Oregon

August 22, 1994

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

DR MARK BREARLEY
UNOCAL CORPORATION
100 W HARRISON SUITE 200
SEATTLE WA 98111

Re: Unocal Station #5745
File No. 26-93-071

Dear Dr. Brearley:

The Department of Environmental Quality has completed its review of the information submitted to date concerning the underground storage tank (UST) decommissioning conducted at 445 SE 242nd Avenue in Gresham, Oregon. The Department has determined that no cleanup is required, the investigation appears to have met the requirements of the Oregon Administrative Rules (OAR) 340-122-205 through 340-122-360, 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. Two 12,000 gallon gasoline USTs, a 550 gallon waste oil UST, and a 550 gallon heating oil tank were decommissioned at this location. The gasoline and waste oil tanks were disposed of at the Lane County Landfill, Eugene, Oregon.

2. Gasoline contamination was discovered during the UST decommissioning. Approximately 35 cubic yards of contaminated soil were excavated and disposed of at Oregon Hydrocarbon, Inc. An additional 4 cubic yards of contaminated soil from the septic tank area were disposed of at Regional Disposal Co., Roosevelt, Washington.

3. After cleanup was complete, up to 58 parts per million (ppm) TPH remain in the soil. This is below the 80 ppm TPH standard established for this site.

4. No groundwater was encountered in the excavation.

5. Sludges associated with an abandoned septic tank and cesspool did not affect the surrounding soils. Up to 1,000 ppm TPH (with no BTEX, heavy metals, or chlorinated solvents) associated with a drywell remains on-site. This non-UST related contamination was reviewed and evaluated by the Site Assessment Section (SAS) of the Department's Waste Management and Cleanup Division. SAS determined that no further action is required.

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

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 the report(s). We recommend that a copy of this information be kept 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.

Your efforts to comply with the regulations to ensure that your facility has been adequately cleaned up has been appreciated. If you have any questions, please feel free to contact me at (503) 229-5492.

Sincerely,

Rachel Carlin Segal
UST Cleanup Specialist
Northwest Region

cc: Ms. Dulcy Berri
Brown and Caldwell Consultants
9620 SW Barbur Blvd., Suite 200
Portland, OR 97219-6041

Oregon

August 22, 1994

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QUALITY

NORTHWEST REGION

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UNOCAL CORPORATION
100 W HARRISON SUITE 200
SEATTLE WA 98111

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Brown and Caldwell Consultants
9620 SW Barbur Blvd., Suite 200
Portland, OR 97219-6041

Unocal Corporation
P.O. Box 76
Seattle, Washington 98111
Telephone (206) 640-7600
Facsimile (206) 640-7601

UNOCAL 76

Northern Region
Corporate Environmental Remediation & Technology

October 14, 1994

Ms. Rachel Carlin Segal
UST Cleanup Specialist
Department of Environmental Quality - Northwest Region
2020 S.W. Fourth Avenue, Suite 400
Portland, Oregon 97201-4987

RE: Unocal Service Station #5745 located at 445 S.E. 242nd Avenue in Gresham, Oregon (File# 26-93-071)

Dear Ms. Segal:

Unocal has received the letter of *No Further Action* dated August 22, 1994 for the above-referenced facility.

Unocal appreciates your diligence while reviewing the information on this site and we look forward to continuing our cooperative relationship with the DEQ during remediation of our other facilities in the Northwest Region.

If you have any questions or comments, please call me at (206) 640-7610.

Sincerely,

Mark Brearley, Ph.D., R.G.
Senior Geologist

cc: Gary E. Gunderson - Unocal
Laurie McCulloch - DEQ Northwest Region

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

August 22, 1994

DR MARK BREARLEY
UNOCAL CORPORATION
PO BOX 76
SEATTLE WA 98111

Re: Unocal Station #5745
File No. 26-93-071

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Sincerely,

Rachel Carlin Segal
UST Cleanup Specialist
Northwest Region

cc: Ms. Dulcy Berri
Brown and Caldwell Consultants
9620 SW Barbur Blvd., Suite 200
Portland, OR 97219-6041

BROWN AND
CALDWELL

Suite 200
9620 S.W. Barbur Boulevard
Portland, Oregon 97219-6041
(503) 244-7005 . FAX (503) 244-9095

FAX TRANSMITTAL COVER SHEET

PLEASE DELIVER THE FOLLOWING PAGES TO:

Name: Rachel Segal Company: _____

City: _____ FAX No: 229-6945

THIS TRANSMITTAL IS BEING SENT FROM:

Name/User ID: Dudley Bennett Date: 8/9/94

Job #: _____ Return originals: Yes____ No____

Stamp: Yes ____ No ____

SPECIAL INSTRUCTIONS/REMARKS:

Waste disposal receipts

Unocal SS # 5745

NUMBER OF PAGES BEING TRANSMITTED, INCLUDING COVER SHEET: 4

MEMORANDUM

7134-00

August 9, 1994

TO: Rachel Segal, DEQ

FROM: Dulcy Berri, Brown and Caldwell DB

SUBJECT: Unocal Service Station No. 5745
Troutdale, Oregon
Final Waste Disposal Receipts

Attached are receipts for disposal of the four remaining drums located at the above Unocal property. The two drums of nonhazardous waste were disposed by Spencer Environmental, and the remaining two drums consolidated into one. This last drum was picked up on August 2, 1994, for transport to ENSCO, Inc., El Dorado, Arkansas, for treatment.

I understand that this is the last remaining information required by DEQ, prior to issuing a closure letter to Unocal. If you need anything else, please feel free to contact me at (503) 244-7005. Thank you for your assistance in our cleanup work at this site.

cc: Dr. Mark Brearley, Unocal CERT

JUL 01 '94 04:28PM SPENCER ENVIRO.

(503) 655-0896

Spencer, Inc.

FAX: ( ) 657-3395

PO BOX 5207
OREGON CITY, OREGON 97045-8207

INVOICE # 607

** I N V O I C E **

May 23 94

BILL TO: 76
UNOCAL 76
PO BOX 76
SEATTLE, WA

98111

LOCATION:
UNOCAL 76
445 SE 242ND
PORTLAND, OR

97060

CUST #	PO #	BILLING	TERMS 1.5% 10DAYS	DUE DATE	ORDER #
645455	JM 340003387	Jun 2 94	NET 30 DAYS	Jul 2 94	684

LOAD AND TRANSPORT 2 DRUMS OF NON-HAZARDOUS SLUDGE. CONSOLIDATE NON-HAZARDOUS DRUMS AND P/U EMPTY DRUM FOR DISPOSAL.

0001-00NT-0029-0SDR	TRUCK #29 TRANSPORTATION	3.00	55.00HO	165.00
0005-0NDC-CR3 -0JQT	NON-HAZARDOUS DRUM CLEANI	3.00	43.00DR	129.00
0006-0NLQ-SE3 -0SUR	NON-HAZARDOUS LIQUID DISP	48.00	0.50GA	24.00
0006-0NSD-0000-0SUR	NON-HAZARDOUS SOLIDS DISP	61.00	1.85GA	112.85

0.00
0.00
0.00

430.85

ORDERED BY: Howard Brinkerhoff (206) 640-7608

A FINANCIAL CHARGE of 1½% per month may be applied to any Past Due amount. Past Due Accounts may be placed on C.O.D. without notification. If outside collection action is necessary purchaser shall pay all costs of collection including reasonable attorney fees.

PAY THIS AMOUNT →

STATE OF ARKANSAS
Department of Pollut[illegible] Control and Ecology
P. O. Box 8913 Little Rock, Arkansas 72219-8913
Telephone 501-562-7444

5

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: ORD000204719 — Manifest Document No.: 02275
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
UNOCAL ST# 5745
445 SE 242ND AVE, TROUTDALE, OR 97060
MAILING ADDRESS:
PO BOX 76
SEATTLE WA 98111

4. Generator's Phone (206) 640-7508 ATTN: HOWARD BRINKERHOFF

A. State Manifest Document Number: AR 627212
B. State Generator's ID

5. Transporter 1 Company Name: SPENCER INC.
6. US EPA ID Number: ORD085905715
C. State Transporter's ID
D. Transporter's Phone (503) 655-0896

7. Transporter 2 Company Name: DART TRUCKING Co. Inc.
8. US EPA ID Number: OHD009865825
E. State Transporter's ID 0902-205
F. Transporter's Phone 1-800-327-8866

9. Designated Facility Name and Site Address
ENSCO INC.
AMERICAN OIL RD.
EL DORADO, AR 71730
10. US EPA ID Number: ARD069748192
G. State Facility's ID
H. Facility's Phone (501) 863-7173

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, HAZARDOUS WASTE, LIQUID, N.O.S (ACETONE, SLUDGE) 9 UN 3082 PG III	001	DM	100	G	F003
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
11a) RQ = 5000P, WMDS# 277023, 1-55 GAL DRUM LOAD
If no alternate TSDF, return to generator.

K. Handling Codes for Wastes Listed Above
EMERGENCY RESPONSE INFORMATION
GARY RENFORTH (503) 655-0896

15. Special Handling Instructions and Additional Information
WEARING PROTECTIVE CLOTHING, CONTAIN SPILL AND TAKE UP USING A VACUUM TRUCK OR ABSORBENT MATERIAL. IN CASE OF EMERGENCY, CONTACT GARY RENFORTH (503) 655-0896.
ERG# 31 HAZ REG# 080393 003 020B

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and Arkansas state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Julie Marlin, WMS at Spencer [illegible] — Signature: [signature] — Month Day Year: 08 02 94

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: — Signature: — Month Day Year:

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: JERRY W. DUTTON — Signature: [signature] — Month Day Year: 08 02 94

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: — Signature: — Month Day Year:

EPA Form 8700-22 (Rev. 9-88) Previous edition is obsolete.

BROWN AND
CALDWELL

Suite 200
9620 S.W. Barbur Boulevard
Portland, Oregon 97219-6041
(503) 244-7005 . FAX (503) 244-9095

FAX TRANSMITTAL COVER SHEET

PLEASE DELIVER THE FOLLOWING PAGES TO:

Name: Rachel Segal Company: DEQ

City: _____ FAX No: 229-6945

THIS TRANSMITTAL IS BEING SENT FROM:

Name/User ID: Dulcy Berri Date: 3-8-94

Job #: 7134 Return originals: Yes___ No___

Stamp: Yes ___ No ___

SPECIAL INSTRUCTIONS/REMARKS:

Receipts re: Unocal SS No. 5945

NUMBER OF PAGES BEING TRANSMITTED, INCLUDING COVER SHEET: 13

MEMORANDUM

Brown and Caldwell Consultants

Date: 3-8-94

To: Rachel Segal

From: Dulcy Berri

Subject: Unocal SS #5145 - Waste Disposal

Attached are a number of things, some of which you may already have:

- 35 yds. soil to Oregon Hydrocarbon from drywell excavation
- fiberglass tanks disposed at Lane County landfill
- tank rinsate disposed by Spencer Enviro.
- Rabance receipts (5 receipts)
  - these represent disposal of soils from 2 Unocal sites.
  - amount from #5145 was 4 yards generated by ovending of septic tank area plus 2 drums of cuttings from soil borings (approx. 1 yd. — not contaminated)
- T.V. Waste / Hillsboro Landfill disposal of empty drums (2), hay bales, plastic, etc. (2 receipts)

As we discussed, disposal of the two drums of oily water generated from service bay sump are soon to be disposed - I will keep you posted and forward disposal receipts as soon as possible.

Thanks for your help —

memform

OREGON HYDROCARBON, INC.
9333 NORTH HARBORGATE STREET • P.O. BOX 83685 PORTLAND, OR 97283 (503) 735-9525 FAX (503) 240-1712

February 11, 1993

Mr. V.L. Carlson
Unocal Corporation
P.O. Box 76
Seattle, WA 98111

Dear Mr. Carlson:

This letter is to certify that all contaminated soil shipped to Oregon Hydrocarbon Inc. on Bill of Lading number(s) 02HLF-1 through 02HLF-4, 445 SE 242nd Avenue, Troutdale, OR have been thermally treated.

Analysis of the treated soil was conducted by an independent laboratory using Oregon DEQ TPH-HCID test. The enclosed certificate of analysis shows total petroleum hydrocarbon (TPH) in milligrams per kilogram (mg/kg), which approximates parts per million.

As determined by the Oregon Department of Environmental Quality, the Oregon action level for hydrocarbon contaminated soil is 40 mg/kg TPH for gasoline and 100 mg/kg TPH for diesel and other heavier chains of hydrocarbons. Any soil contaminated with hydrocarbons below these state levels is considered environmentally safe. The Oregon Hydrocarbon Inc. standard of treatment consistently exceeds Oregon's state action level.

We thank you for this opportunity to be of service to you. Should you have any further questions, please feel free to call me at any time.

Sincerely,

Lexus E. Johnson
General Manager

enclosure

Am Test Inc.
Professional
Analytical
Services
9205 S.W. Nimbus Ave.
Beaverton, OR
97005
Tel: 503 292 0564

ANALYSIS REPORT

L Myron Banek
I Oregon Hydrocarbon, Inc.
E P.O. Box 83685
N Portland OR 97283
T

Date Received: 12/23/92
Date Analyzed: 12/28/92
Date Reported: 12/28/92
Job Number: 35807
Page 1 of 1

Sample Type - Soil

Analysis - TPH-HCID

Lab Number	Client Identification	Results Gasoline	Diesel	Other*	Surrogate** % Recovery
35807	26-02HOT-02HLF-02HMF-02HKF-02HNF	ND	ND	ND	75/85
Lab Blank	12/23/92	ND	ND	ND	

ND = None Detected

Detection Limits: Gasoline - 20 mg/Kg; Diesel - 50 mg/Kg
*Higher boiling petroleum products
**Trifluorotoluene/p-terphenyl

Reported By _____

QA Check _____

Greg Bolt
Laboratory Manager

LANE COUNTY
3040 NORTH DELTA HWY
EUGENE, OR 97401-1698

Operator 12
Date 03/02/93 Time 10:52:31
Customer Staton Construction, Inc.
Account No. 77014003
Truck No. 0
Secure? Y

Ticket # 20029406
In County? Y
Gross Weight 26.56
Tare Weight 19.27
Net Weight 7.29
Truck Cap. 0.00

TYPE	DESCRIPTION	QTY	RATE	FEE
31	BULK LOOSE MAT	7.29	27.000	196.83

TOTAL $ 196.83

Fiberglas

Card Rec: By

WASTE MGT DIV

077 014 003 06-93
STATON CONSTRUCTION INC

7307

SPENCER
ENVIRONMENTAL SERVICES, INC.
15770 South Beaver Glen Drive
OREGON CITY, OREGON 97045

(503) 655-0896
EPA ID #ORD-980-836-415

JOB PHONE	DATE OF ORDER
	2-26-93
JOB NAME/LOCATION	
445 SE 142ND	
GRESHAM OR.	

TO STATOM CONST. INC.

PHONE

ORDER TAKEN BY

TERMS: 1½% 10 Days _____ Billing Date
Net 30 Days

DESCRIPTION	AMOUNT	
TRIPLE Rinse 2- 500 GALLON TANKS		
1-WASTE-OIL	250	00
1-HEATING OIL	250	00
APPROX (23) GALLONS OF LIQUIDS @ 50¢ GAL	11	50

Signature certifies that to the best of my knowledge this product has not been mixed with hazardous waste.

A FINANCIAL CHARGE of 1½% per month may be applied to any Past Due amount. Past Due Accounts may be placed on C.O.D. without notification. If outside collection action is necessary purchaser shall pay all costs of collection including reasonable attorney's fees.

LABOR	HOURS	RATE	AMOUNT		TOTAL MATERIAL		
# 20 Kenn					TOTAL LABOR		
WORK ORDERED BY	DATE COMPLETED	TOTAL LABOR			TAX		
					PAY THIS AMOUNT →	511	50

Thank You

SIGNATURE (I hereby acknowledge the satisfactory completion of the above described work.)

REGIONAL DISPOSAL CO.
P.O. Box 204
Roosevelt, WA 99356
(509) 374-5641

TICKET NUMBER 93401 *** COMPLETED WEIGHT TICKET ***

TRUCK ID: 051 FORD-RED-STARK TRUCK ACCOUNT: 95 UNOCAL

COMMODITY: 34 PCS
SOURCE: GRESHAM, OR
JOB ID: 93-1971
CONTAINER #: SEAL #:

CUSTOMER TICKET #: CUSTOMER WEIGHT: 0 LBS
COMMENTS:

	WEIGHT	TIME	DATE
IN:	98540 LBS	14:21	01/11/94
OUT:	39200 LBS	14:59	01/11/94

NET WEIGHT: 59340 LBS / 29.670 TONS

Recycled

WEIGHMASTER - JILL

DRIVER

REGIONAL DISPOSAL CO.

P.O. Box 204
Roosevelt, WA 99356
(509) 374-5641

TICKET NUMBER 93404

*** COMPLETED WEIGHT TICKET ***

TRUCK ID: 050 FORD-RED-STARK TRUCK ACCOUNT: 95 UNOCAL

COMMODITY: 34 PCS
SOURCE: GRESHAM, OR
JOB ID: 93-1971
CONTAINER #:

SEAL #:

CUSTOMER TICKET #:
COMMENTS:

CUSTOMER WEIGHT: 0 LBS

	WEIGHT	TIME	DATE
IN:	99500 LBS	14:24	01/11/94
OUT:	38800 LBS	14:58	01/11/94

NET WEIGHT: 60700 LBS / 30.350 TONS

Recycled

WEIGHMASTER JILL

DRIVER

REGIONAL DISPOSAL CO.
P.O. Box 204
Roosevelt, WA 99356
(509) 374-5641

TICKET NUMBER 93402 *** COMPLETED WEIGHT TICKET ***

TRUCK ID: 46 FORD-RED-STARK TRUCK ACCOUNT: 95 UNOCAL

COMMODITY: 34 PCS
SOURCE: GRESHAM, OR
JOB ID: 93-1971
CONTAINER #: SEAL #:

CUSTOMER TICKET #: CUSTOMER WEIGHT: 0 LBS
COMMENTS:

	WEIGHT	TIME	DATE
IN:	90840 LBS	14:22	01/11/94
OUT:	35700 LBS	14:51	01/11/94

NET WEIGHT: 55140 LBS / 27.570 TONS

Recycled

WEIGHMASTER - ILL

DRIVER

REGIONAL DISPOSAL CO
P.O. Box 204
Roosevelt, WA 99356
(509) 384-5641

TICKET NUMBER: [illegible]

[illegible]

SEAL [illegible]

CUSTOMER WEIGHT [illegible] LBS

COMMENTS: [illegible]

	WEIGHT	TIME	DATE
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

NET WEIGHT [illegible]

[illegible]

REGIONAL DISPOSAL CO.

P.O. Box 204
Roosevelt, WA 99356
(509) 374-5641

TICKET NUMBER 94018

*** COMPLETED WEIGHT TICKET ***

TRUCK ID: 021 FORD-WHT-NW FIELD SV

ACCOUNT: 95 UNOCAL

COMMODITY: 34 PCS
SOURCE: GRESHAM, OR
JOB ID: 93-1971
CONTAINER #:

SEAL #:

CUSTOMER TICKET #:

CUSTOMER WEIGHT: Ø LBS

COMMENTS:

	WEIGHT	TIME	DATE
IN:	21260 LBS	07:38	01/15/94
OUT:	12900 LBS	08:10	01/15/94

NET WEIGHT: 8360 LBS / 4.180 TONS

Recycled

WEIGHMASTER - NANCY

DRIVER

217042

TUALATIN VALLEY WASTE RECOVERY

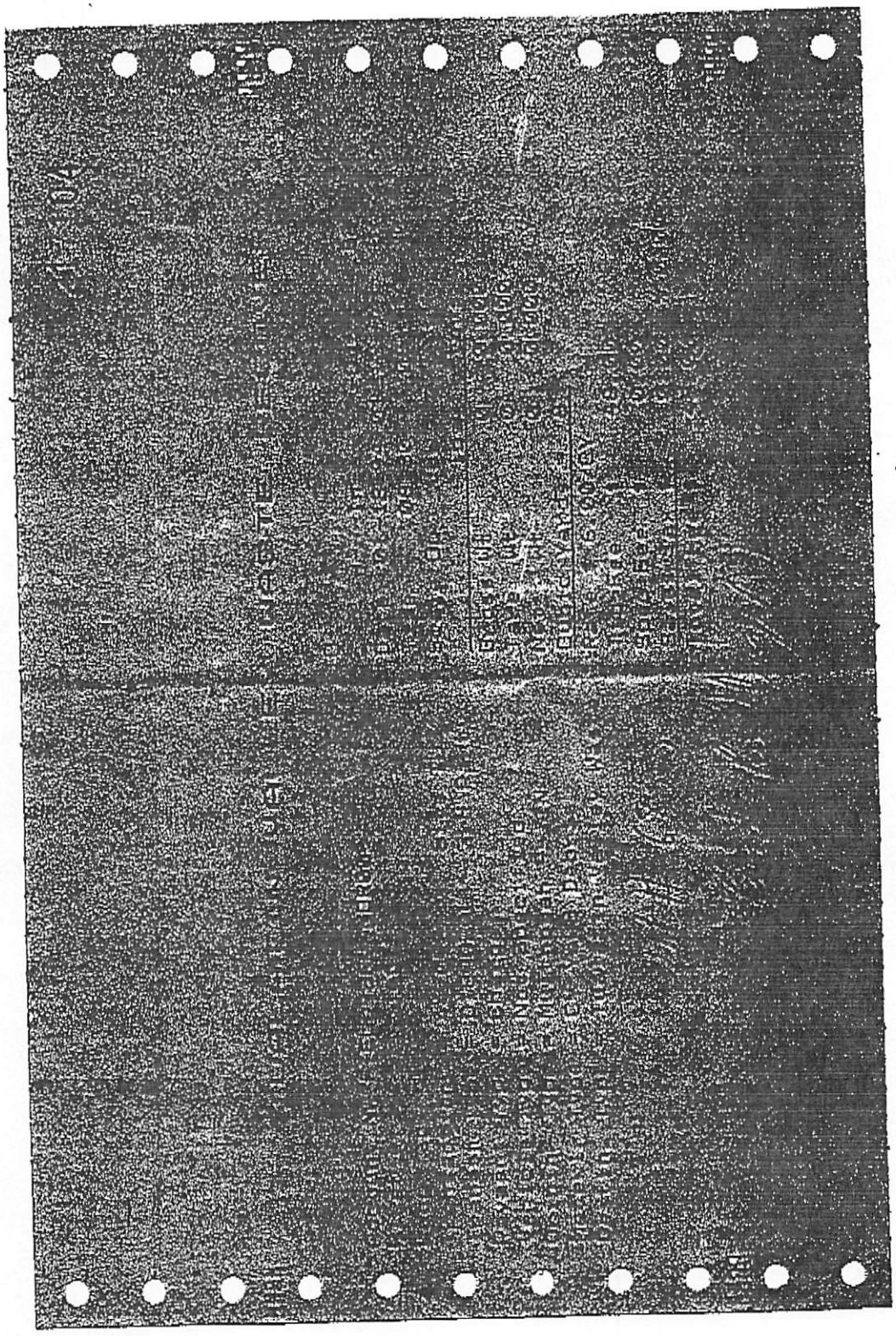
Account NW FIELD SRV NOR009
Fleet # Tag #
Loop Tag
Transaction # 447051 Site TU
Transtn Type = DISPOSAL - 3rd Party
Payment Type = Charge
Vehicle Type = Not Specified
Origin Type = Multnomah -- IN
Materl. Type = CY Yard Debris
Destin. Type = Tualatin Valley Waste

Tkt # 6855

Brad Ludlinger

TU

	In	Out	B2
Date	01-11-94	01-11-94	IN
Time	13:15	13:16	1
Scale Op	JLW	JLW	
	lbs	tons	
Gross Wt	0	0.000	--
Tare Wt	0	0.000	---
Net Wt	0	0.000	CY
Cubic Yards =	10		
Rate $ 6.00/CY			
Tip Fee $	60.00		
Spec Fee $	0.00		
Sales Tax $	0.00	% 0.000	
Total Fee $	60.00		



State of Oregon
Department of Environmental Quality Memorandum

Date: November 16, 1993

To: Judith Hatton, Business Office

From: Norm King, WMCD-PPD

Subject: Unocal Station #5745

Cleanup work at the Unocal Station #5745 site (#26-93-0071) is complete. Please send a final invoice as soon as possible and close the Business Office file as soon as final payment is received. Last hours worked at the site will be in November, 1993. No additional time will be charged to the project. Do not invoice the responsible party when total direct and indirect expenditures are less than $25.00.

