UPDATES: 1-30-95

◂ MORE ON BACK ▸

* PETROLEUM RELEASE FORM *

Please Check All That Apply

INCIDENT INFORMATION

LOG NBR: 26-92-131
RECEIVED BY: JSM
UST FAC NBR: _____
DATE REPORTED: 5-7-92

SITE NAME: Arco #6118
SITE ADDRESS: 5282 N Lombard St
SITE CITY: Portland ZIP: _____
SITE COUNTY: Mult. PHONE: _____

PROJECT MANAGER: SAM

☒ REGULATED UST
☐ NON-REGULATED UST
☐ HEATING OIL TANK

FUNDING

☒ LUST ☐ HSRAF
☐ OHC ☐ FINANCIAL ASST

☒ INVOICE START ☒ INVOICE STOP (Final)
LTR. AGR. ☒ NFA SENT 4-27-95
DATE: _____ LTW Jan 95

MAIL CONTACTS

REPORTED BY

NAME: Brian Kier
COMPANY: Emcon
ADDRESS: 15055 SW Sequoia
CITY: Portland ZIP: _____
STATE: OR PHONE: 624-7200

RESPONSIBLE PARTY

NAME: Kyle Christie
COMPANY: Arco Products Company
ADDRESS: P.O Box 5811
CITY: San Mateo ZIP: 94402
STATE: CA PHONE: 415/571-2468

INVOICE CONTACT

NAME: Kyle Christie
COMPANY: Arco Products Company
ADDRESS: Same.
CITY: _____ ZIP: _____
STATE: _____ PHONE: _____

OTHER CONTACT(S)

NAME: _____
COMPANY: _____
ADDRESS: _____
CITY: _____ ZIP: _____
STATE: _____ PHONE: _____

SITE ASSESSMENT

DATE DISCOVERED: 5-6-92

☐ EMERGENCY RESP.
☐ ENFORCEMENT

☐ FURTHER CLEANUP REQ.
☒ NO FURTHER CLEANUP REQ.
☐ OFFSITE MIGRATION
_____ L.I.P.S. SCORE (Region)

CONFIRMATION:

☐ SI) STAFF
☐ LD) LAB:DEQ
☐ LR) LAB:RP
☐ LO) LAB:OTHER
☐ RR) RP REPORT
☒ CN) CONTRACTOR
☐ OT) OTHER _____

DISCOVERY:

☐ RM) ROUTINE MONITORING
☐ DC) DECOMMISSIONING
☐ CP) COMPLAINT
☐ IC) INVENTORY CONTROL
☐ SA) SITE ASSESSMENT
☐ TT) TANK TEST
☒ OT) OTHER Stage II

CAUSE:

☐ TL) TANK LEAK
☒ PL) PIPE LEAK
☐ OF) OVERFILL
☐ SS) SURFACE SPILL
☐ PV) PUMP/VALVE LEAK
☐ OT) OTHER _____
☐ UN) UNKNOWN

* 4-27-95 *

CONTAMINANTS - IMPACTS

CONTAMINANTS:

- ☐ UG) UNLEADED GASOLINE
- ☐ LG) LEADED GASOLINE
- ☒ MG) MISC. GASOLINE
- ☐ DS) DIESEL
- ☐ FO) FUEL OIL
- ☒ WO) WASTE OIL
- ☐ LB) LUBRICANT
- ☐ SV) SOLVENT
- ☐ BF) BUNKER FUEL
- ☐ OP) OTHER PET. DIST.
- ☐ CH) CHEMICAL
- ☐ HO) HEATING OIL
- ☐ UN) UNKNOWN
- ☐ OT) OTHER _____

MEDIA/IMPACT:

- ☒ SL) SOIL
- ☐ GW) GROUNDWATER
- ☐ SW) SURFACE WATER
- ☐ DW) DRINKING WATER
- ☐ FV) FACILITY (VAPOR)
- ☐ FP) FACILITY (FREE PROD)

SITE - SOIL MANAGEMENT

RELEASE STOPPED: 5-7-92

CLEANUP STARTED: 5-7-92

REMEDIATION COMPLETED: 4-6-94

NO FURTHER ACTION: 4-27-95

SWLA PERMIT NUMBER: —

DATE ISSUED: _____

AMOUNT OF SOIL (yds3) TREATED ON SITE: _____

AMOUNT OF SOIL (yds3) TREATED OFF SITE: 15

TREATMENT METHOD:

- ☐ AREATION
- ☐ THERMAL
- ☐ BIOLOGICAL
- ☒ OTHER VES

AMOUNT OF SOIL (yds3) DISPOSED OF: _____ ☐ TREATED ☐ UNTREATED

FINAL DISPOSITION OF SOIL:

- ☐ ONSITE
- ☐ LANDFILL
- ☐ ROAD BASE
- ☐ OTHER _____

NOTES/COMMENTS: _____

This Space Provided For Regional Use

LUST FORM

INCIDENT INFORMATION

LUST Incident Nbr: 26-92-131 LUST Log Nbr: 26-92-131 UST Facility ID: _____

Date Received: 5/7/92 Received By: EM Emergency Resp Taken: Y N

Tank Identification: File Name : ARCO #6718 # 5282 N. Lombard St. 97203

Street: N. Lombard & N. Portsmouth

City: Portland Zip: _____

County: _____ Phone: _____

Incident Comments: *See also 26-91-060 *

CONTACT & MAIL TYPES

Reported By:	LUST Contact:	Responsible Party:
Name: Brian Kier	Name: Kyle Christie	Name:
Company: Emcon	Company:	Company:
Street: 15055 SW Sequoia	Street:	Street: PO Box 5811
City: Portland Zip: 97224	City: Zip:	City: San Mateo Zip: 94402
State: Phone: 624-7700	State: Phone: 415/571-2768	State: CA Phone:

SITE ASSESSMENT

LUST Incident Nbr: (XXXXXXXXXXXXX)

Date Investigated: 5/6/92 Investigated By: _____

Release Exists: (Y) N (Circle) Confirmation Method: A)Staff B)Lab:DEQ (C)Lab:RP D)Lab:Other E)RP F)Other (Circle)

Cleanup Necessary: (Y) N (Circle) Regulated Tank: Y N (Circle) Exposure Assessment: Y N (Circle)

Off-Site Migration: Y N (?) (Circle) Estimated Gallons Released: _____ Priority: _____

Discovery Date: _____

How Discovered: (Circle)
A)Routine Monitoring B)Inventory Control C)Decommissioning D)Site Assessment
E)Complaint F)Tank Test (G)Other Stage II installation

Material Released: (Circle)
A)Unleaded Gasoline B)Leaded Gasoline (C)Misc. Gasoline
D)Diesel E)Fuel Oil (F)Waste Oil
G)Lubricant H)Solvent I)Bunker Fuel
J)Other Pet. Dist. K)Chemical L)Unknown

Source of Release: (Circle)
A)Tank Leak (B)Pipe Leak C)Overfill D)Surface Spill
E)Pump/Valve Leak F)Other (G)Unknown dispenser area

Impacts: (Circle)				
Soil	(Y)	N	%	?
Groundwater	Y	(N)	%	(?)
Surface Water	Y	(N)	%	?
Drinking Water	Y	(N)	%	?
Facility (Vapor)	Y	(N)	%	?
Facility (Free Product)	Y	(N)	%	?

Site Assessment Comments: _____

SITE MANAGEMENT

LUST Incident Nbr: (XXXXXXXXXXXXX)

Date Released Stopped: 5/7/92

Cleanup Activity: Start Date: 5/7/92 Under Control Date: 4-6-94

End Date: 1-25-95 Contractor Name: Emcon

Cleanup Guideline: (Circle) Matrix C.A.P. Cleanup Lead: (Circle) RP SLW/TF SLW/oTF

Free Product Disposal:		Soil Disposal:	15
Est. Gallons:		Est. Cu/Yds:	
Resp. Party:		Resp. Party:	
Disposal Location:		Disposal Location:	Arco 5874
Removal Date:		Removal Date:	

Enforcement Action: (Y) N (Circle)

Cost Recovery Initiated: (Y) N (Circle) Source of Cost Recovery: Pct. R.P.: 100 Pct. SLW/TF: _____ Pct. SLW/oTF: _____

Estimations: Cost of Cleanup: ? Staff Time On Project: 12 hr

Site Management Comments: _____

[Version 102]

NWR UST CLEANUP SITE CHECKLIST
(for regional use only)

This site is:

____ <40 ppm Matrix

__✓__ Regulated Tank

____ Exempt Tank

____ Oil Heat Commission eligible

____ Other _____
(surface spill, non-petroleum UST, etc.)

Assign site to:

____ Staff (your initials or staff for major RP)

____ Unassigned at this time
(matrix only, soil aeration not anticipated)

____ Needs to be tracked (supervisor to assign)
Reason:

Action:

____ Send Initial Letter (with rules)

__✓__ Send Modified Letter (without rules)

____ Send <40 ppm Letter (without rules)

____ No letter required _____
(sending other letter, etc.)

Regulated Tank Information (Y/N): ?

____ Tanks registered ID No. _____

__NA__ Decommissioning notice (30 day) received

__NA__ 3 day notice received

____ Fees current

__NA__ New tanks to be installed

Phase II installation

Misc. Notes:

Sam they file

COST RECOVERY AGREEMENT

This document serves as an agreement between the undersigned (hereinafter "you") and the Department of Environmental Quality (DEQ) regarding DEQ review and oversight of the investigation and/or cleanup of petroleum (hazardous substances) at the property located at:

Facility Name: ARCO Service Station #6118
Address: 5282 North Lombard Street
City, Zip: Portland, OR 97203
File/Log #: 26-92-0131
Date Sent: _____

DEQ agrees to review environmental documents submitted by you or on your behalf regarding the investigation and/or cleanup of the above-referenced site. Additional details regarding DEQ oversight will be established upon review of the initial site data.

DEQ requires that persons requiring DEQ review and oversight of investigation and cleanup activities agree to the terms of this agreement and pay project oversight costs.

DEQ project oversight costs will include direct costs and indirect costs. Direct costs include site-specific expenses and legal costs. Indirect costs are those general management and support costs of the DEQ and of the Environmental Cleanup Division (ECD) allocable to DEQ oversight of this agreement and not charged as direct, site-specific costs. Indirect charges are based on a percentage of direct personal services costs. Review and oversight costs shall not include any unreasonable costs or costs not otherwise recoverable by DEQ under ORS 465.255.

DEQ costs are payable within thirty (30) days of issuance of the monthly statement, by check made payable to the "Department of Environmental Quality".

If you elect not to enter into this agreement, it does not release you from any responsibility you might have from any reporting requirements, investigation and/or cleanup of petroleum (hazardous substances) at the above referenced facility. This does not preclude the DEQ from conducting audits or inspections of all or portions of the investigation and cleanup activities associated with this facility. Enforcement action may be initiated if violation of DEQ requirements is found.

Either DEQ or you may terminate this agreement by giving 15 days advance written notice to the other. Only those costs incurred or obligated by DEQ prior to the effective date of any termination of the agreement shall be recoverable under this Agreement. Termination of this agreement will not affect any other right DEQ may have for recovery of costs under any applicable law.

You will hold DEQ harmless for any claims (including but not limited to claims of property damage or personal injury) arising from activities reviewed or overseen under this agreement.

This agreement is not and shall not be construed as an admission by you of any liability under ORS 465.255 or any other law or as a waiver by you of any defense to such liability. This agreement is not and shall not be construed as a waiver, release, or settlement of claims DEQ may have against you or any other person or as a waiver of any enforcement authority DEQ may have.

The DEQ Regional Office will be responsible for the review and oversight of the investigation and cleanup activities associated with the property. Please refer all site-specific inquiries to that office.

All inquiries regarding cost recovery and/or invoices should be directed to Darby Bacon at (503) 229-6635.

If the terms of this agreement are acceptable, please have it executed by an authorized officer in the space provided below. In order to more effectively schedule your project, please return this agreement within 30 days of receipt to: Darby Bacon, Department of Environmental Quality, Environmental Cleanup Division, 811 SW Sixth Avenue, Portland, OR 97204.

Accepted and agreed to this 6/13 day of 1994, 19__

By: Kyle Christie

Title: Environmental Engineer

Please provide the following information on where the invoices should be sent.

Individual Name: Kyle Christie Title: Environmental Engineer

Company: ARCO Products Company

Mail Address: PO Box 5811

City, State, Zip: San Mateo, CA 94402

Phone Number: 415/571-2468

EMCON
Northwest, Inc.

P.O. Box 231269 • 15055 S.W. Sequoia Parkway • Suite 140 • Portland, OR 97224-7712 • Office (503) 624-7200 • FAX (503) 620-7658

June 22, 1992
Project T3325.02

Mr. Andree Pollock
Northwest Region
Oregon Department of Environmental Quality (DEQ)
1500 SW First Avenue, Suite 750
Portland, Oregon 97201-5884

Re: Twenty and Forty-Five Day Release Reports for ARCO Station 6118
Portland, Oregon
DEQ File Number ~~26-91-060~~ 26-92-131

Dear Mr. Pollock:

EMCON Northwest, Inc. has prepared the following letter report on behalf of ARCO Products Company, Inc. (ARCO). This report is intended to serve as the 20 and 45 day release reports required under OAR 340-122-225 (2) and -230 (2).

BACKGROUND

Petroleum hydrocarbon contamination in soil and fill material was encountered in the subsurface at the above facility during excavation for installation of Stage II vapor recovery piping. The work was conducted in May and June of 1992 and was observed by EMCON personnel. Based on EMCON's observations, the site is eligible for cleanup under the Soil Matrix Rules (OAR 340-122-305 through -360).

Approximately 15 cubic yards of soil exhibiting evidence of petroleum contamination was excavated and removed from the site. After conferring with you by telephone, the soil was placed in an excavation at ARCO station 5874 for treatment by vapor extraction at a later date. Appropriate cleanup documentation will be included in a forthcoming cleanup report. Petroleum-affected soil which was inaccessible for excavation remains at the site as a defined pocket of contamination.

P/ARCO/6118RR-L.616-92/LB:2
T3325.02

A report describing completed and proposed future cleanup activities will be submitted separately.

TWENTY DAY RELEASE REPORT - OAR 340-122-225

1.(a) "Remove as much of the regulated substance as necessary to prevent further release to the environment;"

The release at the site appears to be confined to soils in the shallow subsurface near product piping connections beneath the pump islands. Since the underground storage tank (UST) system does not appear to be currently leaking, product was not removed from the system.

1.(b) "Visually inspect any above ground releases or exposed below ground releases and prevent further migration of the released substance into surrounding soils and ground water;"

Visual observation of the exposed below ground release, as well as the results of soil sample analyses, indicate that petroleum concentrations in soil are well below saturated conditions. Since petroleum-affected soils are covered by asphalt, there does not appear to be significant potential for migration or leaching of hydrocarbon compounds in the subsurface.

1.(c) "Continue to monitor and mitigate any additional fire and safety hazards posed by vapors or free product that have migrated from the UST excavation zone and entered into subsurface structures;"

Neither hazardous or explosive vapor concentrations, nor free product have been encountered at the site or in nearby subsurface structures.

1.(d) "Remedy hazards posed by contaminated soils that are excavated or exposed as a result of release confirmation, site investigation, abatement, or cleanup activities. If these remedies include treatment or disposal of soils, the owner, permittee or responsible person shall comply with applicable state and local requirements;"

Approximately 15 cubic yards of visibly-stained soils which were excavated during cleanup were removed from the site for treatment at ARCO station 5874. All excavations have been closed and the site surface has been restored.

1.(e) "Measure for the presence of a release where contamination is most likely to be present at the UST site. In selecting sample types, sample locations, and measurement methods, the owner, permittee and responsible person shall consider the nature of the stored substance, the type of backfill, depth to ground water and other factors as appropriate for identifying the presence and source of the release;"

A total of 14 soil samples were collected at the site and submitted for laboratory analysis by methods specified in OAR 340-122-350 and associated guidance documents. Samples were collected to characterize areas suspected of containing hydrocarbons, to confirm cleanup, and to assess stockpiles. Analytical results will be summarized in the forthcoming cleanup report. Ground water was not encountered during excavation activities.

1.(f) "Investigate to determine the possible presence of free product, and begin free product removal as soon as practicable and in accordance with subsection 340-122-235;"

Free product was not encountered at any time during excavation or investigation activities, nor was the presence of free product indicated by site conditions.

FORTY-FIVE DAY RELEASE REPORT - OAR 340-122-230

1.(a) "Data on the nature and estimated quantity of the release;"

Laboratory analytical results for soil samples collected at the site indicate that the released hydrocarbon product was primarily gasoline. Based on TPH concentrations in soil excavated and the observed volume of impacted soil, EMCON estimates that approximately 5-10 gallons of gasoline were released over time.

1.(b). "Data from available sources and/or site investigations concerning the following factors: surrounding populations, water quality, use and approximate locations of wells potentially affected by the release, subsurface soil conditions, locations of subsurface sewers, climatological conditions, and land use;"

The site is located in an urban commercial/residential area. Since ground water does not appear to be impacted or immediately threatened by the release, information concerning water quality, use, and approximate well locations was not determined for this report. Soils consist primarily of sand to a depth of 17 feet below ground surface (bgs), underlain by sandy gravels. Subsurface sewers and other underground utilities were not located for this report. The climate is temperate, with an average annual rainfall of approximately 42 inches. Adjacent land use is commercial businesses and a public park.

1.(c) "Results of the measurements required under subsection 340-122-225(1)(e);"

See part 1.(e) of the Twenty Day Release Report section, above.

1.(d) "Results of free product investigations required under subsection 340-122-225(1)(f), to be used by owners, permittees, or responsible persons to determine whether free product shall be recovered under subsection 340-122-235."

See part 1.(f) of Twenty Day Release Report section, above.

A report which describes cleanup activities, as well as dates for future cleanup actions and report submittal, will be provided to your office by July 31, 1992.

If you have any questions regarding this report, please contact us at (503) 624-7200.

Sincerely,

EMCON Northwest, Inc.

Cary W. Goodman
Project Environmental Scientist

Robert A. Dixon, P.E.
Director of Remediation

cc: Mr. Kyle Christie, ARCO, San Mateo
Mr. H.C. Winsor, ARCO, Los Angeles

P/ARCO/6118RR-L.616-92/LB:2
T3325.02

EMCON Northwest, Inc.

Field Sampling Data

LOCATION/ADDRESS _____
PROJECT NAME _____
CLIENT/CONTACT _____

Well or Surface Site Number _____
Sample Designation _____
Date, Time _____
Weather _____

HYDROLOGY MEASUREMENTS:

(Nearest .01 ft.)	Elevation	Date, Time	Method (Level Meter # or Code)/Comments

WELL EVACUATION: _____ Gallons/Pore Volume

Gallons	Pore Volumes	Method Used	Rinse Method	Date, Time

Surface Water Flow Speed _____ Measurement Method _____ Date, Time _____

SAMPLING:

Sample	Date, Time	Method	Volume (ml)	Container Type	Depth Taken (feet)	Field Filtered (yes,no)	Preserva-tive	Iced (yes,no)	Sampler Cleaning Method
									Non-Phosphatic detergent wash
									H20 rinse
									MeOH rinse*
									Distilled H20 rinse
									*Hexane rinse if oily

FIELD WATER QUALITY TESTS:

Per Vol. Number	pH	Temp (c°)	Conductivity (uS/cm)	Conductivity @ 25° (uS/cm)				

NOTES:

LAB: _____ SAMPLERS: _____

Total # of Bottles: _____ Signature: _____

EMCON
Northwest, Inc.

26-92-131

P.O. Box 231269 • 15055 S.W. Sequoia Parkway • Suite 140 • Portland, OR 97224-7712 • Office (503) 624-7200 • FAX (503) 620-7658

July 30, 1992
Project T3325.02

Mr. Kyle Christie
ARCO Products Company
P.O. Box 5811
San Mateo, California 94402

Re: Subsurface Assessment:
Service Station 6118, Portland, Oregon, DEQ File No. ~~26-91-060~~

Dear Kyle:

This report summarizes the field activity and analytical results of the subsurface assessment conducted during stage II vapor recovery system (VRS) installation at the above ARCO Products Company (ARCO) service station (see Figure 1).

INTRODUCTION

Service station 6118 is active and currently uses five gasoline underground storage tanks (USTs) and two product dispenser islands.

Tom New Construction Company (TNCC) of Portland, Oregon, was contracted by ARCO to install stage II VRS piping at the facility, which involved excavating to expose soils and fill materials in the vicinities of the USTs and product piping. EMCON Northwest, Inc. (EMCON) was retained by ARCO to provide an Oregon-licensed UST soil matrix cleanup supervisor to observe and characterize petroleum-impacted soil exposed or excavated in these areas during the project.

FIELD WORK

EMCON inspected these exposed subsurface soils between May 6 and May 19, 1992. On May 6 soil that appeared impacted by petroleum was encountered at the site. Julie Magers of the Northwest Region of the

Department of Environmental Quality (DEQ) was notified of a suspected release of petroleum on May 7, 1992. EMCON prepared and submitted a report to the DEQ, dated June 22, 1992, that included information required under Oregon Administrative Rules (OAR) 340-122-225 and -230.

According to the DEQ numeric soil cleanup rules (OAR 340-122-305 through -360), the site meets the criteria for cleanup to level 2 standards (see Appendix A). This establishes the target cleanup concentration for gasoline at 80 parts per million (ppm), or milligrams per kilogram (mg/kg), and for diesel and oil at 500 ppm.

A total of 14 soil samples were collected from the site for analysis: 9 from the trench running between the north and south dispenser islands, 4 near the gasoline USTs, and 1 from stockpiled soil. The locations and depths of samples that represent soil remaining in place are shown in Figure 2.

