descriptions for Materials Listed Above
Qty. 1 Empty Storage Tank(s) #436
___ Tank(s) have been inerted with 15
lbs. Dry Ice Per 1000 Gallon Capacity

K. Handling Codes for Wastes Listed Above
a. b. c. d.

15. Special Handling Instructions and Additional Information
Keep away from sources of ignition. Always wear hardhats when working around U.G.S.T.'s 24 Hr. Contact Name Gathan Ryan (construction) & Phone 510-551-7555

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state and international laws.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
For ARCO by DENNIS GAN	Dennis Gan	01	15	94

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Robert Haney	Robert Haney	01	15	94

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year

DO NOT WRITE BELOW THIS LINE.

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

93238775

DTSC 8022A (7/92)
EPA 8700—22

YELLOW—GENERATOR RETAINS

APPENDIX C

LABORATORY ANALYTICAL REPORTS AND CHAIN OF CUSTODY FORMS

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Project: Arco, 2111-94-1

Enclosed are the results from 1 soil sample received at Sequoia Analytical on August 16, 1994. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD	
9408953-01	Solid, WO-1	8/15/94	Cd, Cr, Pb. Ni, Zn,	metals
			SM 5520 E&F	TOG
			EPA 8240	VOC/BTEX
			EPA 8270	SVOC
			EPA 8015 Mod	TPH-D/MO
			8015 Mod/8020	TPH-G

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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Gettler Ryan/Geostrategies
747 Sierra Court Suite G
Dublin, CA 94568

Client Proj. ID: Arco, 2111-94-1
Lab Proj. ID: 9408953

Sampled: 08/15/94
Received: 08/16/94
Analyzed: see below

Attention: Joel Coffman

Reported: 08/29/94

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9408953-01				
Sample Desc : SOLID, WO-1				
Cadmium	mg/Kg	08/18/94	0.50	0.79
Chromium	mg/Kg	08/18/94	0.50	38
Lead	mg/Kg	08/18/94	5.0	34
Nickel	mg/Kg	08/18/94	2.5	56
TPH (SM 5520 E&F)	mg/Kg	08/18/94	50	7800
Zinc	mg/Kg	08/18/94	0.50	50

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 08/15/94
6747 Sierra Court Suite G	Sample Descript: WO-1	Received: 08/16/94
Dublin, CA 94568	Matrix: SOLID	Extracted: 08/17/94
	Analysis Method: EPA 8240	Analyzed: 08/18/94
Attention: Joel Coffman	Lab Number: 9408953-01	Reported: 08/29/94

Volatile Organics (EPA 8240)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Acetone	2500	N.D.
Benzene	500	N.D.
Bromodichloromethane	500	N.D.
Bromoform	500	N.D.
Bromomethane	500	N.D.
2-Butanone	2500	N.D.
Carbon disulfide	500	N.D.
Carbon tetrachloride	500	N.D.
Chlorobenzene	500	N.D.
Chloroethane	500	N.D.
2-Chloroethyl vinyl ether	2500	N.D.
Chloroform	500	N.D.
Chloromethane	500	N.D.
Dibromochloromethane	500	N.D.
1,1-Dichloroethane	500	N.D.
1,2-Dichloroethane	500	N.D.
1,1-Dichloroethene	500	N.D.
cis-1,2-Dichloroethene	500	N.D.
trans-1,2-Dichloroethene	500	N.D.
1,2-Dichloropropane	500	N.D.
cis-1,3-Dichloropropene	500	N.D.
trans-1,3-Dichloropropene	500	N.D.
Ethylbenzene	500	N.D.
2-Hexanone	2500	N.D.
Methylene chloride	1250	N.D.
4-Methyl-2-pentanone	2500	N.D.
Styrene	500	N.D.
1,1,2,2-Tetrachloroethane	500	N.D.
Tetrachloroethene	500	N.D.
Toluene	500	N.D.
1,1,1-Trichloroethane	500	N.D.
1,1,2-Trichloroethane	500	N.D.
Trichloroethene	500	N.D.
Trichlorofluoromethane	500	N.D.
Vinyl acetate	500	N.D.

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco, 2111-94-1
Sample Descript: WO-1
Matrix: SOLID
Analysis Method: EPA 8240
Lab Number: 9408953-01

Sampled: 08/15/94
Received: 08/16/94
Extracted: 08/17/94
Analyzed: 08/18/94
Reported: 08/29/94

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Vinyl chloride	500	N.D.
Total Xylenes	500	N.D.

Surrogates	Control Limits %		% Recovery
1,2-Dichloroethane-d4	70	121	86
Toluene-d8	81	117	90
4-Bromofluorobenzene	74	121	96

Analytes reported as N.D. were not present above the stated limit of detection.

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 08/15/94
6747 Sierra Court Suite G	Sample Descript: WO-1	Received: 08/16/94
Dublin, CA 94568	Matrix: SOLID	Extracted: 08/19/94
	Analysis Method: EPA [redacted]	Analyzed: 08/24/94
Attention: Joel Coffman	Lab Number: 9408953-01	Reported: 08/29/94

Semivolatile Organics (EPA 8270)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Acenaphthene	2500	N.D.
Acenaphthylene	2500	N.D.
Anthracene	2500	N.D.
Benzoic Acid	5000	N.D.
Benzo(a)anthracene	2500	N.D.
Benzo(b)fluoranthene	2500	N.D.
Benzo(k)fluoranthene	2500	N.D.
Benzo(g,h,i)perylene	2500	N.D.
Benzo(a)pyrene	2500	N.D.
Benzyl alcohol	2500	N.D.
Bis(2-chloroethoxy)methane	2500	N.D.
Bis(2-chloroethyl)ether	2500	N.D.
Bis(2-chloroisopropyl)ether	2500	N.D.
Bis(2-ethylhexyl)phthalate	5000	N.D.
4-Bromophenyl phenyl ether	2500	N.D.
Butyl benzyl phthalate	2500	N.D.
4-Chloroaniline	5000	N.D.
2-Chloronaphthalene	2500	N.D.
4-Chloro-3-methylphenol	2500	N.D.
2-Chlorophenol	2500	N.D.
4-Chlorophenyl phenyl ether	2500	N.D.
Chrysene	2500	N.D.
Dibenzo(a,h)anthracene	2500	N.D.
Dibenzofuran	2500	N.D.
Di-n-butyl phthalate	5000	N.D.
1,2-Dichlorobenzene	2500	N.D.
1,3-Dichlorobenzene	2500	N.D.
1,4-Dichlorobenzene	2500	N.D.
3,3-Dichlorobenzidine	5000	N.D.
2,4-Dichlorophenol	2500	N.D.
Diethyl phthalate	2500	N.D.
2,4-Dimethylphenol	2500	N.D.
Dimethyl phthalate	2500	N.D.
4,6-Dinitro-2-methylphenol	5000	N.D.
2,4-Dinitrophenol	5000	N.D.

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco, 2111-94-1
Sample Descript: WO-1
Matrix: SOLID
Analysis Method: EPA 8270
Lab Number: 9408953-01

Sampled: 08/15/94
Received: 08/16/94
Extracted: 08/19/94
Analyzed: 08/24/94
Reported: 08/29/94

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
2,4-Dinitrotoluene	2500	N.D.
2,6-Dinitrotoluene	2500	N.D.
Di-n-octyl phthalate	2500	N.D.
Fluoranthene	2500	N.D.
Fluorene	2500	N.D.
Hexachlorobenzene	2500	N.D.
Hexachlorobutadiene	2500	N.D.
Hexachlorocyclopentadiene	5000	N.D.
Hexachloroethane	2500	N.D.
Indeno(1,2,3-cd)pyrene	2500	N.D.
Isophorone	2500	N.D.
2-Methylnaphthalene	2500	N.D.
2-Methylphenol	2500	N.D.
4-Methylphenol	2500	N.D.
Naphthalene	2500	N.D.
2-Nitroaniline	5000	N.D.
3-Nitroaniline	5000	N.D.
4-Nitroaniline	5000	N.D.
Nitrobenzene	2500	N.D.
2-Nitrophenol	2500	N.D.
4-Nitrophenol	5000	N.D.
n-Nitrosodiphenylamine	2500	N.D.
n-Nitroso-di-n-propylamine	2500	N.D.
Pentachlorophenol	5000	N.D.
Phenanthrene	2500	N.D.
Phenol	2500	N.D.
Pyrene	2500	N.D.
1,2,4-Trichlorobenzene	2500	N.D.
2,4,5-Trichlorophenol	5000	N.D.
2,4,6-Trichlorophenol	2500	N.D.