Invoicing address is:

Mark Brearley
Unocal
100 West Harrison, Suite 225
P.O. Box 76
Seattle, WA 98119

Please notify myself and Darby Bacon when site is closed, so a letter of completion can be sent out to the RP and Regional and ECD files can be closed.

cc: Sheila Monroe, NWR, DEQ
Darby Jensen, UST Cleanup, DEQ

LUSTCLOS.MEM

file

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

September 1, 1993

RON RICHEY
STATON CONSTRUCTION
29394-B AIRPORT ROAD
EUGENE OR 97402-9594

Re: Notice of Noncompliance
NWR-UST-93-197

Dear Mr. Richey:

The Department of Environmental Quality has completed our review of the underground storage tank decommissioning and subsequent violations which occurred at Unocal #5745 (USTC File No. 26-93-071), 445 SE 242nd Avenue, Troutdale, Oregon, and your June 5, written response. I think that your letter had some worthwhile points which the Northwest Region will pursue. We appreciate your thoughts on how the Department can do business better. However, at this time, we will not rescind the Notice on Noncompliance (NON).

The Northwest Region has requested a policy statement from our Headquarter's staff on whether the "primary contractor" should be responsible for ensuring compliance with the Department's regulations. If the consultant is acting as the primary contractor, are they responsible for reporting contamination, submitting decommissioning paperwork, etc? Or, is the licensed service provider always responsible because they are licensed by the Department? When a policy statement is issued, I will review your NON for consistency with the policy statement.

I also wanted to address the concept of discretionary authority in rule interpretation. The Department has a formal structure of classifying violations as Class I, II, or III. Failure to report contamination is a Class I violation and we will **always** issue an NON and/or proceed with formal enforcement for a Class I violation. The question is whether an unreported 47 parts per million (ppm) is less of a violation than, for example, an unreported 12,000 ppm. I think that the answer is "Yes", and if we were pursuing a civil penalty we would recommend a lower dollar amount as the penalty.

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

Thank you for your time and cooperation. If you have any questions, please call me at (503) 229-6385 extension 228.

Sincerely,

Sheila A. Monroe

Sheila A. Monroe
Acting UST Section Manager
Northwest Region

cc: Rich Reiter, UST Compliance Section, HSW
Lon Revall, UST Cleanup Section, ECD
Mark Brearley, PhD
Unocal 76
100 W. Harrison
Seattle, WA 98111
Dulcy Berri
Brown and Caldwell Consultants
9620 SW Barbur Boulevard
Portland, OR 97402

DEQ SITE ASSESSMENT SECTION - STRATEGY RECOMMENDATION

Site Name: Unocal #5745

Site CERCLIS Number: N/A

DEQ ECSI Number: 1417

Site Address: 445 SE 242nd Ave.
Gresham, OR

Recommendation By: Gil Wistar NWR/SAS

Approved By: Heather Schijf
Mike Rosen

Date: August 2, 1993

Background: This site was referred from the LUST program (file no. 26-93-71) because of contamination associated with a dry well, septic tank, and cesspool. All underground tanks and buildings have been removed from the property, which is no longer a service station. LUST has not completed its review of the project.

The dry well, 4 feet in diameter and 6 feet deep, apparently received drainage from the service bay sump in the former service station. In the September 1992 excavation of this structure, the contractor discovered that the well had no floor and therefore found hydrocarbon contamination from a depth of 6 feet to the 19-foot reach limits of the contractor's excavator. All contaminated soil down to 19 feet was removed. The contractor also removed soil to the west of the dry well, towards the curb on Cherry Park Rd. Further excavation in this area could have undermined the sidewalk and utilities. In this western portion of the site, prior to backfilling, the contractor sampled the sidewall, at approximately 19 feet BGS. Intended as a confirmation sample, it contained 1,000 ppm mixed heavy oils, but no BTEX components, heavy metals, or chlorinated solvents. No further samples were collected from this area; the extent of remaining oil & grease contamination was unclear. Therefore, after filling the hole, the contractor made arrangements to come back later and define the extent of remaining heavy oils above the 500 ppm Level 2 matrix standard.

In March 1993, Unocal's contractor removed a rusted, deteriorated septic tank from another portion of the site. Sludge containing 30,000 ppm heavy oils was found in the tank, some of which had flowed into the bottom of the septic tank pit at a depth of about 8 feet. At this time, an adjacent cesspool, extending to a depth of 24 feet, could not be removed or have its floor probed, due again to equipment limitations.

In May 1993, the contractor returned to the site and removed 4 yards of contaminated sludge from the septic tank/cesspool area. A sample collected from beneath the former septic tank was reported as "ND" for TPH, PCBs, and volatile organics. This contamination was removed from the site and replaced with clean fill to grade.

In June 1993, the contractor drilled six boreholes, three in the area of the former dry well, and the other three through and around the former septic tank and cesspool. Dry well borings were drilled to depths ranging from 18.5 feet to 23.5 feet, and were located in areas considered most likely to find remaining traces of heavy oils; however, no TPH, PCBs, volatile organics, or cadmium, chromium, or lead was detected in any of the boring samples. Septic tank/cesspool borings were drilled to depths ranging from 26 feet to 32 feet; samples from these terminal depths were also ND for TPH, PCBs, volatile organics, and cadmium, chromium, and lead. No groundwater was encountered in any of the borings.

Based on these results, the contractor concluded that contamination in the former dry well area that could not be removed was limited in horizontal and vertical extent. It also concluded that little or no contamination remains in the former septic tank and cesspool. On behalf of Unocal, it requested ECD closure of the site.

Recommendation/Action: The Site Assessment Section has reviewed three consultant's reports on this site regarding contamination not originating from underground tanks. These are dated December 16, 1992, April 9, 1993, and July 26, 1993. The boreholes demonstrate that sludge removed from the septic tank/cesspool area did not affect soils immediately around and below it. In the area of the former dry well, the only contaminant of concern is a 1,000 ppm "hit" of heavy oils. This probably represents the outer limit of contamination from the service station drain, most of which was excavated and removed. This very limited area of heavy oil has not affected groundwater, since samples from borings drilled below 19 feet are clean. Also, heavy oils are not very mobile in soils.

Therefore, the non-UST-related contamination at this site does not pose a significant threat to public health, safety, welfare, or the environment. SAS recommends no further ECD action at this site, and referral back to the LUST section for final action.

Referrals Within or Outside DEQ: This site has not been referred to another division of DEQ or an outside regulatory agency. It was referred from the LUST section, and should be referred back to this section for final action.

Other: This site is currently listed in DEQ's ECSI database; its file will be updated with Site Assessment's "NFA" decision entered.

Brown and Caldwell
Consultants

9620 S.W. Barbur Boulevard
Suite 200
Portland, OR 97219-6041
(503) 244-7005
FAX (503) 244-9095

Original filed in service provider file

June 28, 1993

Ms. Rachel Carlin Segal
UST Cleanup Specialist
Oregon Department of Environmental Quality
Northwest Region
1500 Southwest First Avenue, Suite 750
Portland, Oregon 97201-5884

13-7134

Subject: Response to Notice of Noncompliance
NWR-UST-93-196

Dear Ms. Segal:

This is in response to your letter Notice of Noncompliance to Brown and Caldwell dated June 1, 1993. Your letter indicates Brown and Caldwell's violations were to act as a decommissioning service provider without being licensed to do so by DEQ, and that Brown and Caldwell failed to report contamination within 24 hours of discovery. The following information has already been discussed with you and Ms. Laurie McCulloch during our meeting with Mark Brearley (Unocal) on June 15, 1993.

Regarding our status as a decommissioning service provider:. Brown and Caldwell does not have a decommissioning service provider license. Our personnel hold Soil Matrix Supervisor licenses, but are not licensed to provide decommissioning services. Our capacity onsite is to work alongside the service provider in watching for signs of soil contamination, then collecting the appropriate numbers of samples and performing appropriate analytical tests. Staton Construction was acting as the service provider for the work at Unocal Service Station No. 5745. Therefore, we request a withdrawal of the violation of being unlicensed.

Regarding the second violation of failing to report contamination, this responsibility falls on the property owner and the service provider, neither of which was Brown and Caldwell. Therefore, we request withdrawal of this violation also. As we discussed at our meeting on June 15, 1993, past work procedures have created a grey area that Unocal's consultants have operated in, and responsibilities for some of the DEQ reporting requirements have not been clearly established between Unocal's contractors and consultants. Certain reporting requirements have, at times, fallen through the cracks. I believe it was made clear at our recent meeting that Unocal intent from here forward is to assign specific responsibility for DEQ reporting. Brown and Caldwell's position, being neither owner nor service provider, is to watchdog and assist owner and service provider in completing these requirements in a timely manner.

This situation at Unocal Service Station No. 5745 has resulted in the positive benefit of Unocal's creation of specific areas of responsibility in future work. I believe this increased sensitivity and definition of compliance requirements will further elevate the existing high level of responsiveness and thoroughness in Unocal's cleanup efforts. Although it is understood the DEQ must respond to any and all violations that are discovered, we are left wondering if a telephone call or two might not have prevented the time and expense all parties have incurred in dealing with these minor issues. Certainly the time and expense are better spent in furthering cleanup activities.

If you would like additional information, please feel free to contact me.

Very truly yours,

BROWN AND CALDWELL

Dulcy Berri

Dulcy A. Berri, R.G.
Project Manager

DAB:jsc

TELEPHONE USE REPORT

CALL FROM/TO: Ron Richey
COMPANY/TITLE: Staton Construction
PHONE NO.:
CITY: COUNTY:

DATE: 7-23-93
TIME: 4:28

(Circle for filing)

AQ	Asbestos
WQ	OSS
SW	HW
General	Spill

re: Unocal 5745
26-93-071

SUMMARY OF CALL:

Wanted to know status of response to his letter re: NON.
Told him that Laurie McCulloch had planned to respond to it but that now she's gone for 5 months.
Told him I'll discuss it with Sheila when she gets back to see how we plan to respond.

R. Segal
Signature

RB3972 (2/86)

6-15-93 - Unocal / Brown + Caldwell
1:04 -
end 2:16

Mark Brearley
Dulcy Bessi
LJM, RCS

Ms. Brearley indicated that B+C are not their "Service Providers" for 26-93-071

Asked how much residual was pumped out of tank (phantom) at Sheila's site (26-88-094) ⟹ sludge, only a matter of a couple of gallons.

Discussed:

1) NON's - service providers responsibilities
2) Report review procedures
3) Cost recovery
4) Assigning 1 point of contact for all Unocal sites.

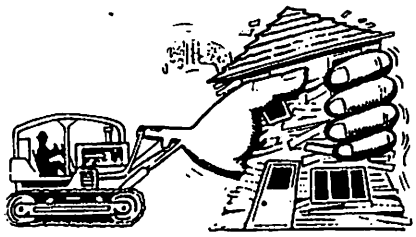
Memorandum

UNOCAL 76

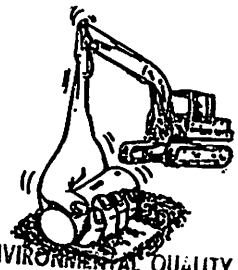
UNOCAL - PROPOSED DECOMMISSIONING & CONTAMINATION NOTIFICATION

The following table depicts Unocal's proposed decommissioning and contamination notification procedures to the Oregon Department of Environmental Quality (DEQ) and the proposed responsible parties for each notification. It is believed that these procedures follow DEQ's notification requirements and will avoid any additional "Notices of Noncompliance" as a result of underground storage tank removals. Please note that all communication from Unocal will be via the Corporate Environmental Remediation and Technology group in Seattle. In all cases, Unocal will be ultimately responsible for verifying that the DEQ has been notified accordingly.

NOTIFICATION	RESPONSIBLE PARTY
30-day notice	Unocal (written)
72-hour notice	Unocal's Service Provider (verbal)
Contamination (24-hour notice)	Unocal's Consultant in conjunction with Service Provider (verbal with written follow up)
Phantom Tanks	Unocal's Consultant (verbal) in conjunction with Service Provider with request to remove tank(s) (Unocal will follow up with permit application and fees if necessary and a letter if not)
Decommissioning Checklists	Service Provider to Consultant to Unocal for final signature and submittal to DEQ (written)
20-day/45-day reports	Unocal's Consultant to Unocal for review. Consultant will submit final written report to DEQ.



STATON CONSTRUCTION, INC.



29394-B AIRPORT RD. EUGENE, OR 97402-9594
(503) 461-0543 FAX 461-0545

June 5, 1993

Rachel Carlin Segal
DEQ NW Region
1500 SW First Ave
Suite 750
Portland OR 97201-5884

RE: NWR-UST-93-197

Dear Ms. Segal:

Your letter of June 1, 1993 regarding rule violations in reference to File No.26-93-071 is incorrect. Violation 1 cites OAR 340-160-020 (12). This statute very clearly indicates that a confirmed or suspected release shall be reported "upon discovery" by the service provider.

Failure to report a release assumes there is knowledge of a release. You are well aware that I had no knowledge of this due to the circumstances of my contract with my client, which required me to perform only the physical portion of UST decommissioning. Soil sampling and reporting was performed by another contractor under separate contract. Failure to report a condition I had no knowledge of is not a violation of anything.

I expect a full withdrawal of this NON.

Violation 2 cites OAR 340-160-020 (7). This statute is also very clear. It requires the service provider to "submit a completed checklist to the Department following the completion of a tank decommissioning". There is no language in 340-160-020 (7) that refers to "Failure to maintain adequate decommissioning records" which you claim as a violation in your letter. My portion of the checklist was completed on 3-1-93 and mailed to the environmental consultant for completion of their portion so that it could then be mailed to the client for proper signatures. The client then mailed the completed checklist to you. Based on these circumstances and the language in 340-160-020 (7) no violation occurred.

I expect a full withdrawal on this NON also.

It is very frustrating and unfair that I have to take a significant amount of my time to defend the reputation of my company due to mis-application of the rules.

The DEQ and the tax payers of this State would be better served by developing a positive working relationship with your service providers, it's clients and sub contractors. As it is, the perception State wide is that the DEQ/Service provider relationship is confrontational and adversarial at best. A sad state of affairs that causes many providers and property owners to distance themselves from any communication or contact with your agency.

Several recent personal experiences (such as this one) confirm that perception for me. I think it's very unfortunate because your "front line" in the field are your service providers. If you want to keep your "front line" intact I recommend you consider changes which will encourage cooperation and mutual respect.

The site characterization and clean up standards utilized by the firms associated with this particular project exceed the statutory requirements of your agency. I find it difficult to understand why you would issue NONs to three separate business entities for minor errors when they have completed a timely, thorough, above average site characterization and clean up project. These errors did not impact the timing or integrity of the job, or the timing and intent of the regulations. I feel the negative impact these "red tape" NONs have on your agency, are not justifiable. Especially the NONs issued to Staton Const. since the rules were misinterpreted and the NONs do not apply anyway!

I feel sure your response is going to be, " We can not discriminate on the enforcement of statutory violations". I disagree! Most regulatory agencies have a mechanism for flexibility or intent (interpretation). The use of such a mechanism is of great help in dealing with unusual problems or in eliminating unnecessary red tape. I recommend you consider the implementation and use of such a tool if you don't already have one. The Judicial System, Law Enforcement Agencies, OSHA and similar others are good examples of this.

Your reference to "similar NONs" and the underlying insinuation that we are "being watched" is unprofessional and also contributes to the adversarial relationship.

In addition, your suggestions as to how Staton Construction, it's clients or sub contractors perform work associated with UST decommissioning projects, goes beyond your regulatory authority and is very presumptuous. We have been performing UST decommissioning work since the mid 1970's. Our attitude and philosophy has always been to fully comply with the intent of all statutory requirements. Do we make mistakes? Certainly! It's inevitable with the volume of work we perform. The same problem occurs in your agency too. I only want a fair shake, and not to be typed as some "Yank-A-Tank" yo yo who just fell off a turnip truck rolling through town.

I know this response goes beyond the NON issue I wanted to stick to, but sometimes you have to let off some steam to keep from holding grudges.

I would like a written formal response with copies to all of those cc'd in your June 1, 1993 letter to Mr. Leonard Staton, within 30 (thirty) calendar days of receipt of this letter.

Or, if I may be of further assistance regarding any of these issues, please contact me at your convenience.

Respectfully,

Ron Richey
General Mgr.

cc: See next page

cc: Lon Revall
DEQ
811 SW 6th Ave.
Portland OR 97204

Mary Lou Perry
DEQ
811 SW 6th Ave.
Portland OR 97204

Dennis Thomason
DEQ
811 SW 6th Ave.
Portland OR 97204

Laurie McCulloch
DEQ
811 SW 6th Ave.
Portland OR 07204

Dulci Berri
Brown and Caldwell Consultants
9620 SW Barbur Blvd.
Portland OR 97402

Tim O'Gara
Brown and Caldwell Consultants
PO Box 8045
Walnut Creek CA 94596

Mark Brearley
UNOCAL
100 W Harrison
Seattle WA 98111

STATON CONSTRUCTION, INC.

29394-B AIRPORT RD. EUGENE, OR 97402-9594
(503) 461-0543 FAX 461-0845

June 5, 1993

Rachel Carlin Segal
DEQ NW Region
1500 SW First Ave
Suite 750
Portland OR 97201-5884

RE: NWR-UST-93-197

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Or, if I may be of further assistance regarding any of these issues, please contact me at your convenience.

Respectfully,

Ron Richey
General Mgr.

cc: See next page

cc: Lon Revall
DEQ
811 SW 6th Ave.
Portland OR 97204

Mary Lou Perry
DEQ
811 SW 6th Ave.
Portland OR 97204

Dennis Thomason
DEQ
811 SW 6th Ave.
Portland OR 97204

Laurie McCulloch
DEQ
811 SW 6th Ave.
Portland OR 07204

Dulci Berri
Brown and Caldwell Consultants
9620 SW Barbur Blvd.
Portland OR 97402

Tim O'Gara
Brown and Caldwell Consultants
PO Box 8045
Walnut Creek CA 94596

Mark Brearley
UNOCAL
100 W Harrison
Seattle WA 98111

26-93-071

CT System

DEPT OF ENVIRONMENTAL QUALITY
RECEIVED
JUN 04 1993
NORTHWEST REGION

C T Corporation System
520 S.W. Yamhill Street
Portland, OR 97204-1383
503 226 6151

Date: June 3, 1993

To: Oregon Dept. of Environmental Quality
Att: Rachel C. Segal, UST Cleanup Specialist
1500 SW First Ave., Ste. 750
Portland, OR 97201-5884

Re: Service Provider License #12743
NWR-UST-93-196

We received the enclosed correspondence/legal process, apparently sent to CT Corporation System as the registered agent for some firm, but we cannot determine for whom.

Please indicate for whom you intended service of this material and return it to us for handling.

Respectfully,

CT CORPORATION SYSTEM

P. McGriff

Patty McGriff, Admin. Asst.

Encl.

Oregon

June 1, 1993

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

CT CORPORATION SYSTEM
800 PACIFIC BUILDING
PORTLAND OR 97204

Re: Service Provider License #12743
Brown and Caldwell Consultants
NWR-UST-93-196
NOTICE OF NONCOMPLIANCE

The purpose of this letter is to inform you of violations of the Department's rules concerning the underground storage tank (UST) decommissioning at Unocal #5745 located at 445 SE 242nd Avenue in Troutdale, Oregon (File No. 26-93-071). These violations were confirmed on May 25, 1993, after a review of Unocal's response to its Notice of Noncompliance and investigation of Brown and Caldwell Consultants' (BCC) status as a service provider.

Violation 1

BCC acted as a decommissioning service provider without being licensed when it took samples during a decommissioning on February 26, 1993 at Unocal #5745. These samples were taken to measure whether any contamination was present at the time of decommissioning.

Staton Construction, Inc. (Staton) was also working as the service provider for this project. However, since BBC collected the samples and did not share these results with Staton, BBC took on the service provider's responsibility for reporting the release (Violation 2 described below).

Violation 2

On April 12, 1993, the Department received a report on "Soils Investigation Following Station Decommissioning" prepared by Brown and Caldwell Consultants. Analytical results show one sample containing 47 parts per million (ppm) Total Petroleum Hydrocarbons (TPH) by method TPH-G. **Although this concentration is below the Level 2 numeric soil cleanup standard of 80 ppm for gasoline, contamination was found at this site.**

The Department was not notified of contamination by the owner within 24 hours or by the service provider within 72 hours of discovery of the release. You should be aware that all below ground petroleum releases are required to be reported to this Department regardless of whether levels of contaminants are below the matrix cleanup level for the site.