North Dispenser Island

TNCC excavated along the north side of the north dispenser island. Soil that exhibited petroleum staining and odors was encountered under the west dispenser. Sample S-1-1 was collected from this area and analyzed for total petroleum hydrocarbons (TPH) by DEQ Method TPH-HCID, and further quantified by the DEQ method for TPH as gasoline (TPH-G) and by TPH-418.1M. The sample contained 6,300 mg/kg of TPH as gasoline and 850 mg/kg of TPH as oil (see Table 1). This sample was further analyzed for volatile aromatic and halogenated hydrocarbons by EPA Method 8010/8020, toxicity characteristic leaching procedure (TCLP) metals by EPA Method 1311, and polychlorinated biphenyls (PCBs) by EPA Method 8080 (the waste-oil parameter methods specified in OAR 340-350[5]) (see Table 2). PCBs were detected at a concentration of 1 mg/kg. Sample S-7-3.5 was taken directly below S-1-1 and analyzed by TPH-G and TPH-418.1M. TPH as gas and oil were not detected in this sample. Given the dimensions of the stained soil exposed in the piping trench, and assuming staining does not extend further than observed, the total volume of petroleum-impacted soil remaining in place beneath the dispenser island is estimated to be 2 to 5 cubic yards.

The petroleum-impacted soil that was excavated (less than 1 cubic yard) was stockpiled between the islands. VRS lines were installed in the trench and the excavation was backfilled with nonimpacted and imported fill.

South Dispenser Island

A trench was also excavated along the north side of the south dispenser island. No soil that exhibited petroleum staining and odors was encountered.

VRS lines were installed in the trench and the excavation was backfilled with nonimpacted and imported fill.

West Trench

Soil that exhibited petroleum staining and odors was encountered when a trench running north to south was excavated to the west of the dispenser islands.

A thin layer of petroleum-impacted soil (approximately 0.5 foot thick) appeared to run the length of the trench at about 3 feet bgs. Sample S-4-3 was collected from the west side of this layer at the south end of the trench. Analysis by TPH-G and TPH-418.1M detected concentrations of 740 mg/kg and 1,220 mg/kg, respectively. Further analysis for waste-oil constituents (see Table 2), detected PCBs at 4 mg/kg, ethylbenzene at 0.9 mg/kg, total xylenes at 6.5 mg/kg, chromium at 21 mg/kg, and lead at 88 mg/kg.

Six other samples (S-3-2, S-5-2.5, S-5-4, S-6-3.5, S-8-2, and S-8-3) were collected along the trench at depths above and below the petroleum-impacted layer (see Table 1). Only sample S-3-2, collected from the far north end of the trench at the west side, had detectable concentrations of TPH as gasoline (56 mg/kg) and TPH as oil (118 mg/kg), both of which are below level 2 matrix standards.

Excavated soils that appeared impacted by petroleum were stockpiled between the islands. Sample SP-1 was collected from the stockpiled soil and analyzed for TPH as oil by TPH-418.1M, flash point by EPA Method 1020, hydrocarbon scan by EPA Method 8015M, and waste oil constituents

(see Table 2). This stockpiled soil was later transported to ARCO station 5874 and placed in the UST excavation (see EMCON'S letter report *Subsurface Assessment*, Service Station 5874, Portland, Oregon, DEQ File No. 26-92-126).

TNCC installed VRS lines and backfilled the trench with nonimpacted and imported fill material.

Gasoline UST Excavation

TNCC uncovered the five USTs to install VRS piping. Petroleum staining and odors were discovered around the fill pipe of the middle UST. Sample S-9-4 was collected from this soil and analyzed for TPH-G and TPH-418.1M. TPH as gasoline was detected above level 2 matrix standards at a concentration of 17,000 mg/kg. Additional soil was removed and sample S-9-4.5 was collected below S-9-4.5. Analysis by TPH-HCID showed no detectable concentrations of TPH. No further evidence of petroleum contamination was evident and no other samples were collected from this area.

Petroleum staining and odors were also discovered at the east end of the north UST. Samples (HA-1) were collected with a hand auger at depths of 4.5 and 6.5 feet bgs, respectively. Both of the samples showed detectable levels of TPH as diesel, although analysis by TPH-D detected concentrations in both below level 2 matrix standards.

Excavated soils that appeared impacted by petroleum were added to the stockpile between the islands.

The tops of the remaining USTs were inspected and no petroleum-impacted soil was observed. TNCC installed VRS piping and backfilled the excavation with nonimpacted and imported fill material.

Soil Sampling Procedures

New disposable gloves were used to collect each soil sample. Samples were placed in laboratory-prepared glass containers and capped with Teflon™-lined lids. Samples were then placed on ice in an insulated cooler

and transported to Columbia Analytical Services, Inc. in Kelso, Washington, under formal chain of custody procedures.

FINDINGS AND CONCLUSIONS

North Dispenser Island

A small area of petroleum-impacted soil was discovered at the west end of the north dispenser island. The soil could not be excavated because of the proximity of the dispenser island canopy footing. Sample S-1-1, taken from this area, had TPH concentrations of gasoline (6,300 mg/kg) and oil (850 mg/kg). Sample S-7-3.5, collected 2.5 feet directly below S-1-1, had no detectable concentrations of TPH. Given the laboratory results and observed dimensions of the stained soil, an estimated 2 to 5 cubic yards of petroleum-impacted soil remains in place. EMCON believes the criteria for leaving "a pocket" of petroleum-impacted soil in place as specified in OAR 340-122-355(4) are satisfied at this location, and no further action is recommended.

West Trench

Petroleum staining and odors were discovered in the trench running between the dispenser islands. A thin layer approximately 0.5 foot thick appeared to run the length of the trench at approximately 3 feet bgs. The extent of the petroleum-impacted soil layer is not known.

Sample S-4-3, collected from this petroleum-impacted zone, had TPH concentrations of gasoline and oil of 740 mg/kg and 1,220 mg/kg, respectively. Further analysis detected PCBs at 4 mg/kg, ethylbenzene at 0.9 mg/kg, total xylenes at 6.5 mg/kg, chromium at 21 mg/kg, and lead at 88 mg/kg. Analysis of other samples collected from above and below the petroleum-impacted zone had concentrations of TPH below level 2 matrix standards.

Gasoline UST Excavation

Petroleum-impacted soils were discovered near the fill pipe of the middle UST. Sample S-9-4, collected from this area, had 17,000 mg/kg of TPH as gasoline. The impacted soil was excavated, an additional sample (S-9-4.5) was collected, and no concentrations of TPH were detected.

Approximately 15 cubic yards of petroleum-impacted soil was removed from the north dispenser island, west trench, and gasoline UST excavation areas and transported to ARCO station 5874.

RECOMMENDATION

- EMCON recommends drilling 2 to 4 borings to define the extent of the thin layer of petroleum-impacted soil observed in the west trench. After evaluating the results, EMCON will summarize the findings and make recommendations commensurate with the data.

We appreciate the opportunity to be of service to ARCO. Please contact us if you have any questions.

Sincerely,

EMCON Northwest, Inc.

Cary W. Goodman
Project Environmental Scientist

Robert A. Dixon, P.E.
Director of Remediation

Attachments: Tables 1 and 2
Figures 1 and 2
Limitations
Appendices A and B

cc: Mr. Andree Pollock, DEQ NW Region, Portland
Mr. H.C. Winsor, ARCO, Los Angeles

P/ARCO/6118-LR.720-92/LS:1
T3325.02

Table 1

ARCO Service Station 6118
Portland, Oregon
Soil Analytical Results
(mg/kg)

Sample No.	Area	Depth (ft)	TPH-HCID	TPH-G	TPH-D	TPH-418.1M
S-1-1[1]	North island, west end	1	G,O	6,300	--	850
S-7-3.5	North island, west end	3.5	--	ND	--	ND
S-3-2	Trench west of islands, north end	2	--	56	--	118
S-4-3[1]	Trench west of islands, south end	3	--	740	--	1220
S-5-2.5	Trench west of islands, south end	2.5	--	ND	--	ND
S-5-4	Trench west of islands, south end	4	--	ND	--	ND
S-6-3.5	Trench west of islands, middle	3.5	--	ND	--	ND
S-8-2	Trench west of islands, north end	2	--	ND	--	ND
S-8-3	Trench west of islands, north end	3	--	ND	--	ND
S-9-4	Middle UST, Near Fill Pipe	4	--	17,000	--	53
S-9-4.5	Middle UST, Near Fill Pipe	4.5	ND	--	--	--
S-10-4.5	North UST, east end	4.5	D	--	78	--
S-10-6.5	North UST, east end	6.5	D	--	55	--
SP-1	Stockpiled Soil	--	--	--	--	800

Notes: G = Gasoline range
O = Oil range
-- = Not analyzed or not applicable
ND = Not detected above the MRL
D = Diesel range

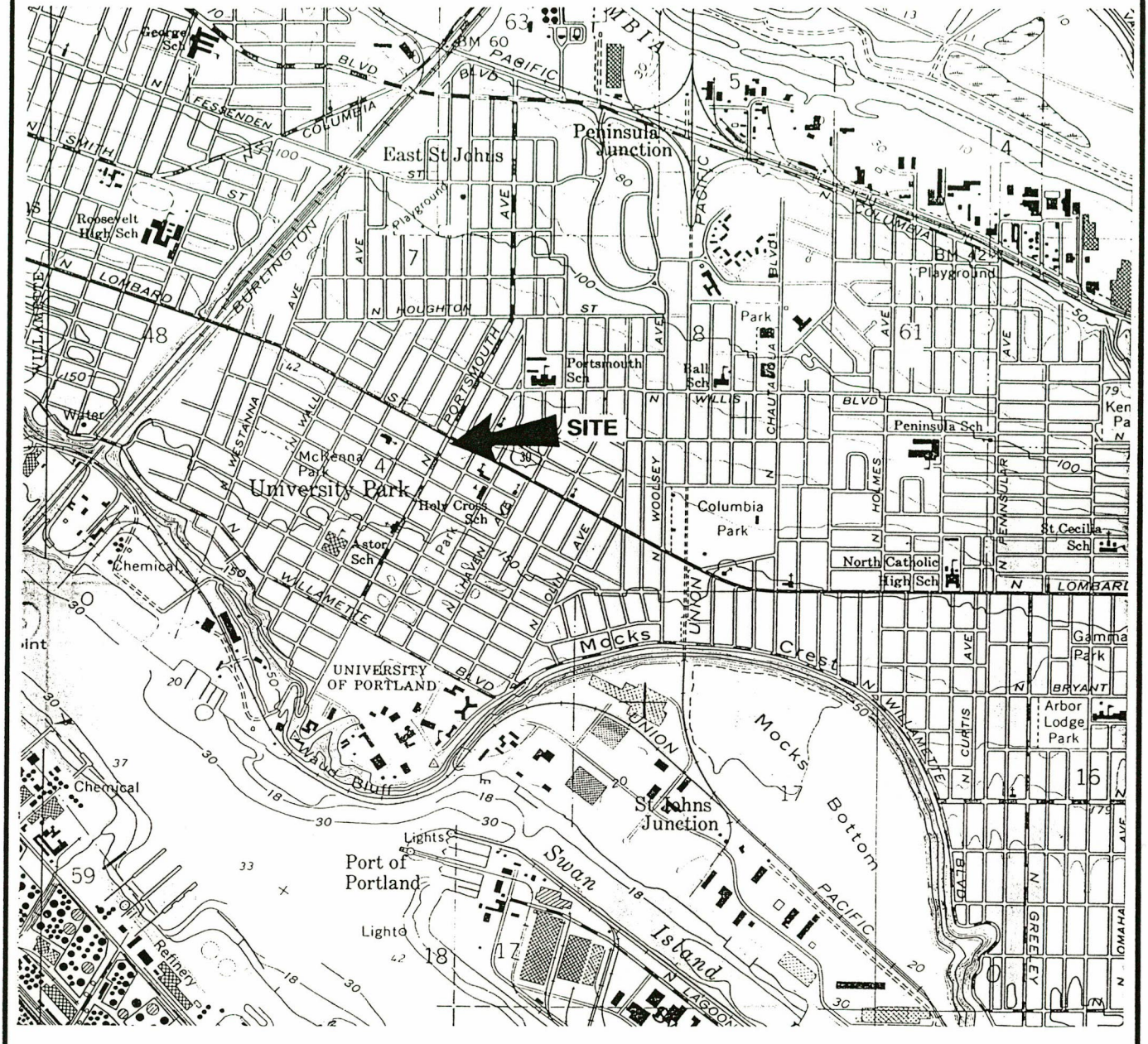
[1] Additional Analysis Run (see Table 2)

Table 2

ARCO Service Station 6118
Portland, Oregon
Additional Soil Analytical Results
(mg/kg)

Sample No.	Halogenated and Aromatic Volatiles	Hydrocarbon Scan	PCBs	Total Metals	TCLP Metals	Flash point (° F)
S-1-1	ND, 5.0[1]	--[2]	1	7, ND[3]	--	--
S-4-3	0.9, 6.5[1]	--	4	21, 88[3]	--	--
SP-1	0.1, 3.7, 5.2, 36.3[4]	500, 250[5]	ND	--	1.0[6]	>200

1 Ethylbenzene, total xylenes
2 -- = Not analyzed
3 Chromium, lead
4 Benzene, toluene, ethylbenzene, total xylenes
5 Gasoline, lube oil
6 Barium



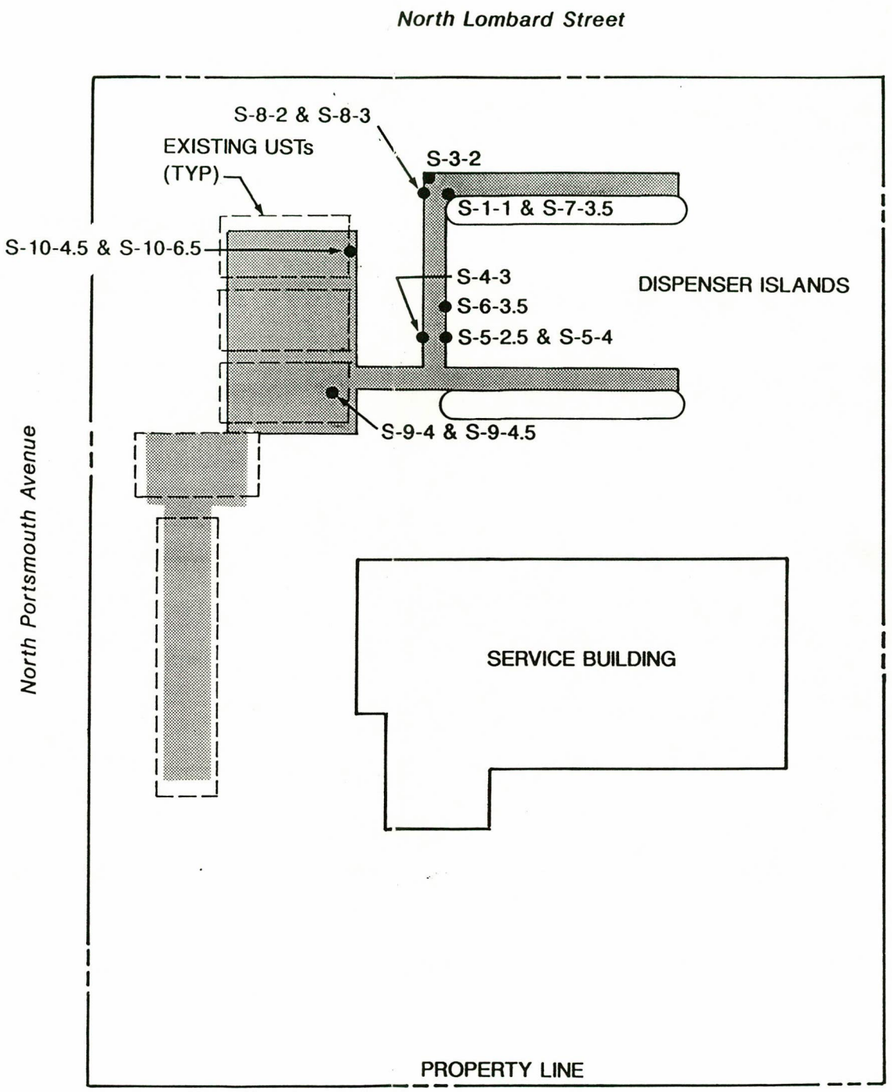
Reference: USGS 7.5' quad. PORTLAND, OREG.,(1977)

EMCON Northwest, Inc.

DATE	7/92
DWN.	mk
APPR.	
REVIS.	
PROJECT NO.	T3325.02

Figure 1
ARCO SERVICE STATION 6118
PORTLAND, OREGON

LOCATION MAP



N

EXPLANATION

- *Existing USTs*
- *Approximate area of excavation*
- ● S-1-1 *Soil sample location*

0 20 40

Scale in Feet

EMCON Northwest, Inc.

DATE 6/92
DWN. vt/mk
APPR. CWG
REVIS.
PROJECT NO. T3325.02

Figure 2
ARCO SERVICE STATION 6118
PORTLAND, OREGON

SOIL SAMPLING LOCATIONS

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

The purpose of a geologic/hydrogeologic study is to reasonably characterize existing site conditions based on the geology/hydrogeology of the area. In performing such a study, it is understood that a balance must be struck between a reasonable inquiry into the site conditions and an exhaustive analysis of each conceivable environmental characteristic. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to describe all geologic/hydrogeologic conditions of interest at a given site. If conditions have not been identified during the study, such a finding should not therefore be construed as a guarantee of the absence of such conditions at the site, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

We are unable to report on or accurately predict events that may change the site conditions after the described services are performed, whether occurring naturally or caused by external forces. We assume no responsibility for conditions we were not authorized to evaluate, or conditions not generally recognized as predictable when services were performed.

Geologic/hydrogeologic conditions may exist at the site that cannot be identified solely by visual observation. Where subsurface exploratory work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

Appendix A
SOIL MATRIX CHECKLIST AND SCORE SHEET

ARCO Station 6118
MATRIX CHECKLIST

✓ 1. The release of petroleum has been reported to the Department of Environmental Quality (220).

✓ 2. The Matrix score sheet attached to this checklist has been completed for this site, unless the site is being cleaned up to the most stringent cleanup level (320).

✓ 3. The required hydrocarbon identification test (TPH-HCID) has been preformed (335(3)), and, if detectable levels were found, the appropriate analytical method or methods have been used to measure the levels of contamination (350).

✓ 4. A sketch has been made of this site (345(1)). This sketch clearly shows:

- ✓ a. The location of all buildings and other key features, both man-made and natural;
- ✓ b. The names of adjacent streets ~~and properties~~;
- ✓ c. The location of all excavations including those that were for the removal of tanks and associated piping as well as those that were strictly for the removal of contaminated soils;
- ✓ d. The location of all product storage tanks, ~~lines~~ and dispensers, including those that were decommissioned as well as those that remain on the site; and
- ✓ e. All soil and water sample locations.

✓ 5. If any contaminated soil in excess of matrix limits has been left on site, the reason for leaving this soil has been explained and the requirements of 355(4) have been met.

NA 6. If water was present in the tank pit, the Department was notified, the water was pumped from the pit, and the requirements of 340(4) have been met.

✓ 7. All soil and/or water samples have been collected, coded, stored and shipped as specified in the rules, and proper chain-of-custody forms have been filled out (345).

NA 8. If a release from a waste oil tank was discovered, at least one sample has been analyzed by the methods specified in 350(5).

NA 9. If a tank was decommissioned in place, the Department gave prior approval for a site-specific sampling plan (340(5)).

✓ 10. A report has been prepared which contains all of the information required by the rules (360).

Note: This checklist is based on the DEQ's *UST Cleanup Manual*, July 1991, page 65.

ARCO Station 6118
MATRIX SCORE SHEET

1.	Depth to Ground Water		
	<25 feet	(10)	
	25 - 50 feet	(07)	
	51 - 100 feet	(04)	
	>100 feet	(01)	07
2.	Mean Annual Precipitation		
	>45 inches	(10)	
	20 - 45 inches	(05)	
	<20 inches	(01)	05
3.	Native Soil Type		
	Coarse sands, gravels	(10)	
	Silts, fine sands	(05)	
	Clays	(01)	10
4.	Sensitivity of Uppermost Aquifer		
	Sole source	(10)	
	Current potable	(07)	
	Future potable	(04)	
	Non-potable	(01)	04
5.	Potential Receptors		
	Many, near	(10)	
	Medium	(05)	
	Few, far	(01)	05
		TOTAL SCORE =	31

Matrix Score		Cleanup Level in ppm TPH	
		Gasoline	Diesel
Level 1:	>40 pts.	40	100
Level 2:	25 - 40 pts.	80	500
Level 3:	<25 pts.	130	1,000

Note: This checklist is based on the DEQ's *UST Cleanup Manual*, July 1991, page 67.

Appendix B

LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY RECORDS

Columbia Analytical Services inc.