Surrogates	Control Limits %		% Recovery
2-Fluorophenol	25	121	46
Phenol-d5	24	113	50
Nitrobenzene-d5	23	120	63
2-Fluorobiphenyl	30	115	71
2,4,6-Tribromophenol	19	122	40
p-Terphenyl-d14	18	137	64

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 08/15/94
6747 Sierra Court Suite G	Sample Descript: WO-1	Received: 08/16/94
Dublin, CA 94568	Matrix: SOLID	Extracted: 08/18/94
	Analysis Method: EPA 8015 Mod	Analyzed: 08/18/94
Attention: Joel Coffman	Lab Number: 9408953-01	Reported: 08/29/94

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
[redacted]	100	780
Chromatogram Pattern:		
[redacted]		>C9

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	0 Q

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Project Manager

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco, 2111-94-1
Sample Descript: WO-1
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9408968-01

Sampled: 08/15/94
Received: 08/16/94
Extracted: 08/17/94
Analyzed: 08/17/94
Reported: 08/29/94

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
[redacted] Gas	50	310
Benzene	0.25	N.D.
Toluene	0.25	N.D.
Ethyl Benzene	0.25	0.38
Xylenes (Total)	0.25	2.3
Chromatogram Pattern:		
[redacted]		[redacted]

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	106

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco, 2111-94-1
Matrix: Solid
QC Sample Group: 9408953 -01

Reported: Aug 30, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Beryllium	Cadmium	Chromium	Nickel	Ttl. Recover. Pet. Hyd.
Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010	SM 5520E&F
Analyst:	C.Medefesser	C.Medefesser	C.Medefesser	C.Medefesser	A.Pina
MS/MSD Batch#:	940895301	940895301	940895301	940895301	940895301
Date Prepared:	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94
Date Analyzed:	8/18/94	8/18/94	8/18/94	8/18/94	8/17/94
Instrument I.D.#:	MTJA-2	MTJA-2	MTJA-2	MTJA-2	-
Conc. Spiked:	100 mg/kg	100 mg/kg	100 mg/kg	100 mg/kg	-
Matrix Spike % Recovery:	96	94	96	93	46
Matrix Spike Duplicate % Recovery:	93	93	97	93	110
Relative % Difference:	3.2	1.1	1.0	0.0	82
LCS Batch#:	BLK081794	BLK081794	BLK081794	BLK081794	BLK081794
Date Prepared:	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94
Date Analyzed:	8/18/94	8/18/94	8/18/94	8/18/94	8/18/94
Instrument I.D.#:	MTJA-2	MTJA-2	MTJA-2	MTJA-2	-
LCS % Recovery:	99	98	100	100	85
% Recovery Control Limits:	75-125	75-125	75-125	75-125	70-110

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

Please Note:
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Attention: Joel Coffman

Client Project ID: Arco, 2111-94-1
Matrix: Solid
QC Sample Group: 9408953 -01

Reported: Aug 30, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloroethene	Trichloroethene	Benzene	Toluene	Chloro-benzene	Diesel
Method:	EPA 8240	EPA 8240	EPA 8240	EPA 8240	EPA 8240	EPA 8015 Mod.
Analyst:	M. Williams	M. Williams	M. Williams	M. Williams	M. Williams	A. Nagra
MS/MSD Batch#:	940849701	940849701	940849701	940849701	940849701	940892903
Date Prepared:	8/12/94	8/12/94	8/12/94	8/12/94	8/12/94	8/16/94
Date Analyzed:	8/12/94	8/12/94	8/12/94	8/12/94	8/12/94	8/17/94
Instrument I.D.#:	MS-F3	MS-F3	MS-F3	MS-F3	MS-F3	GCHP-5
Conc. Spiked:	2500 µg/kg	2500 µg/kg	2500 µg/kg	2500 µg/kg	2500 µg/kg	15 mg/kg
Matrix Spike % Recovery:	72	72	84	80	76	*
Matrix Spike Duplicate % Recovery:	64	68	76	76	68	*
Relative % Difference:	12	5.7	10	5.1	11	*
LCS Batch#:	BLK081294	BLK081294	BLK081294	BLK081294	BLK081294	BLK081694
Date Prepared:	8/12/94	8/12/94	8/12/94	8/12/94	8/12/94	8/16/94
Date Analyzed:	8/12/94	8/12/94	8/12/94	8/12/94	8/12/94	8/17/94
Instrument I.D.#:	MS-F3	MS-F3	MS-F3	MS-F3	MS-F3	GCHP-5
LCS % Recovery:	72	88	76	84	80	93
% Recovery Control Limits:	DL-234	71-157	37-151	47-150	37-160	38-122

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.
* - Matrix Effects

Please Note:
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SEQUOIA ANALYTICAL

Todd Olive
Project Manager

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco, 2111-94-1
Matrix: Solid
QC Sample Group: 9408953 -01

Reported: Aug 30, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Phenol	2-Chlorophenol	1,4-Dichloro-benzene	N-Nitroso-Di-N-propylamine	1,2,4-Trichloro-benzene	4-Chloro-3-Methylphenol
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	E. Manuel	E. Manuel	E. Manuel	E. Manuel	E. Manuel	E. Manuel
MS/MSD Batch#:	940887026	940887026	940887026	940887026	940887026	940887026
Date Prepared:	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94
Date Analyzed:	8/18/94	8/18/94	8/18/94	8/18/94	8/18/94	8/18/94
Instrument I.D.#:	H5	H5	H5	H5	H5	H5
Conc. Spiked:	100 µg/kg	100 µg/kg	100 µg/kg	100 µg/kg	100 µg/kg	100 µg/kg
Matrix Spike % Recovery:	72	78	71	81	73	82
Matrix Spike Duplicate % Recovery:	74	81	75	84	77	82
Relative % Difference:	2.7	3.8	5.5	3.6	5.3	0.0

LCS Batch#:						
Date Prepared:						
Date Analyzed:						
Instrument I.D.#:						
LCS % Recovery:						
% Recovery Control Limits:	5-112	23-134	20-124	DL-230	44-142	22-147

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

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Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco, 2111-94-1
Matrix: Solid
QC Sample Group: 9408953 -01

Reported: Aug 30, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	E. Manuel	E. Manuel	E. Manuel	E. Manuel	E. Manuel
MS/MSD Batch#:	940887026	940887026	940887026	940887026	940887026
Date Prepared:	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94
Date Analyzed:	8/18/94	8/18/94	8/18/94	8/18/94	8/18/94
Instrument I.D.#:	H5	H5	H5	H5	H5
Conc. Spiked:	100 µg/kg	100 µg/kg	100 µg/kg	100 µg/kg	100 µg/kg
Matrix Spike % Recovery:	85	83	76	85	79
Matrix Spike Duplicate % Recovery:	87	84	78	88	79
Relative % Difference:	2.3	1.2	2.6	3.5	0.0
LCS Batch#:					
Date Prepared:					
Date Analyzed:					
Instrument I.D.#:					
LCS % Recovery:					
% Recovery Control Limits:	47-145	DL-132	39-139	14-176	52-115

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

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Project Manager

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco, 2111-94-1
Matrix: Solid
QC Sample Group: 9408953 -01

Reported: Aug 30, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	R. Geckler	R. Geckler	R. Geckler	R. Geckler
MS/MSD Batch#:	940886606	940886606	940886606	940886606
Date Prepared:	8/17/94	8/17/94	8/17/94	8/17/94
Date Analyzed:	8/18/94	8/18/94	8/18/94	8/18/94
Instrument I.D.#:	GCHP-18	GCHP-18	GCHP-18	GCHP-18
Conc. Spiked:	0.20 mg/kg	0.20 mg/kg	0.20 mg/kg	0.60 mg/kg
Matrix Spike % Recovery:	90	95	95	95
Matrix Spike Duplicate % Recovery:	85	90	90	92
Relative % Difference:	5.7	5.4	5.4	3.2
LCS Batch#:				
Date Prepared:				
Date Analyzed:				
Instrument I.D.#:				
LCS % Recovery:				
% Recovery Control Limits:	71-133	72-128	72-130	71-120

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

ARCO Products Company ◈
Division of AtlanticRichfieldCompany

Task Order No. 2111-94-1

Chain of Custody

ARCO Facility no. 2111 | City (Facility) San Leandro | Project manager (Consultant) Todd Coffman | Laboratory name Sequoia

ARCO engineer Michael Whelan | Telephone no. (ARCO) (415) 571-2434 | Telephone no. (Consultant) (510) 551-8777 | Fax no. (Consultant) (510) 551-7888 | Contract number

Consultant name GeoStrategies Inc. | Address (Consultant) 6747 Sierra Ct. Suite G, Dublin, CA 94568 | 07-073

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☒ Diesel ☒	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ VOA ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	TOG SM 5520	metals Cd, Cr, Pb, Ni, Zn
WO-1	01A	1	X			X		8/15/94	-01	X		X				X	X				X	X

Method of shipment

Special detection Limit/reporting

Special QA/QC

Remarks

Lab number 9408953

Turnaround time
Priority Rush 1 Business Day ☐
Rush 2 Business Days ☐
Expedited 5 Business Days ☒
Standard 10 Business Days ☒

Condition of sample: [illegible]

Temperature received: Cool

Relinquished by sampler [signature] Date 8/16/94 Time 1400 | Received by Steve Ten

Relinquished by | Date | Time | Received by

Relinquished by | Date | Time | Received by laboratory [signature] | Date 8-16-94 | Time 1605

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant

APPC-3292 (2-91)

Sequoia Analytical

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ettler Ryan/Geostrategies
6747 Sierra Court Suite G
ublin, CA 94568
ttention: Joel Coffman

Project: Arco 2111-94-1

Enclosed are the results from samples received at Sequoia Analytical on August 16, 1994. The requested analyses are listed below:

AMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9408G37 -01	SOLID, WO-B2	08/16/94	TRPH (SM 5520 E&F)
408G37 -01	SOLID, WO-B2	08/16/94	8240 Volatile Organic Comp
9408G37 -01	SOLID, WO-B2	08/16/94	8270 SemiVolatile Organic
408G37 -01	SOLID, WO-B2	08/16/94	Cadmium
9408G37 -01	SOLID, WO-B2	08/16/94	Chromium
408G37 -01	SOLID, WO-B2	08/16/94	Nickel
9408G37 -01	SOLID, WO-B2	08/16/94	Lead
9408G37 -01	SOLID, WO-B2	08/16/94	Zinc
408G37 -01	SOLID, WO-B2	08/16/94	TPHGB Purgeable TPH / BTEX

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on his project.

ery truly yours,

SEQUOIA ANALYTICAL

odd Olive
roject Manager

Quality Assurance Department

Sequoia Analytical

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco 2111-94-1

Lab Proj. ID: 9408G37

Sampled: 08/16/94
Received: 08/16/94
Analyzed: see below

Reported: 09/02/94

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9408G37-01				
Sample Desc : SOLID, [redacted]				
Cadmium	mg/Kg	08/31/94	0.50	0.90
Chromium	mg/Kg	08/31/94	0.50	46
Lead	mg/Kg	08/31/94	5.0	8.6
Nickel	mg/Kg	08/31/94	2.5	55
TRPH (SM 5520 E&F)	mg/Kg	09/02/94	50	[redacted]
Zinc	mg/Kg	08/31/94	0.50	53