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

Providing decommissioning services on an UST and failure to report a release are Class I violations of Oregon Administrative Rules (OAR 340-160-020 (2) and (12)) and are considered to be a significant violations of Oregon's environmental regulations. While these violations do not appear to have been intentional, if similar violations occur, we will refer your file to the Department's Enforcement Section with a recommendation to proceed with a formal enforcement action which may include a civil penalty assessment. Civil penalties can be assessed in an amount of up to $10,000 for each day of violation.

In order to ensure that similar violations do not occur in the future, BCC must apply for a Service Provider license in order to continue overseeing UST decommissionings by **July 1, 1993**. I will have the application materials forwarded under separate cover to BCC's service provider contact, Tim O'Gara. In addition, please submit a letter by **July 1, 1993** describing what other actions BCC will take to prevent recurrence of this situation. Because any service provider working at a site is obligated to report contamination to the Department, we urge BCC to share its analytical data with other service providers working on its projects so that they are not put in the position of violating Oregon's environmental regulations.

Your cooperation in this matter is appreciated. If you have any questions, please call me at (503) 229-6385 x225.

Sincerely,

Rachel Carlin Segal

Rachel Carlin Segal
UST Cleanup Specialist

cc: UST Cleanup Section, ECD
UST Compliance Section, HSW - Dennis Thomason
Enforcement Section, RO
Ms. Dulcy Berri
Brown and Caldwell Consultants
9620 SW Barbur Boulevard
Portland, OR 97402
Mr. Tim O'Gara
Brown and Caldwell Consultants
PO Box 8045
Walnut Creek, CA 94596
Mr. Mark Brearley
Unocal 76
100 W. Harrison
Seattle, WA 98111

Oregon

June 1, 1993

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

MR LEONARD STATON
89217 MARCOLA ROAD
SPRINGFIELD OR 97478

Re: Service Provider License #12407
Staton Construction, Inc.
NWR-UST-93-197
NOTICE OF NONCOMPLIANCE

Dear Mr. Staton:

The purpose of this letter is to inform you of violations of the Department's rules concerning the underground storage tank decommissioning at Unocal #5745 located at 445 SE 242nd Avenue in Troutdale, Oregon (File No. 26-93-071). These violations were confirmed on May 25, 1993, after a review of Unocal's response to its Notice of Noncompliance (NON) and investigation of Staton Construction's status as a service provider.

Violation 1

On April 12, 1993, the Department received a report on "Soils Investigation Following Station Decommissioning" prepared by Brown and Caldwell Consultants. Analytical results show one sample containing 47 parts per million (ppm) Total Petroleum Hydrocarbons (TPH) by method TPH-G. **Although this concentration is below the Level 2 numeric soil cleanup standard of 80 ppm for gasoline, contamination was found at this site.**

The Department was not notified of contamination by the owner within 24 hours or by the service provider within 72 hours of discovery of the release. You should be aware that all below ground petroleum releases are required to be reported to this Department regardless of whether levels of contaminants are below the matrix cleanup level for the site.

Failure to report a release is a Class I violation of Oregon Administrative Rules (OAR 340-160-020 (12)) and is considered to be a significant violation of Oregon's environmental regulations.

Violation 2

Staton Construction failed to maintain adequate decommissioning records when it indicated on the decommissioning checklist that no contamination was found. Ron Richey, the licensed decommissioning supervisor, signed the checklist on March 1, 1993. The analytical report for samples taken to measure whether contamination was present at the time of

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

decommissioning was dated March 12, 1993.

Failure to maintain adequate decommissioning records is a Class III violation of OAR 340-160-020 (7).

While these violations do not appear to have been intentional, if similar violations occur, we will refer your file to the Department's Enforcement Section with a recommendation to proceed with a formal enforcement action which may include a civil penalty assessment. Civil penalties can be assessed in an amount of up to $10,000 for each day of violation.

Your company has already received prior NONs for similar violations. You should be aware that NONs are cumulative and may be considered in the Department's decision to proceed with formal enforcement, including suspension or revocation of a service provider's license.

Please submit a letter, by **July 1, 1993**, describing what actions Staton Construction will take to prevent recurrence of this situation. I am enclosing a copy of the decommissioning checklist and report your company submitted that must be amended to show that contamination was found at this site. Please resubmit these forms by the above date.

In addition, the Department recommends that Staton Construction obtain all analytical data for samples taken to measure whether any contamination was present at the time of decommissioning, especially when those samples are taken by a consultant working on the same project, so that it is not put in the position of violating Oregon's environmental regulations.

Your cooperation in this matter is appreciated. If you have any questions, please call me at (503) 229-6385 x225.

Sincerely,

Rachel Carlin Segal

Rachel Carlin Segal
UST Cleanup Specialist

Enclosures

cc: See next page

cc: UST Cleanup Section, ECD
UST Compliance Section, HSW - Dennis Thomason
Enforcement Section, RO
Mr. Ron Richey
Staton Construction, Inc.
29394-B Airport Road
Eugene, OR 97402
Ms. Dulcy Berri
Brown and Caldwell Consultants
9620 SW Barbur Boulevard
Portland, OR 97402
Mr. Tim O'Gara
Brown and Caldwell Consultants
PO Box 8045
Walnut Creek, CA 94596
Mr. Mark Brearley
Unocal 76
100 W. Harrison
Seattle, WA 98111

Oregon Department of Environmental Quality

UNDERGROUND STORAGE TANK DECOMMISSIONING CHECKLIST

DEQ FACILITY NUMBER: 1083 (07) DATE: 3-1-93

FACILITY NAME: UNOCAL # 5745

FACILITY ADDRESS: 445 SE 242nd

GRESHAM OR 97060

PHONE: (206) 443-7512

A. SAFETY EQUIPMENT ON JOB SITE:

Fire Extinguisher: Type/Size: 20# ABC Recharge Date: 11-13-92

Combustible Gas Detector: Model: Bio Sensor II Calibration Date: 2-22-93

Oxygen Analyzer: Model: Bio Sensor II Calibration Date: 2-22-93

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?	✓			

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C. TANK ABANDONMENT IN-PLACE:

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

	No	Unk	N/A
			✓
			✓

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

7. Contamination concerns fully resolved?

8. Fill Material? Type: _____

✓			
✓			
	✓		
✓			
✓			
			✓

). TANK REMOVAL:

9. Tank placement area cleared, chocks placed?

0. Purged or ventilated tank to prevent explosion?
Method used: VENTILATION Meter reading: 10% LEL

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

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

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

4. Tank labeled before leaving site? SCRAPPED ON SITE (FIBERGLASS)

✓			
✓			
✓			
	✓		
			✓
✓			

E. SITE ASSESSMENT:

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

6. Soil samples taken and analyzed?

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

8. Was contamination found? Date/Time: _____

9. Was contamination reported to DEQ? By: _____
Date/Time: _____ DEQ Staff: _____

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

1. Disposal location of tank(s) contents.

Name: SPENCER INC. Date: 2-26-93

Address: 15770 BEAVER GLEN DR.
OREGON CITY OR 97045 Attach disposal receipt.

2. Disposal or recycling location of removed tank(s) and associated piping.

Name: LANE COUNTY LANDFILL Date: 3-2-93

Address: 84771 DILLARD ACCESS RD
EUGENE OR 97405 Attach disposal receipt.

3. 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 #: 12407

Name: Staton Construction

Telephone: 461-0543

DEQ Decommissioning Supervisor's License #: 11819

Name: Ron Richey

Telephone: 461-0543

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: Ron Richey Date: 3-1-93
(Licensed Supervisor)

Signature: [signature] Date: 4/21/93
(Owner or Operator)

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

NWR

Oregon Department of Environmental Quality

UNDERGROUND STORAGE TANK DECOMMISSIONING/SERVICE CHANGE REPORT

DEQ FACILITY NUMBER: 1083 A DATE: 3-1-93

FACILITY NAME: UNOCAL #5745

FACILITY ADDRESS: 445 SE 242nd

GRESHAM OR 97060

PHONE: (206) 443-7512

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: 9-30-92 (30 days before work starts)

Work Start Telephone Notice - Date Submitted: 2-19-93 (3 working days before work starts)

DEQ Person Notified: JULIE BERNDT

Date Work Started: 2-25-93

Date Work Completed: 3-1-93

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: N/A By: _____

DEQ Person Notified: _____

Backfill Telephone Notice - Date Called: _____ (before backfilling)

DEQ Person Notified: _____

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Both
UST Compliance Section

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 #: N/A Date: _____

Disposed to (Location): _____

DEQ Solid Waste Disposal Permit #: _____ Date: _____

B. PERMITS (Continued)

UST Soil Treatment Permit Addendum - Type: N/A Date: _____

Soil Disposal or Treatment Location: _____

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
A	AFHBF	12,000	REG. U/L		✓				✓
B	AFHBG	12,000	SUPER U/L		✓				✓
W/O	AFHBH	550	WASTE OIL		✓				✓

* 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
A		✓		LANE COUNTY LANDFILL 84777 DILLARD ACCESS RD EUGENE OREGON	SPENCER INC 15770 BEAVER GLEN OREGON City OR	SPENCER INC. 15770 BEAVER GLEN OREGON City OR
B		✓		"	"	"
W/O		✓		LANE COUNTY LANDFILL 84777 DILLARD ACCESS Rd. EUGENE OREGON	SPENCER INC 15770 BEAVER GLEN OREGON City OR	SPENCER INC. 15770 BEAVER GLEN OREGON City OR

* 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 #	Ground* water in pit?	Product odor in soil?	Product stains in soil?	Number of Samples	Laboratory (Name, City, State, Phone)
A	n	n	n		
B	n	n	n		
W/O	n	n	n		

* 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)

G. WORK PERFORMED BY:

DEQ Service Provider's License #: 12407 Construction Contractors License #: 03371

Name: Staton Construction, Inc.

Telephone: 461-0543

DEQ Decommissioning Supervisor's License #: 11819

Name: Ron Richey

Telephone: 461-0543

DEQ Soil Matrix Service Provider's License #: 12408 (If applicable)

Name: Staton Construction, Inc.

Telephone: 461-0543

DEQ Soil Matrix Supervisor's License #: 11820 (If applicable)

Name: Ron Richey

Telephone: 461-0543

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 or 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: 4/21/92
(Owner or Operator)

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

Oregon

June 1, 1993

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

CT CORPORATION SYSTEM
800 PACIFIC BUILDING
PORTLAND OR 97204

Re: Service Provider License #12743
Brown and Caldwell Consultants
NWR-UST-93-196
NOTICE OF NONCOMPLIANCE

The purpose of this letter is to inform you of violations of the Department's rules concerning the underground storage tank (UST) decommissioning at Unocal #5745 located at 445 SE 242nd Avenue in Troutdale, Oregon (File No. 26-93-071). These violations were confirmed on May 25, 1993, after a review of Unocal's response to its Notice of Noncompliance and investigation of Brown and Caldwell Consultants' (BCC) status as a service provider.

Violation 1

BCC acted as a decommissioning service provider without being licensed when it took samples during a decommissioning on February 26, 1993 at Unocal #5745. These samples were taken to measure whether any contamination was present at the time of decommissioning.

Staton Construction, Inc. (Staton) was also working as the service provider for this project. However, since BBC collected the samples and did not share these results with Staton, BBC took on the service provider's responsibility for reporting the release (Violation 2 described below).

Violation 2

On April 12, 1993, the Department received a report on "Soils Investigation Following Station Decommissioning" prepared by Brown and Caldwell Consultants. Analytical results show one sample containing 47 parts per million (ppm) Total Petroleum Hydrocarbons (TPH) by method TPH-G. **Although this concentration is below the Level 2 numeric soil cleanup standard of 80 ppm for gasoline, contamination was found at this site.**

The Department was not notified of contamination by the owner within 24 hours or by the service provider within 72 hours of discovery of the release. You should be aware that all below ground petroleum releases are required to be reported to this Department regardless of whether levels of contaminants are below the matrix cleanup level for the site.

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

Providing decommissioning services on an UST and failure to report a release are Class I violations of Oregon Administrative Rules (OAR 340-160-020 (2) and (12)) and are considered to be a significant violations of Oregon's environmental regulations. While these violations do not appear to have been intentional, if similar violations occur, we will refer your file to the Department's Enforcement Section with a recommendation to proceed with a formal enforcement action which may include a civil penalty assessment. Civil penalties can be assessed in an amount of up to $10,000 for each day of violation.

In order to ensure that similar violations do not occur in the future, BCC must apply for a Service Provider license in order to continue overseeing UST decommissionings by **July 1, 1993**. I will have the application materials forwarded under separate cover to BCC's service provider contact, Tim O'Gara. In addition, please submit a letter by **July 1, 1993** describing what other actions BCC will take to prevent recurrence of this situation. Because any service provider working at a site is obligated to report contamination to the Department, we urge BCC to share its analytical data with other service providers working on its projects so that they are not put in the position of violating Oregon's environmental regulations.

Your cooperation in this matter is appreciated. If you have any questions, please call me at (503) 229-6385 x225.

Sincerely,

Rachel Carlin Segal

Rachel Carlin Segal
UST Cleanup Specialist

cc: UST Cleanup Section, ECD
UST Compliance Section, HSW - Dennis Thomason
Enforcement Section, RO
Ms. Dulcy Berri
Brown and Caldwell Consultants
9620 SW Barbur Boulevard
Portland, OR 97402
Mr. Tim O'Gara
Brown and Caldwell Consultants
PO Box 8045
Walnut Creek, CA 94596
Mr. Mark Brearley
Unocal 76
100 W. Harrison
Seattle, WA 98111

cc: Mr. Ron Richey
Staton Construction, Inc.
29394-B Airport Road
Eugene, OR 97402

UST FIELD INSPECTION REPORT

Site Name: Unocal 5745 Date: 5-27-93 Total Time*: 2 hrs

Site Address: 445 SE 242nd, Gresham *Include inspection, travel, paperwork

File/Facility No.: 26-93-071 Inspector: Rachel Segal

Others Onsite: include company name: Thayne Loendorf - Brown + Caldwell

Supervisor License No.: ____________ (note name with **)

Inspection Type

- ___ Install/Retro
- ___ Decommission
- ___ UST Facility
- ___ Distrib. Audit
- X Cleanup
- ___ Soil Aeration
- ___ Complaint
- ___ Excav. Closure
- ___ FAP Application
- ___ (other)

FAP Site? Y / N

Health & Safety

Hazards Appraised? (Y) / N

Benzene Monitoring? Y / (N) (if yes, attach form)

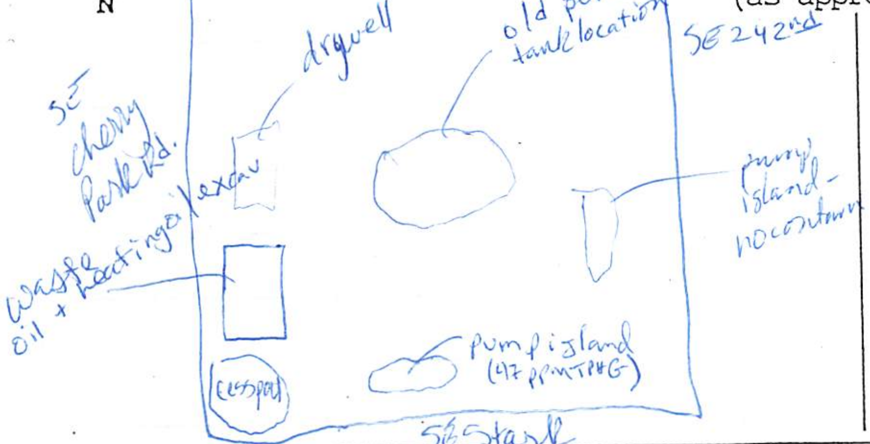
Potential Site Hazards

Heavy equip, open excavations

(use NOTES if more room needed)

INSPECTION RESULTS - IN COMPLIANCE? (Y) / N / NA

↑ N Plan View SITE SKETCH (as appropriate) X-section of excavation



PHOTOS TAKEN? (Y) / N (attach) SAMPLES TAKEN? Y / N (attach results)

NOTES (use back of form as necessary)

They were backfilling ~~old~~ test pits in old tank area when I arrived. Loendorf stated that there were no visual/odor signs of contam in the test pits. He's taken 4 samples. I told him if they have contam. there, I will incorporate that into the other UST cleanup issues. I explained that the cesspool, drywell issues will probably be referred to ECD.

INSPECTION NOTES: (cont.)

#1 — old tank location
#2 - Pump p island test pit
#3 - pump island test pit
#4 - cesspool location
#5 - ~~drywell location~~
Waste oil/HOT excav.

#1 – old tank location
#2 – Pump island test pit
#3 – pump island test pit
#4 – cesspool location
#5 – ~~dry well location~~
Waste oil/HOT excav.

#1 — old tank location
#2 - Pump island test pit
#3 - pump island test pit
#4 - cesspool location
#5 - ~~drywell location~~
waste o.l/HOT excav.

cc: Mr. Ron Richey
Staton Construction, Inc.
29394-B Airport Road
Eugene, OR 97402

Oregon

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHWEST REGION

MATRIX CLEANUP EXCAVATION CLOSURE APPROVAL

Site Information

Site Name: Unocal5745

Site Address: 445 SE 242nd, Gresham OR

USTC Log Number: 26-93-071 Date Approved: 5-26-93

Facility ID No.: 1083 Approved by: Rachel Segal

Service Provider Information

Individual Name: Ron Richey

Company Name: Staton Construction License No.: 12407

Address: 29394 - Airport Rd.
Eugene, OR 97402

This is to confirm that verbal authorization has been given to backfill or close the excavation located at the facility referenced above, pursuant to OAR 340-162-020(7) or OAR 340-163-020(6). Following completion, a copy of your signed checklist, as required by OAR 340-162-020(5) or OAR 340-163-020(4) and a copy of your final report, as required by OAR 340-122-350 must be submitted to the Department.

This authorization merely signifies that the Department was notified of a proposed excavation closure and was unable to schedule a field inspection at that time.

Authorization to close is not a Department determination that the soil cleanup has been completed in compliance with the requirements of OAR 340, Division 122. Upon a review of the checklist and final report referenced above, the Department will make a final determination on compliance with numeric cleanup standards. If you have any questions, please contact the Northwest Region at 503-229-5263.

cc: UST Compliance Section, HSW
UST Cleanup Section, ECD
NWR UST Cleanup project file
NWR Service Provider file

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

DEQ-1

TELEPHONE USE REPORT

CALL FROM/TO: Dulcy Berri

COMPANY/TITLE: Brown + Caldwell

PHONE NO.: _____

CITY: _____ COUNTY: _____

DATE: 5-25-93

TIME: 1:35

(Circle for filing)

AQ	Asbestos
WQ	OSS
SW	HW
General	Spill

re: Unocal 5745
26-93-071

SUMMARY OF CALL:

- Called to discuss service provider issue. Asked her if analytical results had been provided to Staton. She said they don't normally provide the results unless the contractor requests them. The results were not given to Staton.
- Also explained that septic tank, cesspool + dry well may not be w/in scope of UST program and will probably be ~~referred~~ referred to ECD. She fully expects this,
- plan to do more work at site -> maybe 5-26-93 backfill excavation, do more work w/cesspool and intend to do test pits at former tank farm location. I expressed interest in visiting site. She'll let us know when they'll be out there.

R Segal
Signature

RB3972 (2/86)

TELEPHONE USE REPORT

CALL FROM/TO: Ron Ridley

COMPANY/TITLE: Staton Construction

PHONE NO.:

CITY: COUNTY:

DATE: 5-25-93

TIME: 11:17

(Circle for filing)

AQ	Asbestos
WQ	OSS
SW	HW
General	Spill

re: Unocal 5745

SUMMARY OF CALL:

I asked him if Brown + Caldwell told him what the analytical results for this site were. He said no. I also discussed METRO's ordinance for disposal + treatment of PCS. He told me that the Lane Co. Landfill receipt was for the fiberglass tank.

R. Legal

Signature

RB3972 (2/86)

TELEPHONE USE REPORT

CALL FROM/TO: Secy of State – Corporations DATE: 5-20-93

COMPANY/TITLE: _____ TIME: _____

PHONE NO.: 378-4166 (Circle for filing)

CITY: _____ COUNTY: _____

AQ	Asbestos
WQ	OSS
SW	HW
General	Spill

SUMMARY OF CALL:

Registered agents:

Brown + Caldwell: CT Corporation System
800 Pacific Building
Portland, OR 97204

Pres: J.L. Hartford
3480 Buskirk Ave.
Pleasant Hill, CA 94523

Secy: P.L. Armstrong – same address.

Staton Construction: Leonard Staton
89217 Marcola Rd.
Springfield, OR 97478

Pres + Secy: Claudia Staton
Same address.

B. Segal
Signature

RB3972 (2/86)

Unocal Corporation
100 West Harrison, Suite 2
Seattle, Washington 98119
Telephone (206) 281-7666
Facsimile (206) 443-7561

UNOCAL 76

Northern Region
Corporate Environmental Remediation & Technology

May 7, 1993

Ms. Rachel Carlin Segal
UST Cleanup Specialist
DEQ - Northwest Region
1500 SW First Avenue, Suite 750
Portland, Oregon 97201-5884

RE: Notice of Noncompliance for former Unocal Service Station #5745 located at 445 SE 242nd Avenue in Troutdale, Oregon (DEQ File No. 26-93-071)

Dear Ms. Segal:

Unocal apologizes for the oversight in lack of notification to the DEQ regarding the low levels of soil contamination in one sample at the above-referenced Unocal facility. It has always been and will continue to be Unocal's policy to comply with DEQ's notification and reporting regulations. However, it has also been Unocal's internal policy to designate its service provider (Brown & Caldwell Consultants, in this case) as responsible for all DEQ notification requirements (please see attached letter).

As a result, we have reviewed the notification and reporting regulations with Brown & Caldwell and re-affirmed our policy of having them act on our behalf in this capacity. Please accept our assurance that we have taken the necessary steps to minimize the possibility of a recurrence of this situation. The "Initial Report Form for UST Cleanup Projects" completed by Brown & Caldwell is attached.

For your information, we have returned a signed DEQ UST Cost Recovery agreement. Please call me at (206) 443-7512 if you have any questions or require any additional information.