May 12, 1992

Cary Goodman
EMCON Northwest
15055 SW Sequoia Parkway
Suite 140
P.O. Box 231269
Portland, OR 97224

Re: **ARCO #6118 - Portland/Task Order # 6118-91-1**

Dear Cary:

Enclosed are the results of the rush sample(s) submitted to our lab on May 8, 1992. Preliminary results were transmitted via facsimile on May 11 and 12, 1992. For your reference, these analyses have been assigned our work order number K922997.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Colin B. Elliott
Senior Project Chemist

CBE/tlt

1317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/08/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/11/92
Sample Matrix:	Soil	**Work Order No.:**	K922997

BTEX
EPA Methods 5030/8020
mg/Kg (ppm)
As Received Basis

Sample Name:		SP-1	Method Blank
Lab Code:		K2997-1	K2997-MB
Date Analyzed:		05/11/92	05/11/92
Analyte	**MRL**		
Benzene	0.05	0.10	ND
Toluene	0.1	3.7	ND
Ethylbenzene	0.1	5.2	ND
Total Xylenes	0.1	36.3	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Colin Elliott Date 5/12/92

00001

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/08/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/11/92
Sample Matrix:	Soil	**Date Analyzed:**	05/11/92
		Work Order No.:	K922997

Total Recoverable Petroleum Hydrocarbons
SM Method 5520E/EPA Method 418.1
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Result
SP-1	K2997-1	25	800
Method Blank	K2997-MB	25	ND

SM *Standard Methods for the Examination of Water and Wastewater*, 17th Ed., 1989
MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Chris Elliott Date 5/12/92

00002

12347 South 43rd Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1061

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland
Sample Matrix: Soil

Date Received: 05/08/92
Date Extracted: 05/09/92
Date Analyzed: 05/11/92
Work Order No.: K922997

Hydrocarbon Scan
EPA Methods 3540/Modified 8015
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Gasoline	Mineral Spirits	Jet Fuel	Kerosene	Diesel	Lube Oil♦
SP-1	K2997-1	10	500	ND	ND	ND	ND	250
Method Blank	K2997-MB	10	ND	ND	ND	ND	ND	ND

MRL Method Reporting Limit
♦ Quantified using 30-weight motor oil as a standard. The MRL is 20 mg/Kg.
ND None Detected at or above the method reporting limit

Approved by John Elliott Date 5/12/92

00003

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/08/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/12/92
Sample Matrix:	Soil	**Date Analyzed:**	05/12/92
		Work Order No.:	K922997

Total Petroleum Hydrocarbons
Oregon DEQ Method TPH-418.1 Modified
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Result
S-4-3	K2997-4	25	1,220
Method Blank	K2997-MB	25	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Adam Elliott Date 5/15/92

00004

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/08/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/11/92
Sample Matrix:	Soil	**Date Analyzed:**	05/11/92
		Work Order No.:	K922997

Total Petroleum Hydrocarbons as Gasoline
Oregon DEQ Method TPH-G
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Result
S-3-2	K2997-2	10	56
Method Blank	K2997-MB	10	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Alan Elliott Date 5/15/92

00005

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APPENDIX A

LABORATORY QC RESULTS

1317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Received:**	05/08/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/09/92
Sample Matrix:	Soil	**Date Analyzed:**	05/11/92
		Work Order No.:	K922997

Surrogate Recovery Summary
Hydrocarbon Scan
EPA Methods 3540/Modified 8015

Sample Name	Lab Code	Spike Level (mg/Kg)	Percent Recovery *p*-Terphenyl
SP-1	K2997-1	33	64
Method Blank	K2997-MB	33	80
		CAS Acceptance Criteria	50-114

Approved by Alan Elliott Date 5/15/92

00007

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Received:**	05/08/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/11/92
Sample Matrix:	Soil	**Date Analyzed:**	05/11/92
		Work Order No.:	K922997

Surrogate Recovery Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020
Oregon DEQ Method TPH-G

Sample Name	Lab Code	Spike Level (mg/Kg)	Percent Recovery 4-Bromofluorobenzene
SP-1	K2997-1	2.2	*120
S-3-2	K2997-2	2.2	102
Method Blank	K2997-MB	2.2	100
		CAS Acceptance Criteria	73-116

TPH Total Petroleum Hydrocarbons
VPH Volatile Petroleum Hydrocarbons
* Outside of acceptance limits because of matrix interferences. The chromatogram showed target components that interfered with the analysis.

Approved by Calvin Elliott Date 5/15/92

00008

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 6118-91-1

Chain of Custody

ARCO Facility no.	6118
City (Facility)	Portland
Project manager (Consultant)	Cary Goodman
Laboratory name	CAS
ARCO engineer	Kyle Christie
Telephone no. (ARCO)	(415) 571-2468
Telephone no. (Consultant)	(503) 624-7200
Fax no. (Consultant)	620-7658
Contract number	SFAL 6024
Consultant name	EMCON NW
Address (Consultant)	15055 SW Sequoia Pkwy, Portland, OR 97224
Method of shipment	Courier

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 (OR TPH)	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 ☐	8015M / TPH-G	HOLD
SP-1		1	X			X		5-8-92	1430	X			~~X~~	X							X	
~~SP-2~~																						
S-3-2		↓	↓			↓		↓	1420			X									X	
S-2-3		↓	↓			↓		↓	1405													X
S-4-3		↓	↓			↓		↓	1425					X								X

As per Cary Goodman 5/14/92

Changes as per Brian Keir 5/8/92 Colin

Brian Keir

- OR/418.1 → ~~EPH~~ 418.1

- TPH-G → 8015M

Special detection Limit/reporting:

Special QA/QC:

Remarks: Run S-3-2 on Rush, SP-1 on Priority Rush

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: [signature]	Date: 5-8-92	Time: 1530	Received by	
Relinquished by	Date	Time	Received by	
Relinquished by	Date	Time	Received by laboratory: [signature]	Date: 5/8/92 Time: 1800

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

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Columbia Analytical Services inc.

May 13, 1992

Cary Goodman
EMCON Northwest
15055 SW Sequoia Parkway
Suite 140
P.O. Box 231269
Portland, OR 97224

Re: **ARCO #6118 - Portland/Task Order #6118-91-1**

Dear Cary:

Enclosed are the results of the sample(s) submitted to our lab on May 6, 1992. Preliminary results were transmitted via facsimile on May 7 and 8, 1992. For your reference, these analyses have been assigned our work order number K922925.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Colin B. Elliott
Senior Project Chemist

CBE/tlt

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland
Sample Matrix: Soil

Date Received: 05/06/92
Date Extracted: 05/06/92
Date Analyzed: 05/07/92
Work Order No.: K922925

Total Petroleum Hydrocarbons - Hydrocarbon Identification
Oregon DEQ Method TPH-HCID
mg/Kg (ppm)
As Received Basis

		Gasoline		Diesel		Oil♦	
Sample Name	**Lab Code**	**MRL**	**Result**	**MRL**	**Result**	**MRL**	**Result**
S-1-1	K2925-1	20	D	50	ND	100	D
Method Blank	K2925-MB	20	ND	50	ND	100	ND

♦ Quantified using 30-weight motor oil as a standard.
MRL Method Reporting Limit
D Detected at or above the method reporting limit. Refer to the report(s) immediately following for quantitative results for the detected components.
ND None Detected at or above the method reporting limit

Approved by Adam Elliott Date 5/13/92

00001

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/06/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/06/92
Sample Matrix:	Soil	**Date Analyzed:**	05/06,07/92
		Work Order No.:	K922925

Total Petroleum Hydrocarbons as Gasoline
Oregon DEQ Method TPH-G
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Result
S-1-1	K2925-1	10	6,300
Method Blank	K2925-MB	10	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Chris Elliott Date 5/13/92

00002

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/06/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/08/92
Sample Matrix:	Soil	**Date Analyzed:**	05/08/92
		Work Order No.:	K922925

Total Petroleum Hydrocarbons
Oregon DEQ Method TPH-418.1 Modified
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Result
S-1-1	K2925-1	25	850
Method Blank	K2925-MB	25	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Chris Elliott Date 5/13/92

00003

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APPENDIX A

LABORATORY QC RESULTS

1317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Received:**	05/06/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/06/92
Sample Matrix:	Soil	**Date Analyzed:**	05/07/92
		Work Order No.:	K922925

Surrogate Recovery Summary
Total Petroleum Hydrocarbons - Hydrocarbon Identification
Oregon DEQ Method TPH-HCID

Sample Name	Lab Code	Percent Recovery α,α,α-Trifluorotoluene
S-1-1	K2925-1	NA
Method Blank	K2925-MB	96
	State-Specified Acceptance Criteria	50-150

NA Not Applicable because of the sample matrix. Analysis of this sample required a dilution such that the surrogate concentration was diluted below the MRL.

Approved by Adri Elliott Date 5/13/92

00005

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland
Sample Matrix: Soil

Date Received: 05/06/92
Date Extracted: 05/06/92
Date Analyzed: 05/06,07/92
Work Order No.: K922925

Surrogate Recovery Summary
Total Petroleum Hydrocarbons as Gasoline
Oregon DEQ Method TPH-G

Sample Name	Lab Code	Percent Recovery 4-Bromofluorobenzene
S-1-1	K2925-1	102
Method Blank	K2925-MB	106
	CAS Acceptance Criteria	37-132

Approved by Chris Elliott Date 5/13/92

U0006

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Extracted:**	04/25/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	05/08/92
LCS Matrix:	Soil	**Work Order No.:**	K922925

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons
Oregon DEQ Method TPH-418.1 Modified
mg/Kg (ppm)
As Received Basis

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Diesel	198	189	95	56-127

Approved by Colin Elliott Date 5/13/92

00007

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ARCO Products Company
Division of AtlanticRichfieldCompany

Chain of Custody

Task Order No. 6118-91-1

ARCO Facility no. 6118	City (Facility) Portland	Project manager (Consultant) Cary Goodman	Laboratory name CAS
ARCO engineer Kyle Christie	Telephone no. (ARCO) (415) 571-2468	Telephone no. (Consultant) (503) 624-7200	Fax no. (Consultant) 620-7658
Consultant name EMCON NW	Address (Consultant) 15055 SW Sequoia Pkwy, Portland 97224		Contract number

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-HCID*	TPH-G
S-1-1		1	X			X		5-6-92	1245					X							X	X

Special detection Limit/reporting

Special QA/QC

Remarks
*Quantify with TPH-G, TPH-D, or 418- As Appropriate
FAX Prelims.

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:

	Date	Time			
Relinquished by sampler: Brian Mc	5-6-92	1500	Received by: Lori K. Hawn		
Relinquished by	Date	Time	Received by		
Relinquished by	Date	Time	Received by laboratory: Lori K. Hawn	Date 5/6/92	Time 1800

8000

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

APPC-3292 (2-91)

Columbia Analytical Services, Inc.

May 26, 1992

Cary Goodman
EMCON Northwest
15055 SW Sequoia Parkway
Suite 140
P.O. Box 231269
Portland, OR 97224

Re: **ARCO #6118 - Portland/Project #T3325.02**

Dear Cary:

Enclosed are the results of the samples submitted to our lab on May 14, 1992. Preliminary results were transmitted via facsimile on May 22, 1992. For your reference, these analyses have been assigned our work order number K923113.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Colin Elliott

Colin B. Elliott
Senior Project Chemist

CBE/tlt

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/14/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/18/92
Sample Matrix:	Soil	**Date Analyzed:**	05/19/92
		Work Order No.:	K923113

Total Petroleum Hydrocarbons
Oregon DEQ Method TPH-418.1 Modified
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Result
S-5-2.5	K3113-1	25	ND
S-5-4.0	K3113-2	25	ND
S-6-3.5	K3113-3	25	ND
S-7-3.5	K3113-4	25	ND
S-8-2	K3113-5	25	ND
S-8-3	K3113-6	25	ND
S-9-4	K3113-7	25	53
Method Blank	K3113-MB	25	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by John Elliott Date 5/27/92

00001

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/14/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/15/92
Sample Matrix:	Soil	**Date Analyzed:**	05/15,16/92
		Work Order No.:	K923113

Total Petroleum Hydrocarbons as Gasoline
Oregon DEQ Method TPH-G
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Result
S-5-2.5	K3113-1	10	ND
S-5-4.0	K3113-2	10	ND
S-6-3.5	K3113-3	10	ND
S-7-3.5	K3113-4	10	ND
S-8-2	K3113-5	10	ND
S-8-3	K3113-6	10	ND
S-9-4	K3113-7	*100	**17,000
Method Blank	K3113-MB	10	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit
* MRL is elevated because the sample(s) required diluting.
** Result is from the analysis of a diluted sample, performed on May 18, 1992.

Approved by John Elliott Date 5/27/92

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Extracted:**	05/12/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	05/19/92
LCS Matrix:	Soil	**Work Order No.:**	K923113

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons
Oregon DEQ Method TPH-418.1 Modified
mg/Kg (ppm)
As Received Basis

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Diesel	200	196	98	56-127

Approved by Adam Elliott Date 5/27/92

00003

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Received:**	05/14/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/15/92
Sample Matrix:	Soil	**Date Analyzed:**	05/15,16/92
		Work Order No.:	K923113

Surrogate Recovery Summary
TPH as Gasoline
Oregon DEQ Method TPH-G

Sample Name	Lab Code	Percent Recovery 4-Bromofluorobenzene
S-5-2.5	K3113-1	96
S-5-4.0	K3113-2	95
S-6-3.5	K3113-3	94
S-7-3.5	K3113-4	95
S-8-2	K3113-5	94
S-8-3	K3113-6	93
S-9-4	K3113-7	*101
Method Blank	K3113-MB	99
	CAS Acceptance Criteria	73-116

TPH Total Petroleum Hydrocarbons
* Result is from the analysis of a diluted sample, performed on May 18, 1992.

Approved by Adam Elliott Date 5/27/92

00004

ARCO Products Company
Division of AtlanticRichfieldCompany

Chain of Custody

Task Order No. 6118-91-1

ARCO Facility no. 6118	City (Facility) Portland	Project manager (Consultant) Cary Goodman	Laboratory name CAS
ARCO engineer Kyle Christie	Telephone no. (ARCO) (415) 571-2468	Telephone no. (Consultant) (503) 624-7200	Fax no. (Consultant) 620-7658
Consultant name EMCON NW	Address (Consultant) 15055 SW Sequoia PKwy, Portland, OR 97224		Contract number ~~Courier~~

Method of shipment: Courier

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 ☐	OxEcon TPH-G	Oxecon TPH-418.1
S-5-2.5		1	X			X		S-1392	1315												X	X
S-5-4.0		1							1317												X	X
S-6-3.5		1							1325												X	X
S-7-3.5		1							1330												X	X
S-8-2		1							1335												X	X
S-8-3		1							1337												X	X
S-9-4		1							1455												X	X

Special detection Limit/reporting

Special QA/QC

Remarks: Custody Seal #1534

Lab number: 1C92-3113

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 5-13-92 Time 1630	Received by	
Relinquished by	Date Time	Received by	
Relinquished by	Date Time	Received by laboratory	Date 5/14/92 Time 1300

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APPC-3292 (2-91)

Columbia Analytical Services inc.

May 28, 1992

Cary Goodman
EMCON Northwest
15055 SW Sequoia Parkway
Suite 140
P.O. Box 231269
Portland, OR 97224

Re: **ARCO #6118 - Portland/Task Order #6118-91-1**

Dear Cary:

Enclosed are the results of the rush sample requested for analysis on May 26, 1992, from previous work order number K922997. Preliminary results were transmitted via facsimile on May 28, 1992. For your reference, these analyses have been assigned our work order number K923357.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Brian Thompson for Colin Elliott

Colin B. Elliott
Senior Project Chemist

CBE/krh

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/08/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	05/26/92
Sample Matrix:	Soil	**Work Order No.:**	K923357

Flash Point
EPA Method 1020
°F

Sample Name	Lab Code	Result
SP-1	K2997-1	>200

Approved by Brian Thompson for Colin Elliott Date 5/28/92

00001

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/08/92
Project:	ARCO #6118 - Portland	**Date TCLP Performed:**	05/26/92
Sample Matrix:	Soil	**Date Analyzed:**	05/27/92
		Work Order No.:	K923357

Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
mg/L (ppm) in TCLP Extract

				Sample Name:	SP-1	Method Blank
				Lab Code:	K2997-1	K3357-MB
Analyte	**EPA Method**	**MRL**	**Regulatory Limit♦**			
Arsenic	3010/6010	0.1	5.0		ND	ND
Barium	3010/6010	0.5	100		1.0	ND
Cadmium	3010/6010	0.01	1.0		ND	ND
Chromium	3010/6010	0.01	5.0		ND	ND
Lead	3010/6010	0.05	5.0		ND	ND
Mercury	7470	0.001	0.2		ND	ND
Selenium	3010/6010	0.1	1.0		ND	ND
Silver	3010/6010	0.01	5.0		ND	ND

MRL Method Reporting Limit
♦ From 40 CFR Part 261, et al., and *Federal Register*, March 29, 1990 and June 29, 1990
ND None Detected at or above the method reporting limit

Approved by Brian Thompson for Colin Elliott Date 5/28/92

000-2

APPENDIX A

LABORATORY QC RESULTS

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Received:**	05/08/92
Project:	ARCO #6118 - Portland	**Date TCLP Performed:**	05/26/92
Sample Matrix:	Soil	**Date Analyzed:**	05/27/92
		Work Order No.:	K923357

Matrix Spike Summary
Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
mg/L (ppm) in TCLP Extract

Sample Name: SP-1
Lab Code: K2997-1

Analyte	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery♦
Arsenic	5.0	ND	5.2	104
Barium	5.0	1.0	6.6	112
Cadmium	1.0	ND	0.97	97
Chromium	5.0	ND	4.91	98
Lead	5.0	ND	5.07	101
Mercury	0.010	ND	0.010	100
Selenium	1.0	ND	1.2	120
Silver	1.0	ND	1.03	103

♦ Percent recovery information is provided in order to assess the performance of the method on this matrix.

ND None Detected at or above the method reporting limit

Approved by Brian Thompson for Colin Elliott Date 5/28/92

00004

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K-1

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 6118-91-1

Chain of Custody

ARCO Facility no. 6118	City (Facility) Portland	Project manager (Consultant) Cary Goodman		Laboratory name CAS
ARCO engineer Kyle Christie	Telephone no. (ARCO) (415) 571-2468	Telephone no. (Consultant) (503) 624-7200	Fax no. (Consultant) 620-7658	Contract number SFAL 6024
Consultant name EMCON N.W.	Address (Consultant) 15055 SW Sequoia Pkwy, Portland, OR 97224			Method of shipment Courier

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 (OR TPH)	EPA 601/8010	EPA 624/8240	~~EPA 625/8270~~ Flashpoint	TCLP Metals ☒ VOA ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	8015M TPH-d	HOLD
SP-1		1	X			X		5-8-92	1430	X			~~X~~	X			X	X			X	
~~SP-2~~ (cwg)																						
S-3-2		↓	↓			↓		↓	1420			X									~~X~~	
S-2-3		↓	↓			↓		↓	1405													X
S-4-3		↓	↓			↓		↓	1425					X								X

As per Cary Goodman 5/14/92

Changes as per Brian Keir 5/8/92 Colin

TCLP 48 hrs
Flashpoint 24

Added by Brian Keir Emcon N.W. 5/26/92 Colin

Special detection Limit/reporting

Special QA/QC

Remarks
Run S-3-2 on Rush, SP-1 on Priority Rush

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: Brian Keir	Date 5-8-92	Time 1530	Received by		
Relinquished by	Date	Time	Received by		
Relinquished by	Date	Time	Received by laboratory: [signature]	Date 5/8/92	Time 1800

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ARCO 3292 (2-91)

000059

Columbia Analytical Services inc.

June 2, 1992

Cary Goodman
EMCON Northwest
15055 SW Sequoia Parkway
Suite 140
P.O. Box 231269
Portland, OR 97224

Re: ARCO #6118 - Portland/Task Order #6118-91-1

Dear Cary:

Enclosed are the results of the rush samples submitted to our lab on May 20, 1992. Preliminary results were transmitted via facsimile on May 22 and June 1, 1992. For your reference, these analyses have been assigned our work order number K923276.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Colin Elliott

Colin B. Elliott
Senior Project Chemist

CBE/das

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland
Sample Matrix: Soil

Date Received: 05/20/92
Date Extracted: 05/21/92
Date Analyzed: 05/21,22/92
Work Order No.: K923276

Total Petroleum Hydrocarbons - Hydrocarbon Identification
Oregon DEQ Method TPH-HCID
mg/Kg (ppm)
As Received Basis

		Gasoline		Diesel		Oil♦	
Sample Name	**Lab Code**	**MRL**	**Result**	**MRL**	**Result**	**MRL**	**Result**
S-9-4.5	K3276-1	20	ND	50	ND	100	ND
S-10-4.5	K3276-2	20	ND	50	*D	100	ND
S-10-6.5	K3276-3	20	ND	50	*D	100	ND
Method Blank	K3276-MB	20	ND	50	ND	100	ND

♦ Quantified using 30-weight motor oil as a standard.
MRL Method Reporting Limit
ND None Detected at or above the method reporting limit
* Highly weathered product detected within the diesel region.
D Detected at or above the method reporting limit. Refer to the report(s) immediately following for quantitative results for the detected components.

Approved by Chris Elliott Date 6/2/92

00001

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/20/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/23/92
Sample Matrix:	Soil	**Date Analyzed:**	05/27,28/92
		Work Order No.:	K923276

Total Petroleum Hydrocarbons as Diesel
Oregon DEQ Method TPH-D
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Diesel
S-10-6.5	K3276-3	20	*55
S-10-4.5	K3276-2	20	*78
Method Blank	K3276-MB	20	ND

MRL Method Reporting Limit
***** Unidentified product within the diesel region.
ND None Detected at or above the method reporting limit

Approved by Alan Elliott **Date** 6/2/92

APPENDIX A

LABORATORY QC RESULTS

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Received:**	05/20/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/23/92
Sample Matrix:	Soil	**Date Analyzed:**	05/27,28/92
		Work Order No.:	K923276

Surrogate Recovery Summary
Total Petroleum Hydrocarbons as Diesel
Oregon DEQ Method TPH-D

Sample Name	Lab Code	Percent Recovery *p*-Terphenyl
S-10-6.5	K3276-3	80
S-10-4.5	K3276-2	76
Method Blank	K3276-MB	114
	CAS Acceptance Criteria	50-114

Approved by Chris Elliott Date 6/2/92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Received:**	05/20/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/21/92
Sample Matrix:	Soil	**Date Analyzed:**	05/21,22/92
		Work Order No.:	K923276

Surrogate Recovery Summary
Total Petroleum Hydrocarbons - Hydrocarbon Identification
Oregon DEQ Method TPH-HCID

Sample Name	Lab Code	Percent Recovery 4-Bromofluorobenzene
S-9-4.5	K3276-1	119
S-10-4.5	K3276-2	116
S-10-6.5	K3276-3	130
Method Blank	K3276-MB	108
	State-Specified Acceptance Criteria	50-150

Approved by Chris Elliott Date 6/2/92

ARCO Products Company
Division of AtlanticRichfieldCompany

Chain of Custody

Task Order No. 6118-91-1

ARCO Facility no. 6118	City (Facility) Portland	Project manager (Consultant) Cary Goodman	Laboratory name CAS
ARCO engineer Kyle Christie	Telephone no. (ARCO) (415)571-2468	Telephone no. (Consultant) (503) 624-7200	Fax no. (Consultant) 620-7658
Consultant name EMCON Northwest	Address (Consultant) 15055 SW Sequoia Pkwy, Portland, OR 97224		~~Contract number~~ SEAL 1555

Method of shipment: Courier

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-HCID
S-9-4.5		1	X			X		5-19-92	1225												X
S-10-4.5		1	X			X		↓	1230												X
S-10-6.5		1	X			X		↓	1235												X

Special detection Limit/reporting:

Special QA/QC: * Quantify As Appropriate

Remarks:
Run S-9-4.5 on Standard turnaround
Run S-10-4.5 on Rush
Run S-10-6.5 on Rush

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:

	Date	Time	
Relinquished by sampler	5-20-92	1000	Received by
Relinquished by			Received by
Relinquished by			Received by laboratory: Tom K. — Date 5/20/92 — Time 1830

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APPC-3292 (2-91)

Columbia Analytical Services inc.