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco 2141-94-1
Sample Descript: [redacted]
Matrix: SOLID
Analysis Method: EPA 8240
Lab Number: 9408G37-01

Sampled: 08/16/94
Received: 08/16/94
Extracted: 09/01/94
Analyzed: 09/01/94
Reported: 09/02/94

Volatile Organics (EPA 8240)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Acetone	500	N.D.
Benzene	100	N.D.
Bromodichloromethane	100	N.D.
Bromoform	100	N.D.
Bromomethane	100	N.D.
2-Butanone	500	N.D.
Carbon disulfide	100	N.D.
Carbon tetrachloride	100	N.D.
Chlorobenzene	100	N.D.
Chloroethane	100	N.D.
2-Chloroethyl vinyl ether	500	N.D.
Chloroform	100	N.D.
Chloromethane	100	N.D.
Dibromochloromethane	100	N.D.
1,1-Dichloroethane	100	N.D.
1,2-Dichloroethane	100	N.D.
1,1-Dichloroethene	100	N.D.
cis-1,2-Dichloroethene	100	N.D.
trans-1,2-Dichloroethene	100	N.D.
1,2-Dichloropropane	100	N.D.
cis-1,3-Dichloropropene	100	N.D.
trans-1,3-Dichloropropene	100	N.D.
Ethylbenzene	100	N.D.
2-Hexanone	500	N.D.
Methylene chloride	250	N.D.
4-Methyl-2-pentanone	500	N.D.
Styrene	100	N.D.
1,1,2,2-Tetrachloroethane	100	N.D.
Tetrachloroethene	100	N.D.
Toluene	100	N.D.
1,1,1-Trichloroethane	100	N.D.
1,1,2-Trichloroethane	100	N.D.
Trichloroethene	100	N.D.
Trichlorofluoromethane	100	N.D.
Vinyl acetate	100	N.D.

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco 2111-94-1
Sample Descript: [redacted]
Matrix: SOLID
Analysis Method: EPA 8240
Lab Number: 9409867-01

Sampled: 08/16/94
Received: 08/16/94
Extracted: 09/01/94
Analyzed: 09/01/94
Reported: 09/02/94

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Vinyl chloride	100	N.D.
Total Xylenes	100	N.D.

Surrogates	Control Limits %		% Recovery
1,2-Dichloroethane-d4	70	121	101
Toluene-d8	81	117	106
4-Bromofluorobenzene	74	121	106

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco 2111-94-1	Sampled: 08/16/94
6747 Sierra Court Suite G	Sample Descript: [illegible]	Received: 08/16/94
Dublin, CA 94568	Matrix: SOLID	Extracted: 09/01/94
	Analysis Method: EPA 8270	Analyzed: 09/01/94
Attention: Joel Coffman	Lab Number: 9408037-01	Reported: 09/02/94

Semivolatile Organics (EPA 8270)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Acenaphthene	2500	N.D.
Acenaphthylene	2500	N.D.
Anthracene	2500	N.D.
Benzoic Acid	5000	N.D.
Benzo(a)anthracene	2500	N.D.
Benzo(b)fluoranthene	2500	N.D.
Benzo(k)fluoranthene	2500	N.D.
Benzo(g,h,i)perylene	2500	N.D.
Benzo(a)pyrene	2500	N.D.
Benzyl alcohol	2500	N.D.
Bis(2-chloroethoxy)methane	2500	N.D.
Bis(2-chloroethyl)ether	2500	N.D.
Bis(2-chloroisopropyl)ether	2500	N.D.
Bis(2-ethylhexyl)phthalate	5000	N.D.
4-Bromophenyl phenyl ether	2500	N.D.
Butyl benzyl phthalate	2500	N.D.
4-Chloroaniline	5000	N.D.
2-Chloronaphthalene	2500	N.D.
4-Chloro-3-methylphenol	2500	N.D.
2-Chlorophenol	2500	N.D.
4-Chlorophenyl phenyl ether	2500	N.D.
Chrysene	2500	N.D.
Dibenzo(a,h)anthracene	2500	N.D.
Dibenzofuran	2500	N.D.
Di-n-butyl phthalate	5000	N.D.
1,2-Dichlorobenzene	2500	N.D.
1,3-Dichlorobenzene	2500	N.D.
1,4-Dichlorobenzene	2500	N.D.
3,3-Dichlorobenzidine	5000	N.D.
2,4-Dichlorophenol	2500	N.D.
Diethyl phthalate	2500	N.D.
2,4-Dimethylphenol	2500	N.D.
Dimethyl phthalate	2500	N.D.
4,6-Dinitro-2-methylphenol	5000	N.D.
2,4-Dinitrophenol	5000	N.D.

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco 2111-94-1
Sample Descript: [redacted]
Matrix: SOLID
Analysis Method: EPA 8270
Lab Number: 9408G37-01

Sampled: 08/16/94
Received: 08/16/94
Extracted: 09/01/94
Analyzed: 09/01/94
Reported: 09/02/94

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
2,4-Dinitrotoluene	2500	N.D.
2,6-Dinitrotoluene	2500	N.D.
Di-n-octyl phthalate	2500	N.D.
Fluoranthene	2500	N.D.
Fluorene	2500	N.D.
Hexachlorobenzene	2500	N.D.
Hexachlorobutadiene	2500	N.D.
Hexachlorocyclopentadiene	5000	N.D.
Hexachloroethane	2500	N.D.
Indeno(1,2,3-cd)pyrene	2500	N.D.
Isophorone	2500	N.D.
2-Methylnaphthalene	2500	N.D.
2-Methylphenol	2500	N.D.
4-Methylphenol	2500	N.D.
Naphthalene	2500	N.D.
2-Nitroaniline	5000	N.D.
3-Nitroaniline	5000	N.D.
4-Nitroaniline	5000	N.D.
Nitrobenzene	2500	N.D.
2-Nitrophenol	2500	N.D.
4-Nitrophenol	5000	N.D.
n-Nitrosodiphenylamine	2500	N.D.
n-Nitroso-di-n-propylamine	2500	N.D.
Pentachlorophenol	5000	N.D.
Phenanthrene	2500	N.D.
Phenol	2500	N.D.
Pyrene	2500	N.D.
1,2,4-Trichlorobenzene	2500	N.D.
2,4,5-Trichlorophenol	5000	N.D.
2,4,6-Trichlorophenol	2500	N.D.

Surrogates	Control Limits %		% Recovery
2-Fluorophenol	25	121	74
Phenol-d5	24	113	71
Nitrobenzene-d5	23	120	79
2-Fluorobiphenyl	30	115	89
2,4,6-Tribromophenol	19	122	70
p-Terphenyl-d14	18	137	77

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco 2111-94-1	Sampled: 08/16/94
6747 Sierra Court Suite G	Sample Descript: [redacted]	Received: 08/16/94
Dublin, CA 94568	Matrix: SOLID	Extracted: 08/30/94
	Analysis Method: 8015Mod/8020	Analyzed: 08/30/94
Attention: Joel Coffman	Lab Number: 9408G37-01	Reported: 09/02/94

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
[redacted] Gas	25	130
Benzene	0.12	0.18
Toluene	0.12	0.51
Ethyl Benzene	0.12	N.D.
Xylenes (Total)	0.12	0.26
Chromatogram Pattern:		
Weathered Gas		C6-C12

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	130

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568
Attention: Joel Coffman

Client Proj. ID: Arco 2111-94-1
Lab Proj. ID: 9408G37

Received: 08/16/94
Reported: 09/02/94

LABORATORY NARRATIVE

8270 note: DL was raised due to high NHSL compounds.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco 2111-94-1
Matrix: Solid
QC Sample Group: 9408G37 -01

Reported: Sep 2, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Ttl Recoverable Petroleum Hydro.
Method:	SM 5520 E&F
Analyst:	A. Pina
MS/MSD Batch#:	9408B9105
Date Prepared:	8/31/94
Date Analyzed:	9/2/94
Instrument I.D.#:	-
Conc. Spiked:	1000 mg/kg
Matrix Spike % Recovery:	120
Matrix Spike Duplicate % Recovery:	120
Relative % Difference:	0.0
LCS Batch#:	BLK083194
Date Prepared:	8/31/94
Date Analyzed:	9/2/94
Instrument I.D.#:	-
LCS % Recovery:	100
% Recovery Control Limits:	70-120

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

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Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco 2111-94-1
Matrix: Solid
QC Sample Group: 9408G37 -01

Reported: Sep 2, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Beryllium	Cadmium	Chromium	Nickel
Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010
Analyst:	C. Medefesser	C. Medefesser	C. Medefesser	C. Medefesser
MS/MSD Batch#:	9408G3701	9408G3701	9408G3701	9408G3701
Date Prepared:	8/31/94	8/31/94	8/31/94	8/31/94
Date Analyzed:	8/31/94	8/31/94	8/31/94	8/31/94
Instrument I.D.#:	MTJA-2	MTJA-2	MTJA-2	MTJA-2
Conc. Spiked:	100 mg/kg	100 mg/kg	100 mg/kg	100 mg/kg
Matrix Spike % Recovery:	96	94	94	95
Matrix Spike Duplicate % Recovery:	94	92	94	85
Relative % Difference:	2.1	2.2	0.0	11
LCS Batch#:	BLK083094	BLK083094	BLK083094	BLK083094
Date Prepared:	8/31/94	8/31/94	8/31/94	8/31/94
Date Analyzed:	8/31/94	8/31/94	8/31/94	8/31/94
Instrument I.D.#:	MTJA-2	MTJA-2	MTJA-2	MTJA-2
LCS % Recovery:	99	97	100	99
% Recovery Control Limits:	75-125	75-125	75-125	75-125