Sincerely,

Mark Brearley, Ph.D.
Environmental Geologist

cc: Gary Gunderson - CERT Seattle
Philip C. Stern - CERT San Ramon

Brown and Caldwell
Consultants

9620 S.W. Barbur Boulevard
Suite 200
Portland, OR 97219-6041
(503) 244-7005
FAX (503) 244-9095

May 5, 1993

Dr. Mark Brearley
Unocal Corporation
100 West Harrison, Suite 200
Seattle, Washington 98111

13-7134

Subject: Unocal Service Station No. 5745
DEQ File No. 26-93-071
DEQ Notice of Noncompliance

Dear Dr. Brearley:

The recent letter from Ms. Rachel Segal, Department of Environmental Quality (DEQ), regarding the above site has been reviewed, as well as Brown and Caldwell field notes and observations during the tank decommissioning project. Apparently release was suspected in the area of the former south pump island, according to field notes. This suspicion was described as "mild hydrocarbon odors" from soils in the area.

It is acknowledged that this suspicion should have been verbally reported to DEQ within 24 hours of the observation in the field, despite the field technician's feeling that hydrocarbon levels would fall well below DEQ Soil Matrix cleanup levels for gasoline. I apologize for this misinterpretation of DEQ regulation. All Brown and Caldwell personnel involved in underground storage tank work have been briefed on this situation and made aware of the correct field response to suspicion of a release.

It is also understood from this situation that the requirement to report a **suspicion** of a release applies only to that from regulated tank systems, per Ms. Segal. Suspected releases from heating oil or septic tanks, for instance, are reportable after the release has been **confirmed** by laboratory analysis.

The deadline for submitting decommissioning checklists and reports was discussed with Ms. Segal on May 4, 1993. According to 40 CFR 280.71, a checklist is required within 30 days after tank closure. This seems to conflict with the deadline printed on the checklist/report forms, which states submittal is required within 30 days of backfill of the excavation. She agreed this is misleading and recommends following 40 CFR 280.

I indicated to Ms. Segal that I was completing the Initial Report Form requested in her letter, would forward to you as soon as complete, and that you will forward the form along with your letter to her by May 23, 1993.

If I can assist you further, please contact me.

Very truly yours,

BROWN AND CALDWELL

Dulcy A. Berri, R.G.
Project Manager

DAB:jlj
Enclosure

INITIAL REPORT FORM FOR UST CLEANUP PROJECTS

This report is due within twenty (20) days from the date of the release*

SITE INFORMATION

*DEQ File No.: 26-93-071 *Date of Release: UNKNOWN

Site Name: UNOCAL SERVICE STATION NO. 5745

Site Address: 445 SE 242ND AVENUE
TROUTDALE, OR 97060

Responsible Party: UNOCAL CORPORATION Phone: (206) 443-7512

RP Mail Address: 100 W. HARRISON, SUITE 200
SEATTLE, WA 98111

Service Provider: BROWN AND CALDWELL Phone: (503) 244-7005

SP Mail Address: 9620 SW BARBUR BLVD.
PORTLAND, OR 97219

* Note: This information is listed on the cover letter received by the Responsible Party.

INITIAL CLEANUP INFORMATION

(X) N Do you believe that this cleanup project can be conducted under the requirements for an UST Cleanup Matrix site?

► Groundwater use in the immediate area of the project (check all that apply) - complete whether or not the release is believed to have impacted groundwater.

___ Drinking water supply
_X_ Agricultural
___ Industrial
___ Groundwater not used

► Facility location (check all that apply)

_X_ <100 ft. from a wetland or surface stream (circle one or both)
___ within a residential area
_X_ within an industrial/commercial area
___ Other (describe): _____

► 20' Current approximate depth to groundwater (in feet).

► ? Seasonal high groundwater level (in feet) if different.

► Describe how depths were determined: 20' APPROX. MAX. DEPTH OF PAST EXCAVATION WORK ON SITE; NO GROUNDWATER ENCOUNTERED AT THAT DEPTH.

INITIAL REPORT FORM FOR UST CLEANUP PROJECTS - PAGE 2

Y N (NA) Did you take immediate action to prevent any further release of the regulated substance into the environment? EXPLAIN: PRODUCT LINES HAD BEEN DRAINED PRIOR TO WORK IN THE AREA.

Y N (NA) Were steps taken to identify and mitigate fire, explosion, and vapor hazards? EXPLAIN: NO HAZARDS EXISTED.

Y N (NA) Did you remove as much of the regulated substance from the UST system as necessary to prevent further release to the environment? EXPLAIN: PRODUCT LINES HAD ALREADY BEEN DRAINED.

Y N (NA) Did you visually inspect any aboveground releases or exposed below ground releases and prevent further migration of the released substance in surrounding soils and groundwater? EXPLAIN:

Y N (NA) Are/were there any vapors present in buildings or utility corridors? If yes, are you continuing to monitor and mitigate any additional fire and safety hazards posed by vapors and free product? EXPLAIN: NO BUILDINGS REMAIN ONSITE OR ADJACENT TO AREA.

Y N (NA) Have you remedied any hazards posed by contaminated soils that were excavated or exposed as a result of release confirmation, site investigation, abatement, or cleanup activities? EXPLAIN: NO HAZARD IS BELIEVED TO BE PRESENT.

(Y) N NA Have you measured for the presence of a release where contamination is most likely to be present at the UST site? EXPLAIN:

Y N (NA) Did you investigate to determine the possible presence of free product and begin free product removal as soon as practicable? If yes, was the region notified? EXPLAIN: NO FREE PRODUCT DISCOVERED.

Y (N) Was groundwater initially encountered in the excavation? If yes, how was this water handled/disposed? How many gallons involved? EXPLAIN:

Y N (NA) Was a sheen or odor observed on any water in the excavation? If yes, DESCRIBE OBSERVATIONS: NO GROUNDWATER ENCOUNTERED.

Y N (NA) Did groundwater recharge 24 hours after pumping the accumulated water in the excavation? If yes, what actions have you taken as a result? Did you resample the recharge water? EXPLAIN: _____

_____

_____

_____

(Y) N Are any SOIL OR WATER SAMPLE RESULTS available at the time of this report? If yes, attach all laboratory analysis reports and chain of custody forms. REFER TO BCC REPORT "SOILS INVESTIGATION FOLLOWING STATION DECOMMISSIONING" DATED APRIL 9, 1993

GENERAL INFORMATION FOR ALL CONTAMINATED SOILS MANAGEMENT

Note: All soils temporarily stockpiled onsite prior to treatment or disposal must be contained within a bermed area, kept covered (and the cover anchored), and the entire area secured to prevent unauthorized access by the public. Non-contaminated soils should be protected and kept separated from contaminated soil.

Y (N) The level of contamination noted is expected to require removal of contaminated soil for treatment or disposal. If yes, complete the following. If no, go to Page 4, "Report Prepared By".

► Type of petroleum contamination (check all that apply):

___ Gasoline ___ Diesel ___ Waste Oil ___ Heating Oil

___ Other contamination (specify): _____

► Estimated volume of soil if known (tons or cubic yards): _____

► Intended Disposition of Soils (check appropriate method):

___ Treatment

___ Thermal treatment offsite at an authorized facility

Facility Name: _____ Phone No.: _____

Facility Address: _____

___ Thermal treatment onsite with a mobil treatment unit **

Company Name: _____ Phone No.: _____

___ Offsite soil aeration[1] or bioremediation **

Treatment Site Address: _____

___ Onsite soil aeration or bioremediation **

___ Disposal

Landfill Name: _____ Phone No.: _____

Landfill Address: _____

1 Offsite soil aeration is banned within the Portland METRO area - see enclosed fact sheet.

** Permit from DEQ required, see page 5 if you would like forms mailed.

► Who will be conducting the soil treatment or disposal work?

Company Name: _____ Phone: _____

Contact Name: _____

► What date(s) is the treatment or disposal intended to be started?

_____

Note: You have approximately 30 days to stockpile contaminated soils onsite while making arrangements for proper disposal or treatment. After that time, you may be required to obtain a permit from DEQ for onsite management of the contaminated soil if you fail to take active measures to manage the soil in an appropriate manner.

THIS REPORT WAS PREPARED BY: Date: 5/5/93

Individual: DULCY BERRI Phone: (503) 244-7005

Company: BCC

Address: 9620 SW BARBUR, PORTLAND, OR 97219

If this report was NOT prepared by the Responsible Party:

Y N NA Are you the licensed Matrix Service Provider for the project and authorized by the Responsible Party to submit reports on their behalf?

Matrix Service Provider License No.: 12743

NOTE: This initial report is intended to provide the Department with the basic initial information about activities associated with the release. It is anticipated that future reports will be much more detailed and will provide a more complete picture of the entire cleanup project. If appropriate, you may reference this initial report in subsequent reports if the information does not need to be repeated for clarity.

► Please attach additional information as necessary to explain any unusual circumstances associated with the project or if you need more space to respond to any of the questions in this report form.

Return this form to: DEQ-Northwest Region
UST Section
1500 SW First, Suite 750
Portland, OR 97201

If you have questions, call 503-229-5263 and ask for the underground storage tank (UST) Duty Officer.

►►►►►►► KEEP A COPY OF THIS REPORT FOR YOUR FACILITY RECORDS ◄◄◄◄◄◄◄

NWR

Oregon Department of Environmental Quality

UNDERGROUND STORAGE TANK DECOMMISSIONING/SERVICE CHANGE REPORT

DEQ FACILITY NUMBER: 1083 ✓ DATE: 3-1-93

FACILITY NAME: UNOCAL #5745

FACILITY ADDRESS: 445 SE 242nd

Gresham OR 97060

PHONE: (206) 443-7512

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: 9-30-92 (30 days before work starts)

Work Start Telephone Notice - Date Submitted: 2-19-93 (3 working days before work starts)

DEQ Person Notified: JULIE BERNDT

Date Work Started: 2-25-93

Date Work Completed: 3-1-93

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: N/A By: _____

DEQ Person Notified: _____

Backfill Telephone Notice - Date Called: _____ (before backfilling)

DEQ Person Notified: _____

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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 #: N/A Date: _____

Disposed to (Location): _____

DEQ Solid Waste Disposal Permit #: _____ Date: _____

B. PERMITS (Continued)

UST Soil Treatment Permit Addendum - Type: N/A Date: _____

Soil Disposal or Treatment Location: _____

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
A	AFHBF	12,000	REG. U/L		✓				✓
B	AFHBG	12,000	SUPER U/L		✓				✓
W/O	AFHBH	550	WASTE OIL		✓				✓

* 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
A		✓		LANE COUNTY LANDFILL 84777 DILLARD ACCESS RD EUGENE OREGON	SPENCER INC 15770 BEAVER GLEN OREGON City OR	SPENCER INC. 15770 BEAVER GLEN OREGON City OR
B		✓		"	"	"
W/O		✓		LANE COUNTY LANDFILL 84777 DILLARD ACCESS Rd. EUGENE OREGON	SPENCER INC 15770 BEAVER GLEN OREGON City OR	SPENCER INC. 15770 BEAVER GLEN OREGON City OR

* 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 #	Ground* water in pit?	Product odor in soil?	Product stains in soil?	Number of Samples	Laboratory (Name, City, State, Phone)
A	n	n	n		
B	n	n	n		
W/O	n	n	n		

* 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)

G. WORK PERFORMED BY:

DEQ Service Provider's License #: 12407 Construction Contractors License #: 03371

Name: Staton Construction, Inc.

Telephone: 461-0543

DEQ Decommissioning Supervisor's License #: 11819

Name: Ron Richey

Telephone: 461-0543

DEQ Soil Matrix Service Provider's License #: 12408 (If applicable)

Name: Staton Construction, Inc.

Telephone: 461-0543

DEQ Soil Matrix Supervisor's License #: 11820 (If applicable)

Name: Ron Richey

Telephone: 461-0543

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 or 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: 4/21/92
(Owner or Operator)

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

LANE COUNTY
3040 NORTH DELTA HWY
EUGENE, OR 97401-1696

FIBERGLAS Insul

Operator 12
Date 03/02/93 Time 10:52:31
Customer Staton Construction, Inc.
Account No. 77014003
Truck No. 0
Secure? Y

Ticket # 20029406
In County? Y
Gross Weight 26.56
Tare Weight 19.27
Net Weight 7.29
Truck Cap. 0.00

TYPE	DESCRIPTION	QTY	RATE	FEE
31	BULK LOOSE WGT	7.29	27.000	196.83

TOTAL $ 196.83

Card Rec By

WASTE MGT DIV

077 014 003 06-93
STATON CONSTRUCTION INC

INVOICE

1307

SPENCER ENVIRONMENTAL SERVICES, INC.
15770 South Beaver Glen Drive
OREGON CITY, OREGON 97045

(503) 655-0896
EPA ID #ORD-980-836-415

JOB PHONE	DATE OF ORDER
	2-26-93
JOB NAME/LOCATION	
445 SE 142ND	
GRESHAM OR.	UNOCAL

TO STATON CONST. INC.

PHONE

ORDER TAKEN BY

TERMS: 1½% 10 Days _____ Billing Date
Net 30 Days

DESCRIPTION	AMOUNT	
TRIPLE Rinse 2- 500 GALLON TANKS		
(1-WASTE-OIL	250	00
1-HEATING OIL)	250	00
APPROX (23) GALLONS OF LIQUIDS @ 50¢ GAL	11	50

Signature certifies that to the best of my knowledge this product has not been mixed with hazardous waste.

A FINANCIAL CHARGE of 1½% per month may be applied to any Past Due amount. Past Due Accounts may be placed on C.O.D. without notification. If outside collection action is necessary purchaser shall pay all costs of collection including reasonable attorney's fees.

LABOR	HOURS	RATE	AMOUNT		TOTAL MATERIAL		
#20 Kevin					TOTAL LABOR		
WORK ORDERED BY	DATE COMPLETED	TOTAL LABOR			TAX		
					PAY THIS AMOUNT ➔	511	50

Thank You

[signature]
SIGNATURE (I hereby acknowledge the satisfactory completion of the above described work.)

Oregon Department of Environmental Quality

UNDERGROUND STORAGE TANK DECOMMISSIONING CHECKLIST

DEQ FACILITY NUMBER: 1083 (47) DATE: 3-1-93

FACILITY NAME: UNOCAL # 5745

FACILITY ADDRESS: 445 SE 242nd

GRESHAM OR 97060

PHONE: (206) 443-7512

A. SAFETY EQUIPMENT ON JOB SITE:

Fire Extinguisher: Type/Size: 20# ABC Recharge Date: 11-13-92

Combustible Gas Detector: Model: Bio Sensor II Calibration Date: 2-22-93

Oxygen Analyzer: Model: Bio Sensor II Calibration Date: 2-22-93

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?	✓			

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C. TANK ABANDONMENT IN-PLACE:

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

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

	Yes	No	Unk	N/A
17. Contamination concerns fully resolved?				✓
18. Fill Material? Type: _____				✓

D. TANK REMOVAL:

19. Tank placement area cleared, chocks placed?	✓			
20. Purged or ventilated tank to prevent explosion? Method used: VENTILATION Meter reading: 10% LEL	✓			
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? SCRAPPED ON SITE (FIBERGLASS)				✓

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: _____		✓		
29. Was contamination reported to DEQ? By: _____ Date/Time: _____ DEQ Staff: _____				✓
30. Was hazardous waste determination made for tank contents (Liquids/sludges)?	✓			

31. Disposal location of tank(s) contents.

Name: SPENCER INC. Date: 2-26-93

Address: 15770 BEAVER GLEN DR.
OREGON CITY OR 97045 **Attach disposal receipt.**

32. Disposal or recycling location of removed tank(s) and associated piping.

Name: LANE COUNTY LANDFILL Date: 3-2-93

Address: 84771 DILLARD ACCESS RD
EUGENE OR 97405 **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 #: 12407
Name: Staton Construction
Telephone: 461-0543

DEQ Decommissioning Supervisor's License #: 11819
Name: Ron Richey
Telephone: 461-0543

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: Ron Richey **Date:** 3-1-93
(Licensed Supervisor)

Signature: [signature] **Date:** 4/21/93.
(Owner or Operator)

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

Oregon

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHWEST REGION

MATRIX CLEANUP EXCAVATION CLOSURE APPROVAL

Site Information

Site Name: Unocal #5745

Site Address: 445 S.E. 242nd. Ave
Troutdale, OR. 97060

USTC Log Number: 26-93-071 Date Approved: 5-6-93

Facility ID No.: 1083 Approved by: RICHARD ROSE

Service Provider Information

Individual Name: Ms. Dulcy Berry

Company Name: Brown & Caldwell License No.: 1804

Address: 244-7005

This is to confirm that verbal authorization has been given to backfill or close the excavation located at the facility referenced above, pursuant to OAR 340-162-020(7) or OAR 340-163-020(6). Following completion, a copy of your signed checklist, as required by OAR 340-162-020(5) or OAR 340-163-020(4) and a copy of your final report, as required by OAR 340-122-350 must be submitted to the Department.

This authorization merely signifies that the Department was notified of a proposed excavation closure and was unable to schedule a field inspection at that time.

Authorization to close is not a Department determination that the soil cleanup has been completed in compliance with the requirements of OAR 340, Division 122. Upon a review of the checklist and final report referenced above, the Department will make a final determination on compliance with numeric cleanup standards. If you have any questions, please contact the Northwest Region at 503-229-5263.

cc: UST Compliance Section, HSW
UST Cleanup Section, ECD
NWR UST Cleanup project file
NWR Service Provider file

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

DEQ-1

Oregon

April 23, 1993

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

NORTHWEST REGION

MR MARK BREARLEY
UNOCAL 76
100 W HARRISON
SEATTLE WA 98111

Re: Unocal #5745
File No. 26-93-071
Facility ID #1083
NWR-UST-93-158
NOTICE OF NONCOMPLIANCE

Dear Mr. Brearley:

The purpose of this letter is to inform you of a violation of the Department's rules concerning the underground storage tank decommissioning at Unocal #5745 located at 445 SE 242nd Avenue in Troutdale, Oregon. This violation was confirmed on April 13, 1993, during a routine review of reports submitted to the Department.

On April 12, 1993, the Department received a report on "Soils Investigation Following Station Decommissioning" prepared by Brown and Caldwell Consultants. Analytical results show one sample containing 47 parts per million (ppm) Total Petroleum Hydrocarbons (TPH) by method TPH-G. **Although this concentration is below the Level 2 numeric soil cleanup standard of 80 ppm for gasoline, contamination was found at this site.**

The Department was not notified of contamination within 24 hours of discovery of the release either by you or your service provider. You should be aware that all below ground petroleum releases are required to be reported to this Department regardless of whether levels of contaminants are below the matrix cleanup level for the site.

To date, the "Underground Storage Tank Decommissioning Checklist" and the "Underground Storage Tank Decommissioning/Service Change Report" have not been received.

Failure to report a release is a Class I violation of Oregon Administrative Rules (OAR 340-122-220 (1)(a)) and failure to submit the "Underground Storage Tank Decommissioning Checklist" and the "Underground Storage Tank Decommissioning/ Service Change Report" within 30 days of decommissioning a tank is a Class III violation of title 40, Code of Federal Regulations, section 280.71 (b) as amended by OAR 340-150-003. These are considered to be serious violations of Oregon's environmental regulations. While these violations do not appear to have been intentional, if similar

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

violations occur, we will refer your file to the Department's Enforcement Section with a recommendation to proceed with a formal enforcement action which may include a civil penalty assessment. Civil penalties can be assessed in an amount of up to $10,000 for each day of violation.

An Initial Report Form for UST Cleanup Projects is enclosed, which needs to be completed and returned within twenty (20) days from the date the release was reported. An outline of additional reporting requirements and due dates is also enclosed.

In order to ensure that similar violations do not occur in the future, please submit a letter by **May 23, 1993**, describing what actions you will take to prevent recurrence of this situation. In this letter, please include the name of the company which acted as your service provider for the decommissioning. I am enclosing copies of the "Underground Storage Tank Decommissioning Checklist" and the "Underground Storage Tank Decommissioning/ Service Change Report." Please complete these forms and submit them to the address listed on the last page of each form.

Please reference the DEQ File Number listed in the top right corner of this letter in all future correspondence and reports (File No. 26-93-071).

The Department is required to recover oversight costs on projects we review and on which we provide a final notice of compliance or a "closure letter". Please find attached information concerning cost recovery. In order to receive oversight, you will be asked to sign and return within 30 days, an agreement to pay the Department's oversight costs. Please return this agreement directly to Laurie McCulloch at the Northwest Region Office. Not entering into the agreement does not release you from the responsibility for investigation and/or cleanup of any contamination. Please read this information and contact Darby Bacon at (503) 229-6635 if you have any questions on cost recovery.

Your cooperation in this matter is appreciated. If you have any other questions, please call me at (503) 229-6385 x225.

Sincerely,

Rachel Carlin Segal

Rachel Carlin Segal
UST Cleanup Specialist

Enclosures

cc: See next page

cc: UST Cleanup Section, ECD - Virginia Esmond
UST Compliance Section, HSW - Dennis Thomason
Enforcement Section, RO
Ms. Dulcy Berri
Brown and Caldwell Consultants
9620 SW Barbur Boulevard
Portland, OR 97219-6041
Mr. Ronald Richey
Staton Construction, Inc.
29394-B Airport Rd.
Eugene, OR 97402

NWR

Oregon Department of Environmental Quality

UNDERGROUND STORAGE TANK DECOMMISSIONING/CHANGE-IN-SERVICE 30 DAY NOTICE

FACILITY (Location of Tanks)
Name: UNOCAL SS# 5745
Address: 445 SE 242ND AVE.
TROUTDALE, OR 97060
Phone: (503)669-7669
DEQ Facility I.D. Number: 1083

TANK OWNER
Name: UNOCAL 76
Address: 100 W. HARRISON
SEATTLE, WA 98111
Phone: (206) 443-7523

Work To Be Performed By: TO BE DETERMINED (Owner or Licensed Service Provider) License #:
Phone: 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: NOV 1, 1992 92 yeee

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
A	AFHBF	12,000	UNLEADED		X				X
B	AFHBG	12,000	SUPER		X				X
W/O	AFHBH	550	USED OIL		X				X

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* 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: [signature] Date: 9/30/92
(Owner or Operator) UNOCAL REPRESENTATIVE

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Oregon

DEPARTMENT OF ENVIRONMENTAL QUALITY

October 8, 1992

Facility ID No.: 1083

Dear Tank Owner/Permittee:

We received a decommissioning notice on October 2, 1992 for 3 underground storage tank(s) located at:

Unocal SS #5745
445 SE 242nd Avenue
Troutdale, OR 97060

There are apparently some discrepancies between our record 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.