July 2, 1992

Cary Goodman
EMCON Northwest
15055 SW Sequoia Parkway
Suite 140
P.O. Box 231269
Portland, OR 97224

Re: **ARCO #6118 - Portland/Project #T3325.02**

Dear Cary:

Enclosed are the results of the samples requested for analysis on June 15, 1992, from previous work order numbers K922925 and K922997. Preliminary results were transmitted via facsimile on June 29, 1992. For your reference, these analyses have been assigned our work order number K923806.

The request for analysis for TPH-G, EPA Methods 8010/8020, PCBs and 418.1 was received after the holding time had expired. For the metals analysis, insufficient amounts of the sample remained to perform a TCLP analysis; therefore, total metals analyses were performed.

All analyses were performed in accordance with our laboratory's quality assurance program. Reproduction of reports is allowed only in whole, not in part. Results apply only to the samples analyzed.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Colin B. Elliott
Senior Project Chemist

Columbia Analytical Services, Inc.

Lawrence J. Jacoby, Ph.D.
Quality Assurance Coordinator

CBE/tlt

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland
Sample Matrix: Soil

Date Received: 05/06/92
Work Order No.: K923806

Total Metals
mg/Kg (ppm)
Dry Weight Basis

	Sample Name:	S-1-1	S-4-3	Method Blank
	Lab Code:	K3806-1	K3806-3	K3806-MB
Analyte	**EPA Method**	**MRL**		
Cadmium	6010	1	ND	ND	ND
Chromium	6010	2	7	21	ND
Lead	6010	20	ND	88	ND
Solids, Total (%)	160.3	--	86.5	80.9	--

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Colin Elliott Date 7/2/92

00091

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/06/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	06/17/92*
Sample Matrix:	Soil	**Date Analyzed:**	06/20/92
		Work Order No.:	K923806

Total Petroleum Hydrocarbons as Gasoline
Oregon DEQ Method TPH-G
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Result
S-4-3	K3806-3	**30	740
Method Blank	K3806-MB	10	ND

* Sample was received 24 days past the end of the recommended maximum holding time.
MRL Method Reporting Limit
** MRL is elevated because the sample quantity was insufficient for optimum analysis.
ND None Detected at or above the method reporting limit

Approved by Colin Elliott Date 7/2/92

00002

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/06/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	06/16/92*
Sample Matrix:	Soil	**Date Analyzed:**	06/18/92
		Work Order No.:	K923806

Total Petroleum Hydrocarbons
Oregon DEQ Method TPH-418.1 Modified
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Result
S-3-2	K3806-2	25	118
Method Blank	K3806-MB	25	ND

* Sample was received past the end of the recommended maximum holding time.
MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Chris Elliott Date 7/2/92

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/06/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	06/16/92
Sample Matrix:	Soil	**Work Order No.:**	K923806

Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080
mg/Kg (ppm)
Dry Weight Basis

Sample Name:		S-1-1	S-4-3	Method Blank
Lab Code:		K3806-1	K3806-3	K3806-MB
Date Analyzed:		06/19/92*	06/19/92*	06/19/92
Analyte	**MRL**			
Aroclor 1016	1	**ND	‡ND	ND
Aroclor 1221	1	**ND	‡ND	ND
Aroclor 1232	1	**ND	‡ND	ND
Aroclor 1242	1	**ND	‡ND	ND
Aroclor 1248	1	ND	‡ND	ND
Aroclor 1254	1	**1	‡4	ND
Aroclor 1260	1	ND	ND	ND
Total Aroclors	1	1	4	ND

* Sample was received past the end of the recommended maximum holding time.
MRL Method Reporting Limit
** Result is from an analysis performed on June 21, 1992.
ND None Detected at or above the method reporting limit
‡ Result is from an analysis performed on June 25, 1992.

Approved by Alan Elliott Date 7/2/92

00004

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland
Sample Matrix: Soil

Date Extracted: 06/16/92
Work Order No.: K923806

Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080
mg/Kg (ppm)
Dry Weight Basis

Sample Name:		Method Blank*	Method Blank**
Lab Code:		K3806-MB	K3806-MB
Date Analyzed:		06/21/92	06/25/92
Analyte	**MRL**		
Aroclor 1016	1	ND	ND
Aroclor 1221	1	ND	ND
Aroclor 1232	1	ND	ND
Aroclor 1242	1	ND	ND
Aroclor 1248	1	ND	ND
Aroclor 1254	1	ND	ND
Aroclor 1260	1	ND	ND
Total Aroclors	1	ND	ND

* Method blank after cleanup procedure.
** Method blank after additional cleanup procedure.
MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Alan Elliott Date 7/2/92

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/06/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	06/22/92
Sample Matrix:	Soil	**Work Order No.:**	K923806

Halogenated and Aromatic Volatile Organic Compounds
EPA Methods 5030/8010/8020
mg/Kg (ppm)
Dry Weight Basis

Sample Name:		S-1-1	S-4-3	Method Blank
Lab Code:		K3806-1	K3806-3	K3806-MB
Date Analyzed:		06/23/92*	06/23/92*	06/22/92
Analyte	**MRL**			
Dichlorodifluoromethane (Freon 12)	0.1	ND	ND	ND
Chloromethane	0.1	ND	ND	ND
Vinyl Chloride	0.05	ND	ND	ND
Bromomethane	0.05	ND	ND	ND
Chloroethane	0.05	ND	ND	ND
Trichlorofluoromethane (Freon 11)	0.05	ND	ND	ND
1,1-Dichloroethene	0.05	ND	ND	ND
Trichlorotrifluoroethane (Freon 113)	0.05	ND	ND	ND
Methylene Chloride	0.2	ND	ND	ND
trans-1,2-Dichloroethene	0.05	ND	ND	ND
cis-1,2-Dichloroethene	0.05	ND	ND	ND
1,1-Dichloroethane	0.05	ND	ND	ND
Chloroform	0.05	ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.05	ND	ND	ND
Carbon Tetrachloride	0.05	ND	ND	ND
Benzene	0.05	ND	ND	ND
1,2-Dichloroethane	0.05	ND	ND	ND
Trichloroethene (TCE)	0.05	ND	ND	ND
1,2-Dichloropropane	0.05	ND	ND	ND
Bromodichloromethane	0.05	ND	ND	ND
2-Chloroethyl Vinyl Ether	0.5	ND	ND	ND
trans-1,3-Dichloropropene	0.05	ND	ND	ND
Toluene	0.1	ND	ND	ND
cis-1,3-Dichloropropene	0.05	ND	ND	ND
1,1,2-Trichloroethane	0.05	ND	ND	ND
Tetrachloroethene (PCE)	0.05	ND	ND	ND
Dibromochloromethane	0.05	ND	ND	ND
Chlorobenzene	0.05	ND	ND	ND
Ethylbenzene	0.1	ND	**0.9	ND
Total Xylenes	0.1	5.0	**6.5	ND
Bromoform	0.05	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.05	ND	ND	ND
1,3-Dichlorobenzene	0.1	ND	ND	ND
1,4-Dichlorobenzene	0.1	ND	ND	ND
1,2-Dichlorobenzene	0.1	ND	ND	ND

* Sample was received 27 days past the end of the recommended maximum holding time.
MRL Method Reporting Limit
ND None Detected at or above the method reporting limit
** Result is from an analysis performed on June 20, 1992.

Approved by Glenn Elliott Date 7/2/92

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APPENDIX A

LABORATORY QC RESULTS

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland
Sample Matrix: Soil

Date Received: 05/06/92
Work Order No.: K923806

Duplicate Summary
Total Metals
mg/Kg (ppm)
Dry Weight Basis

Sample Name: S-4-3
Lab Code: K3806-3

Analyte	EPA Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference
Cadmium	6010	1	ND	ND	ND	--
Chromium	6010	2	21	18	20	15
Lead	6010	20	88	67	78	27

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by John Elliott Date 7/2/92

00008

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland
Sample Matrix: Soil

Date Received: 05/06/92
Work Order No.: K923806

Matrix Spike Summary
Total Metals
mg/Kg (ppm)
Dry Weight Basis

Sample Name: S-4-3
Lab Code: K3806-3

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Cadmium	1	12	ND	11	92	60-130
Chromium	2	49	21	66	92	60-130
Lead	20	125	88	197	87	60-130

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by John Elliott Date 7/2/92

00009

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland

Date Analyzed: 06/24/92
Work Order No.: K923806

Initial Calibration Verification (ICV) Summary
µg/L (ppb)

Analyte	EPA Method	True Value	Result	Percent Recovery
Cadmium	6010	1,250	1,220	98
Chromium	6010	500	511	102
Lead	6010	2,500	2,550	102

ICV Source: EPA ICV

Approved by Chris Elliott Date 7/2/92

00010

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Received:**	05/06/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	06/17/92
Sample Matrix:	Soil	**Date Analyzed:**	06/20/92
		Work Order No.:	K923806

Surrogate Recovery Summary
Total Petroleum Hydrocarbons as Gasoline
Oregon DEQ Method TPH-G

Sample Name	**Lab Code**	**Percent Recovery** 4-Bromofluorobenzene
S-4-3	K3806-3	94
Method Blank	K3806-MB	93
	CAS Acceptance Criteria	73-116

Approved by Chris Elliott Date 7/2/92

0011

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Extracted:**	06/19/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	06/20/92
Sample Matrix:	Soil	**Work Order No.:**	K923806

Matrix Spike Summary
BTEX
EPA Methods 5030/8020
mg/Kg (ppm)
As Received Basis

Sample Name: Batch QC
Lab Code: K3743-4

Analyte	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Benzene	0.89	ND	0.80	90	23-170
Toluene	0.9	ND	0.8	89	31-166
Ethylbenzene	0.9	ND	0.8	89	30-164

ND None Detected at or above the method reporting limit

Approved by Adam Elliott Date 7/2/92

00012

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Extracted:**	06/19/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	06/20/92
LCS Matrix:	Soil	**Work Order No.:**	K923806

Laboratory Control Sample Summary*
BTEX
EPA Methods 5030/8020
mg/Kg (ppm)

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Benzene	1.0	1.08	108	23-170
Toluene	1.0	1.0	100	31-166
Ethylbenzene	1.0	1.1	110	30-164

* Prepared using a separate source of target parameters as compared to the calibration standards.

Approved by Chris Elliott Date 7/2/92

ij0013

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Received:**	05/06/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	06/16/92
Sample Matrix:	Soil	**Date Analyzed:**	06/18/92
		Work Order No.:	K923806

Duplicate Summary
Total Petroleum Hydrocarbons
Oregon DEQ Method TPH-418.1 Modified
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	CAS RPD Acceptance Criteria
Batch QC	K3771-1	25	119	118	118	<1	25

MRL Method Reporting Limit

Approved by Chris Elliott Date 7/2/92

0014

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Extracted:**	06/16/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	06/18/92
LCS Matrix:	Soil	**Work Order No.:**	K923806

Laboratory Control Sample Summary*
Total Petroleum Hydrocarbons
Oregon DEQ Method TPH-418.1 Modified
mg/Kg (ppm)

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Diesel	200	193	96	56-127

* Prepared from a separate source of target parameters as compared to the calibration standards.

Approved by Chris Elliott Date 7/2/92

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Received:**	05/06/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	06/16/92
Sample Matrix:	Soil	**Date Analyzed:**	06/18/92
		Work Order No.:	K923806

Matrix Spike Summary
Total Petroleum Hydrocarbons
Oregon DEQ Method TPH-418.1 Modified
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Batch QC	K3771-2	25	980	ND	971	99	56-127

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Glen Elliott Date 7/2/92

00016

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland
Sample Matrix: Soil

Date Received: 05/06/92
Date Extracted: 06/16/92
Date Analyzed: 06/19/92
Work Order No.: K923806

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080

Sample Name	Lab Code	Percent Recovery Decachlorobiphenyl
S-1-1	K3806-1	81
S-4-3	K3806-3	81
S-4-3	K3806-3MS	77
S-4-3	K3806-3DMS	75
Laboratory Control Sample	K3806-LCS	114
Method Blank	K3806-MB	114
S-1-1	K3806-1*	73
Method Blank	K3806-MB*	71
S-4-3	K3806-3**	92
S-4-3	K3806-3MS**	97
	CAS Acceptance Criteria	67-138

* After mercury cleanup; analyzed June 21, 1992.
** After second mercury cleanup; analyzed June 25, 1992.

Approved by Chris Ellis Date 7/2/92

ij0017

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Received:**	05/06/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	06/16/92
Sample Matrix:	Soil	**Date Analyzed:**	06/25/92
		Work Order No.:	K923806

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080

Sample Name	Lab Code	Percent Recovery Decachlorobiphenyl
S-4-3	K3806-3DMS*	92
Method Blank	K3806-MB*	103
	CAS Acceptance Criteria	67-138

* Second mercury cleanup; analyzed June 25, 1992.

Approved by Chris Elliott Date 7/2/92

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland
Sample Matrix: Soil

Date Received: 05/06/92
Date Extracted: 06/16/92
Date Analyzed: 06/25/92
Work Order No.: K923806

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080
mg/Kg (ppm)
Dry Weight Basis

Sample Name: S-4-3
Lab Code: K3806-3

Analyte	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Criteria	Relative Percent Difference
Aroclor 1242	1.6	1.6	ND	1.5	1.5	94	94	56-127	<1

ND None Detected at or above the method reporting limit

Approved by Colin Elliott Date 7/2/92

00019

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Extracted:**	06/16/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	06/19/92
LCS Matrix:	Soil	**Work Order No.:**	K923806

Laboratory Control Sample Summary
Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080
mg/Kg (ppm)
As Received Basis

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Aroclor 1242	1.3	1.3	100	56-127

Approved by Colin Elliott Date 7/2/92

00020

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland

Date Analyzed: 06/16/92
Work Order No.: K923806

Initial Calibration Verification (ICV) Summary
Polychlorinated Biphenyls (PCBs)
EPA Method 8080
µg/mL (ppm)

Analyte	True Value	Result	Percent Recovery
Aroclor 1254	2.0	2.1	105

Approved by Abi Elliott Date 7/2/92

ij0021

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland
Sample Matrix: Soil

Date Received: 05/06/92
Date Extracted: 06/22/92
Date Analyzed: 06/22,23/92
Work Order No.: K923806

Surrogate Recovery Summary
Halogenated and Aromatic Volatile Organic Compounds
EPA Methods 5030/8010/8020

Sample Name	Lab Code	Percent Recovery 4-Bromofluorobenzene
S-1-1	K3806-1	92
S-4-3	K3806-3	88
Method Blank	K3806-MB	89
Laboratory Control Sample	K3806-LCS	102
	CAS Acceptance Criteria	71-131

Approved by Chris Elliott Date 7/2/92

00022

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland
LCS Matrix: Water

Date Analyzed: 06/23/92
Work Order No.: K923806

Laboratory Control Sample Summary
Halogenated and Aromatic Volatile Organic Compounds
EPA Methods 5030/8010/8020
µg/L (ppb)

Analyte	True Value	Result	Percent Recovery	EPA Percent Recovery Acceptance Criteria
1,1-Dichloroethene	2.0	2.6	130	28-167
Trichloroethene	2.0	2.2	110	35-146
Tetrachloroethene	2.0	2.4	120	26-162
Benzene	2.0	2.3	115	39-150
Toluene	2.0	2.2	110	46-148
Ethylbenzene	2.0	2.2	110	32-160

Approved by John Ellenberg Date 7/2/92

00023

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Northwest
Project: ARCO #6118 - Portland

Date Analyzed: 06/23/92
Work Order No.: K923806

Quality Control Sample Summary*
Halogenated and Aromatic Volatile Organic Compounds
EPA Methods 5030/8010/8020
mg/L (ppm)

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Chloromethane	2.0	1.4	70	70-130
Vinyl Chloride	2.0	2.1	105	70-130
Bromomethane	2.0	2.2	110	70-130
Chloroethane	2.0	2.3	115	70-130
Trichlorofluoromethane (Freon 11)	2.0	2.1	105	70-130
1,1-Dichloroethene	2.0	2.6	130	70-130
Methylene Chloride	2.0	2.2	110	70-130
trans-1,2-Dichloroethene	2.0	2.2	110	70-130
1,1-Dichloroethane	2.0	2.3	115	70-130
Chloroform	2.0	2.1	105	70-130
1,1,1-Trichloroethane (TCA)	2.0	2.0	100	70-130
Carbon Tetrachloride	2.0	2.3	115	70-130
Benzene	2.0	2.3	115	70-130
1,2-Dichloroethane	2.0	2.2	110	70-130
Trichloroethene (TCE)	2.0	2.2	110	70-130
1,2-Dichloropropane	2.0	2.2	110	70-130
Bromodichloromethane	2.0	2.3	115	70-130
trans-1,3-Dichloropropene	2.0	2.2	110	70-130
Toluene	2.0	2.2	110	70-130
cis-1,3-Dichloropropene	2.0	2.1	105	70-130
1,1,2-Trichloroethane	2.0	2.4	120	70-130
Tetrachloroethene (PCE)	2.0	2.4	120	70-130
Dibromochloromethane	2.0	2.3	115	70-130
Chlorobenzene	2.0	2.3	115	70-130
Ethylbenzene	2.0	2.2	110	70-130
Bromoform	2.0	2.5	125	70-130
1,1,2,2-Tetrachloroethane	2.0	2.3	115	70-130
1,3-Dichlorobenzene	2.0	2.2	110	70-130
1,4-Dichlorobenzene	2.0	2.4	120	70-130
1,2-Dichlorobenzene	2.0	2.0	100	70-130

* Prepared using a separate source of standards as compared to the calibration standards.

Approved by Alan Ellis Date 7/2/92

00024

06/15/92 14:01 503 620 7658 EMCON NW PDX →→→ CAS 002/002

K92-3806

ARCO Products Company

Division of AtlanticRichfieldCompany

Task Order No. 6118-91-1 T3325.02

Chain of Custody

ARCO Facility no.	6118
City (Facility)	Portland
Project manager (Consultant)	CARY GOODMAN
Laboratory name	CAS
ARCO engineer	Kyle Christie
Telephone no. (ARCO)	(415) 571-2468
Telephone no. (Consultant)	(503) 624-7200
Fax no. (Consultant)	620-7658
Contract number	
Consultant name	EMCON NW
Address (Consultant)	15055 SW Sequoia Parkway Suite 140 Portland OR 97224

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 ☐ VOA ☐ (Cd, Cr, Pb)	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org/DHS ☐ Lead EPA 7420/7421 ☐	PCBs EPA 8080	OR TPH-G
S-1-1	K29 25-1	1	X				✓	5-6-92	1245		X				X			X			X	
S4-3	K29 97-2	1	X					5-8-92	1425		X				X			X			X	X
S-3-2	K29 97-2	1	X					5-8-92	1420					X								

Method of shipment

Special detection Limit/reporting

Special QA/QC

Remarks

Colin,
Please hold onto all samples for this job for ^more 30 days.
S/T

Lab number K92-3806

Turnaround time

Priority Rush 1 Business Day ☐

Rush 2 Business Days ☐

Expedited 5 Business Days ☐

Standard 10 Business Days ☒

Condition of sample:

Temperature received:

	Date	Time	
Relinquished by sampler			Received by
~~Relinquished by~~ REQUESTED BY STEVE TAYLOR	6/15/92	13:30	Received by
~~Relinquished by~~ Steven Taylor			Received by laboratory Ruth Allison — Date 6-16-92 — Time 0800

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

APPC-3292 (2-91)

0006

Columbia Analytical Services inc.

July 17, 1992

Cary Goodman
EMCON Northwest
15055 SW Sequoia Parkway, Suite 140
P.O. Box 231269
Portland, OR 97224

Re: **ARCO #6118 - Portland/Task Order #6118-91-1**

Dear Cary:

Enclosed are the results of the rush samples requested for analysis on July 14, 1992, from previous work order number K922997. Preliminary results were transmitted via facsimile on July 15, 1992. For your reference, these analyses have been assigned our work order number K924362.

Since none of the original sample could be found, the analysis for PCBs was performed on an extract originally prepared for petroleum hydrocarbon analysis. The extraction procedure used is appropriate for PCB analysis, but no QC is available from the original extraction since all QC was performed only for petroleum hydrocarbon testing. PCB surrogate was added to the sample extract prior to performing the remainder of the PCB analysis.

All analyses were performed in accordance with our laboratory's quality assurance program. Reproduction of reports is allowed only in whole, not in part. Results apply only to the samples analyzed.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Colin Elliott

Colin B. Elliott
Senior Project Chemist

Columbia Analytical Services, Inc.