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

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Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco 2111-94-1
Matrix: Solid
QC Sample Group: 9408G37 -01

Reported: Sep 2, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	C. Donohue	C. Donohue	C. Donohue	C. Donohue
MS/MSD Batch#:	9408F6402	9408F6402	9408F6402	9408F6402
Date Prepared:	8/30/94	8/30/94	8/30/94	8/30/94
Date Analyzed:	8/30/94	8/30/94	8/30/94	8/30/94
Instrument I.D.#:	GCHP-6	GCHP-6	GCHP-6	GCHP-6
Conc. Spiked:	0.20 mg/kg	0.20 mg/kg	0.20 mg/kg	0.60 mg/kg
Matrix Spike % Recovery:	85	90	90	88
Matrix Spike Duplicate % Recovery:	85	85	85	85
Relative % Difference:	0.0	5.7	5.7	3.5
LCS Batch#:				
Date Prepared:				
Date Analyzed:				
Instrument I.D.#:				
LCS % Recovery:				
% Recovery Control Limits:	55-145	47-149	47-155	56-140

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

Please Note:
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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco 2111-94-1
Matrix: Solid
QC Sample Group: 9408G37 -01

Reported: Sep 2, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloroethene	Trichloroethene	Benzene	Toluene	Chloro-benzene
Method:	EPA 8240	EPA 8240	EPA 8240	EPA 8240	EPA 8240
Analyst:	M. Wiliams	M. Wiliams	M. Wiliams	M. Wiliams	M. Wiliams
MS/MSD Batch#:	9408D5104	9408D5104	9408D5104	9408D5104	9408D5104
Date Prepared:	9/1/94	9/1/94	9/1/94	9/1/94	9/1/94
Date Analyzed:	9/1/94	9/1/94	9/1/94	9/1/94	9/1/94
Instrument I.D.#:	MS-F3	MS-F3	MS-F3	MS-F3	MS-F3
Conc. Spiked:	2500 µg/kg	2500 µg/kg	2500 µg/kg	2500 µg/kg	2500 µg/kg
Matrix Spike % Recovery:	76	84	88	88	84
Matrix Spike Duplicate % Recovery:	72	88	88	88	88
Relative % Difference:	5.4	4.7	0.0	0.0	4.7
LCS Batch#:					
Date Prepared:					
Date Analyzed:					
Instrument I.D.#:					
LCS % Recovery:					
% Recovery Control Limits:	DL-234	71-157	37-151	47-150	37-160

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco 2111-94-1
Matrix: Solid
QC Sample Group: 9408G37 -01

Reported: Sep 2, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Phenol	2-Chlorophenol	1,4-Dichloro-benzene	N-Nitroso-Di-N-propylamine	1,2,4-Trichloro-benzene	4-Chloro-3-Methylphenol
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	S. Scott	S. Scott	S. Scott	S. Scott	S. Scott	S. Scott
MS/MSD Batch#:	9408C3203	9408C3203	9408C3203	9408C3203	9408C3203	9408C3203
Date Prepared:	8/25/94	8/25/94	8/25/94	8/25/94	8/25/94	8/25/94
Date Analyzed:	8/28-31/94	8/28-31/94	8/28-31/94	8/28-31/94	8/28-31/94	8/28-31/94
Instrument I.D.#:	H5	H5	H5	H5	H5	H5
Conc. Spiked:	100 ng	100 ng	100 ng	100 ng	100 ng	100 ng
Matrix Spike % Recovery:	65	65	74	83	76	68
Matrix Spike Duplicate % Recovery:	71	64	78	83	77	70
Relative % Difference:	8.8	1.6	5.3	0.0	1.3	2.9

LCS Batch#:
Date Prepared:
Date Analyzed:
Instrument I.D.#:
LCS % Recovery:

% Recovery Control Limits:	5-112	23-134	20-124	DL-230	44-142	22-147

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

Please Note:
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6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco 2111-94-1
Matrix: Solid
QC Sample Group: 9408G37 -01

Reported: Sep 2, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	S. Scott	S. Scott	S. Scott	S. Scott	S. Scott
MS/MSD Batch#:	9408C3203	9408C3203	9408C3203	9408C3203	9408C3203
Date Prepared:	8/25/94	8/25/94	8/25/94	8/25/94	8/25/94
Date Analyzed:	8/28-31/94	8/28-31/94	8/28-31/94	8/28-31/94	8/28-31/94
Instrument I.D.#:	H5	H5	H5	H5	H5
Conc. Spiked:	100 ng	100 ng	100 ng	100 ng	100 ng
Matrix Spike % Recovery:	75	67	75	72	80
Matrix Spike Duplicate % Recovery:	77	77	78	80	85
Relative % Difference:	2.6	14	3.9	11	6.1
LCS Batch#:					
Date Prepared:					
Date Analyzed:					
Instrument I.D.#:					
LCS % Recovery:					
% Recovery Control Limits:	47-145	DL-132	39-139	14-176	52-115

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

ARCO Products Company
Division of Atlantic Richfield Company

Task Order 2111-9465

Chain of Custody

ARCO Facility no. 2111	City (Facility) San Leandro	Project manager (Consultant) Joel Coffman	Laboratory name Sequoia
ARCO engineer Michael Whelan	Telephone no. (ARCO) (415) 571-2449	Telephone no. (Consultant) (510) 551-7777	Fax no. (Consultant) (510) 551-7888
Consultant name Geostrategies Inc.	Address (Consultant) 6747 Sierra Ct., Suite G, Dublin, CA. 94568		Contract number 07.073

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Water	Other	Preservation: Ice	Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ Semi VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	TPH Method
WO-B2	01A	1	X			X		8/16/94				X									X

Special detection Limit/reporting

Special QA/QC

Remarks
Upon results of TPHd & TPHmo call for further analysis.

Lab number
9408928

Turnaround time
- Priority Rush 1 Business Day: X
- Rush 2 Business Days: ☐
- Expedited 5 Business Days: ☐
- Standard 10 Business Days: ☐

Condition of sample: Good
Temperature received: COOL

	Date	Time	Received by
Relinquished by sampler	8/16/94	1400	Steve Tan
Relinquished by			Received by
Relinquished by			Received by laboratory: Suzanne Gu — Date 8.16.94 — Time 1605

White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant

9-91)

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Gettler Ryan/Geostrategies	Client Proj. ID: Arco 2111-94-1	Sampled: 08/15/94
6747 Sierra Court Suite G	Sample Descript: [redacted]	Received: 08/16/94
Dublin, CA 94568	Matrix: SOILD	Extracted: 08/16/94
	Analysis Method: EPA 8015 Mod	Analyzed: 08/17/94
Attention: Joel Coffman	Lab Number: 9408929-01	Reported: 08/17/94

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	86

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco 2111-94-1
Sample Descript: [redacted]
Matrix: SOILD
Analysis Method: EPA 8015 Mod
Lab Number: 9408929-01

Sampled: 08/15/94
Received: 08/16/94
Extracted: 08/16/94
Analyzed: 08/17/94
Reported: 08/17/94

Fuel Fingerprint : Motor Oil

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
Extractable HC as Motor Oil Chromatogram Pattern:	10	N.D.

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	77

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco 2111-94-1	Sampled: 08/15/94
6747 Sierra Court Suite G	Sample Descrip[redacted]	Received: 08/16/94
Dublin, CA 94568	Matrix: SOILD	Extracted: 08/16/94
	Analysis Method: EPA 8015 Mod	Analyzed: 08/17/94
Attention: Joel Coffman	Lab Number: 9408929-02	Reported: 08/17/94

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	85

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco 2111-94-1	Sampled: 08/15/94
6747 Sierra Court Suite G	Sample Descript: [redacted]	Received: 08/16/94
ublin, CA 94568	Matrix: SOILD	Extracted: 08/16/94
	Analysis Method: EPA 8015 Mod	Analyzed: 08/17/94
Attention: Joel Coffman	Lab Number: 9408929-02	Reported: 08/17/94

Fuel Fingerprint : Motor Oil

nalyte	Detection Limit mg/Kg	Sample Results mg/Kg
xtractable HC as Motor Oil hromatogram Pattern:	10	N.D.

urrogates	Control Limits %		% Recovery
-Pentacosane (C25)	50	150	77

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
roject Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco 2111-94-1	Sampled: 08/15/94
6747 Sierra Court Suite G	Sample Descript: [redacted]	Received: 08/16/94
Dublin, CA 94568	Matrix: SOILD	Extracted: 08/16/94
	Analysis Method: EPA 8015 Mod	Analyzed: 08/17/94
Attention: Joel Coffman	Lab Number: 9408929-03	Reported: 08/17/94

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	2.8
Chromatogram Pattern:		
Discrete Peaks		C19-C20

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	105

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco 2111-94-1
Sample Descript: [redacted]
Matrix: SOILD
Analysis Method: EPA 8015 Mod
Lab Number: 9408929-03

Sampled: 08/15/94
Received: 08/16/94
Extracted: 08/16/94
Analyzed: 08/17/94
Reported: 08/17/94

Fuel Fingerprint : Motor Oil

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
Extractable HC as Motor Oil	10	12
Chromatogram Pattern:		motor oil

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	83

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco 2111-94-1	Sampled: 08/15/94
6747 Sierra Court Suite G	Sample Descript: WQ-S	Received: 08/16/94
Dublin, CA 94568	Matrix: SOILD	Extracted: 08/16/94
	Analysis Method: EPA 8015 Mod	Analyzed: 08/17/94
Attention: Joel Coffman	Lab Number: 9408929-04	Reported: 08/17/94