_X_ Permit fees for 1988 1989 1990 1991 or 1992 are past due.
Handbill sent

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

Please contact Cindy Salter at (503) 229-5733 to provide 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), or to receive a list of licensed contractors.

Failure to resolve any of the discrepancies before proceeding with decommissioning is 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.

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, **DO NOT** 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 regional office at the number listed below.

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

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

Sincerely,

Cindy Salter

Cindy Salter
Office Specialist, UST Compliance Section
Hazardous & Solid Waste Division

cc: Northwest Region Office - 229-5263

UST - 3 DAY NOTICE

X REMOVAL * 30 Day Notice? (Y) N
___ INSTALL * Permit Application Completed? Y N

Date: 2/16/93 Time: 8:45 Expected Activity Date: 2/19/93

Facility Name: Unocal #5745

Address: 445 SE 242nd

Gresham 97060 Phone: Inactive

Facility ID #: 1093

Service Provider: Staton Construction

Phone: 461-0543

License #: (0889) 12407

Tank I.D. #	No. of Tanks	Size of Tanks	Contents of Tank

LUST FORM

INCIDENT INFORMATION

LUST Incident Nbr: _____ LUST Log Nbr: 26-93-071 UST Facility ID: 1083

Date Received: 4-13-93 Received By: Rachel Segal - by report Emergency Resp Taken: Y N

Tank Identification: File Name: Unocal #5745

Street: 445 SE 242nd Ave.

City: Troutdale Zip: 97060

County: Multnomah Phone: 669-7669

Incident Comments: _____

CONTACT & MAIL TYPES

Reported By:	LUST Contact:	Responsible Party:
Name: Report	Name: Dulcy Berri	Name: Mark Brearley
Company:	Company: Brown & Caldwell	Company: Unocal 76
Street:	Street: 9620 SW Barbur Blvd.	Street: 100 W. Harrison
City: Zip:	City: Portland Zip: 97219	City: Seattle Zip: 98111
State: Phone:	State: OR Phone: 244-9995 1005	State: WA Phone: (206) 443-7523

SITE ASSESSMENT

LUST Incident Nbr: (XXXXXXXXXXXXX)

Date Investigated: 11-15-93 Investigated By: RCS by report

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

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: 3-3-93

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

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

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: 2-26-93

Cleanup Activity: Start Date: 2-26-93 Under Control Date: 2-26-93

End Date: 6-23-93 Contractor Name: Brown + Caldwell

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

Free Product Disposal:		Soil Disposal:	
Est. Gallons:	N/A	Est. Cu/Yds:	35
Resp. Party:		Resp. Party:	Unocal
Disposal Location:		Disposal Location:	Oregon Hydrocarbon
Removal Date:		Removal Date:	12/93

4 cy Unocal Rabanco 1/11/94

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: _____

Site Management Comments: _____

[Version 102]

* closed 8-18-94 *

NWR UST CLEANUP SITE CHECKLIST
(for regional use only)

This site is:

_____ <40 ppm Matrix

__X__ 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)

__X__ 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._____

_____ Decommissioning notice (30 day) received

_____ 3 day notice received

_____ Fees current

_____ New tanks to be installed

Misc. Notes:

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: UNOCAL STATION #5745
Address: 445 SE 242ND AVE
TROUTDALE, OR
DEQ File No.: 26-93-071

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 requesting 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-Northwest Region UST Section 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 them at (503) 229-5263, 1500 SW First, Suite 750, Portland, OR 97201.

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 4th day of May, 1993.

By: Gary E. Gunderson

Title: Manager, Remediation Projects

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

Individual Name: DR MARK BREARLEY

Title: ENVIRONMENTAL GEOLOGIST

Company Name: UNOCAL CORPORATION

Mail Address: P.O. BOX 76

City, State, Zip: SEATTLE, WA 98111

Phone Number: (206) 443-7512

Brown and Caldwell
Consultants

9620 S.W. Barbur Boulevard
Suite 200
Portland, OR 97219-6041
(503) 244-7005
FAX (503) 244-9095

July 26, 1993

Dr. Mark Brearley
Environmental Geologist
Unocal CERT - Northern Region
Post Office Box 76
Seattle, Washington 98111

13-7134

Subject: Phase II Onsite Soils Investigation
Unocal Service Station No. 5745
445 Southeast 242nd Avenue
Gresham, Oregon

Dear Dr. Brearley:

This letter report describes the results of the soil investigation conducted by Brown and Caldwell Consultants (BCC) at the Unocal Corporation (Unocal) Service Station No. 5745. This investigation was to further assess possible contamination in the area of former gasoline underground storage tanks (UST), in the area of a former drywell and around the former septic tank and cesspool. The site is located at 445 Southeast 242nd Avenue, Gresham, Oregon (Figure 1).

SITE DESCRIPTION AND LOCATION

Unocal owns or has lease agreements for the property and facility of Service Station No. 5745. A site map is included as Figure 2. The site included a service building, located on the south half of the site and two product distribution islands located to the north of the service building. The area surrounding the two pump islands was paved with concrete; asphalt paving remains across the rest of the site.

Four fiberglass underground storage tanks (USTs) including two 10,000-gallon gasoline tanks, one 550-gallon waste oil tank and one 550-gallon heating oil tank, were located at the site. The gasoline USTs were located north of the service building and the waste oil/heating oil USTs were located to the west of the service building. Two 2-inch inside-diameter (ID) fiberglass product lines extended beneath the site from the two gasoline USTs north to the two product distribution islands and south to two former product distribution islands located east and south of the service building.

In addition to the four USTs, an abandoned septic tank and cesspool were located in the southwest corner of the property.

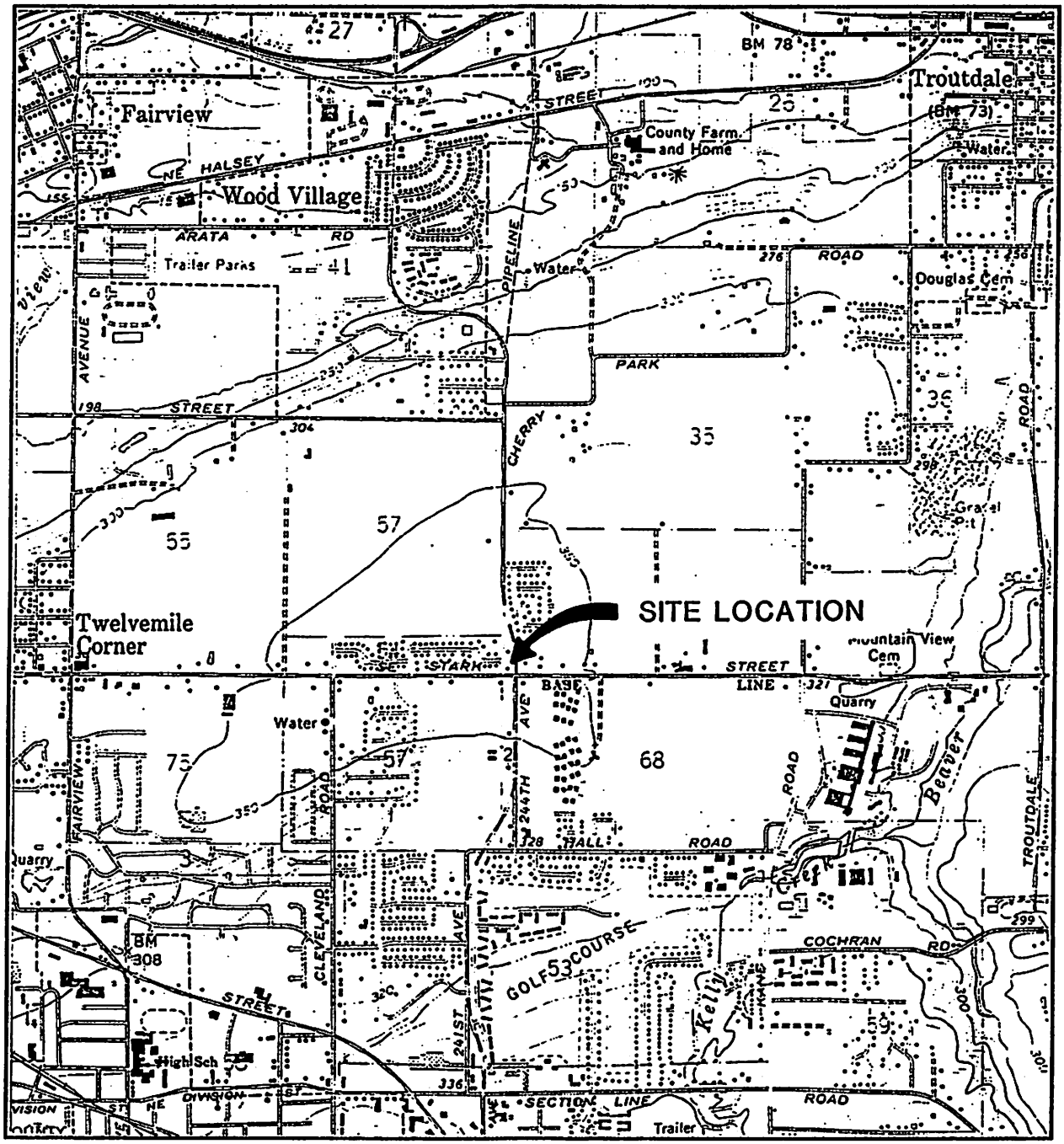

FIGURE 1
VICINITY MAP
UNOCAL SERVICE STATION NO. 5745
GRESHAM, OREGON

Brown and Caldwell Consultants

7134FIG1

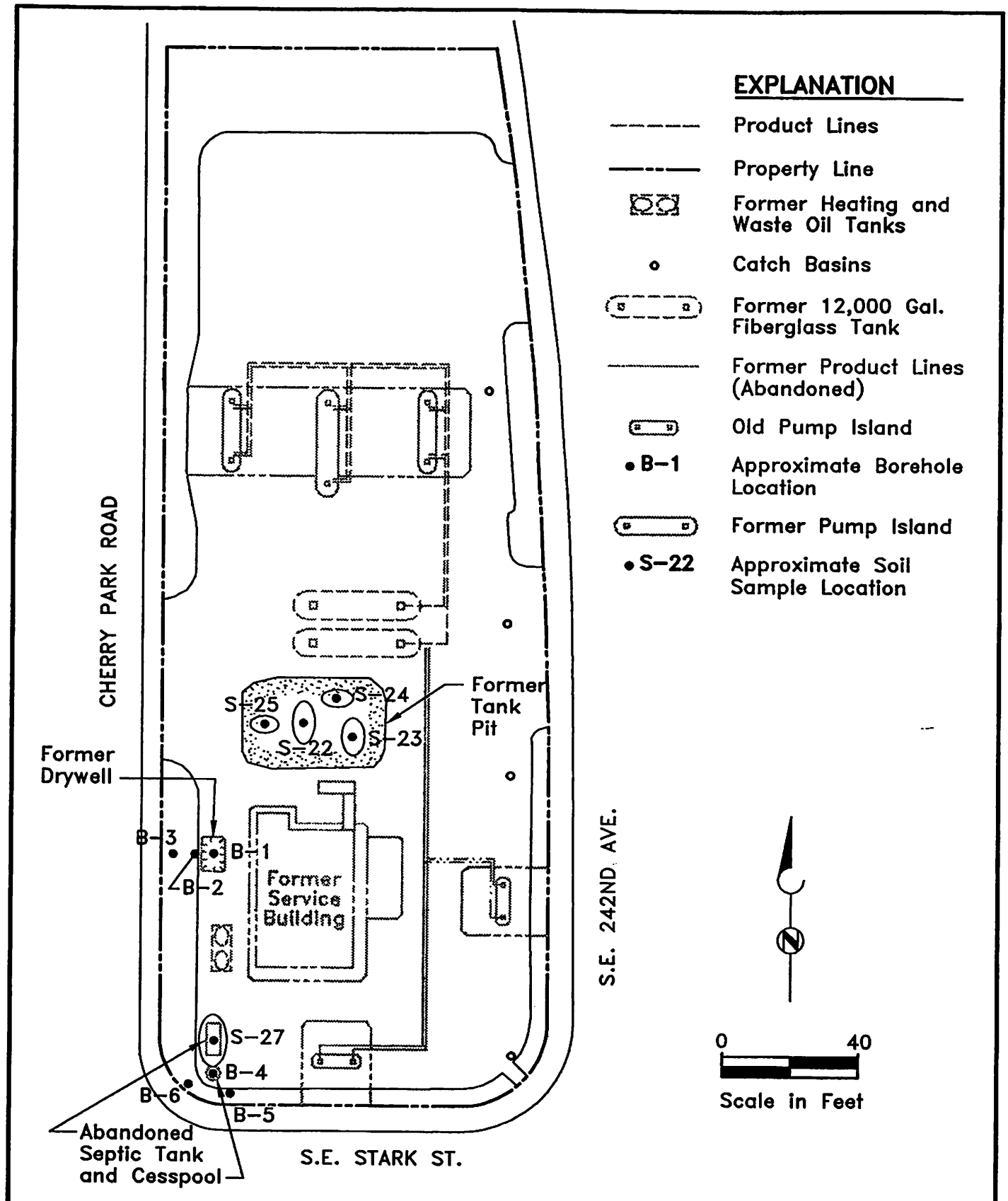

FIGURE 2
SITE MAP
UNOCAL SERVICE STATION NO. 5745
GRESHAM, OREGON

Brown and Caldwell Consultants

7134FG2 6/28/93

The site is located approximately three miles south of the Columbia River and approximately 2 miles southwest of the Sandy River. The topography in the vicinity of the site slopes gently to the west and north. The Federal Rectangular System coordinates for the station are the Southwest 1/4 of the Southwest 1/4 of Section 35, Township 1 North, Range 3 East, Willamette Baseline and Meridian.

BACKGROUND INFORMATION

On September 8, 1992, Northwest Field Services removed a drywell structure that was connected to the floor sump in the service bay area of the service building. The drywell structure was approximately six feet deep and was constructed of three 2-feet high by 4-feet in diameter concrete rings with 4-inch drain holes. No liquid was found in the drywell and very little staining was observed on the inside of the well structure, but visible contamination appeared in the soil below the drywell structure.

The excavation was continued toward the west until contact was made with the curb and downward to approximately 19 feet which was the maximum depth the backhoe could reach. The excavation was backfilled for safety purposes. Approximately 35 cubic yards of soil were treated at Oregon Hydrocarbon, Inc.

A total petroleum hydrocarbon concentration of 1,000 ppm remaining in the soil adjacent to the drywell excavation (west sidewall at 19-feet depth) exceeds the Oregon Department of Environmental Quality (DEQ) Soil Matrix Level 2 cleanup standard of 500 ppm. The level of PCBs in visibly contaminated sample S-1 (1.2 ppm) exceeds the Oregon Soil Cleanup Level of 0.08 ppm. A complete summary of this investigation may be found in our December 16, 1992, report.

In February 1993 Staton Construction (Staton) of Eugene, Oregon, demolished the service building and performed decommissioning and removal of the existing UST system. Two hoists located in the former service building and an abandoned septic tank were also removed. All of the USTs were in good condition and there were no visible signs of contamination in any of the excavations; soil samples were collected from the floor and sidewalls of the excavations.

Product lines were first uncovered and drained of any remaining product and then removed from the soil. An old abandoned steel line was found in the trench extending south from the gasoline UST pit and it was removed also. A backhoe was used to pothole along the trench to check for possible contamination underlying the product lines; none was observed. One soil sample was collected from a suspect area of the former south pump island.

The cesspool connected to the septic tank was discovered to be approximately 24 feet deep. Due to the cesspool's location, it was not removed because the excavation would have extended into Stark Street; it was also not possible to sample the cesspool floor because of its depth. The cesspool was backfilled with clean gravel to reduce the chance of an accidental cave-in.

Soil sampled from the area of a former product distribution island located along the south center edge of the site had a TPH-G concentration of 47 ppm. The sludge found in the abandoned septic tank had 58 ppm TPH-G and 30,000 ppm mixed heavy oil; PCBs at 0.58 ppm; dichlorobenzene compounds up to 4.9 ppm and chlorobenzene at 2.8 ppm (no detected metals or BTEX constituents). No detectable petroleum hydrocarbons were found in the gasoline UST or heating oil/waste oil UST pits. Samples near the former hoists and heating/waste oil pit contained no detectable TPH, PCBs, metals or volatile organics. A complete summary of this investigation may be found in our April 9, 1993, report. Following approval from DEQ, Staton backfilled the main UST pit and all other excavations. Two drums of material collected from the service bay sump are stored onsite, awaiting disposal characterization.

FIELD ACTIVITIES

A complete description of Brown and Caldwell's field procedures can be found in Appendix A.

On May 27, 1993, Staton conducted test pit activities in the area of the old gasoline UST area and removed contaminated soil from the former septic tank excavation. Four test pits were dug to a depth of approximately 12 feet below grade (Figure 2) in the area of the old UST area. No visible signs of contamination were observed in any of the test pits and soil samples were collected from the floor of each excavation.

Approximately four cubic yards of contaminated soil was removed from the former septic tank excavation and stockpiled on plastic in the northwest corner of the site. A soil sample was collected from native material on the floor of the excavation at a depth of approximately 8 feet. All samples were stored on ice and delivered to the project laboratory with chain-of-custody documents (Appendix B).

On June 3, 1993, Brown and Caldwell supervised the drilling of six boreholes; three in the area of the former drywell and three in the area of the cesspool (Figure 2). The first borehole in each respective area was drilled through backfill material so that samples would be collected from native material at the floor of the former structure or excavation. The second and third borings were stepped out from the first and advanced deeper.

Boring logs were not completed of each hole; four borings primarily penetrated backfill and all were drilled to the point of interest before samples were collected. Soils at the site are known to consist of silty sands and gravels, with occasional cobbles. No formation water was encountered in the borings.

Three soil samples were collected from each borehole using a 3-inch split spoon driven into undisturbed material. Samples were transferred directly from the split spoon to glass jars with teflon lined lids and stored on ice immediately after collection. All soil borings were backfilled with bentonite.

ANALYTICAL RESULTS

All soil samples collected were analyzed for hydrocarbon identification by Oregon DEQ Method TPH-HCID to characterize possible contamination. Table 1 contains the analytical results for soil samples collected from the potholes and septic tank excavation.

Table 1. Analytical Results for Soil Samples
Pothole and Septic Over-excavation
Unocal Service Station No. 5745

Sample Number	Location and depth	HCID[a]	PCBs[b]	Volatile organics[c]
S-22	Pothole #1 12'	ND	-	-
S-23	Pothole #2 12'	ND	-	-
S-24	Pothole #3 12'	ND	-	-
S-25	Pothole #4 12'	ND	-	-
S-26	Septic contents stockpile	ND	ND	[d]
S-27	Septic excavation floor 8'	ND	ND	ND

[a] HCID by DEQ Method TPH-HCID.
[b] PCBs by EPA Method 8080, concentrations in parts per billion, ppb.
[c] Volatile organics by EPA Method 8010, concentrations in ppb.
[d] 140 ppb 1,2-dichlorobenzene and 2500 ppb 1,4-dichlorobenzene.
ND Not detected at method detection limit.
- Test not performed on this sample.

Soil samples collected during the borehole operations were analyzed for TPH-HCID and, in addition, the first sample collected in each borehole (shallowest) was analyzed for lead using TCLP Method 1311, PCBs and volatile organics. The shallowest sample was designed to be most likely to contain contaminants. If no detectable contaminants were found in this sample, then only TPH-HCID was run on remaining samples from that boring. Analytical results for soil samples collected from borings near the drywell are shown in Table 2, and from borings near the cesspool in Table 3.

Table 2. Analytical Results for Soil Samples
Soil Borings Near Former Drywell
Unocal Service Station No. 5745

Borehole number and Sample depth	HCID[a]	PCBs[b]	Volatile organics[c]	Metals by TCLP[d]
B-1: Center of Former Drywell				
B-1-18.5'	ND	ND	ND	ND
B-1-20'	ND	-	-	-
B-1-21.5'	ND	-	-	-
B-2: Former Drywell West Wall				
B-2-19'	ND	ND	ND	ND
B-2-20.5'	ND	-	-	-
B-2-22'	ND	-	-	-
B-3: Native Soil				
B-3-19.5'	ND	ND	ND	ND
B-3-22'	ND	-	-	-
B-3-23.5'	ND	-	-	-

[a] HCID by DEQ Method TPH-HCID.
[b] PCBs by EPA Method 8080, concentrations in parts per billion, ppb.
[c] Volatile organics by EPA Method 8010, concentrations in ppb.
[d] Cadmium, chromium and lead by EPA TCLP Method 1311/6010, concentrations in ppb.
ND Not detected at method detection limit.
- Test not performed on this sample.

Table 3. Analytical Results for Soil Samples
Soil Borings Near Cesspool
Unocal Service Station No. 5745

Borehole number and Sample depth	HCID[a]	PCBs[b]	Volatile organics[c]	Metals by TCLP[d]
B-4: Center of Cesspool				
B-4-26'	ND	ND	ND	ND
B-4-27.5'	ND	-	-	-
B-4-29'	ND	-	-	-
B-5: SE of Cesspool				
B-5-29'	ND	ND	ND	ND
B-5-30.5'	ND	-	-	-
B-5-32'	ND	-	-	-
B-6: SW of Cesspool				
B-6-27'	ND	ND	ND	ND
B-6-29.5'	ND	-	-	-
B-6-31'	ND	-	-	-

[a] HCID by DEQ Method TPH-HCID.
[b] PCBs by EPA Method 8080, concentrations in parts per billion, ppb.
[c] Volatile organics by EPA Method 8010, concentrations in ppb.
[d] Cadmium, chromium and lead by EPA TCLP Method 1311/6010, concentrations in ppb.
ND Not detected at method detection limit.
- Test not performed on this sample.

CONCLUSIONS

Based on the results of laboratory analysis, no contamination was detected in the area of the former gasoline UST pit or the boreholes advanced in the former drywell area and the cesspool area. A small amount of soil/sludge from the former septic tank was stockpiled at the site; soils beneath the septic tank had no detectable contamination. Application has been made to Oregon Waste Systems for disposal of the drums and stockpiled soils. BCC will obtain documentation of disposal and forward to DEQ.

Based on the results of three soil borings, impacted soils discovered in September 1992 in the former drywell area appear to be of very limited horizontal or vertical extent. Excavation and backfill activities in 1992 are believed to have removed the majority of the contaminated soils and possibly improved the environment for biodegradation of remaining heavy oil.