Lawrence J Jacoby

Lawrence J. Jacoby, Ph.D.
Quality Assurance Coordinator

CBE/das

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	05/08/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	05/09/92
Sample Matrix:	Soil	**Work Order No.:**	K924362

Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080
mg/Kg (ppm)
As Received Basis

Sample Name:		**SP-1**
Lab Code:		**K2997-1**
Date Analyzed:		**07/14/92***
Analyte	**MRL**	
Aroclor 1016	1	**ND
Aroclor 1221	1	**ND
Aroclor 1232	1	**ND
Aroclor 1242	1	**ND
Aroclor 1248	1	**ND
Aroclor 1254	1	**ND
Aroclor 1260	1	ND
Total Aroclors	1	ND

* Sample was requested past the end of the recommended maximum holding time.
MRL Method Reporting Limit
** Result is from an analysis performed on July 15, 1992.
ND None Detected at or above the method reporting limit

Approved by Chris Elliott Date 7/20/92

00001

APPENDIX A

LABORATORY QC RESULTS

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest	**Date Received:**	05/08/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	07/14/92
Sample Matrix:	Soil	**Date Analyzed:**	07/14,15/92
		Work Order No.:	K924362

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080

Sample Name	**Lab Code**	**Percent Recovery** Decachlorobiphenyl
SP-1	K2997-1	85
SP-1	K2997-1*	56
	CAS Acceptance Criteria	67-138

* Surrogate recovery after TBA sulfite cleanup. No acceptance critria has been established for samples undergoing cleanup.

Note that the decachlorobiphenyl surrogate was added to the sample extract after the original Method 8015M analysis.

Approved by Adam Elliott Date 7/20/92

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26 — 92-131

EMCON Northwest, Inc.
15055 SW Sequoia Parkway • Suite 140 • Portland, Oregon 97224 • **(503) 624-7200** • Fax (503) 620-7658

April 23, 1993
Project 0233-025.03

Mr. Kyle Christie
ARCO Products Company
P.O. Box 5811
San Mateo, California 94402

Re: Additional Site Assessment: ARCO Station 6118, 5282 N Lombard Street, Portland, Oregon, (DEQ File No. 26-91-060)

Dear Kyle:

This report summarizes the field activity and analytical results of hand augering and soil sampling near the pump islands at the above ARCO Products Company (ARCO) service station (see Figure 1).

BACKGROUND

EMCON Northwest, Inc. (EMCON), conducted an assessment of subsurface soil at the site during phase 2 vapor recovery system (VRS) piping installation in May 1992 (see *Subsurface Assessment* report dated July 30, 1992). Soils exposed during excavation of VRS and product piping trenches were examined for evidence of leaks or spills of petroleum.

A soil layer exhibiting field evidence of petroleum contamination in the west piping trench (see Figure 2) was encountered at approximately 3 feet below ground surface (bgs) and appeared to be approximately 6 inches thick. Laboratory analyses of samples S-1-1 and S-4-3 collected from this soil detected total petroleum hydrocarbons (TPH) as gasoline and oil at concentrations up to 740 parts per million (ppm) and 1,220 ppm, respectively; chromium and lead up to 21 ppm and 88 ppm; and polychlorinated biphenyls (PCBs) up to 4 ppm. The source and the lateral extent of this contamination were not determined.

Task Order 6118-92-2 authorized EMCON to hand auger up to six borings in the vicinity of the pump islands and collect soil samples to evaluate the extent of contamination. This report presents the findings.

FIELD WORK

Borings

On November 2, 1992, EMCON personnel used a hand auger to drill four borings in the vicinity of the pump islands (see Figure 2) to a maximum of 5 feet bgs. (See Appendix A for subsurface exploration methods and procedures.) Soil was screened for the presence of TPH. Special attention was given to soil that appeared similar to the soil layer in the west piping trench. Silty sand with some cobbles, concrete, and other debris were encountered under approximately 0.5 foot of base rock.

A layer of soil was encountered in boring B-1 between 4.5 and 5 feet bgs that was similar to soil in the contaminated zone discovered during VRS installation. The soil was chiefly silty sand with pieces of brick, burnt wood, and other debris. Two samples, B-1-4.5 and B-1-5, were collected at this depth. This layer was not encountered in the remaining borings.

Samples B-2-5, B-3-2.5, and B-4-4.5 were collected from the bottoms of borings B-2, B-3, and B-4, respectively. Boring B-3 was advanced to only 2.5 feet bgs because chunks of concrete were encountered at this depth. No petroleum odor was detected in any of the samples, nor were significant organic vapor concentrations detected by headspace analysis with a flame ionization detector (FID).

The borings were backfilled with hydrated bentonite chips to within 1 foot bgs and with concrete to the surface.

Soil cuttings were stored in one on-site stockpile covered with visqueen. A stockpile sample, SP-1, was collected for disposal characterization.

Analytical Testing

Each sample was analyzed for the constituents detected during the initial assessment:

- TPH identification by Oregon Department of Environmental Quality (DEQ) method TPH-HCID with appropriate quantification by DEQ methods TPH-G, TPH-D, or TPH-418.1M if gasoline, diesel, or oil was detected above method reporting limits (MRLs)

- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by U.S. Environmental Protection Agency (USEPA) Method 8020
- PCBs by USEPA Method 8080
- Metals by USEPA Method 1311

FINDINGS

- Sample B-3-2.5, from boring B-3 had detectable concentrations of TPH in the oil range. TPH-418.1M analysis detected 360 ppm, which is below the level 2 standard. None of the other constituents for which the sample was analyzed were detected above their MRLs (see Table 1).
- No other constituents for which the samples were analyzed were detected except barium, which was below regulatory standards in all samples.
- Less than 1 cubic yard of soil was removed while drilling the borings. Sample SP-1 was collected from the stockpiled soil and analyzed by the same methods as the other samples. TPH as oil was detected at 790 ppm. The soil was subsequently transported for treatment to Oregon Hydrocarbons, Inc., in Portland, Oregon.

CONCLUSIONS

- Analytical results from both assessments indicated that the oil impacted soil is located in a thin, near-surface layer beneath the dispenser island canopy and pad. The layer of oil impacted soil appears to be unrelated to operations of the existing service station because gasoline constituents were not detected in the soil samples from this area. Additionally, removal of the soil would threaten the integrity of the canopy. The pocket of impacted soil left in place does not appear to pose a threat to "human health, safety, and welfare and the environment" (Oregon Administrative Rules [OAR] 340-122-355[4]).
- Further investigation does not appear to be warranted. EMCON recommends that a copy of this report be forwarded to DEQ with a letter requesting written notification that no further action is required.

We appreciate the opportunity to be of service to ARCO. Please contact us if you have any questions.

Sincerely,

EMCON Northwest, Inc.

Brian P. Kier
Engineer

Cary W. Goodman
Project Environmental Scientist

Attachments: Limitations
Table 1
Figures 1 and 2
Appendices A and B

cc/att: Andree Pollock, DEQ NW Region, Portland
H.C. Winsor, ARCO, Los Angeles
Rob Dixon, EMCON, Portland

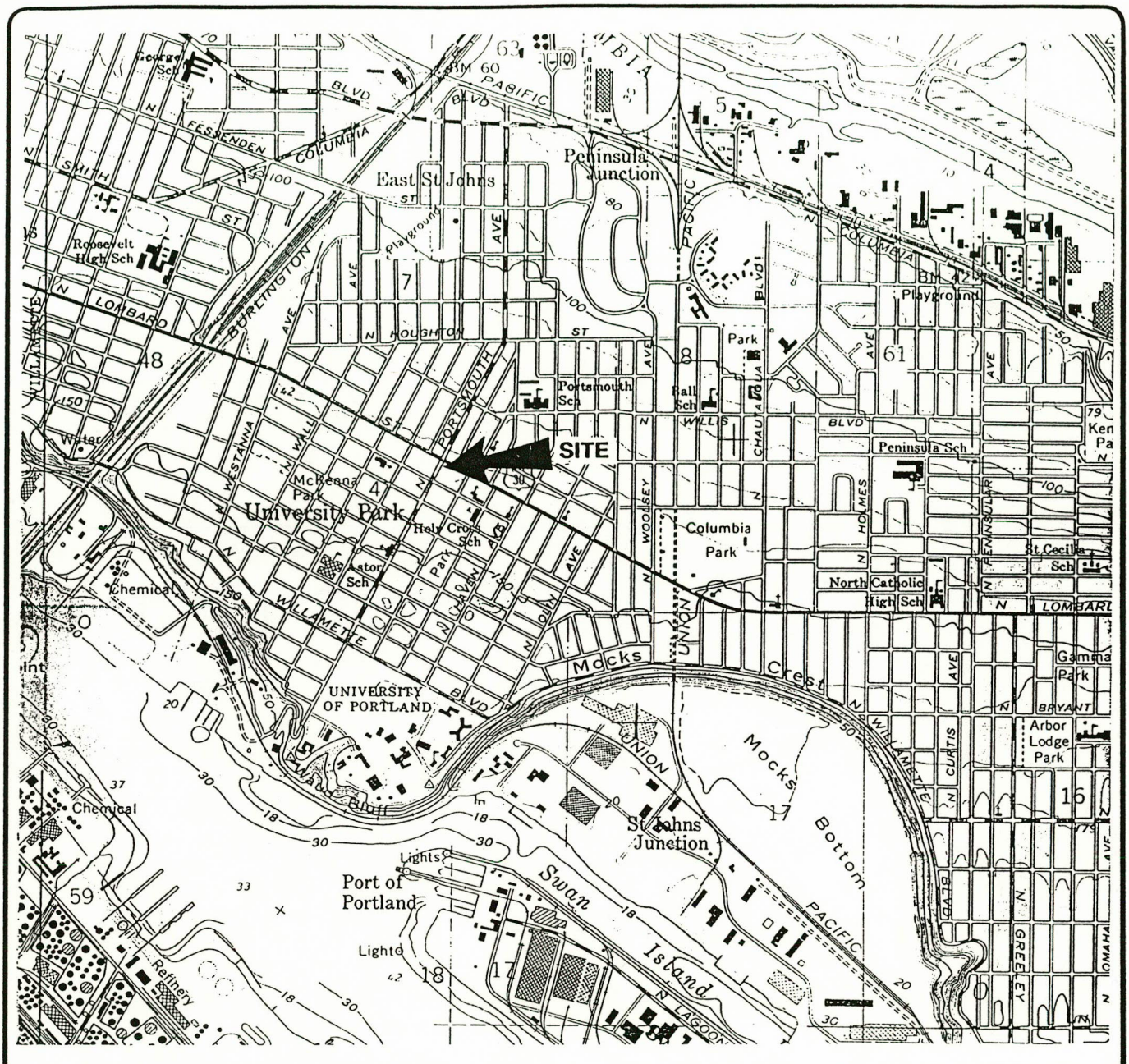
P/ARC/ARC6118.128-93/SB:4
0233-025.03

Table 1

ARCO Service Station 6118
Portland, Oregon
Soil Sample Analytical Results
(milligrams per kilogram)

Boring	Sample	Depth (ft)	TPH-HCID	TPH-418.1M	Metals[a] USEPA 1311	BTEX USEPA 8020	PCBs USEPA 8080
B-1	B-1-4.5	4.5	ND	--	1.7	ND	ND
B-1	B-1-5	5	ND	--	1.8	ND	ND
B-2	B-2-5	5	ND	--	1.8	ND	ND
B-3	B-3-2.5	2.5	O	360	0.7	ND	ND
B-4	B-4-4.5	4.5	ND	--	2.0	ND	ND
(stockpile)	SP-1	--	O	790	1.1	ND	ND

NOTE: ND = not detected above the MRL.
-- = not analyzed or not applicable.
O = oil range.
[a] Barium was the only metal detected.



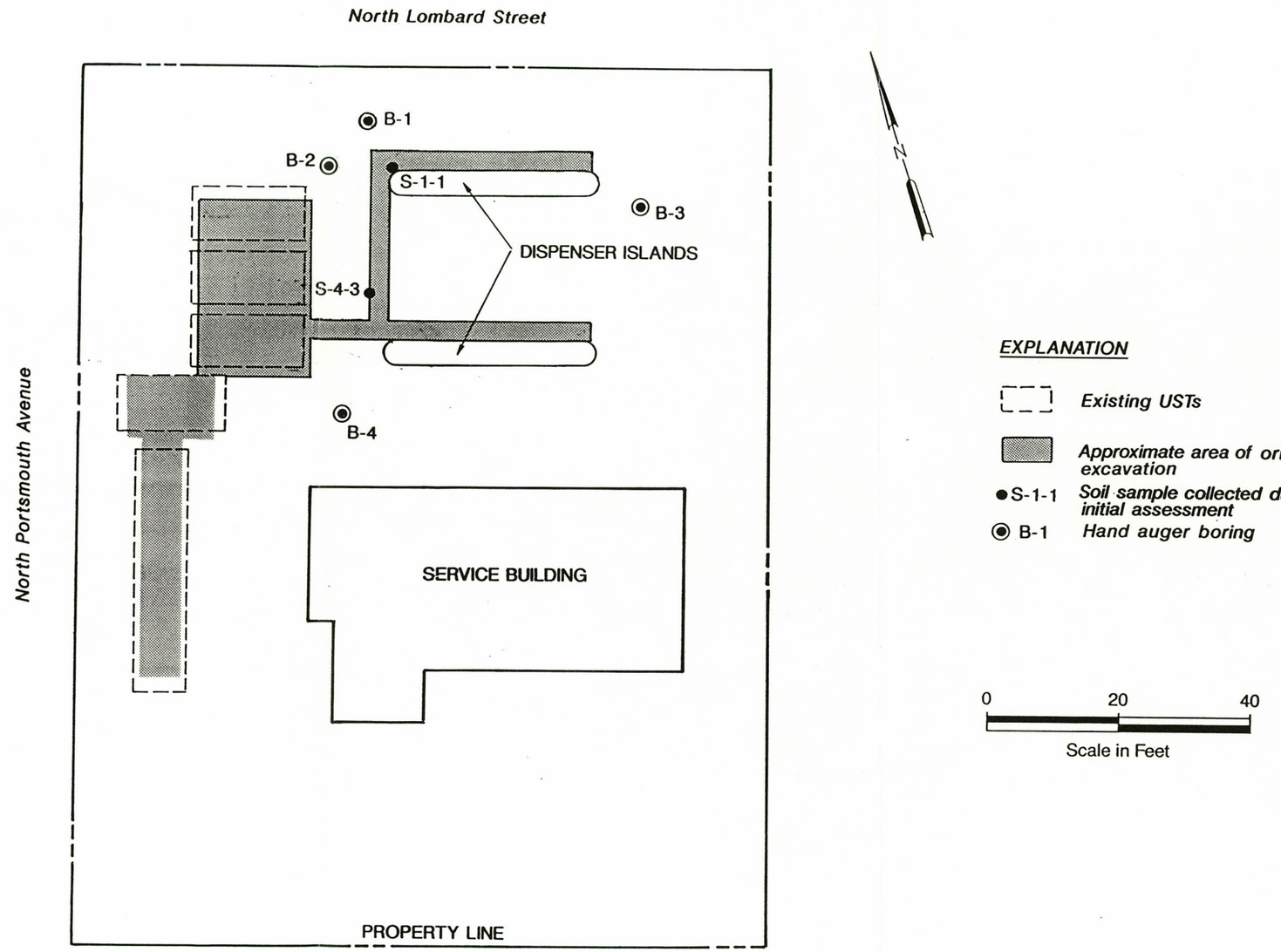
Reference: USGS 7.5' quad. PORTLAND, OREG.,(1977)

Emcon Northwest, Inc.

DATE 7/92
DWN. mk
APPR. BK
REVIS.
PROJECT NO. 0233025.03

Figure 1
ARCO PRODUCTS COMPANY
SERVICE STATION 6118
PORTLAND, OREGON

LOCATION MAP



EMCON Northwest, Inc.

DATE 6/92
DWN. vt/mk
APPR. CWG
REVIS. 12/92
PROJECT NO. 0233025.03

Figure 2
ARCO PRODUCTS COMPANY
SERVICE STATION 6118
PORTLAND, OREGON
HAND AUGER BORING AND SOIL SAMPLING LOCATIONS

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

The purpose of a geologic/hydrogeologic study is to reasonably characterize existing site conditions based on the geology/hydrogeology of the area. In performing such a study, it is understood that a balance must be struck between a reasonable inquiry into the site conditions and an exhaustive analysis of each conceivable environmental characteristic. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to describe all geologic/ hydrogeologic conditions of interest at a given site. If conditions have not been identified during the study, such a finding should not therefore be construed as a guarantee of the absence of such conditions at the site, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

We are unable to report on or accurately predict events that may change the site conditions after the described services are performed, whether occurring naturally or caused by external forces. We assume no responsibility for conditions we were not authorized to evaluate, or conditions not generally recognized as predictable when services were performed.

Geologic/hydrogeologic conditions may exist at the site that cannot be identified solely by visual observation. Where subsurface exploratory work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

APPENDIX A

FIELD PROCEDURES

FIELD PROCEDURES

EMCON drilled the borings on November 2, 1992, using a hand auger with a 3.5-inch-diameter head.

Four soil borings were drilled, sampled, and logged during this assessment. The borings penetrated to a maximum depth of 5 feet bgs. The borings were subsequently backfilled with bentonite to within 1 foot bgs and with concrete to the surface.

New disposable gloves were used to collect each soil sample. Samples were placed in laboratory-prepared glass containers and capped with Teflon®-lined lids. Samples were then placed on ice in an insulated cooler and transported to Columbia Analytical Services, Inc., in Kelso, Washington, under formal chain-of-custody procedures.

A portion of the sample was screened in the field within 10 minutes of collection for total organic vapors with a portable Sensidyne FID. The FID uses a hydrogen flame source, is calibrated with methane, and is capable of detecting concentrations from 1 to 10,000 ppm (ppm is equivalent to milligrams per liter of air). Headspace vapor analysis was performed by first placing the soil into a zip-lock bag to produce a headspace. The container was closed for approximately 10 minutes before the probe of the FID was inserted through a hole in the bag and into the headspace for analysis.

The hand-auger equipment was washed with a nonphosphate cleanser, rinsed with methanol, and rinsed with tap water and deionized water before sampling began before each boring was sampled, and before each interval was sampled. Drill cuttings and soil sample spoils were left in one on-site stockpile covered with visqueen pending appropriate disposal.

A field engineer was on site to log the borings, monitor soils during drilling for contamination, and collect soil samples.

APPENDIX B

LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY RECORDS

Columbia Analytical Services inc.

November 20, 1992

Cary Goodman
EMCON Northwest, Inc.
15055 SW Sequoia Parkway, Suite 140
P.O. Box 231269
Portland, OR 97224

Re: **ARCO #6118 - Portland/Task Order #6118-92-2**

Dear Cary:

Enclosed are the results of the rush samples submitted to our laboratory on November 3, 1992. Preliminary results were transmitted via facsimile on November 10 and 19, 1992. For your reference, these analyses have been assigned our work order number K926944.

All analyses were performed in accordance with our laboratory's quality assurance program. Reproduction of reports is allowed only in whole, not in part. Results apply only to the samples analyzed.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Dave Elliott /
for Colin B. Elliott
Senior Project Chemist

Columbia Analytical Services, Inc.

Kevin DeWhitt
Quality Assurance Coordinator

CBE/sam

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	11/05/92
Sample Matrix:	Soil	**Work Order No.:**	K926944

Solids, Total
EPA Method Modified 160.3
Percent (%)

Sample Name	Lab Code	Result
B-1-4.5	K6944-1	79.9
B-1-5	K6944-2	82.7
B-2-5	K6944-3	83.9
B-3-2.5	K6944-4	88.5
B-4-4.5	K6944-5	86.9
SP-1	K6944-6	85.7

00001

Approved by Dave Erickson Date 11/20/92

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	11/10/92
Sample Matrix:	Soil	**Date Analyzed:**	11/11-13/92
		Work Order No.:	K926944

Total Petroleum Hydrocarbons - Hydrocarbon Identification
Oregon DEQ Method TPH-HCID
mg/Kg (ppm)
As Received Basis

		Gasoline		Diesel		Oil♦	
Sample Name	**Lab Code**	**MRL**	**Result**	**MRL**	**Result**	**MRL**	**Result**
B-1-4.5	K6944-1	20	ND	50	ND	100	ND
B-1-5	K6944-2	20	ND	50	ND	100	ND
B-2-5	K6944-3	20	ND	50	ND	100	ND
B-3-2.5	K6944-4	20	ND	50	ND	100	D
B-4-4.5	K6944-5	20	ND	50	ND	100	ND
SP-1	K6944-6	20	ND	50	ND	100	D
Method Blank	K6944-MB	20	ND	50	ND	100	ND

♦ Quantified using 30-weight motor oil as a standard.
MRL Method Reporting Limit
ND None Detected at or above the method reporting limit
D Detected at or above the method reporting limit. Refer to the report(s) immediately following for quantitative results for the detected components.