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	84

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco 2111-94-1	Sampled: 08/15/94
6747 Sierra Court Suite G	Sample Descript: WC-B	Received: 08/16/94
Dublin, CA 94568	Matrix: SOILD	Extracted: 08/16/94
	Analysis Method: EPA 8015 Mod	Analyzed: 08/17/94
Attention: Joel Coffman	Lab Number: 9408929-05	Reported: 08/17/94

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	50	660
Chromatogram Pattern:		
Non Diesel Mix		>C9

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	0 Q

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco 2111-94-1	Sampled: 08/15/94
6747 Sierra Court Suite G	Sample Descript: [redacted]	Received: 08/16/94
ublin, CA 94568	Matrix: SOILD	Extracted: 08/16/94
	Analysis Method: EPA 8015 Mod	Analyzed: 08/17/94
Attention: Joel Coffman	Lab Number: 9408929-05	Reported: 08/17/94

Fuel Fingerprint : Motor Oil

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
xtractable HC as Motor Oil	500	800
hromatogram Pattern:		MOTOR OIL

Surrogates	Control Limits %		% Recovery
-Pentacosane (C25)	50	150	0 Q

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
oject Manager

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco 2111-94-1
Matrix: Solid
QC Sample Group: 9408929 01-05
Reported: Aug 17, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel
Method:	EPA 8015
Analyst:	AN
MS/MSD Batch#:	94089293
Date Prepared:	8/16/94
Date Analyzed:	8/17/94
Instrument I.D.#:	GCHP-5B
Conc. Spiked:	15 mg/kg
Matrix Spike % Recovery:	*
Matrix Spike Duplicate % Recovery:	*
Relative % Difference:	*

* Matrix Effects.

LCS Batch#:	BLK081694
Date Prepared:	8/16/94
Date Analyzed:	8/17/94
Instrument I.D.#:	GCHP-5B
LCS % Recovery:	93
% Recovery Control Limits:	38-122

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

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ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 2111-94-1

Chain of Custody

ARCO Facility no. 2111	City (Facility) San Leandro	Project manager (Consultant) Joel Coffman	Laboratory name Sequoia
ARCO engineer Michael Whelan	Telephone no. (ARCO) (415) 571-2449	Telephone no. (Consultant) (510) 551-8777 / Fax no. (Consultant) (510) 551-7888	Contract number [illegible]
Consultant name GeoStrategies Inc.		Address (Consultant) 6747 Sierra Ct. Suite G, Dublin CA 94568	

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☒	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ Semi VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	TPH Motor oil
WO-E		1	X			X		8/15/94				X									X
WO-W		1	X			X		↓				X									X
WO-N		1	X			X		↓				X									X
WO-S		1	X			X		↓				X									X
WO-B		1	X			X		↓				X									X

Method of shipment

Special detection Limit/reporting

Special QA/QC

Remarks
upon TPHd & TPHmo results, call for further analyses.

Lab number
9408929

Turnaround time
Priority Rush 1 Business Day ☒
Rush 2 Business Days ☐
Expedited 5 Business Days ☐
Standard 10 Business Days ☐

Condition of sample:		Temperature received: [illegible]		
Relinquished by sampler [signature]	Date 8/16/94 Time 1400	Received by [signature]		
Relinquished by	Date Time	Received by		
Relinquished by	Date Time	Received by laboratory [signature]	Date [illegible]	Time [illegible]

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant
APPC-3292 (2-91)

Sequoia Analytical

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste G
Dublin, CA 94568
Attention: Joel Coffman

Project: Arco 2111-94-1

Enclosed are the results from one soil sample received at Sequoia Analytical on August 16, 1994. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
9408928-01	SOLID, WO-B2	8/16/94	EPA 8015 M EPA 8015 M(Fuel Fingerprint)

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

MBalatti for

Todd Olive
Project Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco 2111-94-1
Sample Descript: [illegible]
Matrix: SOILD
Analysis Method: EPA 8015 Mod
Lab Number: 9408928-01

Sampled: 08/16/94
Received: 08/16/94
Extracted: 08/16/94
Analyzed: 08/17/94
Reported: 08/17/94

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	50	400
Chromatogram Pattern: **Non Diesel Mix**		>C9

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	0 Q

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

M Balatti for

Todd Olive
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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Gettler Ryan/Geostrategies	Client Project ID:	Arco 2111-94-1
6747 Sierra Court, Ste G	Matrix:	Solid
Dublin, CA 94568		
Attention: Joel Coffman	QC Sample Group:	9408928 -01

Reported: Aug 17, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel
Method:	EPA 8015
Analyst:	A. Nagra
MS/MSD Batch#:	940892903
Date Prepared:	8/16/94
Date Analyzed:	8/17/94
Instrument I.D.#:	GCHP-5
Conc. Spiked:	15 mg/kg
Matrix Spike % Recovery:	*
Matrix Spike Duplicate % Recovery:	*
Relative % Difference:	*

*Matrix effect

LCS Batch#:	BLK081694
Date Prepared:	8/16/94
Date Analyzed:	8/17/94
Instrument I.D.#:	GCHP-5
LCS % Recovery:	93
% Recovery Control Limits:	38-122

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

MB Slatter for

Todd Olive
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

ARCO Products Company
Division of AtlanticRichfieldCompany

Chain of Custody

Task Order No. 211-94-1

ARCO Facility no. 211	City (Facility) San Leandro	Project manager (Consultant) Joel Coffman	Laboratory name Sequoia
ARCO engineer Michael Whelan	Telephone no. (ARCO) (415) 571-7491	Telephone no. (Consultant) (916) 551-7848	Fax no. (Consultant) (916) 551-7888	Contract number
Consultant name Geostrategies Inc.	Address (Consultant) 6747 Sierra Ct., Suite G, Dublin, CA 94568			Method of shipment

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ Semi VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	TPH motor oil
MW-B2	3	1	X			X		8/16/94				X									X

Special detection Limit/reporting

Special QA/QC

Remarks: Upon results of TPHd & TPHmo call for further analysis.

Lab number

Turnaround time

- Priority Rush 1 Business Day ☑
- Rush 2 Business Days ☐
- Expedited 5 Business Days ☐
- Standard 10 Business Days ☐

Condition of sample:

Temperature received:

Relinquished by sampler	Date 8/16/94	Time 1400	Received by
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory / Date / Time

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant

APPC-3292 (2-91)

Sequoia Analytical

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Project: Arco, 2111-94-1

Enclosed are the results from 2 soil samples received at Sequoia Analytical on September 15, 1994. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
9409778-01	CSS-1A-1D (Comp.4)	9/14/94	Oil & Grease, STLC Metals Reactivity, Corrosivity, Ignitabil 8015 Mod./8020, EPA 8015 M EPA 8240, EPA 8270
9409778-02	CSS-2A-2D (Comp.4)	9/14/94	Oil & Grease, EPA 8240, EPA 8270, STLC Metals 8015 Mod./8020, EPA 8015 M

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

SEQUOIA ANALYTICAL

Quality Assurance Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568

Client Proj. ID: Arco, 2111-94-1
Lab Proj. ID: 9409778

Sampled: 09/14/94
Received: 09/15/94
Analyzed: see below

Attention: Joel Coffman

Reported: 09/22/94

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9409778-01				
Sample Desc : **SOLID, CSS-1A-1D (comp 4)**				
Flash Point	**Celsius**	**09/20/94**	**25**	**>100**
pH	**pH Units**	**09/15/94**		**8.0**
TRPH (SM 5520 E&F)	**mg/Kg**	**09/21/94**	**50**	**960**
Lab No: 9409778-02				
Sample Desc : **SOLID, CSS-2A-2D (comp 4)**				
TRPH (SM 5520 E&F)	**mg/Kg**	**09/21/94**	**50**	**2300**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Todd Olive
Project Manager

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6747 Sierra Court Suite G
ublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco, 2111-94-1
Sample Descript: CSS-1A-1D (comp 4)
Matrix: SOLID
Analysis Method: EPA 8240
Lab Number: 9409778-01

Sampled: 09/14/94
Received: 09/15/94
Extracted: 09/20/94
Analyzed: 09/21/94
Reported: 09/22/94

Volatile Organics (EPA 8240)

nalyte	Detection Limit ug/Kg	Sample Results ug/Kg
cetone	500	N.D.
enzene	100	N.D.
romodichloromethane	100	N.D.
Bromoform	100	N.D.
romomethane	100	N.D.
-Butanone	500	N.D.
Carbon disulfide	100	N.D.
Carbon tetrachloride	100	N.D.
hlorobenzene	100	N.D.
hloroethane	100	N.D.
2-Chloroethyl vinyl ether	500	N.D.
Chloroform	100	N.D.
hloromethane	100	N.D.
ibromochloromethane	100	N.D.
1,1-Dichloroethane	100	N.D.
1,2-Dichloroethane	100	N.D.
1-Dichloroethene	100	N.D.
is-1,2-Dichloroethene	100	N.D.
rans-1,2-Dichloroethene	100	N.D.
1,2-Dichloropropane	100	N.D.
is-1,3-Dichloropropene	100	N.D.
rans-1,3-Dichloropropene	100	N.D.
thylbenzene	100	N.D.
2-Hexanone	500	N.D.
lethylene chloride	250	N.D.
-Methyl-2-pentanone	500	N.D.
tyrene	100	N.D.
1,1,2,2-Tetrachloroethane	100	N.D.
etrachloroethene	100	N.D.
oluene	100	N.D.
1,1,1-Trichloroethane	100	N.D.
1,1,2-Trichloroethane	100	N.D.
richloroethene	100	N.D.
richlorofluoromethane	100	N.D.
inyl acetate	100	N.D.