RECOMMENDATIONS/REQUEST FOR DEQ CLOSURE

Unocal has conducted environmental investigations at the site in accordance with DEQ requirements and generally accepted practices in the industry. It is requested that DEQ review this information and provide Unocal with closure on environmental activities.

Very truly yours,

BROWN AND CALDWELL

Dulcy Berri

Dulcy A. Berri, RG
Project Manager

DAB/TAL:jlj

cc: Ms. Rachel Carlin Segal, Oregon DEQ, Portland, Oregon
Mr. Gil Wistar, Oregon DEQ, Portland, Oregon

APPENDIX A
FIELD PROCEDURES

APPENDIX A

Field Procedures

BOREHOLE DRILLING AND SOIL SAMPLING

Boreholes were drilled at the site using a truck mounted CME 75 drill rig equipped with 6-1/4-inch inside diameter (ID) hollow-stem augers. The drilling operations were conducted under the supervision of experienced Brown and Caldwell personnel.

The boreholes were numbered sequentially in the order in which they were drilled. Soil samples were collected at 1 1/2-foot intervals from the floor of the former structure or excavation, depending on drilling conditions.

Soil samples in each borehole were collected using a 3-inch standard split-spoon drive sampler. All samples were collected by driving the sampler 18 inches into undisturbed material with a 140-pound hammer falling 30 inches. To aid in the evaluation of the materials penetrated, a record was kept of the number of blows necessary to drive the sampler each 6-inch interval. The split-spoon sample was examined and samples were transferred directly from the split spoon to glass jars with teflon lined lids, labeled and stored in an iced container immediately after collection to minimize loss of any volatile compounds present. The soil samples were delivered to the project laboratory in a chilled cooler with chain-of-custody documents.

Prior to drilling each borehole, the augers, pilot bits, samplers, and all other downhole equipment were steam-cleaned to prevent cross-contamination between boreholes. The drive samplers were cleaned prior to commencement of sampling and after collection of each sample by washing the sampler components in a laboratory grade detergent solution, rinsing with clean tap water, and then allowing the components to air dry.

Drill cuttings and excess soil samples generated during drilling in native material were collected and contained in 55-gallon drums. The drums were marked to identify the borehole number and date, sealed, and stored onsite for later disposal by Unocal.

SOIL SAMPLING FROM EXCAVATIONS

Soil samples from excavations are collected by first removing three to four inches of the surface material and then pushing a wide mouth sample jar into the soil. Soil is packed into the jar as tight as possible and sealed with a teflon lined lid. For excavations over 4 feet deep the sample is collected from the bucket of the backhoe, which has scraped soil from the excavation floor or wall as directed by Brown and Caldwell personnel. Samples are labeled and stored in an iced container immediately after collection to minimize loss of any volatile compounds present. The soil samples are delivered to the project laboratory in a chilled cooler with chain-of-custody

documents.

A minimum of two soil samples are collected from each excavation. In multiple tank pits, one sample is collected for every 150 square feet of excavation floor space, with a minimum of one sample collected from beneath each tank. Soil samples from the product-piping trenches are collected as described above at the rate of one sample for every 20 feet of pipeline if leakage is suspected or observed.

APPENDIX B
LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTS

NATIONAL ENVIRONMENTAL TESTING, INC.

Portland Division
17400 SW Upper Boones Ferry Rd.
Suite #260
Portland, OR 97224
Tel: (503) 624-5449
Fax: (503) 639-6889

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/11/1993
NET Account No.: 5000
NET Job Number: 93.00495

Project: 7134
Location: 242/Stark

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
16278	S-22	SOIL	05/27/1993	05/27/1993
16279	S-23	SOIL	05/27/1993	05/27/1993
16280	S-24	SOIL	05/27/1993	05/27/1993
16281	S-25	SOIL	05/27/1993	05/27/1993
16282	SUMP-1	SOIL	05/27/1993	05/27/1993
16283	SUMP-2	SOIL	05/27/1993	05/27/1993
16284	S-26	SOIL	05/27/1993	05/27/1993
16285	S-27	SOIL	05/27/1993	05/27/1993

Approved by:

Marty French
NET, INC. Division Manager

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/11/1993
Job No.: 93.00495

Project Name: 7134
Date Received: 05/27/1993

Sample Number	Sample Description
16278	S-22

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		05/28/1993
OAR TPH-HCID (S)				
Dilution Factor		1		05/28/1993
Gasoline	OAR-HCID	<20	mg/Kg	05/28/1993
Diesel	OAR-HCID	<50	mg/Kg	05/28/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	05/28/1993

Sample Number	Sample Description
16279	S-23

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		05/28/1993
OAR TPH-HCID (S)				
Dilution Factor		1		05/28/1993
Gasoline	OAR-HCID	<20	mg/Kg	05/28/1993
Diesel	OAR-HCID	<50	mg/Kg	05/28/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	05/28/1993

Sample Number	Sample Description
16280	S-24

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		05/28/1993
OAR TPH-HCID (S)				
Dilution Factor		1		05/28/1993
Gasoline	OAR-HCID	<20	mg/Kg	05/28/1993
Diesel	OAR-HCID	<50	mg/Kg	05/28/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	05/28/1993

Sample Number	Sample Description
16281	S-25

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		05/28/1993
OAR TPH-HCID (S)				

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/11/1993
Job No.: 93.00495

Project Name: 7134
Date Received: 05/27/1993

Sample Number: 16281
Sample Description: S-25

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
Dilution Factor		1		05/28/1993
Gasoline	OAR-HCID	<20	mg/Kg	05/28/1993
Diesel	OAR-HCID	<50	mg/Kg	05/28/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	05/28/1993

Sample Number: 16282
Sample Description: SUMP-1

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
Flashpoint	1010	>140		06/07/1993
Corrosivity (pH)		5.23	units	05/28/1993
Reactive Sulfide		13.8	mg/Kg	06/09/1993
Reactive Cyanide		<0.25	mg/Kg	06/08/1993
TCLP EXTRACTION PREP	1311	-		06/01/1993
TCLP - Cadmium, ICP	6010	<0.05	mg/L	06/09/1993
TCLP - Chromium, ICP	6010	<0.05	mg/L	06/09/1993
TCLP - Lead, GFAA	7421	0.064	mg/L	06/07/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<1000	ug/Kg	06/08/1993
Aroclor 1221	8080	<1000	ug/Kg	06/08/1993
Aroclor 1232	8080	<1000	ug/Kg	06/08/1993
Aroclor 1242	8080	<1000	ug/Kg	06/08/1993
Aroclor 1248	8080	<1000	ug/Kg	06/08/1993
Aroclor 1254	8080	<1000	ug/Kg	06/08/1993
Aroclor 1260	8080	<1000	ug/Kg	06/08/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/11/1993
Job No.: 93.00495

Project Name: 7134
Date Received: 05/27/1993

Sample Number	Sample Description
16282	SUMP-1

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		100		05/28/1993
Chloromethane	8010	<500	ug/Kg	05/28/1993
Bromomethane	8010	<500	ug/Kg	05/28/1993
Vinyl Chloride	8010	<1,000	ug/Kg	05/28/1993
Chloroethane	8010	<500	ug/Kg	05/28/1993
Methylene Chloride	8010	<5,000	ug/Kg	05/28/1993
Trichlorofluoromethane	8010	<500	ug/Kg	05/28/1993
1,1-Dichloroethene	8010	<500	ug/Kg	05/28/1993
1,1-Dichloroethane	8010	<500	ug/Kg	05/28/1993
trans-1,2-Dichloroethene	8010	<500	ug/Kg	05/28/1993
cis-1,2-Dichloroethene	8010	<500	ug/Kg	05/28/1993
Chloroform	8010	<500	ug/Kg	05/28/1993
1,2-Dichloroethane	8010	<500	ug/Kg	05/28/1993
1,1,1-Trichloroethane	8010	<500	ug/Kg	05/28/1993
Carbon Tetrachloride	8010	<500	ug/Kg	05/28/1993
Bromodichloromethane	8010	<500	ug/Kg	05/28/1993
1,2-Dichloropropane	8010	<500	ug/Kg	05/28/1993
trans-1,3-Dichloropropene	8010	<500	ug/Kg	05/28/1993
Trichloroethene	8010	<500	ug/Kg	05/28/1993
Dibromochloromethane	8010	<500	ug/Kg	05/28/1993
1,1,2-Trichloroethane	8010	<500	ug/Kg	05/28/1993
cis-1,3-Dichloropropene	8010	<500	ug/Kg	05/28/1993
2-Chloroethylvinyl ether	8010	<2,000	ug/Kg	05/28/1993
Bromoform	8010	<500	ug/Kg	05/28/1993
1,1,2,2-Tetrachloroethane	8010	<500	ug/Kg	05/28/1993
Tetrachloroethene	8010	<500	ug/Kg	05/28/1993
Chlorobenzene	8010	<500	ug/Kg	05/28/1993
1,3-Dichlorobenzene	8010	<500	ug/Kg	05/28/1993
1,4-Dichlorobenzene	8010	<500	ug/Kg	05/28/1993
1,2-Dichlorobenzene	8010	<500	ug/Kg	05/28/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/11/1993
Job No.: 93.00495

Page: 5

Project Name: 7134
Date Received: 05/27/1993

Sample Number	Sample Description
16282	SUMP-1

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		05/28/1993
OAR TPH-HCID (S)				
Dilution Factor		1		05/28/1993
Gasoline	OAR-HCID	<20	mg/Kg	05/28/1993
Diesel	OAR-HCID	Diesel	mg/Kg	05/28/1993
Heavy Oil	OAR-HCID	Oil	mg/Kg	05/28/1993
BTEX 8020 (S)				
Dilution Factor		100		05/28/1993
Benzene	8020	<30	mg/Kg	05/28/1993
Toluene	8020	25	mg/Kg	05/28/1993
Ethylbenzene	8020	41	mg/Kg	05/28/1993
Xylenes, total	8020	230	mg/Kg	05/28/1993

Sample Number	Sample Description
16283	SUMP-2

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
Flashpoint	1010	>140		06/08/1993
Corrosivity (pH)		5.30	units	05/28/1993
Reactive Sulfide		55.5	mg/Kg	06/09/1993
Reactive Cyanide		<0.25	mg/Kg	06/08/1993
TCLP EXTRACTION PREP	1311	-		06/01/1993
TCLP - Cadmium, ICP	6010	<0.05	mg/L	06/09/1993
TCLP - Chromium, ICP	6010	<0.05	mg/L	06/09/1993
TCLP - Lead, GFAA	7421	0.0089	mg/L	06/07/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<1000	ug/Kg	06/08/1993
Aroclor 1221	8080	<1000	ug/Kg	06/08/1993
Aroclor 1232	8080	<1000	ug/Kg	06/08/1993
Aroclor 1242	8080	<1000	ug/Kg	06/08/1993
Aroclor 1248	8080	<1000	ug/Kg	06/08/1993
Aroclor 1254	8080	<1000	ug/Kg	06/08/1993
Aroclor 1260	8080	<1000	ug/Kg	06/08/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
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Portland, OR 97219

06/11/1993
Job No.: 93.00495

Project Name: 7134
Date Received: 05/27/1993

Sample Number	Sample Description
16283	SUMP-2

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		1		05/28/1993
Chloromethane	8010	<5	ug/Kg	05/28/1993
Bromomethane	8010	<5	ug/Kg	05/28/1993
Vinyl Chloride	8010	<10	ug/Kg	05/28/1993
Chloroethane	8010	<5	ug/Kg	05/28/1993
Methylene Chloride	8010	<50	ug/Kg	05/28/1993
Trichlorofluoromethane	8010	<5	ug/Kg	05/28/1993
1,1-Dichloroethene	8010	<5	ug/Kg	05/28/1993
1,1-Dichloroethane	8010	<5	ug/Kg	05/28/1993
trans-1,2-Dichloroethene	8010	<5	ug/Kg	05/28/1993
cis-1,2-Dichloroethene	8010	<5	ug/Kg	05/28/1993
Chloroform	8010	<5	ug/Kg	05/28/1993
1,2-Dichloroethane	8010	<5	ug/Kg	05/28/1993
1,1,1-Trichloroethane	8010	<5	ug/Kg	05/28/1993
Carbon Tetrachloride	8010	<5	ug/Kg	05/28/1993
Bromodichloromethane	8010	<5	ug/Kg	05/28/1993
1,2-Dichloropropane	8010	<5	ug/Kg	05/28/1993
trans-1,3-Dichloropropene	8010	<5	ug/Kg	05/28/1993
Trichloroethene	8010	<5	ug/Kg	05/28/1993
Dibromochloromethane	8010	<5	ug/Kg	05/28/1993
1,1,2-Trichloroethane	8010	<5	ug/Kg	05/28/1993
cis-1,3-Dichloropropene	8010	<5	ug/Kg	05/28/1993
2-Chloroethylvinyl ether	8010	<20	ug/Kg	05/28/1993
Bromoform	8010	<5	ug/Kg	05/28/1993
1,1,2,2-Tetrachloroethane	8010	<5	ug/Kg	05/28/1993
Tetrachloroethene	8010	<5	ug/Kg	05/28/1993
Chlorobenzene	8010	<5	ug/Kg	05/28/1993
1,3-Dichlorobenzene	8010	<5	ug/Kg	05/28/1993
1,4-Dichlorobenzene	8010	<5	ug/Kg	05/28/1993
1,2-Dichlorobenzene	8010	<5	ug/Kg	05/28/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/11/1993
Job No.: 93.00495

Project Name: 7134
Date Received: 05/27/1993

Sample Number: 16283
Sample Description: SUMP-2

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		05/28/1993
OAR TPH-HCID (S)				
Dilution Factor		1		05/28/1993
Gasoline	OAR-HCID	<20	mg/Kg	05/28/1993
Diesel	OAR-HCID	Diesel	mg/Kg	05/28/1993
Heavy Oil	OAR-HCID	Oil	mg/Kg	05/28/1993
BTEX 8020 (S)				
Dilution Factor		1		05/28/1993
Benzene	8020	<0.3	mg/Kg	05/28/1993
Toluene	8020	<0.3	mg/Kg	05/28/1993
Ethylbenzene	8020	<0.3	mg/Kg	05/28/1993
Xylenes, total	8020	<0.3	mg/Kg	05/28/1993

Sample Number: 16284
Sample Description: S-26

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
PCBs - (SOIL)				
Aroclor 1016	8080	<1000	ug/Kg	06/08/1993
Aroclor 1221	8080	<1000	ug/Kg	06/08/1993
Aroclor 1232	8080	<1000	ug/Kg	06/08/1993
Aroclor 1242	8080	<1000	ug/Kg	06/08/1993
Aroclor 1248	8080	<1000	ug/Kg	06/08/1993
Aroclor 1254	8080	<1000	ug/Kg	06/08/1993
Aroclor 1260	8080	<1000	ug/Kg	06/08/1993

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ANALYTICAL REPORT

Dulcy Berri
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06/11/1993
Job No.: 93.00495

Project Name: 7134
Date Received: 05/27/1993

Sample Number	Sample Description
16284	S-26

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		10		05/28/1993
Chloromethane	8010	<50	ug/Kg	05/28/1993
Bromomethane	8010	<50	ug/Kg	05/28/1993
Vinyl Chloride	8010	<100	ug/Kg	05/28/1993
Chloroethane	8010	<50	ug/Kg	05/28/1993
Methylene Chloride	8010	<500	ug/Kg	05/28/1993
Trichlorofluoromethane	8010	<50	ug/Kg	05/28/1993
1,1-Dichloroethene	8010	<50	ug/Kg	05/28/1993
1,1-Dichloroethane	8010	<50	ug/Kg	05/28/1993
trans-1,2-Dichloroethene	8010	<50	ug/Kg	05/28/1993
cis-1,2-Dichloroethene	8010	<50	ug/Kg	05/28/1993
Chloroform	8010	<50	ug/Kg	05/28/1993
1,2-Dichloroethane	8010	<50	ug/Kg	05/28/1993
1,1,1-Trichloroethane	8010	<50	ug/Kg	05/28/1993
Carbon Tetrachloride	8010	<50	ug/Kg	05/28/1993
Bromodichloromethane	8010	<50	ug/Kg	05/28/1993
1,2-Dichloropropane	8010	<50	ug/Kg	05/28/1993
trans-1,3-Dichloropropene	8010	<50	ug/Kg	05/28/1993
Trichloroethene	8010	<50	ug/Kg	05/28/1993
Dibromochloromethane	8010	<50	ug/Kg	05/28/1993
1,1,2-Trichloroethane	8010	<50	ug/Kg	05/28/1993
cis-1,3-Dichloropropene	8010	<50	ug/Kg	05/28/1993
2-Chloroethylvinyl ether	8010	<200	ug/Kg	05/28/1993
Bromoform	8010	<50	ug/Kg	05/28/1993
1,1,2,2-Tetrachloroethane	8010	<50	ug/Kg	05/28/1993
Tetrachloroethene	8010	<50	ug/Kg	05/28/1993
Chlorobenzene	8010	<50	ug/Kg	05/28/1993
1,3-Dichlorobenzene	8010	<50	ug/Kg	05/28/1993
1,4-Dichlorobenzene	8010	25,000	ug/Kg	05/28/1993
1,2-Dichlorobenzene	8010	140	ug/Kg	05/28/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/11/1993
Job No.: 93.00495

Project Name: 7134
Date Received: 05/27/1993

Sample Number: 16284
Sample Description: S-26

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		05/28/1993
OAR TPH-HCID (S) Dilution Factor		1		05/28/1993
Gasoline	OAR-HCID	<20	mg/Kg	05/28/1993
Diesel	OAR-HCID	<50	mg/Kg	05/28/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	05/28/1993

Sample Number: 16285
Sample Description: S-27

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
PCBs - (SOIL)				
Aroclor 1016	8080	<1000	ug/Kg	06/08/1993
Aroclor 1221	8080	<1000	ug/Kg	06/08/1993
Aroclor 1232	8080	<1000	ug/Kg	06/08/1993
Aroclor 1242	8080	<1000	ug/Kg	06/08/1993
Aroclor 1248	8080	<1000	ug/Kg	06/08/1993
Aroclor 1254	8080	<1000	ug/Kg	06/08/1993
Aroclor 1260	8080	<1000	ug/Kg	06/08/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
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Portland, OR 97219

06/11/1993
Job No.: 93.00495

Project Name: 7134
Date Received: 05/27/1993

Sample Number	Sample Description
16285	S-27

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		1		05/28/1993
Chloromethane	8010	<5	ug/Kg	05/28/1993
Bromomethane	8010	<5	ug/Kg	05/28/1993
Vinyl Chloride	8010	<10	ug/Kg	05/28/1993
Chloroethane	8010	<5	ug/Kg	05/28/1993
Methylene Chloride	8010	<50	ug/Kg	05/28/1993
Trichlorofluoromethane	8010	<5	ug/Kg	05/28/1993
1,1-Dichloroethene	8010	<5	ug/Kg	05/28/1993
1,1-Dichloroethane	8010	<5	ug/Kg	05/28/1993
trans-1,2-Dichloroethene	8010	<5	ug/Kg	05/28/1993
cis-1,2-Dichloroethene	8010	<5	ug/Kg	05/28/1993
Chloroform	8010	<5	ug/Kg	05/28/1993
1,2-Dichloroethane	8010	<5	ug/Kg	05/28/1993
1,1,1-Trichloroethane	8010	<5	ug/Kg	05/28/1993
Carbon Tetrachloride	8010	<5	ug/Kg	05/28/1993
Bromodichloromethane	8010	<5	ug/Kg	05/28/1993
1,2-Dichloropropane	8010	<5	ug/Kg	05/28/1993
trans-1,3-Dichloropropene	8010	<5	ug/Kg	05/28/1993
Trichloroethene	8010	<5	ug/Kg	05/28/1993
Dibromochloromethane	8010	<5	ug/Kg	05/28/1993
1,1,2-Trichloroethane	8010	<5	ug/Kg	05/28/1993
cis-1,3-Dichloropropene	8010	<5	ug/Kg	05/28/1993
2-Chloroethylvinyl ether	8010	<20	ug/Kg	05/28/1993
Bromoform	8010	<5	ug/Kg	05/28/1993
1,1,2,2-Tetrachloroethane	8010	<5	ug/Kg	05/28/1993
Tetrachloroethene	8010	<5	ug/Kg	05/28/1993
Chlorobenzene	8010	<5	ug/Kg	05/28/1993
1,3-Dichlorobenzene	8010	<5	ug/Kg	05/28/1993
1,4-Dichlorobenzene	8010	<5	ug/Kg	05/28/1993
1,2-Dichlorobenzene	8010	<5	ug/Kg	05/28/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/11/1993
Job No.: 93.00495

Project Name: 7134
Date Received: 05/27/1993

Sample Number	Sample Description
16285	S-27

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		05/28/1993
OAR TPH-HCID (S)				
Dilution Factor		1		05/28/1993
Gasoline	OAR-HCID	<20	mg/Kg	05/28/1993
Diesel	OAR-HCID	<50	mg/Kg	05/28/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	05/28/1993

SURROGATE REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/11/1993
Job No.: 93.00495

Project Name: 7134
Date Received: 05/27/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 16278	Sample Description S-22			
o-Terphenyl (Surr.)	OAR-HCID	101	%	05/28/1993
Sample Number 16279	Sample Description S-23			
o-Terphenyl (Surr.)	OAR-HCID	101	%	05/28/1993
Sample Number 16280	Sample Description S-24			
o-Terphenyl (Surr.)	OAR-HCID	104	%	05/28/1993
Sample Number 16281	Sample Description S-25			
o-Terphenyl (Surr.)	OAR-HCID	102	%	05/28/1993
Sample Number 16282	Sample Description SUMP-1			
Br,Cl-Propane (Surr.)	8010	91	%	05/28/1993
o-Terphenyl (Surr.)	OAR-HCID	102	%	05/28/1993
aaa-Trifluorotoluene (Surr.)	8020	99	%	05/28/1993
Sample Number 16283	Sample Description SUMP-2			
Br,Cl-Propane (Surr.)	8010	115	%	05/28/1993
o-Terphenyl (Surr.)	OAR-HCID	105	%	05/28/1993
aaa-Trifluorotoluene (Surr.)	8020	85	%	05/28/1993

SURROGATE REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
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Portland, OR 97219

06/11/1993
Job No.: 93.00495

Project Name: 7134
Date Received: 05/27/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 16284	Sample Description S-26			
Br,Cl-Propane (Surr.)	8010	81	%	05/28/1993
o-Terphenyl (Surr.)	OAR-HCID	111	%	05/28/1993
Sample Number 16285	Sample Description S-27			
Br,Cl-Propane (Surr.)	8010	85	%	05/28/1993
o-Terphenyl (Surr.)	OAR-HCID	111	%	05/28/1993