Approved by Dave Schuld Date 11/20/92

00002

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	11/16/92
Sample Matrix:	Soil	**Date Analyzed:**	11/17/92
		Work Order No.:	K926944

Total Petroleum Hydrocarbons
Oregon DEQ Method TPH-418.1 Modified
mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Result
B-3-2.5	K6944-4	*250	360
SP-1	K6944-6	*250	790
Method Blank	K6944-MB	25	ND

MRL Method Reporting Limit
***** MRL is elevated because the sample(s) required diluting.
ND None Detected at or above the method reporting limit

Approved by Dave Edelen Date 11/20/92

00003

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	11/04/92
Sample Matrix:	Soil	**Work Order No.:**	K926944

BTEX
EPA Methods 5030/8020
mg/Kg (ppm)
As Received Basis

Sample Name:		B-1-4.5	B-1-5	B-2-5
Lab Code:		K6944-1	K6944-2	K6944-3
Date Analyzed:		11/05/92	11/05/92	11/04/92
Analyte	**MRL**			
Benzene	0.05	ND	ND	ND
Toluene	0.1	ND	ND	ND
Ethylbenzene	0.1	ND	ND	ND
Total Xylenes	0.1	ND	ND	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Dave Edelman Date 11/20/92

00004

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	11/04/92
Sample Matrix:	Soil	**Work Order No.:**	K926944

BTEX
EPA Methods 5030/8020
mg/Kg (ppm)
As Received Basis

Sample Name:		B-3-2.5	B-4-4.5	SP-1
Lab Code:		K6944-4	K6944-5	K6944-6
Date Analyzed:		11/04/92	11/04/92	11/04/92
Analyte	**MRL**			
Benzene	0.05	ND	ND	ND
Toluene	0.1	ND	ND	ND
Ethylbenzene	0.1	ND	ND	ND
Total Xylenes	0.1	ND	ND	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Dave Edwards Date 11/20/92

00005

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date Extracted:**	11/04/92
Project:	ARCO #6118 - Portland	**Work Order No.:**	K926944
Sample Matrix:	Soil		

BTEX
EPA Methods 5030/8020
mg/Kg (ppm)
As Received Basis

Sample Name:		Method Blank
Lab Code:		K6944-MB
Date Analyzed:		11/03/92
Analyte	**MRL**	
Benzene	0.05	ND
Toluene	0.1	ND
Ethylbenzene	0.1	ND
Total Xylenes	0.1	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Dave Edwards Date 11/20/92

00006

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	11/05/92
Sample Matrix:	Soil	**Work Order No.:**	K926944

Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080
mg/Kg (ppm)
Dry Weight Basis

Sample Name:		B-1-4.5	B-1-5	B-2-5
Lab Code:		K6944-1	K6944-2	K6944-3
Date Analyzed:		11/08/92	11/08/92	11/08/92
Analyte	**MRL**			
Aroclor 1016	1	ND	ND	ND
Aroclor 1221	1	ND	ND	ND
Aroclor 1232	1	ND	ND	ND
Aroclor 1242	1	ND	ND	ND
Aroclor 1248	1	ND	ND	ND
Aroclor 1254	1	ND	ND	ND
Aroclor 1260	1	ND	ND	ND
Total Aroclors	1	ND	ND	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Dave Black Date 11/20/92

00007

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	11/05/92
Sample Matrix:	Soil	**Work Order No.:**	K926944

Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080
mg/Kg (ppm)
Dry Weight Basis

	Sample Name:	**B-3-2.5**	**B-4-4.5**	**SP-1**
	Lab Code:	**K6944-4**	**K6944-5**	**K6944-6**
	Date Analyzed:	**11/08/92**	**11/08/92**	**11/08/92**
Analyte	**MRL**			
Aroclor 1016	1	ND	ND	ND
Aroclor 1221	1	ND	ND	ND
Aroclor 1232	1	ND	ND	ND
Aroclor 1242	1	ND	ND	ND
Aroclor 1248	1	ND	ND	ND
Aroclor 1254	1	ND	ND	ND
Aroclor 1260	1	ND	ND	ND
Total Aroclors	1	ND	ND	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Dary Edel... Date 11/20/92

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date Extracted:**	11/05/92
Project:	ARCO #6118 - Portland	**Work Order No.:**	K926944
Sample Matrix:	Soil		

Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080
mg/Kg (ppm)
Dry Weight Basis

Sample Name:		**Method Blank**
Lab Code:		**K6944-MB**
Date Analyzed:		**11/08/92**
Analyte	**MRL**	
Aroclor 1016	1	ND
Aroclor 1221	1	ND
Aroclor 1232	1	ND
Aroclor 1242	1	ND
Aroclor 1248	1	ND
Aroclor 1254	1	ND
Aroclor 1260	1	ND
Total Aroclors	1	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

00009

Approved by Dave Skeel Date 11/20/92

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date TCLP Performed:**	11/08/92
Sample Matrix:	Soil	**Date Analyzed:**	11/10/92
		Work Order No.:	K926944

Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
mg/L (ppm) in TCLP Extract

			Sample Name:	B-1-4.5	B-1-5
			Lab Code:	K6944-1	K6944-2
Analyte	**EPA Method**	**MRL**	**Regulatory Limit♦**		
Arsenic	3010/6010	0.1	5.0	ND	ND
Barium	3010/6010	0.5	100	1.7	1.8
Cadmium	3010/6010	0.01	1.0	ND	ND
Chromium	3010/6010	0.01	5.0	ND	ND
Lead	3010/6010	0.05	5.0	ND	ND
Mercury	7470	0.001	0.2	ND	ND
Selenium	3010/6010	0.1	1.0	ND	ND
Silver	3010/6010	0.01	5.0	ND	ND

MRL Method Reporting Limit
♦ From 40 CFR Part 261, et al., and *Federal Register*, March 29, 1990 and June 29, 1990
ND None Detected at or above the method reporting limit

Approved by Dave Erickson Date 11/20/92

00010

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date TCLP Performed:**	11/08/92
Sample Matrix:	Soil	**Date Analyzed:**	11/10/92
		Work Order No.:	K926944

Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
mg/L (ppm) in TCLP Extract

			Sample Name:	B-2-5	B-3-2.5
			Lab Code:	K6944-3	K6944-4
Analyte	**EPA Method**	**MRL**	**Regulatory Limit♦**		
Arsenic	3010/6010	0.1	5.0	ND	ND
Barium	3010/6010	0.5	100	1.8	0.7
Cadmium	3010/6010	0.01	1.0	ND	ND
Chromium	3010/6010	0.01	5.0	ND	ND
Lead	3010/6010	0.05	5.0	ND	ND
Mercury	7470	0.001	0.2	ND	ND
Selenium	3010/6010	0.1	1.0	ND	ND
Silver	3010/6010	0.01	5.0	ND	ND

MRL Method Reporting Limit
♦ From 40 CFR Part 261, et al., and *Federal Register*, March 29, 1990 and June 29, 1990
ND None Detected at or above the method reporting limit

Approved by Dave Shelton Date 11/20/92

00011

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date TCLP Performed:**	11/08/92
Sample Matrix:	Soil	**Date Analyzed:**	11/10/92
		Work Order No.:	K926944

Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
mg/L (ppm) in TCLP Extract

			Sample Name:	B-4-4.5	SP-1
			Lab Code:	K6944-5	K6944-6
Analyte	**EPA Method**	**MRL**	**Regulatory Limit♦**		
Arsenic	3010/6010	0.1	5.0	ND	ND
Barium	3010/6010	0.5	100	2.0	1.1
Cadmium	3010/6010	0.01	1.0	ND	ND
Chromium	3010/6010	0.01	5.0	ND	ND
Lead	3010/6010	0.05	5.0	ND	ND
Mercury	7470	0.001	0.2	ND	ND
Selenium	3010/6010	0.1	1.0	ND	ND
Silver	3010/6010	0.01	5.0	ND	ND

MRL Method Reporting Limit
♦ From 40 CFR Part 261, et al., and *Federal Register*, March 29, 1990 and June 29, 1990
ND None Detected at or above the method reporting limit

Approved by Dave Ellis Date 11/20/92

00012

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Northwest, Inc.	**Date TCLP Performed:**	11/08/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	11/10/92
Sample Matrix:	Soil	**Work Order No.:**	K926944

Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
mg/L (ppm) in TCLP Extract

	Sample Name:			**Method Blank**
	Lab Code:			**K6944-MB**
Analyte	**EPA Method**	**MRL**	**Regulatory Limit♦**	
Arsenic	3010/6010	0.1	5.0	ND
Barium	3010/6010	0.5	100	ND
Cadmium	3010/6010	0.01	1.0	ND
Chromium	3010/6010	0.01	5.0	ND
Lead	3010/6010	0.05	5.0	ND
Mercury	7470	0.001	0.2	ND
Selenium	3010/6010	0.1	1.0	ND
Silver	3010/6010	0.01	5.0	ND

MRL Method Reporting Limit
♦ From 40 CFR Part 261, et al., and *Federal Register*, March 29, 1990 and June 29, 1990
ND None Detected at or above the method reporting limit

Approved by Dave Ehlers Date 11/20/92

00013

APPENDIX A

LABORATORY QC RESULTS

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date TCLP Performed:**	11/08/92
Sample Matrix:	Soil	**Date Analyzed:**	11/10/92
		Work Order No.:	K926944

Matrix Spike Summary
Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
mg/L (ppm) in TCLP Extract

Sample Name: B-1-4.5
Lab Code: K6944-1

Analyte	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery ♦
Arsenic	5.0	ND	5.1	102
Barium	5.0	1.7	6.6	98
Cadmium	1.0	ND	0.97	97
Chromium	5.0	ND	4.76	95
Lead	5.0	ND	4.63	93
Mercury	0.010	ND	0.009	90
Selenium	1.0	ND	1.2	120
Silver	1.0	ND	0.79	79

♦ Percent recovery information is provided in order to assess the performance of the method on this matrix.

ND None Detected at or above the method reporting limit

Approved by Dave Edel, J Date 11/20/92

00015

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Northwest, Inc.
Project: ARCO #6118 - Portland

Date Analyzed: 11/10/92
Work Order No.: K926944

Initial Calibration Verification (ICV) Summary
µg/L (ppb)

Analyte	EPA Method	True Value	Result	Percent Recovery
Arsenic	6010	2,500	2,570	103
Barium	6010	5,000	5,210	104
Cadmium	6010	1,250	1,350	108
Chromium	6010	500	532	106
Lead	6010	2,500	2,590	104
Mercury	7470	5.00	5.22	104
Selenium	6010	2,500	2,590	104
Silver	6010	625	648	104

ICV Source: EPA ICV

Approved by Dave Ehl. Date 11/20/92

00016

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest, Inc.	**Date Extracted:**	11/16/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	11/17/92
LCS Matrix:	Soil	**Work Order No.:**	K926944

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons as Diesel and Oil
Oregon DEQ Method TPH-418.1 Modified
mg/Kg (ppm)

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Diesel	140	105	75	56-127

Approved by Dave Edel./ Date 11/20/92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	11/05/92
Sample Matrix:	Soil	**Date Analyzed:**	11/08,09/92
		Work Order No.:	K926944

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080

Sample Name	**Lab Code**	**Percent Recovery** Decachlorobiphenyl
B-1-4.5	K6944-1	114
B-1-5	K6944-2	106
B-2-5	K6944-3	111
B-3-2.5	K6944-4	100
B-4-4.5	K6944-5	102
SP-1	K6944-6	92
Batch QC	K6672-25MS	91
Batch QC	K6672-25DMS	92
Laboratory Control Sample	K6944-LCS	103
Method Blank	K6944-MB	99
	CAS Acceptance Criteria	67-138

Approved by [signature] Date 11/20/92

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest, Inc.	**Date Extracted:**	11/05/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	11/09/92
Sample Matrix:	Soil	**Work Order No.:**	K926944

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080
mg/Kg (ppm)
As Received Basis

Sample Name: Batch QC
Lab Code: K6672-25

	Spike Level		Sample	Spike Result		Percent Recovery		CAS Acceptance	Relative Percent
Analyte	MS	DMS	**Result**	MS	DMS	MS	DMS	Criteria	**Difference**
Aroclor 1254	1.3	1.3	ND	1.3	1.3	100	100	70-162	<1

ND None Detected at or above the method reporting limit

Approved by Dave Seel./ Date 11/20/92

00019

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest, Inc.	**Date Extracted:**	11/05/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	11/08/92
LCS Matrix:	Soil	**Work Order No.:**	K926944

Laboratory Control Sample Summary
Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080
mg/Kg (ppm)
As Received Basis

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Aroclor 1254	1.3	1.3	100	70-162

Approved by Dave Ekel Date 11/20/92

00020

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Northwest, Inc.
Project: ARCO #6118 - Portland

Date Analyzed: 11/07/92
Work Order No.: K926944

Initial Calibration Verification (ICV) Summary
Polychlorinated Biphenyls (PCBs)
EPA Methods 3540/8080
mg/Kg (ppm)

Analyte	True Value	Result	Percent Recovery
Aroclor 1260	2.0	1.9	95

Approved by Dave Edelstein Date 11/20/92

00021

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	11/04/92
Sample Matrix:	Soil	**Date Analyzed:**	11/4-6/92
		Work Order No.:	K926944

Surrogate Recovery Summary
BTEX
EPA Methods 5030/8020

Sample Name	Lab Code	Percent Recovery *α,α,α*-Trifluorotoluene
B-1-4.5	K6944-1	107
B-1-5	K6944-2	110
B-2-5	K6944-3	133
B-3-2.5	K6944-4	136
B-4-4.5	K6944-5	130
SP-1	K6944-6	119
B-4-4.5	K6944-5Dup	133
B-2-5	K6944-3MS	137
Method Blank	K6944-MB	108
Laboratory Control Sample	K6944-LCS	102
	CAS Acceptance Criteria	60-150

Approved by Dave Eckel Date 11/20/92

00022

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	11/04/92
Sample Matrix:	Soil	**Date Analyzed:**	11/04/92
		Work Order No.:	K926944

Duplicate Summary
BTEX
EPA Methods 5030/8020
mg/Kg (ppm)
As Received Basis

Sample Name: B-4-4.5
Lab Code: K6944-5

Analyte	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference
Benzene	0.05	ND	ND	ND	--
Toluene	0.1	ND	ND	ND	--
Ethylbenzene	0.1	ND	ND	ND	--
Total Xylenes	0.1	ND	ND	ND	--

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Dave Erickson Date 11/20/92

00023

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	11/04/92
Sample Matrix:	Soil	**Date Analyzed:**	11/04,06/92
		Work Order No.:	K926944

Matrix Spike Summary
BTEX
EPA Methods 5030/8020
mg/Kg (ppm)
As Received Basis

Sample Name: B-2-5
Lab Code: K6944-3

Analyte	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Benzene	0.96	ND	0.98	102	23-170
Toluene	1.0	ND	1.1	110	31-166
Ethylbenzene	1.0	ND	1.2	120	30-164

ND None Detected at or above the method reporting limit

Approved by Dave Black Date 11/20/92

00021

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest, Inc.	**Date Extracted:**	11/04/92
Project:	ARCO #6118 - Portland	**Date Analyzed:**	11/04/92
LCS Matrix:	Soil	**Work Order No.:**	K926944

Laboratory Control Sample Summary*
BTEX
EPA Methods 5030/8020
mg/Kg (ppm)

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Benzene	0.98	1.03	105	23-170
Toluene	1.0	1.0	100	31-166
Ethylbenzene	1.0	1.0	100	30-164

* Prepared using a source of target parameters separate from the calibration standards.

Approved by Dave Edel. / Date 11/20/92

00025

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Northwest, Inc.	**Date Received:**	11/03/92
Project:	ARCO #6118 - Portland	**Date Extracted:**	11/10/92
Sample Matrix:	Soil	**Date Analyzed:**	11/11-13/92
		Work Order No.:	K926944

Surrogate Recovery Summary
Total Petroleum Hydrocarbons - Hydrocarbon Identification
Oregon DEQ Method TPH-HCID

Sample Name	Lab Code	Percent Recovery α,α,α-Trifluorotoluene
B-1-4.5	K6944-1	97
B-1-5	K6944-2	99
B-2-5	K6944-3	97
B-3-2.5	K6944-4	89
B-4-4.5	K6944-5	97
SP-1	K6944-6	97
Method Blank	K6944-MB	98
	State-Specified Acceptance Criteria	50-150

Approved by Dave Edel. / Date 11/26/92

00026

APPENDIX B

CHAIN OF CUSTODY INFORMATION

1317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 6118-92-2

Chain of Custody

ARCO Facility no. 6118	City (Facility) Portland	Project manager (Consultant) Cary Godman	Laboratory name CAS
ARCO engineer Kyle Christie	Telephone no. (ARCO) (415) 571-2468	Telephone no. (Consultant) (503) 624-7200	Fax no. (Consultant) 620-7658
Consultant name EMCON Northwest, Inc.		Address (Consultant) P.O. Box 231269, Portland, OR 97281	Contract number / Custody seal 4839

Method of shipment: Courier

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	8080 PCBs EPA 625/8270	TCLP Metals ☒ Semi VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	8015 TPH-HCID*
B-1-4.5	K6544-1	1	X			X		11-2-92	2110	X							X	X			X
B-1-5	-2	↓	↓			↓		11	2115	X							X	X			X
B-2-5	-3							11	2310	X							X	X			X
B-3-2.5	-4							11-3-92	0045	X							X	X			X
B-4-4.5	-5	↓						11	0200	X							X	X			X
SP-1	-6	2	↓			↓		11	0220	X							X	X			X

* Quantify As Detected

Special detection Limit/reporting: FAX results

Special QA/QC

Remarks: Run SP-1 on Expedited - Rest on Standard

Lab number: K92-6544

Turnaround time

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

Condition of sample:		Temperature received:	
Relinquished by sampler	Date 11-3-92 Time 1100	Received by	
Relinquished by	Date Time	Received by	
Relinquished by	Date Time	Received by laboratory	Date 11/3/92 Time 15:33

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

APPC-3292 (2-91)

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

April 27, 1995

KYLE CHRISTIE
ARCO PRODUCTS COMPANY
P O BOX 5811
SAN MATEO CA 94402

Re: Arco Station #6118
File No. 26-92-131

Dear Mr. Christie:

The Department of Environmental Quality has completed our review of the information submitted to date regarding the underground storage tank (UST) cleanup conducted at Arco Station #6118, 5282 N. Lombard Street, Portland, Oregon. The Department has determined that the site appears to be cleaned up in accordance with OAR 340-122-201 through -360, and that no further action is required at this time.

This determination is a result of our evaluation and judgement based on the regulations and facts as we now understand them, including:

1. Petroleum contamination was identified on May 6, 1992, during the installation of Stage II, vapor recovery piping.

2. Approximately 15 cubic yards of gasoline contaminated soils were excavated from the vicinity of the product dispensers, piping and USTs. The contaminated soil was transported to Arco Station #5874 (9220 SE Holgate, Portland, Oregon) for treatment and final disposition.

3. Groundwater was not encountered in the excavation.

4. Two pockets of contamination still exit on this property which exceed the currently required cleanup levels for this site, but which the Department approves leaving pursuant to OAR 340-122-355(4) since the removal of this contamination would endanger structures and utility lines on the property or be prohibitively expensive, and the contamination does not threaten human health, safety, welfare and the environment.

John A. Kitzhaber
Governor

2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

Two to five cubic yards of gasoline contaminated soils remain beneath the north dispenser island. Petroleum concentrations range from 6,300 ppm (parts per million) as gasoline and 850 ppm as oil to none detected at 2.5 feet below ground surface. These concentrations exceed the Department's level 2 soil cleanup standard (80 as gasoline and 500 ppm as diesel/oil) established for this site.

A thin layer (approximately 6 inches thick) of petroleum contamination is present at 3 feet below ground surface in the vicinity of the west piping trench and dispensing system. Petroleum concentrations ranged from 740 ppm as gasoline and 1,220 ppm as oil to none detected. In addition, 4 ppm polychlorinated biphenols (PCBs) were detected in the west trench. This contamination appears to be associated with fill/construction debris. Although the PCB contamination exceeds the Department's soil cleanup standard of 0.08 ppm, it appears to be very localized is inaccessible to human contact, and is overlain by pavement and therefore, not subject to leaching.

However, you should be aware that the Department's approval to leave a pocket of contamination is based on the site conditions described in the report as they exist today. Should conditions (i.e. land use) change allowing access to the contamination, you are responsible for further evaluation of the remaining contamination and any cleanup necessary at that time. You are also responsible for notifying any potential purchaser of the property about this remaining pocket of contamination.

The Department's determination will not be applicable if new or undisclosed facts show that the cleanup does not comply with the referenced rules. The Department's determination also does not apply to any conditions at the site other than the release of the petroleum product specifically addressed in your report. We recommend that a copy of all information be maintained with the permanent facility records.

Please note that pursuant to OAR 340-122-360(2), a copy of your report must be retained until ten (10) years after the first transfer of the property.

NWR

26-92-131

Oregon Department of Environmental Quality

UNDERGROUND STORAGE TANK DECOMMISSIONING/SERVICE CHANGE REPORT

DEQ FACILITY NUMBER: 3933 PDP

DATE: _____

FACILITY NAME: ATLANTIC RICHFIELD #6118

FACILITY ADDRESS: 5282 N. LOMBARD

PORTLAND, OREGON

PHONE: _____

The following information MUST be submitted by the underground storage tank owner, operator or licensed DEQ Supervisor within 30 days following completion of the tank decommissioning or changing tank contents to a non-regulated substance. (OAR 340-150-001 though -150)

The attached supplemental checklist should be prepared by the person performing the decommissioning or service change. The checklist should be provided to DEQ and the tank owner to demonstrate that all required practices were followed.

Ordinarily the checklist is filled out by the DEQ licensed Service Provider or Supervisor. Owners who wish to personally decommission a tank or change service must follow all DEQ and other applicable standards. The owner should contact the DEQ Regional Office prior to starting the work to receive current copies of underground storage tank regulations.

A. DATES:

Decommissioning/Service Change Notice - Date Submitted: 7/14/95 (30 days before work starts)

Work Start Telephone Notice - Date Submitted: 10/31/95 (3 working days before work starts) #26-3D-9592

DEQ Person Notified: Mitch Schaeg

Date Work Started: 11/3/95

Date Work Completed: 12/29/95

Note: Provide the following information if any soil or water contamination is found during the decommissioning or service change. Contamination must be reported by the UST owner or operator within 24 hours. The licensed service provider must report contamination within 72 hours after discovery unless previously reported.