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 09/14/94
6747 Sierra Court Suite G	Sample Descript: CSS-1A-1D (comp 4)	Received: 09/15/94
ublin, CA 94568	Matrix: SOLID	Extracted: 09/20/94
	Analysis Method: EPA 8240	Analyzed: 09/21/94
Attention: Joel Coffman	Lab Number: 9409778-01	Reported: 09/22/94

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Vinyl chloride	100	N.D.
otal Xylenes	100	N.D.

Surrogates	Control Limits %		% Recovery
2-Dichloroethane-d4	70	121	95
oluene-d8	81	117	97
4-Bromofluorobenzene	74	121	104

Analytes reported as N.D. were not present above the stated limit of detection.

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 09/14/94
6747 Sierra Court Suite G	Sample Descript: CSS-1A-1D (comp 4)	Received: 09/15/94
[illegible]ublin, CA 94568	Matrix: SOLID	Extracted: 09/16/94
	Analysis Method: EPA 8270	Analyzed: 09/20/94
Attention: Joel Coffman	Lab Number: 9409778-01	Reported: 09/22/94

Semivolatile Organics (EPA 8270)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
[illegible]cenaphthene	250	N.D.
[illegible]cenaphthylene	250	N.D.
Anthracene	250	N.D.
Benzoic Acid	500	N.D.
[illegible]nzo(a)anthracene	250	N.D.
[illegible]nzo(b)fluoranthene	250	N.D.
Benzo(k)fluoranthene	250	N.D.
Benzo(g,h,i)perylene	250	N.D.
[illegible]nzo(a)pyrene	250	N.D.
[illegible]nzyl alcohol	250	N.D.
Bis(2-chloroethoxy)methane	250	N.D.
Bis(2-chloroethyl)ether	250	N.D.
[illegible]s(2-chloroisopropyl)ether	250	N.D.
[illegible]s(2-ethylhexyl)phthalate	500	N.D.
4-Bromophenyl phenyl ether	250	N.D.
Butyl benzyl phthalate	250	N.D.
[illegible]Chloroaniline	500	N.D.
[illegible]Chloronaphthalene	250	N.D.
4-Chloro-3-methylphenol	250	N.D.
2-Chlorophenol	250	N.D.
[illegible]Chlorophenyl phenyl ether	250	N.D.
[illegible]hrysene	250	N.D.
Dibenzo(a,h)anthracene	250	N.D.
Dibenzofuran	250	N.D.
[illegible]-n-butyl phthalate	500	N.D.
[illegible]2-Dichlorobenzene	250	N.D.
1,3-Dichlorobenzene	250	N.D.
1,4-Dichlorobenzene	250	N.D.
[illegible]3-Dichlorobenzidine	500	N.D.
[illegible]4-Dichlorophenol	250	N.D.
Diethyl phthalate	250	N.D.
2,4-Dimethylphenol	250	N.D.
[illegible]imethyl phthalate	250	N.D.
[illegible]6-Dinitro-2-methylphenol	500	N.D.
2,4-Dinitrophenol	500	N.D.

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
ublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco, 2111-94-1
Sample Descript: CSS-1A-1D (comp 4)
Matrix: SOLID
Analysis Method: EPA 8270
Lab Number: 9409778-01

Sampled: 09/14/94
Received: 09/15/94
Extracted: 09/16/94
Analyzed: 09/20/94
Reported: 09/22/94

nalyte	Detection Limit mg/Kg	Sample Results mg/Kg
2,4-Dinitrotoluene	250	N.D.
6-Dinitrotoluene	250	N.D.
-n-octyl phthalate	250	N.D.
Fluoranthene	250	N.D.
Fluorene	250	N.D.
exachlorobenzene	250	N.D.
exachlorobutadiene	250	N.D.
Hexachlorocyclopentadiene	500	N.D.
Hexachloroethane	250	N.D.
deno(1,2,3-cd)pyrene	250	N.D.
ophorone	250	N.D.
2-Methylnaphthalene	250	N.D.
2-Methylphenol	250	N.D.
-Methylphenol	250	N.D.
aphthalene	250	N.D.
2-Nitroaniline	500	N.D.
3-Nitroaniline	500	N.D.
-Nitroaniline	500	N.D.
itrobenzene	250	N.D.
2-Nitrophenol	250	N.D.
4-Nitrophenol	500	N.D.
-Nitrosodiphenylamine	250	N.D.
-Nitroso-di-n-propylamine	250	N.D.
Pentachlorophenol	500	N.D.
Phenanthrene	250	N.D.
henol	250	N.D.
yrene	250	N.D.
1,2,4-Trichlorobenzene	250	N.D.
2,4,5-Trichlorophenol	500	N.D.
2,4,6-Trichlorophenol	250	N.D.

Surrogates	Control Limits %		% Recovery
-Fluorophenol	25	121	51
henol-d5	24	113	54
Nitrobenzene-d5	23	120	60
2-Fluorobiphenyl	30	115	59
2,4,6-Tribromophenol	19	122	37
-Terphenyl-d14	18	137	74

Analytes reported as N.D. were not present above the stated limit of detection.

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 09/14/94
6747 Sierra Court Suite G	Sample Descript: CSS-1A-1D (comp 4)	Received: 09/15/94
Dublin, CA 94568	Matrix: SOLID	Extracted: 09/16/94
	Analysis Method: Title 22	Analyzed: 09/20/94
Attention: Joel Coffman	Lab Number: 9409778-01	Reported: 09/22/94

Inorganic Persistent and Bioaccumulative Toxic Substances : STLC

Analyte	Max. Limit mg/L	Detection Limit mg/L	Sample Results mg/L
Antimony, Sb	**15**	**0.10**	**0.30**
Arsenic, As	**5.0**	**0.10**	**0.54**
Barium, Ba	**100**	**0.10**	**7.6**
Beryllium, Be	0.75	0.010	N.D.
Cadmium, Cd	1.0	0.010	N.D.
Chromium, Cr	**560**	**0.010**	**0.13**
Chromium, Cr (VI)	**5.0**	**0.0050**	**-**
Cobalt, Co	**80**	**0.050**	**0.35**
Copper, Cu	**25**	**0.010**	**0.20**
Lead, Pb	**5.0**	**0.10**	**0.27**
Mercury, Hg	0.2	0.00050	N.D.
Molybdenum, Mo	350	0.050	N.D.
Nickel, Ni	**20**	**0.050**	**0.81**
Selenium, Se	1.0	0.050	N.D.
Silver, Ag	5.0	0.010	N.D.
Thallium, Tl	7.0	0.10	N.D.
Vanadium, V	**24**	**0.050**	**0.48**
Zinc, Zn	**250**	**0.010**	**4.4**
Asbestos	**--**		**-**
Fluoride salts	**180**	**1.0**	**-**

Analytes reported as N.D. were not present above the stated limit of detection.

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6747 Sierra Court Suite G
Dublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco, 2111-94-1
Sample Descript: CSS-1A-1D (comp 4)
Matrix: SOLID
Analysis Method: Comb
Lab Number: 9409778-01

Sampled: 09/14/94
Received: 09/15/94

Analyzed: 09/21/94
Reported: 09/22/94

Reactivity

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
Reactivity:		
Sulfide	13	N.D.
Cyanide	0.50	N.D.
Reaction with Water		N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 09/14/94
6747 Sierra Court Suite G	Sample Descript: CSS-1A-1D (comp 4)	Received: 09/15/94
Dublin, CA 94568	Matrix: SOLID	Extracted: 09/16/94
	Analysis Method: 8015Mod/8020	Analyzed: 09/16/94
Attention: Joel Coffman	Lab Number: 9409778-01	Reported: 09/22/94

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**1.0**	**5.7**
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	**0.0050**	**0.015**
Chromatogram Pattern:		
Non Gas Mix		**>C8**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	84

Analytes reported as N.D. were not present above the stated limit of detection.

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 09/14/94
6747 Sierra Court Suite G	Sample Descript: CSS-1A-1D (comp 4)	Received: 09/15/94
Dublin, CA 94568	Matrix: SOLID	Extracted: 09/16/94
	Analysis Method: EPA 8015 Mod	Analyzed: 09/16/94
Attention: Joel Coffman	Lab Number: 9409778-01	Reported: 09/22/94

Fuel Fingerprint : Motor Oil

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
Extractable HC as Motor Oil	200	840
Chromatogram Pattern:		Motor Oil

Surrogates	Control Limits %		% Recovery
Pentacosane (C25)	50	150	0 Q

Analytes reported as N.D. were not present above the stated limit of detection.

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[D]ublin, CA 94568

Attention: Joel Coffman

Client Proj. ID: Arco, 2111-94-1
Sample Descript: CSS-2A-2D (comp 4)
Matrix: SOLID
Analysis Method: EPA 8240
Lab Number: 9409778-02

Sampled: 09/14/94
Received: 09/15/94
Extracted: 09/20/94
Analyzed: 09/21/94
Reported: 09/22/94

Volatile Organics (EPA 8240)

[A]nalyte	Detection Limit ug/Kg	Sample Results ug/Kg
[A]cetone	500	N.D.
[B]enzene	100	N.D.
Bromodichloromethane	100	N.D.
Bromoform	100	N.D.
[B]romomethane	100	N.D.
2-Butanone	500	N.D.
Carbon disulfide	100	N.D.
Carbon tetrachloride	100	N.D.
[C]hlorobenzene	100	N.D.
[C]hloroethane	100	N.D.
2-Chloroethyl vinyl ether	500	N.D.
Chloroform	100	N.D.
[C]hloromethane	100	N.D.
[D]ibromochloromethane	100	N.D.
1,1-Dichloroethane	100	N.D.
1,2-Dichloroethane	100	N.D.
[1]1-Dichloroethene	100	N.D.
[c]is-1,2-Dichloroethene	100	N.D.
trans-1,2-Dichloroethene	100	N.D.
1,2-Dichloropropane	100	N.D.
[c]is-1,3-Dichloropropene	100	N.D.
[t]rans-1,3-Dichloropropene	100	N.D.
Ethylbenzene	100	N.D.
2-Hexanone	500	N.D.
[M]ethylene chloride	250	N.D.
4-Methyl-2-pentanone	500	N.D.
Styrene	100	N.D.
1,1,2,2-Tetrachloroethane	100	N.D.
[T]etrachloroethene	100	N.D.
[T]oluene	100	N.D.
1,1,1-Trichloroethane	100	N.D.
1,1,2-Trichloroethane	100	N.D.
[T]richloroethene	100	N.D.
[T]richlorofluoromethane	100	N.D.
Vinyl acetate	100	N.D.