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/11/1993

NET Job Number: 93.00495

Contact: Dulcy Berri
Project: 7134

Analyte	CCV True Concentration	Concentration Found	Percent Recovery
TCLP - Lead, GFAA	0.010	0.0093	93.0
8010 HALOGENATED VOC (S)			
Chlorobenzene	100	90	90.0
1,2-Dichloroethane	100	86	86.0
1,1-Dichloroethene	100	89	89.0
Trichloroethene	100	79	79.0
BTEX 8020 (S)			
Benzene	100	89	89.0
Toluene	100	97	97.0

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/11/1993

NET Job Number: 93.00495

Contact: Dulcy Berri
Project: 7134

Analyte	LCS True Concentration	Concentration Found	LCS % Recovery
TCLP - Cadmium, ICP	0.3	0.27	90.0
TCLP - Chromium, ICP	0.30	0.27	90.0
TCLP - Lead, GFAA	0.010	0.0095	95.0
PCBs - (SOIL)			
Aroclor 1254	2000	1900	95.0
Aroclor 1254	2000	1800	90.0

LCS - Laboratory Control Standard

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/11/1993

NET Job Number: 93.00495

Contact: Dulcy Berri
Project: 7134

Analyte	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD
TCLP - Cadmium, ICP	0.29	<0.05	0.3	mg/L	96.7	0.30	0.3	mg/L	100.0	3.3
TCLP - Chromium, ICP	0.30	<0.05	0.30	mg/L	100.0	0.31	0.30	mg/L	103.3	3.2
TCLP - Lead, GFAA	0.0093	<0.005	0.010	mg/L	93.0	0.0102	0.010	mg/L	102.0	9.1
)10 HALOGENATED VOC (S)										
,1-Dichloroethene	94.7	<5	99.01	ug/Kg	95.6	86.0	97.1	ug/Kg	88.6	7.6
1,2-Dichloroethane	93	<5	99.01	ug/Kg	93.9	81.3	97.1	ug/Kg	83.7	11.5
Trichloroethene	93	<5	99.01	ug/Kg	93.9	88.3	97.1	ug/Kg	90.9	3.2
Chlorobenzene	94.1	<5	99.01	ug/Kg	95.0	87.9	97.1	ug/Kg	90.5	4.9
BTEX 8020 (S)										
Benzene	90.6	<0.5	99.01	mg/Kg	91.5	86.1	97.1	mg/Kg	88.7	3.1
Toluene	97.6	<0.5	99.01	mg/Kg	98.6	92.4	97.1	mg/Kg	95.2	3.5
PCBs - (SOIL)										
Aroclor 1254	1650	<50	2000	ug/Kg	82.5	2000	2000	ug/Kg	100.0	19.1

NOTE: Matrix Spike Samples may not be samples from this job.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
dil.= Diluted Out

QUALITY CONTROL REPORT
BLANKS

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/11/1993

NET Job Number: 93.00495

Contact: Dulcy Berri
Project: 7134
Location: 242/Stark

Analyte	Blank Analysis	Units
Reactive Sulfide	<12.5	mg/Kg
Reactive Cyanide	<0.25	mg/Kg
TCLP - Cadmium, ICP	<0.05	mg/L
TCLP - Chromium, ICP	<0.05	mg/L
TCLP - Lead, GFAA	<0.005	mg/L
8010 HALOGENATED VOC (S)		
Bromodichloromethane	<5	ug/Kg
Bromoform	<5	ug/Kg
Bromomethane	<5	ug/Kg
Carbon Tetrachloride	<5	ug/Kg
Chlorobenzene	<5	ug/Kg
Chloroethane	<5	ug/Kg
2-Chloroethylvinyl ether	<25	ug/Kg
Chloroform	<5	ug/Kg
Chloromethane	<5	ug/Kg
Dibromochloromethane	<5	ug/Kg
1,2-Dichlorobenzene	<5	ug/Kg
1,3-Dichlorobenzene	<5	ug/Kg
1,4-Dichlorobenzene	<5	ug/Kg
1,1-Dichloroethane	<5	ug/Kg
1,2-Dichloroethane	<5	ug/Kg
1,1-Dichloroethene	<5	ug/Kg
trans-1,2-Dichloroethene	<5	ug/Kg
cis-1,2-Dichloroethene	<5	ug/Kg
1,2-Dichloropropane	<5	ug/Kg
cis-1,3-Dichloropropene	<5	ug/Kg
trans-1,3-Dichloropropene	<5	ug/Kg

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

QUALITY CONTROL REPORT
BLANKS

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/11/1993

NET Job Number: 93.00495

Contact: Dulcy Berri
Project: 7134
Location: 242/Stark

Analyte	Blank Analysis	Units
Methylene Chloride	<50	ug/Kg
1,1,2,2-Tetrachloroethane	<5	ug/Kg
Tetrachloroethene	<5	ug/Kg
1,1,2-Trichloroethane	<5	ug/Kg
Trichloroethene	<5	ug/Kg
Trichlorofluoromethane	<5	ug/Kg
Vinyl Chloride	<10	ug/Kg
Br,Cl-Propane (Surr.)	95	%
BTEX 8020 (S)		
Benzene	<0.5	mg/Kg
Toluene	<0.5	mg/Kg
Ethylbenzene	<0.5	mg/Kg
Xylenes, total	<0.5	mg/Kg
aaa-Trifluorotoluene (Surr.)	102	%
PCBs - (SOIL)		
Aroclor 1016	<100	ug/Kg
Aroclor 1221	<500	ug/Kg
Aroclor 1232	<200	ug/Kg
Aroclor 1242	<100	ug/Kg
Aroclor 1248	<100	ug/Kg
Aroclor 1254	<50	ug/Kg
Aroclor 1260	<50	ug/Kg

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

QUALITY CONTROL REPORT
DUPLICATES

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/11/1993

NET Job Number: 93.00495

Contact: Dulcy Berri
Project: 7134

Analyte	Original Analysis	Duplicate Analysis	Units	RPD
Flashpoint	>140	>140		
OAR TPH-HCID (S)				
Gasoline	<20	<20	mg/Kg	
Diesel	<50	<50	mg/Kg	
Heavy Oil	<100	<100	mg/Kg	
OAR TPH-HCID (S)				
Gasoline	<20	<20	mg/Kg	
Diesel	<50	<50	mg/Kg	
Heavy Oil	<100	<100	mg/Kg	

NOTE: Duplicates may not be samples from this job.

RPD - Relative Percent Difference

QUALITY CONTROL REPORT

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/11/1993

NET Job Number: 93.00495

Contact: Dulcy Berri
Project: 7134
Location: 242/Stark

Analyte	CCVS Percent Recovery	MS Percent Recovery
Cyanide, Reactive	24.3	80
Sulfide, Reactive	74.3	97

NOTE: Matrix Spike Samples may not be samples from this job.

CCVS = Continuing Calibration Verification Standard
MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

NET NATIONAL ENVIRONMENTAL TESTING, INC.

00495

PORTLAND DIVISION, 17400 SW UPPER BOONES FERRY RD., SUITE 260, PORTLAND, OR 97224
(503) 624-5449 PHONE (503) 639-6889 FAX

CHAIN OF CUSTODY RECORD

COMPANY Brown + Caldwell
ADDRESS 9620 SW Barbur
PHONE 244 7005 FAX
PROJECT NAME/LOCATION 242 / Stark
PROJECT NUMBER 7134
PROJECT MANAGER Duley Berri

SAMPLED BY T Landorf (PRINT NAME) — T Landorf (SIGNATURE)
(PRINT NAME) — (SIGNATURE)

TURNAROUND TIME 10 DAY (S)

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	ANALYSES: TPH NCID	TCLP(3) 1311/6010	PCBs 8080	8010/8020	Flashpoint 1010	Corrosivity 9040	Reactivity 9010/9030	8010			COMMENTS
5/27/93	1110	S-22 pothole 1	✓		1	Soil	Ice	X										
	1136	S-23 2	✓		1			X										
	1156	S-24 3	✓		1			X										
	1212	S-25 4	✓		1			X										
	1315	Sump 1	✓		4			X	X	X	X	X	X	X				
	1320	Sump 2	✓		4			X	X	X	X	X	X	X				
	1340	S-26 septic		✓	1			X		X					X			
	1345	S-27 septic floor		✓	2			X		X					X			

RESULTS TO: Duley Berri

INVOICE TO: B+C Engr

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
T Landorf	5/27/93 1500				
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY:
				5/27/93 1506	

METHOD OF SHIPMENT: Hand

REMARKS:

NATIONAL ENVIRONMENTAL TESTING, INC.

Portland Division
17400 SW Upper Boones Ferry Rd.
Suite #260
Portland, OR 97224
Tel: (503) 624-5449
Fax: (503) 639-6889

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/08/1993
NET Account No.: 5000
NET Job Number: 93.00513

Project: 7134
Location: 242 & Stark

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
16380	B-1-18.5	SOIL	06/03/1993	06/04/1993
16381	B-1-20	SOIL	06/03/1993	06/04/1993
16382	B-1-21.5	SOIL	06/03/1993	06/04/1993
16383	B-2-19	SOIL	06/03/1993	06/04/1993
16384	B-2-20.5	SOIL	06/03/1993	06/04/1993
16385	B-2-22	SOIL	06/03/1993	06/04/1993
16386	B-3-19.5	SOIL	06/03/1993	06/04/1993
16387	B-3-22	SOIL	06/03/1993	06/04/1993
16388	B-3-23.5	SOIL	06/03/1993	06/04/1993
16389	B-4-26	SOIL	06/03/1993	06/04/1993
16390	B-4-27.5	SOIL	06/03/1993	06/04/1993
16391	B-4-29	SOIL	06/03/1993	06/04/1993

Approved by:

Marty French
NET, INC. Division Manager

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/08/1993
Job No.: 93.00513

Project Name: 7134
Date Received: 06/04/1993

Sample Number	Sample Description
16380	B-1-18.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/07/1993
OAR TPH-HCID (S)				
Dilution Factor		1		06/07/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/07/1993
Diesel	OAR-HCID	<50	mg/Kg	06/07/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/07/1993

Sample Number	Sample Description
16381	B-1-20

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/07/1993
OAR TPH-HCID (S)				
Dilution Factor		1		06/07/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/07/1993
Diesel	OAR-HCID	<50	mg/Kg	06/07/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/07/1993

Sample Number	Sample Description
16382	B-1-21.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/07/1993
OAR TPH-HCID (S)				
Dilution Factor		1		06/07/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/07/1993
Diesel	OAR-HCID	<50	mg/Kg	06/07/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/07/1993

Sample Number	Sample Description
16383	B-2-19

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/07/1993
OAR TPH-HCID (S)				

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/08/1993
Job No.: 93.00513

Page: 3

Project Name: 7134
Date Received: 06/04/1993

Sample Number	Sample Description
16383	B-2-19

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
Dilution Factor		1		06/07/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/07/1993
Diesel	OAR-HCID	<50	mg/Kg	06/07/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/07/1993

Sample Number	Sample Description
16384	B-2-20.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/07/1993
OAR TPH-HCID (S) Dilution Factor		1		06/07/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/07/1993
Diesel	OAR-HCID	<50	mg/Kg	06/07/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/07/1993

Sample Number	Sample Description
16385	B-2-22

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/07/1993
OAR TPH-HCID (S) Dilution Factor		1		06/07/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/07/1993
Diesel	OAR-HCID	<50	mg/Kg	06/07/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/07/1993

Sample Number	Sample Description
16386	B-3-19.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/07/1993
OAR TPH-HCID (S) Dilution Factor		1		06/07/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/07/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/08/1993
Job No.: 93.00513

Project Name: 7134
Date Received: 06/04/1993

Sample Number	Sample Description
16386	B-3-19.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
Diesel	OAR-HCID	<50	mg/Kg	06/07/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/07/1993

Sample Number	Sample Description
16387	B-3-22

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/07/1993
OAR TPH-HCID (S) Dilution Factor		1		06/07/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/07/1993
Diesel	OAR-HCID	<50	mg/Kg	06/07/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/07/1993

Sample Number	Sample Description
16388	B-3-23.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/07/1993
OAR TPH-HCID (S) Dilution Factor		1		06/07/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/07/1993
Diesel	OAR-HCID	<50	mg/Kg	06/07/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/07/1993

Sample Number	Sample Description
16389	B-4-26

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/07/1993
OAR TPH-HCID (S) Dilution Factor		1		06/07/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/07/1993
Diesel	OAR-HCID	<50	mg/Kg	06/07/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/07/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/08/1993
Job No.: 93.00513

Project Name: 7134
Date Received: 06/04/1993

Sample Number	Sample Description
16390	B-4-27.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/07/1993
OAR TPH-HCID (S) Dilution Factor		1		06/07/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/07/1993
Diesel	OAR-HCID	<50	mg/Kg	06/07/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/07/1993

Sample Number	Sample Description
16391	B-4-29

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/07/1993
OAR TPH-HCID (S) Dilution Factor		1		06/07/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/07/1993
Diesel	OAR-HCID	<50	mg/Kg	06/07/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/07/1993

SURROGATE REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/08/1993
Job No.: 93.00513

Project Name: 7134
Date Received: 06/04/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 16380	Sample Description B-1-18.5			
o-Terphenyl (Surr.)	OAR-HCID	108	%	06/07/1993
Sample Number 16381	Sample Description B-1-20			
o-Terphenyl (Surr.)	OAR-HCID	101	%	06/07/1993
Sample Number 16382	Sample Description B-1-21.5			
o-Terphenyl (Surr.)	OAR-HCID	100	%	06/07/1993
Sample Number 16383	Sample Description B-2-19			
o-Terphenyl (Surr.)	OAR-HCID	106	%	06/07/1993
Sample Number 16384	Sample Description B-2-20.5			
o-Terphenyl (Surr.)	OAR-HCID	105	%	06/07/1993
Sample Number 16385	Sample Description B-2-22			
o-Terphenyl (Surr.)	OAR-HCID	99	%	06/07/1993
Sample Number 16386	Sample Description B-3-19.5			
o-Terphenyl (Surr.)	OAR-HCID	102	%	06/07/1993
Sample Number 16387	Sample Description B-3-22			
o-Terphenyl (Surr.)	OAR-HCID	102	%	06/07/1993

SURROGATE REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/08/1993
Job No.: 93.00513

Project Name: 7134
Date Received: 06/04/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 16388	Sample Description B-3-23.5			
o-Terphenyl (Surr.)	OAR-HCID	108	%	06/07/1993
Sample Number 16389	Sample Description B-4-26			
o-Terphenyl (Surr.)	OAR-HCID	99	%	06/07/1993
Sample Number 16390	Sample Description B-4-27.5			
o-Terphenyl (Surr.)	OAR-HCID	93	%	06/07/1993
Sample Number 16391	Sample Description B-4-29			
o-Terphenyl (Surr.)	OAR-HCID	98	%	06/07/1993

NET ...ION... ENVIRONMENTAL TESTING, INC.®

0515, 00514

PORTLAND DIVISION, 17400 SW UPPER BOONES FERRY RD., SUITE 260, PORTLAND, OR 97224
(503) 624-5449 PHONE (503) 639-6889 FAX

CHAIN OF CUSTODY RECORD

COMPANY Brown + Caldwell
ADDRESS 9620 SW Barbur Portland
PHONE 244 7005 FAX
PROJECT NAME/LOCATION 212 + Stark
PROJECT NUMBER 7134
PROJECT MANAGER Dulcy Berri

SAMPLED BY Thayne Landorf (PRINT NAME) — T. Landorf SIGNATURE

(PRINT NAME) — SIGNATURE

TURNAROUND TIME 10 DAY (S)

ANALYSES: TPH HCID; TCLP (3) Bulwark; PCB 8080; Svo 8270

DATE	TIME	SAMPLE ID/DESCRIPTION		GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	TPH HCID	TCLP (3)	PCB	Svo							COMMENTS
6/3/93	930	B-1-18.5	A+B	✓		2	Soil	ice	✓	✓	✓	✓							Quantify HCID Hits; Sample A Hold B
↓	945	B-1-20	A+B	✓		2	↓	↓	✓										↓
	955	B-1-21.5	A+B	✓		2			✓										
	1050	B-2-19	A+B	✓		2			✓	✓	✓	✓							
	1055	B-2-20.5	A+B	✓		2			✓										
	1110	B-2-22		✓		1			✓										
	1325	B-3-19.5	A+B	✓		2			✓	✓	✓	✓							
	1345	B-3-22	A+B	✓		2			✓										
	1400	B-3-23.5		✓		1			✓										
	1450	B-4-26	A+B	✓		2			✓	✓	✓	✓							
	1500	B-4-27.5	A+B	✓		2			✓										
↓	1505	B-4-29	A+B	✓		2	↓	↓	✓										↓

RESULTS TO: Dulcy Berri

INVOICE TO: B + C Enquire

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
T. Landorf	6/4/93 1234				
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY:
					[signature]

METHOD OF SHIPMENT: Hand

REMARKS: RUN SAMP A, HOLD B; RUN 8100-LFS if HITS

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK

NATIONAL ENVIRONMENTAL TESTING, INC.

Portland Division
17400 SW Upper Boones Ferry Rd.
Suite #260
Portland, OR 97224
Tel: (503) 624-5449
Fax: (503) 639-6889

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993
NET Account No.: 5000
NET Job Number: 93.00514

Project: 7134
Location: 242 & Stark

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
16392	B-1-18.5	SOIL	06/03/1993	06/04/1993
16393	B-2-19	SOIL	06/03/1993	06/04/1993
16394	B-3-19.5	SOIL	06/03/1993	06/04/1993
16395	B-4-26	SOIL	06/03/1993	06/04/1993

Approved by:

Marty French
NET, INC. Division Manager

OCEAN GROUP

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00514

Project Name: 7134
Date Received: 06/04/1993

Sample Number	Sample Description
16392	B-1-18.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
TCLP EXTRACTION PREP	1311	-		06/07/1993
TCLP - Cadmium, ICP	6010	<0.05	mg/L	06/09/1993
TCLP - Chromium, ICP	6010	<0.05	mg/L	06/09/1993
TCLP - Lead, GFAA	7421	<0.005	mg/L	06/09/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<100	ug/Kg	06/13/1993
Aroclor 1221	8080	<500	ug/Kg	06/13/1993
Aroclor 1232	8080	<200	ug/Kg	06/13/1993
Aroclor 1242	8080	<100	ug/Kg	06/13/1993
Aroclor 1248	8080	<100	ug/Kg	06/13/1993
Aroclor 1254	8080	<50	ug/Kg	06/13/1993
Aroclor 1260	8080	<50	ug/Kg	06/13/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00514

Project Name: 7134
Date Received: 06/04/1993

Sample Number	Sample Description
16392	B-1-18.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		1		06/07/1993
Chloromethane	8010	<5	ug/Kg	06/07/1993
Bromomethane	8010	<5	ug/Kg	06/07/1993
Vinyl Chloride	8010	<10	ug/Kg	06/07/1993
Chloroethane	8010	<5	ug/Kg	06/07/1993
Methylene Chloride	8010	<50	ug/Kg	06/07/1993
Trichlorofluoromethane	8010	<5	ug/Kg	06/07/1993
1,1-Dichloroethene	8010	<5	ug/Kg	06/07/1993
1,1-Dichloroethane	8010	<5	ug/Kg	06/07/1993
trans-1,2-Dichloroethene	8010	<5	ug/Kg	06/07/1993
cis-1,2-Dichloroethene	8010	<5	ug/Kg	06/07/1993
Chloroform	8010	<5	ug/Kg	06/07/1993
1,2-Dichloroethane	8010	<5	ug/Kg	06/07/1993
1,1,1-Trichloroethane	8010	<5	ug/Kg	06/07/1993
Carbon Tetrachloride	8010	<5	ug/Kg	06/07/1993
Bromodichloromethane	8010	<5	ug/Kg	06/07/1993
1,2-Dichloropropane	8010	<5	ug/Kg	06/07/1993
trans-1,3-Dichloropropene	8010	<5	ug/Kg	06/07/1993
Trichloroethene	8010	<5	ug/Kg	06/07/1993
Dibromochloromethane	8010	<5	ug/Kg	06/07/1993
1,1,2-Trichloroethane	8010	<5	ug/Kg	06/07/1993
cis-1,3-Dichloropropene	8010	<5	ug/Kg	06/07/1993
2-Chloroethylvinyl ether	8010	<20	ug/Kg	06/07/1993
Bromoform	8010	<5	ug/Kg	06/07/1993
1,1,2,2-Tetrachloroethane	8010	<5	ug/Kg	06/07/1993
Tetrachloroethene	8010	<5	ug/Kg	06/07/1993
Chlorobenzene	8010	<5	ug/Kg	06/07/1993
1,3-Dichlorobenzene	8010	<5	ug/Kg	06/07/1993
1,4-Dichlorobenzene	8010	<5	ug/Kg	06/07/1993
1,2-Dichlorobenzene	8010	<5	ug/Kg	06/07/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00514

Project Name: 7134
Date Received: 06/04/1993

Sample Number	Sample Description
16393	B-2-19

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
TCLP EXTRACTION PREP	1311	-		06/07/1993
TCLP - Cadmium, ICP	6010	<0.05	mg/L	06/09/1993
TCLP - Chromium, ICP	6010	<0.05	mg/L	06/09/1993
TCLP - Lead, GFAA	7421	<0.005	mg/L	06/09/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<100	ug/Kg	06/13/1993
Aroclor 1221	8080	<500	ug/Kg	06/13/1993
Aroclor 1232	8080	<200	ug/Kg	06/13/1993
Aroclor 1242	8080	<100	ug/Kg	06/13/1993
Aroclor 1248	8080	<100	ug/Kg	06/13/1993
Aroclor 1254	8080	<50	ug/Kg	06/13/1993
Aroclor 1260	8080	<50	ug/Kg	06/13/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00514