Date Contamination Reported: 11/7/95 By: Brian Kier

DEQ Person Notified: Rick Silverman / Jim Marsh

Backfill Telephone Notice - Date Called: 11/16/95 (before backfilling)

DEQ Person Notified: Rick Silverman

DEPT OF ENVIRONMENTAL QUALITY
RECEIVED
MAR 12 1996
NORTHWEST REGION

B. PERMITS:

Note: DEQ permits or an addendum to the UST permit(s) may be needed where soil or water cleanup is required.

DEQ Water Discharge Permit #: _____ Date: _____

Disposed to (Location): _____

DEQ Solid Waste Disposal Permit #: _____ Date: _____

B. PERMITS (Continued)

UST Soil Treatment Permit Addendum - Type: _____ Date: _____

Soil Disposal or Treatment Location: TPS 9333 N HARBORGATE ST. (503) 735-9525
PORTLAND, OREGON 97203

C. TANK INFORMATION:

Tank #	DEQ UST Permit	Tank Size in (Gallons)	Product: Gasoline, Diesel, Used Oil, Other?		Closure or Service Change?			Tank to be Replaced?	
			Present	New	Tank Removal	Closure∞ Inplace	Other∞ Use	Yes*	No
#1	JBJE	6,000	GAS		X			X	
#2	JBJF	6,000	GAS		X			X	
#3	JBJG	6,000	GAS		X			X	
#4	JBJH	6000	GAS		X			X	
#5	JBJJ	12,000	GAS		X				

* Where decommissioned tank(s) are replaced by new underground storage tanks the UST owner or operator must submit a new permit application containing information on the new tanks 30 days before placing them in service.

∞ Submit a soil sampling plan to the DEQ regional office and receive plan approval prior to starting work if 1) tank is to be decommissioned in-place, 2) tank contents are changed to a non-regulated substance, 3) tank contains a regulated substance other than petroleum, or 4) tank changed to non-regulated use.

D. DISPOSAL INFORMATION:

Tank #	Tank & Piping Disposal Method				Disposal Location of Tank Contents *	
	Scrap	Land-fill	Other	Identify Location & Property Owner	Liquids	Sludges
#1	X			SCHNITZER STEEL PORTLAND, OREGON	SPENCER ENVIRONMENTAL 914 S. MOLALLA. AVE OREGON CITY, OREGON	
#2	X			SCHNITZER STEEL PORTLAND, OREGON		
#3	X			SCHNITZER STEEL PORTLAND OREGON		
#4	X			SCHNITZER STEEL PORTLAND OREGON		
#5		X		COLUMBIA RESOURCE. VANCOUVER, WA		

* Note: The tank contents, the tank and the piping may be subject to the requirements of Hazardous Waste regulations. If you have questions, contact the DEQ Hazardous Waste Section at (503) 229-5913 or DEQ regional office hazardous waste staff.

E. CONTAMINATION INFORMATION:

Tank #	Groundwater in pit?	Product odor in soil?	Product stains in soil?	Number of Samples	Laboratory (Name, City, State, Phone)
1	NO	YES	YES	2	NORTH CREEK ANALYTICAL BEAVERTON. ORE. 97008 503-643-9200
2	NO	YES	YES	3	"
3	NO	YES.	YES	2	"
4	NO	NO	NO	2	"
5	NO	NO	NO	5	"

* Note: Sampling is required if groundwater is encountered. See cleanup rules.

F. SITE SKETCH: (Show location of adjacent roads, property lines, structures, dispenser, & all USTs) (Show North, general direction of ground slope and soil sample locations. Sketch does not need to be drawn to scale. You may attach a separate drawing.)

SEE ATTACHED DRAWING

G. WORK PERFORMED BY:

DEQ Service Provider's License #: 13954 Construction Contractors License #: 104646

Name: WALTER E ORR

Telephone: 360-750-7899

DEQ Decommissioning Supervisor's License #: 13954

Name: WALTER E ORR

Telephone: 360-750-7899

DEQ Soil Matrix Service Provider's License #: 12429 (If applicable)

Name: EMCON

Telephone: 503-624-7200

DEQ Soil Matrix Supervisor's License #: 14347 (If applicable)

Name: ELIZABETH RUDDY

Telephone: 503-624-7200

H. ATTACHMENTS TO THIS REPORT:

1. Attach a copy of the laboratory report showing the results of all tests on all soil and water samples. The laboratory report must identify sample collection methods, sample location, sample depth, sample type (soil or water), type of sample container, sample temperature during transportation, types of tests, and copies of analytical laboratory reports, including QA/QL information. Include laboratory name, address and copies of chain-of-custody forms.

2. If contamination is detected and a Level 2 or Level 3 soil matrix cleanup standard is selected attach a copy of the soil matrix analysis for the site including methods of determining soil type, depth to groundwater, and sensitivity of uppermost aquifer.

I. REPORT FILING:

This report, signed by the tank owner or operator, complete with all applicable attachments must be filed with DEQ headquarters within 30 days after the excavation is backfilled or change-in-service is complete. Contact the DEQ regional office prior to filing this report where special circumstances exist at the site (such as water in pit, remaining pockets of contamination, etc.).

NOTE: If contamination was found during site assessment at decommissioning or change-in-service and reported to DEQ regional office, this report may be submitted with either the first interim cleanup report or the final cleanup report, whichever is first.

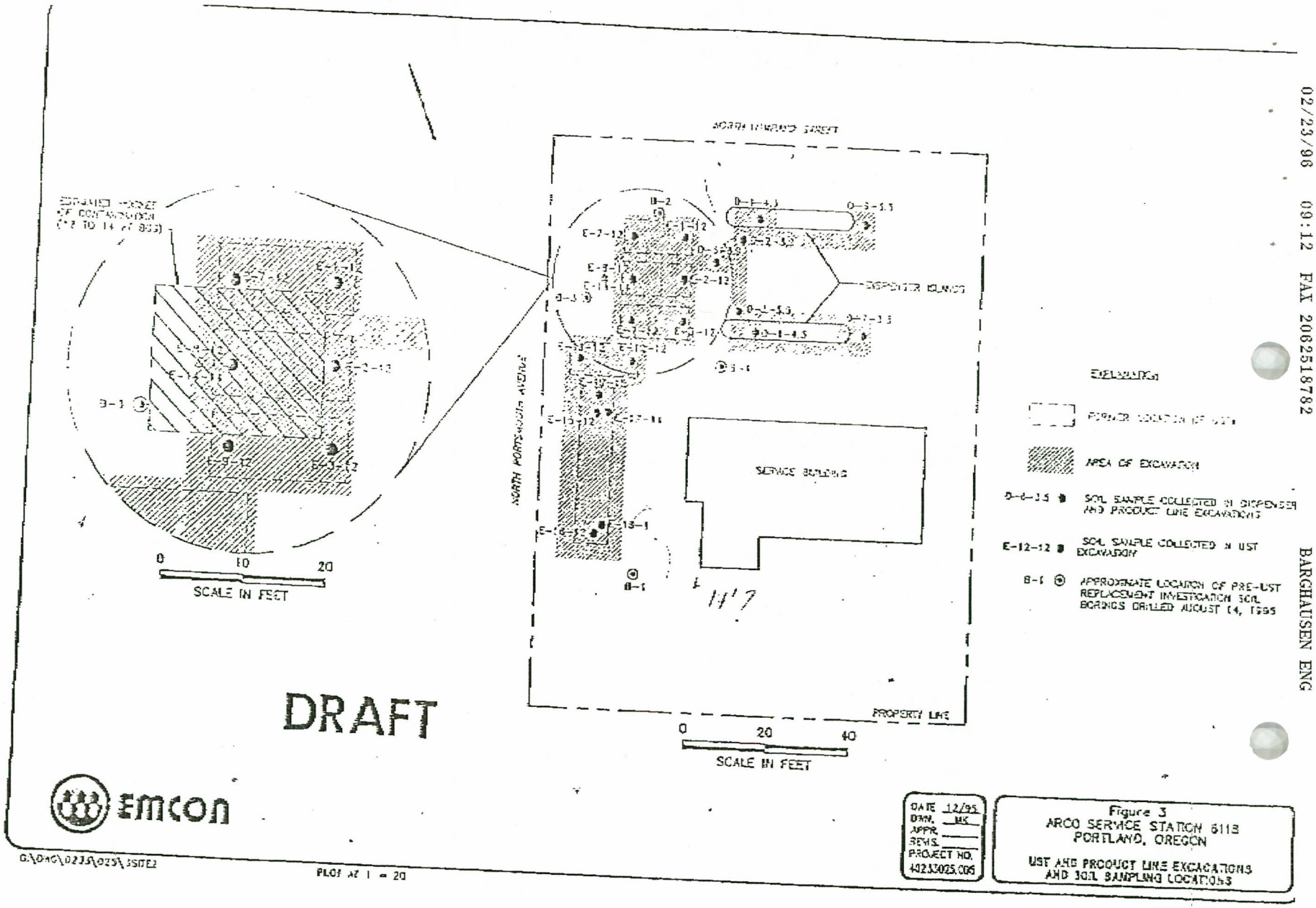
Return Completed and Signed Form to: Department of Environmental Quality
UST Program - Decommissioning Report
811 S.W. Sixth Ave.
Portland, Oregon 97204

Or FAX Completed and Signed Form to: (503) 229-6954

I have personally reviewed this report and the attachments and find them to be true and complete.

Signature: _____ Date: _____
(Owner or Operator)

For information: (503) 229-5733 or Toll Free in Oregon UST HELPLINE 1-800-742-7878


NORTH LOMBARD STREET
NORTH PORTSMOUTH AVENUE
DISPENSER ISLANDS
SERVICE BUILDING
PROPERTY LINE
B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
B-9
B-10
B-11
B-12
B-13
0 10 20
SCALE IN FEET
0 20 40
SCALE IN FEET
EXCAVATIONS
AREA OF EXCAVATION
SOIL SAMPLE COLLECTED IN DISPENSER AND PRODUCT LINE EXCAVATIONS
SOIL SAMPLE COLLECTED IN UST EXCAVATION
APPROXIMATE LOCATION OF PRE-UST REPLACEMENT INVESTIGATION SOIL BORINGS DRILLED AUGUST 14, 1995
DRAFT
EMCON
DATE 12/95
DWN. MK
APPR.
REVS.
PROJECT NO. 402.03025.005
Figure 3
ARCO SERVICE STATION 6118
PORTLAND, OREGON
UST AND PRODUCT LINE EXCAVATIONS AND SOIL SAMPLING LOCATIONS
G:\DWG\0235\025\SITE2
PLOT AT 1 = 20

EMCON
16055 SW Sequoia Parkway • Suite 140 • Portland, Oregon 97224 • (503) 624-7200 • Fax (503) 620-7558

FAX TRANSMITTAL

TO: WALT

FROM: ELIZABETH RUDDY

DATE: 1-9-96

TIME: 935

Number of Pages 9 (Including Cover Page)

If you have received this communication in error, please notify us at the telephone number listed above.

Sender Note: Complete if applicable.

CLIENT: Arco 6118

PHONE #:

Project/Task #: 40233-026005

FAX #: 360-496-9778

COMMENTS:

Attached please find
1. UST Decommissioning Checklist
2. UST Decommissioning/Service Change Report

ORIGINAL TO FOLLOW: ___ ORIGINAL WILL NOT FOLLOW: X BROADCAST: ___

ANY QUESTIONS REGARDING THIS TRANSMISSION, PLEASE CALL THE NUMBER LISTED ABOVE

Form AD012

Rev. 3, 07/29/93

Oregon Department of Environmental Quality
UNDERGROUND STORAGE TANK DECOMMISSIONING CHECKLIST

DEQ FACILITY NUMBER: 3933 OR DATE: _____
FACILITY NAME: Atlantic Richfield #6118
FACILITY ADDRESS: 5282 N. Lombard
Portland, Oregon
PHONE: _____

A. SAFETY EQUIPMENT ON JOB SITE:

Fire Extinguisher: Type/Size: 20 ABC Recharge Date: N/A.
Combustible Gas Detector: Model: _____ Calibration Date: _____
Oxygen Analyzer: Model: _____ Calibration Date: _____

B. DECOMMISSIONING: All Tanks: (Unk. = Unknown, N/A = Not Applicable)
(Check Appropriate Box)

	Yes	No	Unk	N/A
1. All electrical equipment grounded and explosion proof?	✓			
2. Safety equipment on job site?	✓			
3. Overhead electrical lines located?	✓			
4. Subsurface electrical lines off or disconnected?	✓			
5. Natural gas lines off or disconnected?				✓
6. No open fires or smoking material in area?		✓		
7. Vehicle and pedestrian traffic controlled?	✓			
8. Excavation material area cleared?	✓			
9. Rainwater runoff directed to treatment area?	✓			
10. Drained and collected product from lines?	✓			
11. Removed product and residual from tank?	✓			
12. Cleaned tank?	✓			
13. Excavated to top of tank?	✓			
14. Removed tank fixtures? (pumps, leak detection equip.	✓			
15. Removed product, fill and vent lines?	✓			

C. TANK ABANDONMENT IN-PLACE:

16. Sampling plan approved by DEQ? Date: _____ DEQ Staff: _____			

B. DECOMMISSIONING: All Tanks: (Unk. = Unknown, N/A = Not Applicable) (Check Appropriate Box)

Yes	No	Unk	N/A
✓			

17. Contamination concerns fully resolved?

18. Fill Material? Type: NATIVE & 3/4" ROAD BASE

D. TANK REMOVAL:

✓			
✓			
	✓		
✓			
✓			
✓			

19. Tank placement area cleared, chocks placed?

20. Purged or ventilated tank to prevent explosion?
Method used: DRY ICE Meter reading: _____

21. No chains or steel cables wrapped around tank for removal?

22. Tank removed, set on ground, blocked to prevent movement?

23. Tank set on truck and secured with strap(s)?

24. Tank labeled before leaving site?

E. SITE ASSESSMENT:

✓			
✓			
✓			
✓			

25. Site assessed for contamination? See OAR 340-122-340

26. Soil samples taken and analyzed?

27. Decommissioning/Change-in-Service report sent to DEQ?

28. Was contamination found? Date/Time: 11/6/95

29. Was contamination reported to DEQ? By: BRIAN KIER
Date/Time: 11-7-95 / TIME VARIES. DEQ Staff: RICK SILVERMAN / JIM MARSH

30. Was hazardous waste determination made for tank contents (Liquids/sludges)?

31. Disposal location of tank(s) contents.
Name: SPENCE ENVIRONMENTAL Date: 11/3/95.
Address: 914 S. MOLALLA AVE.
OREGON CITY, OREGON 97045. Attach disposal receipt.

32. Disposal or recycling location of removed tank(s) and associated piping.
Name: SCHNITZER STEEL PRODUCTS. Date: 11/6/95
Address: 13005 N. BURGARD
PORTLAND, OREGON 97203 Attach disposal receipt.

33. If tank(s) are intended to be reused, identify new tank site.
Name: N/A Date: _____
Address: _____

Purpose of Reuse: _____

F. WORK PERFORMED BY:

DEQ Service Provider's License #: 13954
Name: WALTER E. ORR
Telephone: 360-750-7899

DEQ Decommissioning Supervisor's License #: 13954
Name: WALTER E ORR
Telephone: 360-750-7899

E. CHECKLIST FILING:

1. Provide copy of checklist to the UST owner and operator.

2. Send completed checklist to the DEQ headquarters within 30 days after the excavation is backfilled.

NOTE: If contamination was found during decommissioning and reported to DEQ regional office, this report may be submitted with either the first interim cleanup report or the final cleanup report, whichever is first.

Send Completed and Signed Form to: Department of Environmental Quality
UST Program - Decommissioning Checklist
811 S.W. Sixth Ave.
Portland, Oregon 97204

Or FAX Completed and Signed Form to: (503) 229-6954

I have personally reviewed this decommissioning checklist and find it to be true and complete.

Signature: Walter E Orr (Licensed Supervisor) Date: 1/8/95.

Signature: _____ (Owner or Operator) Date: _____

For information: (503) 229-5733 or Toll Free in Oregon UST HELPLINE 1-800-742-7878

Date: 2/23/96 /Job No. 5247 No. of Pages: 10 (Including Cover Sheet)

TO: Steve Paiko Fax No: (503) 229-6954
DEQ

CC: _____ Fax No. (____) _____
_____ Fax No. (____) _____
_____ Fax No. (____) _____

FROM: Don Gorman

BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72nd Avenue South, Kent, WA 98032
(206) 251-6222, FAX (206) 251-8782

Comments:

RE: Decommissioning / Service Change Report
& Decommissioning Checklist
Mid Fac # 6118 DEQ # 3933

As Requested

Note: Please call (206) 251-6222 if you do not receive the number of indicated pages.

UST CLEANUP TELEPHONE USE REPORT

CALL (FROM)/TO: Brian Meer DATE: 11/15/95

WITH: Emcon TIME: 4'15

TELEPHONE NO: ( ) 624-7200

REGARDING: ARCO # 6118

FILE NO: 26-92 L 31

SUMMARY OF CALL

Called to provide backfill notice for excavation of lines to pump islands. 10 yd³ of impacted soil removed w/ #190 to OHI. I gave approval to backfill.

R. Silverman
Staff Signature

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

May 6, 1994

KYLE CHRISTIE
ARCO PRODUCTS COMPANY
P O BOX 5811
SAN MATEO CA 94403

Re: Arco Stations #5874 and #6118
File No. 26-92-126 and 26-92-131

Dear Mr. Christie:

The Department of Environmental quality has completed our review of the information submitted in response to our March 17, 1994, Notice of Noncompliance. The Notice of Noncompliance documented violations of the Department's rules concerning the underground storage tank (UST) decommissioning, stage II installation, and cleanup conducted at Arco Stations #5874 and #6118, located at 9220 SE Holgate Street, Portland, Oregon, and 5282 N. Lombard Street, Portland, Oregon, respectively.

In addition, during our discussions of these violations, the Department became aware that contamination was originally identified at Station #5874 during a November 1991, "Preliminary Hydrocarbon Evaluation", but not reported until May 4, 1992. Failure to report contamination is a violation of Oregon Administrative Rule 340-122-220 (1)(a) which requires that all below-ground releases from the petroleum UST system be reported to the Department within 24 hours of discovery. Failure to report contamination is a Class 1 violation and any future violations may be referred to the Department's enforcement section for formal enforcement action.

The Department does appreciate your cooperation and responsiveness in providing additional information. The Department maintains that 1) no three day notification was provided prior to Stage II installation, 2) a disposal facility was established without a permit, and 3) Arco failed to remedy hazards posed by contaminated soil, although during transport/construction some aeration of the contaminated soil may have occurred.

No gasoline contamination and only low concentrations (123 ppm) oil were detected in the backfill material of the former UST excavation during VES installation. The Department does concur that these concentrations do not warrant re-excavation and proper disposal. Oil concentrations for the drummed soil which was disposed in the planters, does not appear to warrant re-excavation.

2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice/TDD

We hope that these discussions have clarified appropriate soil disposal and treatment options. Contaminated soil should not be transported between stations without Department approval. The Department does not allow for dilution of contamination. Any excavated soil which is being treated on-site must be permitted with a Solid Waste Letter of Authorization.

Your cooperation in ensuring these violations do not recur and in preventing future violations is appreciated. If you have any questions, please call me at 229-5445.

Sincerely,

Sheila A. Monroe

Sheila A. Monroe
UST Cleanup Specialist
Northwest Region

cc: Tim Todd
EMCON Northwest, Inc.
15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

26-92-131

ARCO Products Company
2000 Alameda de las Pulgas
Mailing Address: Box 5811
San Mateo, California 94402
Telephone 415 571 2400

April 18,1994

Ms. Sheila A. Monroe
UST Cleanup Specialist
Oregon Dept. of Environmental Quality
2020 SW Fourth Avenue, Suite 400
Portland, OR 97201-4987

Re: DEQ / ARCO meeting of March 31, 1994.

Dear Ms. Monroe:

It was a pleasure meeting with you on the 31st of March. I appreciated the opportunity to discuss the issues you raised in your March 17, 1994 Notice of Noncompliance for ARCO facilities #5874 and #6118, as well as to obtain a precise understanding of DEQ's position regarding modifications to UST systems, reporting requirements, and soil disposal options in the METRO area. This letter is ARCO's response to questions you raised or actions which I indicated ARCO would take as discussed in our meeting.

With respect to Violation 1 of the Notice of Noncompliance, ARCO's contractor did not know that stage 2 vapor recovery installations required the advance 3 day DEQ notification in May of 1992. I have forwarded a memo to Mr. Dick Spake, who is responsible for all construction and maintenance activities at all ARCO retail facilities, which documents that the DEQ requires 3 day advance notification prior to any construction or maintenance work to be performed on any portion of the UST system or waste & fuel oil tanks. A copy of this memo is attached to this letter.

With respect to Violation 2 of the Notice of Noncompliance, we discussed DEQ's position and ARCO's response as provided in the Emcon NW March 29, 1994 letter to you. Based on our conversation, ARCO and Emcon NW now understand that a Solid Waste Letter of Authorization is required prior to creating a PCS treatment gallery at future sites in which ARCO may want to return impacted soil into an excavation. Additionally, I have forwarded a memo to Mr. Chris Winsor and Mr. Jay Coffey informing them that the identification of any concentration of contamination in groundwater or soil must be reported to the DEQ. Mr. Winsor is responsible for environmental remediation in the western United States. Mr. Coffey is responsible for real estate transactions for ARCO Products Company. A copy of this memo is attached to this letter.

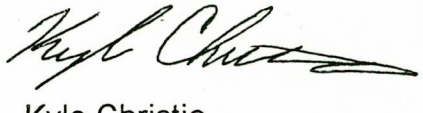
With respect to Violation 3 of the Notice of Noncompliance, we discussed DEQ's position and ARCO's response to DEQ's questions. After ARCO returned the impacted soil to the excavation, Emcon NW returned to the site in November, 1992 to install the vapor extraction wells. The six soil samples obtained from the two vapor extraction wells installed in the PCS backfilled excavation were nondetected for gasoline by the DEQ TPH-HCID method. To further confirm the low concentrations of gasoline present in the backfill, Emcon NW performed (at my request) a vapor extraction test on the two vapor wells in August, 1993. Results from this test indicated very low concentrations of gasoline vapors were removed from the backfilled soil although the backfill was allowing substantial air flow and vacuum to be created in the former excavation.