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 09/14/94
6747 Sierra Court Suite G	Sample Descript: CSS-2A-2D (comp 4)	Received: 09/15/94
Dublin, CA 94568	Matrix: SOLID	Extracted: 09/20/94
	Analysis Method: EPA 8240	Analyzed: 09/21/94
Attention: Joel Coffman	Lab Number: 9409778-02	Reported: 09/22/94

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Vinyl chloride	100	N.D.
Total Xylenes	100	N.D.

Surrogates	Control Limits %		% Recovery
1,2-Dichloroethane-d4	70	121	80
Toluene-d8	81	117	92
4-Bromofluorobenzene	74	121	93

Analytes reported as N.D. were not present above the stated limit of detection.

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 09/14/94
6747 Sierra Court Suite G	Sample Descript: CSS-2A-2D (comp 4)	Received: 09/15/94
Dublin, CA 94568	Matrix: SOLID	Extracted: 09/16/94
	Analysis Method: EPA 8270	Analyzed: 09/20/94
Attention: Joel Coffman	Lab Number: 9409778-02	Reported: 09/22/94

Semivolatile Organics (EPA 8270)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
Acenaphthene	250	N.D.
Acenaphthylene	250	N.D.
Anthracene	250	N.D.
Benzoic Acid	500	N.D.
Benzo(a)anthracene	250	N.D.
Benzo(b)fluoranthene	250	N.D.
Benzo(k)fluoranthene	250	N.D.
Benzo(g,h,i)perylene	250	N.D.
Benzo(a)pyrene	250	N.D.
Benzyl alcohol	250	N.D.
Bis(2-chloroethoxy)methane	250	N.D.
Bis(2-chloroethyl)ether	250	N.D.
Bis(2-chloroisopropyl)ether	250	N.D.
Bis(2-ethylhexyl)phthalate	500	N.D.
4-Bromophenyl phenyl ether	250	N.D.
Butyl benzyl phthalate	250	N.D.
4-Chloroaniline	500	N.D.
2-Chloronaphthalene	250	N.D.
4-Chloro-3-methylphenol	250	N.D.
2-Chlorophenol	250	N.D.
4-Chlorophenyl phenyl ether	250	N.D.
Chrysene	250	N.D.
Dibenzo(a,h)anthracene	250	N.D.
Dibenzofuran	250	N.D.
Di-n-butyl phthalate	500	N.D.
1,2-Dichlorobenzene	250	N.D.
1,3-Dichlorobenzene	250	N.D.
1,4-Dichlorobenzene	250	N.D.
3,3-Dichlorobenzidine	500	N.D.
2,4-Dichlorophenol	250	N.D.
Diethyl phthalate	250	N.D.
2,4-Dimethylphenol	250	N.D.
Dimethyl phthalate	250	N.D.
4,6-Dinitro-2-methylphenol	500	N.D.
2,4-Dinitrophenol	500	N.D.

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 09/14/94
6747 Sierra Court Suite G	Sample Descript: CSS-2A-2D (comp 4)	Received: 09/15/94
ublin, CA 94568	Matrix: SOLID	Extracted: 09/16/94
	Analysis Method: EPA 8270	Analyzed: 09/20/94
Attention: Joel Coffman	Lab Number: 9409778-02	Reported: 09/22/94

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
2,4-Dinitrotoluene	250	N.D.
2,6-Dinitrotoluene	250	N.D.
i-n-octyl phthalate	250	N.D.
luoranthene	250	N.D.
Fluorene	250	N.D.
Hexachlorobenzene	250	N.D.
exachlorobutadiene	250	N.D.
Hexachlorocyclopentadiene	500	N.D.
Hexachloroethane	250	N.D.
ndeno(1,2,3-cd)pyrene	250	N.D.
sophorone	250	N.D.
-Methylnaphthalene	250	N.D.
2-Methylphenol	250	N.D.
-Methylphenol	250	N.D.
laphthalene	250	N.D.
-Nitroaniline	500	N.D.
3-Nitroaniline	500	N.D.
-Nitroaniline	500	N.D.
itrobenzene	250	N.D.
-Nitrophenol	250	N.D.
4-Nitrophenol	500	N.D.
N-Nitrosodiphenylamine	250	N.D.
-Nitroso-di-n-propylamine	250	N.D.
entachlorophenol	500	N.D.
Phenanthrene	250	N.D.
Phenol	250	N.D.
yrene	250	N.D.
,2,4-Trichlorobenzene	250	N.D.
2,4,5-Trichlorophenol	500	N.D.
2,4,6-Trichlorophenol	250	N.D.

Surrogates	Control Limits %		% Recovery
-Fluorophenol	25	121	38
henol-d5	24	113	49
Nitrobenzene-d5	23	120	56
2-Fluorobiphenyl	30	115	57
,4,6-Tribromophenol	19	122	22
-Terphenyl-d14	18	137	82

Analytes reported as N.D. were not present above the stated limit of detection.

EQUOIA ANALYTICAL - ELAP #1210.

Todd Olive
oject Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 09/14/94
6747 Sierra Court Suite G	Sample Descript: CSS-2A-2D (comp 4)	Received: 09/15/94
Dublin, CA 94568	Matrix: SOLID	Extracted: 09/16/94
	Analysis Method: Title 22	Analyzed: 09/20/94
Attention: Joel Coffman	Lab Number: 9409778-02	Reported: 09/22/94

Inorganic Persistent and Bioaccumulative Toxic Substances : STLC

Analyte	Max. Limit mg/L	Detection Limit mg/L	Sample Results mg/L
Antimony, Sb	**15**	**0.10**	**0.25**
Arsenic, As	**5.0**	**0.10**	**0.19**
Barium, Ba	**100**	**0.10**	**6.2**
Beryllium, Be	0.75	0.010	N.D.
Cadmium, Cd	**1.0**	**0.010**	**0.011**
Chromium, Cr	**560**	**0.010**	**0.11**
Chromium, Cr (VI)	**5.0**	**0.0050**	**-**
Cobalt, Co	**80**	**0.050**	**0.40**
Copper, Cu	**25**	**0.010**	**0.16**
Lead, Pb	**5.0**	**0.10**	**1.4**
Mercury, Hg	0.2	0.00050	N.D.
Molybdenum, Mo	350	0.050	N.D.
Nickel, Ni	**20**	**0.050**	**0.96**
Selenium, Se	1.0	0.050	N.D.
Silver, Ag	5.0	0.010	N.D.
Thallium, Tl	7.0	0.10	N.D.
Vanadium, V	**24**	**0.050**	**0.49**
Zinc, Zn	**250**	**0.010**	**0.63**
Asbestos	**--**		**-**
Fluoride salts	**180**	**1.0**	**-**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 09/14/94
6747 Sierra Court Suite G	Sample Descript: CSS-2A-2D (comp 4)	Received: 09/15/94
Dublin, CA 94568	Matrix: SOLID	Extracted: 09/16/94
	Analysis Method: 8015Mod/8020	Analyzed: 09/16/94
Attention: Joel Coffman	Lab Number: 9409778-02	Reported: 09/22/94

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**1.0**	**6.1**
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	**0.0050**	**0.010**
Chromatogram Pattern:		
Non Gas Mix		**>C8**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	84

Analytes reported as N.D. were not present above the stated limit of detection.

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Gettler Ryan/Geostrategies	Client Proj. ID: Arco, 2111-94-1	Sampled: 09/14/94
6747 Sierra Court Suite G	Sample Descript: CSS-2A-2D (comp 4)	Received: 09/15/94
ublin, CA 94568	Matrix: SOLID	Extracted: 09/16/94
	Analysis Method: EPA 8015 Mod	Analyzed: 09/16/94
Attention: Joel Coffman	Lab Number: 9409778-02	Reported: 09/22/94

Fuel Fingerprint : Motor Oil

nalyte	Detection Limit mg/Kg	Sample Results mg/Kg
xtractable HC as Motor Oil	500	1400
hromatogram Pattern:		Motor Oil

urrogates	Control Limits %		% Recovery
-Pentacosane (C25)	50	150	0 Q

alytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

odd Olive
oject Manager

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Gettler Ryan/Geostrategies
6747 Sierra Court Suite G
Dublin, CA 94568
Attention: Joel Coffman

Client Proj. ID: Arco, 2111-94-1
Lab Proj. ID: 9409778

Received: 09/15/94
Reported: 09/22/94

LABORATORY NARRATIVE

Q- SURROGATE FOR BOTH MOTOR OIL SAMPLES DILUTED OUT DUE TO HIGH CONCENTRATION.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

Sequoia Analytical

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco, 2111-94-1
Matrix: Solid
QC Sample Group: 9409778 -01

Reported: Sep 22, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	pH	Flashpoint	Reactive Sulfide	Reactive Cyanide
Method:	EPA 9040	EPA 1010	SW 846	SW 846
Analyst:	Y.Arteaga	K.Newberry	K.Newberry	K.Newberry
Date Analyzed:	9/15/94	9/20/94	9/21/94	9/21/94
Sample #:	940969401	940980804	940992601	940992601
Sample Concentration:	8.4	> 100 °C	N.D.	N.D.
Sample Duplicate Concentration:	8.4	> 100 °C	N.D.	N.D.
% RPD:	0.0	0.0	0.0	0.0
Control Limits:	0-30	0-30	± 20	± 20