Had soil contamination as identified by soil sample concentrations or moderate soil vapor concentrations been present during the vapor extraction test, ARCO would have completed construction of a soil remediation system at facility #5874. ARCO has installed similar remedial systems at other ARCO facilities in the Portland area during the last three years. However, all available data indicated that the backfilled soils had been remediated to below DEQ cleanup levels during the process of stockpiling, backfilling and compacting the excavated soil back into the former excavation.

The Notice of Noncompliance requests that by May 16, 1994 ARCO perform the following: 1) remove and dispose of all soil used to fill the former UST excavation, and 2) identify the origin of the drummed soil from facility #5874. ARCO believes that the backfilled soil is below the soil cleanup levels for the reasons described in the preceding paragraph and should remain in place. As discussed in our meeting, ARCO is willing, if requested by DEQ, to drill additional borings in the former excavation to confirm that this is the situation. The drummed soil at facility #5874 was generated during the property transfer investigation performed by GEO TEK Environmental in 1991. The DEQ was not notified of the contamination because the consultant was not aware that gasoline substances found at any concentration needs to be reported to the DEQ. The ARCO engineer responsible for this project did not check with the consultant to inquire if DEQ notification was made.

Please call me (415) 571-2468 if you have any questions or additional concerns regarding this letter. Again, I appreciate you taking the time to meet with me and to discuss these issues.

Sincerely,



Kyle Christie

Date: 4/12/94

Subject: Oregon DEQ Notification.

From/Location: Kyle Christie, San Mateo —

To/Location: Chris Winsor, PAC-1291

I have been informed by the Oregon Department of Ecology that the discovery of any concentration of gasoline, BETX, diesel, motor oil or any other hydrocarbon substance must be reported to the DEQ at sites which have not had a prior reported release. This reporting is to occur within 24 hours from when the discovery is made. Please inform everyone within your group of this requirement, it is very important!

By cc'ing Jay Coffey, this memo is to inform Real Estate that if the Real Estate department becomes aware of hydrocarbon contamination at a potential ARCO acquisition, this contamination must be reported to the Oregon DEQ.

cc: Jay Coffey, in La Palma

Date: 4/12/94

Subject: Oregon DEQ notification for UST upgrades.

From/Location: Kyle Christie, San Mateo –

To/Location: Dick Spake, La Palma

Dick,

I have been informed by the Oregon Department of Ecology that any work being performed on a UST system must be reported to the Oregon DEQ three days prior to commencement of the work. This notification is required by law and covers tank removals and replacements, product piping replacements, stage 2 vapor return installations, vent line repairs, and any work performed on waste oil or fuel oil tanks.

Notification to the DEQ three days prior to work commencement will prevent ARCO being issued a Notice of Noncompliance under regulation 40 CFR 280.22 (h). Please advise Chase of this requirement.

cc: Chris Winsor

State of Oregon
Department of Environmental Quality Memorandum

Date: March 31, 1994

To: USTC File No. 26-92-131 Arco 6118
USTC File No. 26-92-126 Arco 5874

From: Sheila Monroe

Subject: Arco Cleanup sites

Kyle Christie (Arco), Tim Todd (Emcon), Laurie McCulloch (DEQ), and myself met to discuss these sites.

Arco 5874 and 6118
File No. 26-92-126 and 26-92-131

We discussed the NWR-UST-94-010 Notice of Noncompliance (NON) and Emcon's response to the NON. The Department clarified that three days verbal notification prior to stage II installation is required. We went on to explain that Violation 2 was for establishing a "disposal" facility and was not for failing to have a Solid Waste Letter of Authorization prior to establishing a "treatment" facility. We explained that a permit was necessary because they brought contaminated soil from off-site and because no treatment occurred. Arco reiterated that their intention had been to perform treatment, but when the VES borings did not detect contamination and subsequent VES testing drew minor vapors, they didn't feel that the VES was necessary.

We expressed that we wanted to reach an equitable agreement as to the appropriate, necessary action. Arco/Emcon will propose in writing what they feel is a reasonable closure plan for the site. We will review their proposal.

We also expressed concern that we were not notified of contamination within 24 hours. Mr. Christie indicated that he had learned of the borings only when they discovered the drummed drill cuttings onsite. The Arco Real Estate division had done the drilling work. The drill cuttings probably became contaminated with oil during drilling by the air rotary drill.

We informed Arco that any sites where they are doing VES treatment of excavated soils, they need to submit a Solid Waste Letter of Authorization application or demonstrate that treatment is complete.

Oregon

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHWEST REGION

March 17, 1994

KYLE CHRISTIE
ARCO PRODUCTS COMPANY
P O BOX 5811
SAN MATEO CA 94403

Re: Arco Stations #5874 and #6118
File No. 26-92-126 and 26-92-131
NWR-UST-94-010
NOTICE OF NONCOMPLIANCE

Dear Mr. Christie:

The purpose of this letter is to inform you of several violations of the Department's rules concerning the underground storage tank (UST) decommissioning, stage II installation, and cleanup conducted at Arco Stations #5874 and #6118, located at 9220 SE Holgate Street, Portland, Oregon, and 5282 N. Lombard Street, Portland, Oregon, respectively. On March 15, 1994, during a routine file review, the Department determined that the following violations of the our rules had occurred:

Violation 1

Violation 1 is retrofitting an underground storage tank without first providing the required notifications to the Department. On or about May 1992, Stage II vapor recovery piping was installed at Arco Station #6118. The Department did not receive three day notification of the retrofit as required by 40 CFR 280.22 (h) amended by OAR (Oregon Administrative Rule) 340-150-003. Failure to provide proper notification is a Class II violation of Oregon's environmental laws.

Violation 2

Violation 2 is operating a solid waste disposal site without obtaining the required permit. On or about May 1992, petroleum and PCB (polychlorinated biphenyl) contaminated soil from Arco Station #6118 and petroleum contaminated soil from Arco Station #5874 were disposed at Arco Station #5874. Operating a solid waste disposal facility without a permit violates OAR 340-61-027 and is a Class I violation.

Approximately 15 cubic yards of contaminated soil was transported from Station #6118 for disposal in the former UST excavation of Station #5874. Contaminant concentrations from Station #6118 range from nondetect to 17,000 ppm (parts per million) for gasoline, nondetect to 1220 ppm for oil, and nondetect to 4 ppm

2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice/TDD

for PCBs. The Department does not have documentation that we authorized transport or disposal of the contaminated soil.

Approximately 300 cubic yards of contaminated soil was generated during UST removal and Stage II installation at Station #5874 and disposed of within the former UST location. Contaminant concentrations ranged from nondetect to 18,000 ppm for gasoline.

In addition, four 55-gallon drums of oil contaminated soil was disposed in a planter east of the former UST location. Contaminant concentrations ranged from nondetect to 540 ppm for oil. The origin of this soil is unknown. Although EMCON hypothesizes that the drummed soil is from previous, onsite drilling activity; because the Department has no record of a prior oil release at this site, we do not concur as to the origin of the drummed contamination.

Violation 3

Violation 3 is failure to remedy hazards posed by contaminated soils. Contaminated soil was generated from Stations #5874 and #6118. The soil was subsequently used as fill of the former UST location at Station #5874. Soil was not treated prior to or after its disposal. Any apparent reduction is concentrations may only be the result of dilution with uncontaminated/less contaminated soil. Failure to remedy hazards posed by contaminated soil violates OAR 340-122-225(1)(d) and is a Class II violation.

In addition, the drummed soils contained petroleum concentrations in excess of the Level 2 soil cleanup standards established for Station #5874. The Department does not allow "averaging" as a remediation technique to reduce concentrations below our cleanup standards.

These are serious violations of the Department's rules. Should you fail to correct the violations in accordance with the schedule set forth, we will refer your file to the Department's Enforcement Section. We may refer future violations to the Department's Enforcement Section with a recommendation to proceed with formal enforcement actions which may lead to civil penalty assessment. Civil penalties can be assessed in an amount of up to $10,000 for each day of violation. The management of petroleum contaminated soil within the Portland metropolitan area is also governed by Metro Regional Services and a copy of this letter will be forwarded to them.

Effort on your part to address the violations may be considered a mitigating factor in your favor if formal enforcement action is taken. In order to bring your facility into compliance, you must perform the following by **May 16, 1994:**

1. Dispose of all soil used to fill the former UST excavation and at the planter area of Station #5874 at an approved disposal facility. The disposal facility must be authorized to accept low concentrations of PCB contaminated soil.

2. Identify the origin of the drummed soils. If the soil is from Station #5874, please explain why the Department was not notified of the contamination.

Your cooperation in ensuring this violation does not recur and preventing future violations is appreciated. If you have any questions, please call me at 229-5445.

Sincerely,

Sheila A. Monroe

Sheila A. Monroe
UST Cleanup Specialist
Northwest Region

cc: Enforcement Section, RO

Brian Kier
EMCON Northwest, Inc.
15055 SW Sequoia Parkway, Suite 140
Portland, OR 97224

Steve Kraten
Solid Waste Enforcement Officer
Metro Regional Services
600 NE Grand Avenue
Portland, OR 97232

Department of Environmental Quality

Emergency Spill Response Report

REMEMBER:

- contain
- collect
- treat
- dispose
- use personal safety

Before reporting to the scene

1. Get information about person reporting spill.

Name TERRY ZIRKLE

Affiliation USCG

Phone _____

Date of report 8-24-82 Time 9:10AM

Other agencies contacted EPA

2. Get information about spill.

REPORTED TO NAT. RESPONSE CENTER BY

A. Name of on-scene respondent AL PINO

Affiliation ARCO P.O. BOX 5811 SAN MATEO, CALIF

Phone (415) 340-6608

B. Date of spill 8-20-82 Time 10 AM

C. Location of spill ARCO STATION AT 5284 N. LOMBARD PORTLAND

_____ County MULT.

D. Property owner _____

E. Party responsible for spill _____

Has party accepted responsibility for spill? Y ____ N ____

(If responsible party unknown or hasn't accepted responsibility, contact EPA.)

TAKEN BY L.M. SCHURR

229-6932

26-92-131

F. Materials involved (description & volume)

200 gallons gasoline

(If unknown, check the manifest, shipping papers, shipper, intended receiver. Chemtrec can help translate brand name into chemical substance and probable manufacturer.)

G. Proximity to public waters, other threats
UNKNOWN

H. How spill occurred LEAKING GASOLINE LINE

I. Containment steps being taken NONE REPORTED - LINE HAS BEEN SHUT DOWN AND IS BEING REPLACED

3. Have the following been notified?
Regional Operations Y X N ____
Hazardous Waste Operations Y ____ N X
Public Affairs Y ____ N X
EPA Y X N ____ EMD Y ____ N X

4. If field response is unnecessary, explain.

At the scene

1. Check in with persons in charge. Let them know you're available.

2. Assess environmental impact to the following: Proximity to people, groundwater, surface water, livestock, hatcheries, crops, other.
   Describe impact: _____

   _____

   _____

3. Institute interim containment measures.

   Diking _____; booming _____;

   sanding _____; other _____

   _____

   _____

4. Collect samples if necessary. (Use quart mason jar with aluminum foil seal between lid & jar.)
   Sample taken? Y ____ N ____

5. Take photographs if necessary.
   Photos taken? Y ____ N ____

SPECIAL NOTE REGARDING HAZARDOUS/TOXIC EMERGENCIES:
Remember! You aren't equipped to do hands-on clean-up.

6. Oversee method(s) of final clean-up. (If not satisfactory, require additional cleanup or alternate method.) Action taken: _____

   _____

   _____

7. Make sure adequate disposal arrangements have been made. Arrangements made: _____

_____

_____

8. Advise spiller to contact property owner regarding property damage and restoration.

NOTES:

9. Diagram spill situation:

NOTES:

Post-spill

1. Notify EMD when incident is under control.
   Date _____ Person contacted _____

2. Describe any problems with the emergency response procedure: _____

   _____

   _____

   _____

   _____

   _____

3. If spill was on a plant site, was an SPCC plan available? Y ____ N ____
   Was it used? Y ____ N ____
   Is it current? Y ____ N ____
   Comments: _____

   _____

   _____

4. Sign and date this report.

   _____
   Signature

   _____
   Date

5. Send this report to Regional Operations (for oil spills) or Hazardous Waste Operations.

Emergency phone numbers

Oregon Accident Response System	1-800-452-0311
Chemtrec	1-800-424-9300
National Response Center	1-800-424-8802
Environmental Protection Agency	1-206-442-1263
Oregon State Police Communications	378-3071
U.S. Coast Guard	240-9308
Others:	
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Clean-up contractors

Crowley Environmental Services	283-1244 (Portland)
Environmental Emergency Services	285-9111 (Portland)
Roberts Environmental Services	666-1983 (Portland)
	688-4531 (Eugene)
_____	_____
_____	_____
_____	_____
_____	_____

SC354
June 1982

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

May 19, 1992

KYLE CHRISTIE
ARCO #6118
PO BOX 5811
SAN MATEO CA 94402

RE: Arco # 6118
File No. 26-92-131

Dear Mr. Christie:

A release was reported from your underground storage tank (UST) system at your facility located at 5282 N. Lombard Street in Portland, Oregon. As the responsible party for this facility, you are required to document the remediation process. The following is an outline of the reporting process required by the Northwest Region, Department of Environmental Quality:

1. If the cleanup is to be completed within 45 days of identifying the release, a single, final report can be submitted within 30 days of cleanup completion. This will satisfy the documentation requirements, provided you meet the provisions of OAR 340-122-360.

2. If cleanup cannot be completed within 45 days, submittal of an initial status report is required within 45 days of reporting the release. The report must summarize the findings to-date, outline your planned actions, and include anticipated dates of completion for each action. Additional interim reports may also be required depending on individual circumstances. A final report will be required within 30 days of completion of the project.

Please keep the Department up-to-date on activities at the site. This will help to expedite cleanup and closure of the site. File No. 26-92-131 has been assigned to this project. Please reference this number in all future correspondence.

1500 SW First Avenue
Suite 750
Portland, OR 97201-5884
(503) 229-5263
DEQ-1

Removing contaminated soils to the matrix cleanup levels is only one of many options that you may wish to consider for your site. You may find the services of a qualified consultant helpful in evaluating different cleanup options. Cleanup options other than removal to matrix standards require that a Corrective Action Plan (CAP) be submitted to the Department for approval. If a CAP is appropriate for your site, additional information about this process may be obtained from the region.

The Department is required to recover costs from the responsible party for oversight of CAP cleanups. You will be notified if the Department determines that cost recovery will be implemented for your sites. For general information about the cost recovery process, please contact Mr. Rick Silverman at (503) 229-6384.

Thank you for your cooperation and continued efforts to comply with the regulations. If you have any questions, please contact the Northwest Region at (503) 229-6385.

Sincerely,

NORTHWEST REGION
UST Cleanup Section

cc: UST Cleanup Section, ECD

EMCON Northwest, Inc.

P.O. Box 231269 • 15055 S.W. Sequoia Parkway • Suite 140 • Portland, OR 97224-7712 • Office (503) 624-7200 • FAX (503) 620-7658

2692-131

May 7, 1992
Project T3325.02

Ms. Julie Magers
Department of Environmental Quality
Northwest Region
811 SW Sixth Avenue
Portland, Oregon 97204

Re: Notification of Release
ARCO Products Company Facility 6118
5282 N. Lombard Street
Portland, Oregon 97703

Dear Ms. Magers:

On behalf of ARCO Products Company, EMCON Northwest, Inc. is submitting this letter to confirm our telephone conversation of May 7, 1992. During that conversation, Brian Kier notified you of a gasoline release at the above facility.

Stained soils and gasoline odors were noted during the installation of a Stage II vapor recovery system at the station.

Sincerely,

EMCON Northwest, Inc.

Brian P. Kier
Engineer

Cary W. Goodman
Project Environmental Scientist

cc: Kyle Christie, ARCO Products Company (San Mateo)

DEPT OF ENVIRONMENTAL QUALITY
RECEIVED
MAY 11 1992
NORTHWEST REGION

P/ARCO/6118-L.507-92/LB:0
T3325.02

PLT

~~LUST~~

26-92-131 NWR

Oregon Department of Environmental Quality
NOTICE OF UNDERGROUND STORAGE TANK PERMANENT DECOMMISSIONING/SERVICE CHANGE

FACILITY (Location of Tanks)

Name: ARCO SS # 6118

Address: 5284 N LOMBARD
PORTLAND, OR 97203

Phone: (503) 286-4752

DEQ Facility I.D. Number: 3933

TANK OWNER

Name: ARCO PRODUCTS CO

Address: 2000 ALAMEDA DE LAS PULGAS
SAN MATEO, CA 94402

Phone: (415) 571-2407

Work To Be Performed By: ~~OWNER~~ Tom NewCastr License # 359
(Owner or Licensed Service Provider)

Phone: 257-9297

Mobile Phone: _____

FORM MUST BE SUBMITTED BY UST OWNER OR OPERATOR 30 DAYS BEFORE START OF WORK

YOU MUST CONTACT YOUR LOCAL DEQ REGIONAL OFFICE 3-DAYS BEFORE STARTING ANY DECOMMISSIONING WORK. (Phone numbers are listed on reverse)

Will tank removal or potential cleanup affect adjacent property or Right-of-Way property? Yes ____ No (X)

Date decommissioning is scheduled to begin: 5/4/92

Tank #	DEQ UST Permit #	Tank Size in (Gallons)	Product: Gasoline, Diesel, Used Oil, Other?		Closure or Service Change?			Tank to be Replaced?	
			Present	New	Tank Removal	Closure∞ Inplace	New ∞ Product	Yes*	No
1	JBJE	6,000	GAS		(X)			✓	
2	JBJF	6,000	GAS		(X)			✓	
3	JBJG	6,000	GAS		(X)			✓	
4	JBJH	6,000	GAS		(X)			✓	
5	JBJJ	12,000	GAS		(X)			✓	

* If decommissioned tank(s) are to be replaced by new underground storage tanks you must submit a new permit application containing information on the new tanks 30 days before placing them in service.

∞ Submit a soil sampling plan to the DEQ regional office and receive plan approval prior to starting work if 1) tank is to be decommissioned in-place, 2) tank contents are changed to a non-regulated substance, or 3) tank contains a regulated substance other than petroleum.

Signature: Terry Ridley for Owner Date: 3-4-92
(Owner or Operator)

Department of Environmental Quality
RECEIVED
MAR 4 1992
UST Compliance Section

DEPT OF ENVIRONMENTAL QUALITY
RECEIVED
MAY 11 1992
NORTHWEST REGION

Date: May 4, 1992

Facility ID No.: 3933

Oregon

DEPARTMENT OF ENVIRONMENTAL QUALITY

Dear Tank Owner/Permittee:

We received a decommissioning notice on March 4, 1992 for 5 underground storage tank(s) located at:

Arco SS #6118
5284 N Lombard
Portland, Or. 97203

The following marked paragraphs apply to this situation:

X Checking our records, it appears the tanks are registered, permit fees are current, and the contractor is licensed. You are required to confirm the date of removal with the appropriate regional office (see other side) at least 72 hours prior to tank removal.

___ New tank(s) to be installed. Permits for the new tank(s) must be obtained and permit fees paid prior to installation. An application is enclosed. Contact the UST Compliance Section at (503) 229-5733 for more permit applications or installation information. Once the permit has been issued, you may proceed with installation. You are required to confirm the date of installation with the appropriate regional office (see other side) at least 72 hours in advance.

___ There are apparently some discrepancies between our records and the information on your decommissioning form. The following concerns **must be resolved BEFORE** decommissioning can proceed:

___ Inadequate information to identify tanks.

___ One or more of the tanks are not permitted.

___ Permit fees for 1988 1989 1990 1991 1992 are past due.

___ The contractor you have identified is not licensed or you did not identify a contractor. Please note that a DEQ-licensed contractor is required when work is done by anyone other than the tank owner.

Please contact the UST Compliance Section at (503) 229-5733 to provide them with the additional tank identification information, to obtain details on which tanks need to be permitted and permit application forms, to arrange payment of fees ($25 per tank per year), and/or to receive a list of licensed contractors.

811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TDD (503) 229-6993

DEQ-1

____ Your intent to fill the tank in place requires that the tank area be assessed prior to filling. A sampling plan must be submitted and approved prior to starting the work. Contact the appropriate regional office (see below) if you have any questions concerning this requirement.

Failure to resolve any of the discrepancies before proceeding with decommissioning or tank installation may be a violation of the Department's regulations and may be subject to enforcement. Your cooperation in resolving any potential problems in a timely manner is appreciated.

*** **REMINDER:** The UST Decommissioning/Change-In-Service Report form and the UST Decommissioning Checklist form must be submitted <u>within 30 days after completion</u> of work.

An assessment must be conducted at all tank sites and contamination must be reported within 24 hours of discovery. OAR 340-122-301 through 340-122-360 contains the sampling requirements necessary when decommissioning underground storage tanks. As soon as contamination is identified in any manner, including observations of visible staining or odors, it must be reported. If obvious signs of contamination are present in the excavation, <u>DO NOT</u> wait until you receive the sample results to report the contamination.

If you need to report contamination or have any general questions regarding site cleanup or UST compliance issues, please contact the appropriate regional office at the numbers listed below.

Sincerely,

Richard Reiter
Manager
UST Compliance Section

cc: NWR Regional Office

Eastern Region 276-4063
Central Region 388-6146
Northwest Region 229-5263
Southwest Region 776-6010
Willamette Valley Region 378-8240
Toll-free in Oregon, UST HELPLINE 1-800-742-7878

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