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

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Project Manager

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6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco, 2111-94-1
Matrix: Solid
QC Sample Group: 9409778 -01 - 02
Reported: Sep 22, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Total Recoverable Petroleum Hyd.
Method:	SM 5520 E&F
Analyst:	A.Pina
MS/MSD Batch#:	BLK092094
Date Prepared:	9/20/94
Date Analyzed:	9/21/94
Instrument I.D.#:	-
Conc. Spiked:	1000 mg/kg
Matrix Spike % Recovery:	89
Matrix Spike Duplicate % Recovery:	88
Relative % Difference:	1.1
LCS Batch#:	BLK092094
Date Prepared:	9/20/94
Date Analyzed:	9/21/94
Instrument I.D.#:	-
LCS % Recovery:	89
% Recovery Control Limits:	70-110

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

Please Note:
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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco, 2111-94-1
Matrix: Solid
QC Sample Group: 9409778 -01 -02

Reported: Sep 22, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloroethene	Trichloroethene	Benzene	Toluene	Chloro-benzene
Method:	EPA 8240	EPA 8240	EPA 8240	EPA 8240	EPA 8240
Analyst:	L.Duong	L.Duong	L.Duong	L.Duong	L.Duong
MS/MSD Batch#:	940992301	940992301	940992301	940992301	940992301
Date Prepared:	9/20/94	9/20/94	9/20/94	9/20/94	9/20/94
Date Analyzed:	9/20/94	9/20/94	9/20/94	9/20/94	9/20/94
Instrument I.D.#:	MS-F3	MS-F3	MS-F3	MS-F3	MS-F3
Conc. Spiked:	2500 µg/kg	2500 µg/kg	2500 µg/kg	2500 µg/kg	2500 µg/kg
Matrix Spike % Recovery:	84	100	96	104	108
Matrix Spike Duplicate % Recovery:	92	112	112	108	112
Relative % Difference:	9.1	11	15	3.8	3.6

LCS Batch#:					
Date Prepared:					
Date Analyzed:					
Instrument I.D.#:					
LCS % Recovery:					
% Recovery Control Limits:	DL-234	71-157	37-151	47-150	37-160

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco, 2111-94-1
Matrix: Solid
QC Sample Group: 9409778 -01 - 02
Reported: Sep 22, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Phenol	2-Chlorophenol	1,4-Dichloro-benzene	N-Nitroso-Di-N-propylamine	1,2,4-Trichloro-benzene	4-Chloro-3-Methylphenol
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	E. Manuel	E. Manuel	E. Manuel	E. Manuel	E. Manuel	E. Manuel
MS/MSD Batch#:	940968701	940968701	940968701	940968701	940968701	940968701
Date Prepared:	9/15/94	9/15/94	9/15/94	9/15/94	9/15/94	9/15/94
Date Analyzed:	9/20/94	9/20/94	9/20/94	9/20/94	9/20/94	9/20/94
Instrument I.D.#:	GCHP-5	GCHP-5	GCHP-5	GCHP-5	GCHP-5	GCHP-5
Conc. Spiked:	100 ng	100 ng	100 ng	100 ng	100 ng	100 ng
Matrix Spike % Recovery:	60	62	61	68	63	64
Matrix Spike Duplicate % Recovery:	63	64	63	71	67	68
Relative % Difference:	4.9	3.2	3.2	4.3	6.2	6.1

LCS Batch#:

Date Prepared:
Date Analyzed:
Instrument I.D.#:

LCS % Recovery:

% Recovery Control Limits:	5-112	23-134	20-124	DL-230	44-142	22-147

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco, 2111-94-1
Matrix: Solid
QC Sample Group: 9409778 -01 - 02
Reported: Sep 22, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Acenaphthene	4-Nitrophenol	2,4-Dinitro-toluene	Pentachloro-phenol	Pyrene
Method:	EPA 8270	EPA 8270	EPA 8270	EPA 8270	EPA 8270
Analyst:	E. Manuel	E. Manuel	E. Manuel	E. Manuel	E. Manuel
MS/MSD Batch#:	940968701	940968701	940968701	940968701	940968701
Date Prepared:	9/15/94	9/15/94	9/15/94	9/15/94	9/15/94
Date Analyzed:	9/20/94	9/20/94	9/20/94	9/20/94	9/20/94
Instrument I.D.#:	GCHP-5	GCHP-5	GCHP-5	GCHP-5	GCHP-5
Conc. Spiked:	100 ng	100 ng	100 ng	100 ng	100 ng
Matrix Spike % Recovery:	65	62	62	66	74
Matrix Spike Duplicate % Recovery:	68	63	66	67	79
Relative % Difference:	4.5	1.6	6.3	1.5	6.5
LCS Batch#:					
Date Prepared:					
Date Analyzed:					
Instrument I.D.#:					
LCS % Recovery:					
% Recovery Control Limits:	47-145	DL-132	39-139	14-176	52-115

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco, 2111-94-1
Matrix: Solid
QC Sample Group: 9409778 -01 - 02

Reported: Sep 22, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Motor Oil
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015/ Mod.
Analyst:	E. Cunanan	E. Cunanan	E. Cunanan	E. Cunanan	M. Cassidy
MS/MSD Batch#:	940981901	940981901	940981901	940981901	940962301
Date Prepared:	9/16/94	9/16/94	9/16/94	9/16/94	9/14/94
Date Analyzed:	9/16/94	9/16/94	9/16/94	9/16/94	9/14/94
Instrument I.D.#:	GCHP-18	GCHP-18	GCHP-18	GCHP-18	GCHP-4A
Conc. Spiked:	0.20 mg/kg	0.20 mg/kg	0.20 mg/kg	0.60 mg/kg	15 mg/kg
Matrix Spike % Recovery:	80	90	90	90	85
Matrix Spike Duplicate % Recovery:	85	90	90	90	102
Relative % Difference:	6.0	0.0	0.0	0.0	18
LCS Batch#:					
Date Prepared:					
Date Analyzed:					
Instrument I.D.#:					
LCS % Recovery:					
% Recovery Control Limits:	71-133	72-128	72-130	71-120	38-122

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

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Gettler Ryan/Geostrategies
6747 Sierra Court, Ste J
Dublin, CA 94568
Attention: Joel Coffman

Client Project ID: Arco, 2111-94-1
Matrix: Liquid
QC Sample Group: 9409778 01-02

Reported: Sep 22, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Beryllium STLC	Cadmium STLC	Chromium STLC	Nickel STLC	Selenium STLC	Mercury STLC
Method:	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.7	EPA 200.2	EPA 245.1
Analyst:	S. O'Donnell	S. O'Donnell	S. O'Donnell	S. O'Donnell	W. Thant	N. Rocklein
MS/MSD Batch#:	940994-01	940994-01	940994-01	940994-01	9409994-01	9409455-02
Date Prepared:	9/20/94	9/20/94	9/20/94	9/20/94	9/20/94	9/21/94
Date Analyzed:	9/20/94	9/20/94	9/20/94	9/20/94	9/20/94	9/22/94
Instrument I.D.#:	MTJA-4	MTJA-4	MTJA-4	MTJA-4	MTJA-3	MV-1
Conc. Spiked:	1.0 mg/L	1.0 mg/L	1.0 mg/L	1.0 mg/L	0.050 mg/L	0.0020 mg/L
Matrix Spike % Recovery:	94	91	92	92	42	91
Matrix Spike Duplicate % Recovery:	93	91	92	93	42	92
Relative % Difference:	1.1	0.0	0.0	1.1	0.0	1.1
LCS Batch#:	BLK092094	BLK092094	BLK092094	BLK092094	BLK092094	CCV092194
Date Prepared:	9/20/94	9/20/94	9/20/94	9/20/94	9/20/94	9/21/94
Date Analyzed:	9/20/94	9/20/94	9/20/94	9/20/94	9/20/94	9/22/94
Instrument I.D.#:	MTJA-4	MTJA-4	MTJA-4	MTJA-4	MTJA-3	MV-1
LCS % Recovery:	97	94	96	96	86	96
% Recovery Control Limits:	75-125	75-125	75-125	75-125	75-125	75-125

SEQUOIA ANALYTICAL

Todd Olive
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

ARCO Products Company — Division of AtlanticRichfieldCompany

Task Order No. 2111-94-7

ARCO Facility no. 2111	City (Facility) San Leandro	Project manager (Consultant) Joel Coffman	Laboratory name Sequoia
ARCO engineer Michael Whelan	Telephone no. (ARCO) (415) 571-2449	Telephone no. (Consultant) (510) 551-8777	Fax no. (Consultant) (510) 551-7888
Consultant name GeoStrategies Inc.	Address (Consultant) 6747 Sierra Ct., Ste. G, Dublin, CA 94568		Contract number 07-073

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Semi Metals ☐ VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☒	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	12CT	TOG by SM5520 E&F
1A-1D		4	X			X		09/14/94			X	X				X	X		X		X	X
2A-2D		4	X			X		09/14/94			X	X				X	X		X			X

Special detection Limit/reporting: 01 - 02

Special QA/QC

Remarks: Composite 4 samples into one prior to analysis

Lab number: 9409778

Condition of sample:

Temperature received:

	Date	Time	
Relinquished by sampler: Barbara Kiminski	9-15-94	10:40	Received by:
Relinquished by:	9-15-94	1:05	Received by:
Relinquished by:	Date	Time	Received by laboratory: Date 9/15/94 Time 1305

Turnaround time

- Priority Rush 1 Business Day ☐
- Rush 2 Business Days ☐
- Expedited 5 Business Days ☒
- Standard 10 Business Days ☐

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant

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