Project Name: 7134
Date Received: 06/04/1993

Sample Number	Sample Description
16393	B-2-19

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		1		06/07/1993
Chloromethane	8010	<5	ug/Kg	06/07/1993
Bromomethane	8010	<5	ug/Kg	06/07/1993
Vinyl Chloride	8010	<10	ug/Kg	06/07/1993
Chloroethane	8010	<5	ug/Kg	06/07/1993
Methylene Chloride	8010	<50	ug/Kg	06/07/1993
Trichlorofluoromethane	8010	<5	ug/Kg	06/07/1993
1,1-Dichloroethene	8010	<5	ug/Kg	06/07/1993
1,1-Dichloroethane	8010	<5	ug/Kg	06/07/1993
trans-1,2-Dichloroethene	8010	<5	ug/Kg	06/07/1993
cis-1,2-Dichloroethene	8010	<5	ug/Kg	06/07/1993
Chloroform	8010	<5	ug/Kg	06/07/1993
1,2-Dichloroethane	8010	<5	ug/Kg	06/07/1993
1,1,1-Trichloroethane	8010	<5	ug/Kg	06/07/1993
Carbon Tetrachloride	8010	<5	ug/Kg	06/07/1993
Bromodichloromethane	8010	<5	ug/Kg	06/07/1993
1,2-Dichloropropane	8010	<5	ug/Kg	06/07/1993
trans-1,3-Dichloropropene	8010	<5	ug/Kg	06/07/1993
Trichloroethene	8010	<5	ug/Kg	06/07/1993
Dibromochloromethane	8010	<5	ug/Kg	06/07/1993
1,1,2-Trichloroethane	8010	<5	ug/Kg	06/07/1993
cis-1,3-Dichloropropene	8010	<5	ug/Kg	06/07/1993
2-Chloroethylvinyl ether	8010	<20	ug/Kg	06/07/1993
Bromoform	8010	<5	ug/Kg	06/07/1993
1,1,2,2-Tetrachloroethane	8010	<5	ug/Kg	06/07/1993
Tetrachloroethene	8010	<5	ug/Kg	06/07/1993
Chlorobenzene	8010	<5	ug/Kg	06/07/1993
1,3-Dichlorobenzene	8010	<5	ug/Kg	06/07/1993
1,4-Dichlorobenzene	8010	<5	ug/Kg	06/07/1993
1,2-Dichlorobenzene	8010	<5	ug/Kg	06/07/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00514

Project Name: 7134
Date Received: 06/04/1993

Sample Number: 16394
Sample Description: B-3-19.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
TCLP EXTRACTION PREP	1311	-		06/07/1993
TCLP - Cadmium, ICP	6010	<0.05	mg/L	06/09/1993
TCLP - Chromium, ICP	6010	<0.05	mg/L	06/09/1993
TCLP - Lead, GFAA	7421	<0.005	mg/L	06/09/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<100	ug/Kg	06/13/1993
Aroclor 1221	8080	<500	ug/Kg	06/13/1993
Aroclor 1232	8080	<200	ug/Kg	06/13/1993
Aroclor 1242	8080	<100	ug/Kg	06/13/1993
Aroclor 1248	8080	<100	ug/Kg	06/13/1993
Aroclor 1254	8080	<50	ug/Kg	06/13/1993
Aroclor 1260	8080	<50	ug/Kg	06/13/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00514

Project Name: 7134
Date Received: 06/04/1993

Sample Number	Sample Description
16394	B-3-19.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		1		06/07/1993
Chloromethane	8010	<5	ug/Kg	06/07/1993
Bromomethane	8010	<5	ug/Kg	06/07/1993
Vinyl Chloride	8010	<10	ug/Kg	06/07/1993
Chloroethane	8010	<5	ug/Kg	06/07/1993
Methylene Chloride	8010	<50	ug/Kg	06/07/1993
Trichlorofluoromethane	8010	<5	ug/Kg	06/07/1993
1,1-Dichloroethene	8010	<5	ug/Kg	06/07/1993
1,1-Dichloroethane	8010	<5	ug/Kg	06/07/1993
trans-1,2-Dichloroethene	8010	<5	ug/Kg	06/07/1993
cis-1,2-Dichloroethene	8010	<5	ug/Kg	06/07/1993
Chloroform	8010	<5	ug/Kg	06/07/1993
1,2-Dichloroethane	8010	<5	ug/Kg	06/07/1993
1,1,1-Trichloroethane	8010	<5	ug/Kg	06/07/1993
Carbon Tetrachloride	8010	<5	ug/Kg	06/07/1993
Bromodichloromethane	8010	<5	ug/Kg	06/07/1993
1,2-Dichloropropane	8010	<5	ug/Kg	06/07/1993
trans-1,3-Dichloropropene	8010	<5	ug/Kg	06/07/1993
Trichloroethene	8010	<5	ug/Kg	06/07/1993
Dibromochloromethane	8010	<5	ug/Kg	06/07/1993
1,1,2-Trichloroethane	8010	<5	ug/Kg	06/07/1993
cis-1,3-Dichloropropene	8010	<5	ug/Kg	06/07/1993
2-Chloroethylvinyl ether	8010	<20	ug/Kg	06/07/1993
Bromoform	8010	<5	ug/Kg	06/07/1993
1,1,2,2-Tetrachloroethane	8010	<5	ug/Kg	06/07/1993
Tetrachloroethene	8010	<5	ug/Kg	06/07/1993
Chlorobenzene	8010	<5	ug/Kg	06/07/1993
1,3-Dichlorobenzene	8010	<5	ug/Kg	06/07/1993
1,4-Dichlorobenzene	8010	<5	ug/Kg	06/07/1993
1,2-Dichlorobenzene	8010	<5	ug/Kg	06/07/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00514

Project Name: 7134
Date Received: 06/04/1993

Sample Number	Sample Description
16395	B-4-26

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
TCLP EXTRACTION PREP	1311	-		06/07/1993
TCLP - Cadmium, ICP	6010	<0.05	mg/L	06/09/1993
TCLP - Chromium, ICP	6010	<0.05	mg/L	06/09/1993
TCLP - Lead, GFAA	7421	<0.005	mg/L	06/09/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<100	ug/Kg	06/13/1993
Aroclor 1221	8080	<500	ug/Kg	06/13/1993
Aroclor 1232	8080	<200	ug/Kg	06/13/1993
Aroclor 1242	8080	<100	ug/Kg	06/13/1993
Aroclor 1248	8080	<100	ug/Kg	06/13/1993
Aroclor 1254	8080	<50	ug/Kg	06/13/1993
Aroclor 1260	8080	<50	ug/Kg	06/13/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00514

Project Name: 7134
Date Received: 06/04/1993

Sample Number	Sample Description
16395	B-4-26

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		1		06/07/1993
Chloromethane	8010	<5	ug/Kg	06/07/1993
Bromomethane	8010	<5	ug/Kg	06/07/1993
Vinyl Chloride	8010	<10	ug/Kg	06/07/1993
Chloroethane	8010	<5	ug/Kg	06/07/1993
Methylene Chloride	8010	<50	ug/Kg	06/07/1993
Trichlorofluoromethane	8010	<5	ug/Kg	06/07/1993
1,1-Dichloroethene	8010	<5	ug/Kg	06/07/1993
1,1-Dichloroethane	8010	<5	ug/Kg	06/07/1993
trans-1,2-Dichloroethene	8010	<5	ug/Kg	06/07/1993
cis-1,2-Dichloroethene	8010	<5	ug/Kg	06/07/1993
Chloroform	8010	<5	ug/Kg	06/07/1993
1,2-Dichloroethane	8010	<5	ug/Kg	06/07/1993
1,1,1-Trichloroethane	8010	<5	ug/Kg	06/07/1993
Carbon Tetrachloride	8010	<5	ug/Kg	06/07/1993
Bromodichloromethane	8010	<5	ug/Kg	06/07/1993
1,2-Dichloropropane	8010	<5	ug/Kg	06/07/1993
trans-1,3-Dichloropropene	8010	<5	ug/Kg	06/07/1993
Trichloroethene	8010	<5	ug/Kg	06/07/1993
Dibromochloromethane	8010	<5	ug/Kg	06/07/1993
1,1,2-Trichloroethane	8010	<5	ug/Kg	06/07/1993
cis-1,3-Dichloropropene	8010	<5	ug/Kg	06/07/1993
2-Chloroethylvinyl ether	8010	<20	ug/Kg	06/07/1993
Bromoform	8010	<5	ug/Kg	06/07/1993
1,1,2,2-Tetrachloroethane	8010	<5	ug/Kg	06/07/1993
Tetrachloroethene	8010	<5	ug/Kg	06/07/1993
Chlorobenzene	8010	<5	ug/Kg	06/07/1993
1,3-Dichlorobenzene	8010	<5	ug/Kg	06/07/1993
1,4-Dichlorobenzene	8010	<5	ug/Kg	06/07/1993
1,2-Dichlorobenzene	8010	<5	ug/Kg	06/07/1993

SURROGATE REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00514

Project Name: 7134
Date Received: 06/04/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 16392 Sample Description B-1-18.5				
Br,Cl-Propane (Surr.)	8010	80	%	06/07/1993
Sample Number 16393 Sample Description B-2-19				
Br,Cl-Propane (Surr.)	8010	82	%	06/07/1993
Sample Number 16394 Sample Description B-3-19.5				
Br,Cl-Propane (Surr.)	8010	82	%	06/07/1993
Sample Number 16395 Sample Description B-4-26				
Br,Cl-Propane (Surr.)	8010	81	%	06/07/1993

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993

NET Job Number: 93.00514

Contact: Dulcy Berri
Project: 7134

Analyte	CCV True Concentration	Concentration Found	Percent Recovery
TCLP - Cadmium, ICP	0.3	0.28	93.3
TCLP - Chromium, ICP	0.30	0.30	100.0
TCLP - Lead, GFAA	0.01	0.0099	99.0
8010 HALOGENATED VOC (S)			
Chlorobenzene	100	84	84.0
1,2-Dichloroethane	100	74	74.0
1,1-Dichloroethene	100	84	84.0
Trichloroethene	100	89	89.0

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993

NET Job Number: 93.00514

Contact: Dulcy Berri
Project: 7134

Analyte	LCS True Concentration	Concentration Found	LCS % Recovery
TCLP - Cadmium, ICP	0.3	0.28	93.3
TCLP - Chromium, ICP	0.30	0.28	93.3
TCLP - Lead, GFAA	0.01	0.0098	98.0

LCS - Laboratory Control Standard

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993

NET Job Number: 93.00514

Contact: Dulcy Berri
Project: 7134

Analyte	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD
TCLP - Cadmium, ICP	0.26	<0.05	0.3	mg/L	86.7	0.28	0.3	mg/L	93.3	7.3
TCLP - Chromium, ICP	0.25	<0.05	0.30	mg/L	83.3	0.26	0.30	mg/L	86.7	4.0
TCLP - Lead, GFAA	0.0099	<0.005	0.010	mg/L	99.0	0.0105	0.010	mg/L	105.0	5.8
010 HALOGENATED VOC (S)										
1,1-Dichloroethene	82.0	<5	96.15	ug/Kg	85.3	85.6	98.04	ug/Kg	87.3	2.3
1,2-Dichloroethane	83.7	<5	96.15	ug/Kg	87.1	88.2	98.04	ug/Kg	90.0	3.3
Trichloroethene	81.3	<5	96.15	ug/Kg	84.6	85.8	98.04	ug/Kg	87.5	3.4
Chlorobenzene	83.3	<5	96.15	ug/Kg	86.6	88.6	98.04	ug/Kg	90.4	4.3

NOTE: Matrix Spike Samples may not be samples from this job.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
dil.= Diluted Out

QUALITY CONTROL REPORT
BLANKS

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993

NET Job Number: 93.00514

Contact: Dulcy Berri
Project: 7134
Location: 242 & Stark

Analyte	Blank Analysis	Units
TCLP - Cadmium, ICP	<0.05	mg/L
TCLP - Chromium, ICP	<0.05	mg/L
TCLP - Lead, GFAA	<0.005	mg/L
PCBs - (SOIL)		
Aroclor 1016	<100	ug/Kg
Aroclor 1221	<500	ug/Kg
Aroclor 1232	<200	ug/Kg
Aroclor 1242	<100	ug/Kg
Aroclor 1248	<100	ug/Kg
Aroclor 1254	<50	ug/Kg
Aroclor 1260	<50	ug/Kg
Dibutylchlorendate (Surr.)	-	%
8010 HALOGENATED VOC (S)		
Bromodichloromethane	<5	ug/Kg
Bromoform	<5	ug/Kg
Bromomethane	<5	ug/Kg
Carbon Tetrachloride	<5	ug/Kg
Chlorobenzene	<5	ug/Kg
Chloroethane	<5	ug/Kg
2-Chloroethylvinyl ether	<25	ug/Kg
Chloroform	<5	ug/Kg
Chloromethane	<5	ug/Kg
Dibromochloromethane	<5	ug/Kg
1,2-Dichlorobenzene	<5	ug/Kg
1,3-Dichlorobenzene	<5	ug/Kg
1,4-Dichlorobenzene	<5	ug/Kg
1,1-Dichloroethane	<5	ug/Kg

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

QUALITY CONTROL REPORT
BLANKS

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993

NET Job Number: 93.00514

Contact: Dulcy Berri
Project: 7134
Location: 242 & Stark

Analyte	Blank Analysis	Units
1,2-Dichloroethane	<5	ug/Kg
1,1-Dichloroethene	<5	ug/Kg
trans-1,2-Dichloroethene	<5	ug/Kg
cis-1,2-Dichloroethene	<5	ug/Kg
1,2-Dichloropropane	<5	ug/Kg
cis-1,3-Dichloropropene	<5	ug/Kg
trans-1,3-Dichloropropene	<5	ug/Kg
Methylene Chloride	<50	ug/Kg
1,1,2,2-Tetrachloroethane	<5	ug/Kg
Tetrachloroethene	<5	ug/Kg
1,1,2-Trichloroethane	<5	ug/Kg
Trichloroethene	<5	ug/Kg
Trichlorofluoromethane	<5	ug/Kg
Vinyl Chloride	<10	ug/Kg
Br,Cl-Propane (Surr.)	84	%

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

QUALITY CONTROL REPORT

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993

NET Job Number: 93.00514

Contact: Dulcy Berri
Project: 7134
Location: 242 & Stark

Analyte	CCVS Percent Recovery	MS Percent Recovery	MSD Percent Recovery	MS/MSD RPD
PESTICIDES-PCB's 8080				
Aldrin	112	87	97	10.9
gamma-BHC (Lindane)	115	92	100	8.6
4,4-DDT	87	57	63	11.0
Dieldrin	98	78	88	12.0
Endrin	98	67	75	11.7
Heptachlor	110	88	95	7.3

NOTE: Matrix Spike Samples may not be samples from this job.

CCVS = Continuing Calibration Verification Standard
MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

NATIONAL ENVIRONMENTAL TESTING, INC.

Portland Division
17400 SW Upper Boones Ferry Rd.
Suite #260
Portland, OR 97224
Tel: (503) 624-5449
Fax: (503) 639-6889

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/10/1993
NET Account No.: 5000
NET Job Number: 93.00525

Project: 7134
Location: Unocal 242/Stark

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
16455	B-5-29	SOIL	06/07/1993	06/07/1993
16456	B-5-30.5	SOIL	06/07/1993	06/07/1993
16457	B-5-32	SOIL	06/07/1993	06/07/1993
16458	B-6-27	SOIL	06/07/1993	06/07/1993
16459	B-6-29.5	SOIL	06/07/1993	06/07/1993
16460	B-6-31	SOIL	06/07/1993	06/07/1993

Approved by:

Marty French
NET, INC. Division Manager

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/10/1993
Job No.: 93.00525

Project Name: 7134
Date Received: 06/07/1993

Sample Number	Sample Description
16455	B-5-29

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/08/1993
OAR TPH-HCID (S)				
Dilution Factor		1		06/08/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/08/1993
Diesel	OAR-HCID	<50	mg/Kg	06/08/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/08/1993

Sample Number	Sample Description
16456	B-5-30.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/08/1993
OAR TPH-HCID (S)				
Dilution Factor		1		06/08/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/08/1993
Diesel	OAR-HCID	<50	mg/Kg	06/08/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/08/1993

Sample Number	Sample Description
16457	B-5-32

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/08/1993
OAR TPH-HCID (S)				
Dilution Factor		1		06/08/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/08/1993
Diesel	OAR-HCID	<50	mg/Kg	06/08/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/08/1993

Sample Number	Sample Description
16458	B-6-27

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/08/1993
OAR TPH-HCID (S)				

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/10/1993
Job No.: 93.00525

Project Name: 7134
Date Received: 06/07/1993

Sample Number	Sample Description
16458	B-6-27

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
Dilution Factor		1		06/08/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/08/1993
Diesel	OAR-HCID	<50	mg/Kg	06/08/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/08/1993

Sample Number	Sample Description
16459	B-6-29.5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/08/1993
OAR TPH-HCID (S) Dilution Factor		1		06/08/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/08/1993
Diesel	OAR-HCID	<50	mg/Kg	06/08/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/08/1993

Sample Number	Sample Description
16460	B-6-31

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		06/08/1993
OAR TPH-HCID (S) Dilution Factor		1		06/08/1993
Gasoline	OAR-HCID	<20	mg/Kg	06/08/1993
Diesel	OAR-HCID	<50	mg/Kg	06/08/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	06/08/1993

SURROGATE REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/10/1993
Job No.: 93.00525

Project Name: 7134
Date Received: 06/07/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 16455	Sample Description B-5-29			
o-Terphenyl (Surr.)	OAR-HCID	107	%	06/08/1993
Sample Number 16456	Sample Description B-5-30.5			
o-Terphenyl (Surr.)	OAR-HCID	104	%	06/08/1993
Sample Number 16457	Sample Description B-5-32			
o-Terphenyl (Surr.)	OAR-HCID	110	%	06/08/1993
Sample Number 16458	Sample Description B-6-27			
o-Terphenyl (Surr.)	OAR-HCID	95	%	06/08/1993
Sample Number 16459	Sample Description B-6-29.5			
o-Terphenyl (Surr.)	OAR-HCID	80	%	06/08/1993
Sample Number 16460	Sample Description B-6-31			
o-Terphenyl (Surr.)	OAR-HCID	140	%	06/08/1993

NATIONAL ENVIRONMENTAL TESTING, INC.

PORTLAND DIVISION, 17400 SW UPPER BOONES FERRY RD., SUITE 260, PORTLAND, OR 97224
(503) 624-5449 PHONE (503) 639-6889 FAX

00525

CHAIN OF CUSTODY RECORD

COMPANY Brown & Caldwell
ADDRESS 3020 SW Barbur Portland 97219
PHONE [illegible] FAX
PROJECT NAME/LOCATION [illegible] / Stark
PROJECT NUMBER 7134
PROJECT MANAGER D. [illegible] B[illegible]

SAMPLED BY Thayne Landert (PRINT NAME) — SIGNATURE T Randy
(PRINT NAME) — SIGNATURE

TURNAROUND TIME 10 DAY (S)

DATE	TIME	SAMPLE ID/DESCRIPTION		GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	ANALYSES 1	ANALYSES 2	ANALYSES 3	ANALYSES 4	COMMENTS
1/7/93	0930	B-5-29	A & B	Y		2	Soil	Ice	Y	Y	Y	Y	Sample A Hold B
↓	1005	B-5-30.5	A, B	Y		2	↓	↓	Y				↓
↓	1015	B-5-32	A, B	Y		2	↓	↓	Y				↓
↓	1130	B-6-27	A, B	Y		2	↓	↓	Y	Y	Y	Y	↓
↓	1155	B-6-29.5		Y		1	↓	↓	Y				↓
↓	1210	B-6-31	A, B	Y		2	Y	Y	Y				↓

Comments: Quantify [illegible]

RESULTS TO: Duley Burr
INVOICE TO: Brown [illegible]

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
T Randy	1/7/93 1120				
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY:
				1/7/93 1420	[signature]

METHOD OF SHIPMENT: Hand

REMARKS:

NATIONAL ENVIRONMENTAL TESTING, INC.

Portland Division
17400 SW Upper Boones Ferry Rd.
Suite #260
Portland, OR 97224
Tel: (503) 624-5449
Fax: (503) 639-6889

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993
NET Account No.: 5000
NET Job Number: 93.00526

Project: 7134
Location: Unocal 242/Stark

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
16461	B-5-29	SOIL	06/07/1993	06/07/1993
16462	B-6-27	SOIL	06/07/1993	06/07/1993

Approved by:

Marty French
NET, INC. Division Manager

OCEAN GROUP

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00526

Project Name: 7134
Date Received: 06/07/1993

Sample Number: 16461
Sample Description: B-5-29

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
TCLP EXTRACTION PREP	1311	-		06/09/1993
TCLP - Cadmium, ICP	6010	<0.05	mg/L	06/11/1993
TCLP - Chromium, ICP	6010	<0.05	mg/L	06/11/1993
TCLP - Lead, GFAA	7421	<0.005	mg/L	06/14/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<100	ug/Kg	06/13/1993
Aroclor 1221	8080	<500	ug/Kg	06/13/1993
Aroclor 1232	8080	<200	ug/Kg	06/13/1993
Aroclor 1242	8080	<100	ug/Kg	06/13/1993
Aroclor 1248	8080	<100	ug/Kg	06/13/1993
Aroclor 1254	8080	<50	ug/Kg	06/13/1993
Aroclor 1260	8080	<50	ug/Kg	06/13/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00526

Project Name: 7134
Date Received: 06/07/1993

Sample Number	Sample Description
16461	B-5-29

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		1		06/10/1993
Chloromethane	8010	<5	ug/Kg	06/10/1993
Bromomethane	8010	<5	ug/Kg	06/10/1993
Vinyl Chloride	8010	<10	ug/Kg	06/10/1993
Chloroethane	8010	<5	ug/Kg	06/10/1993
Methylene Chloride	8010	<50	ug/Kg	06/10/1993
Trichlorofluoromethane	8010	<5	ug/Kg	06/10/1993
1,1-Dichloroethene	8010	<5	ug/Kg	06/10/1993
1,1-Dichloroethane	8010	<5	ug/Kg	06/10/1993
trans-1,2-Dichloroethene	8010	<5	ug/Kg	06/10/1993
cis-1,2-Dichloroethene	8010	<5	ug/Kg	06/10/1993
Chloroform	8010	<5	ug/Kg	06/10/1993
1,2-Dichloroethane	8010	<5	ug/Kg	06/10/1993
1,1,1-Trichloroethane	8010	<5	ug/Kg	06/10/1993
Carbon Tetrachloride	8010	<5	ug/Kg	06/10/1993
Bromodichloromethane	8010	<5	ug/Kg	06/10/1993
1,2-Dichloropropane	8010	<5	ug/Kg	06/10/1993
trans-1,3-Dichloropropene	8010	<5	ug/Kg	06/10/1993
Trichloroethene	8010	<5	ug/Kg	06/10/1993
Dibromochloromethane	8010	<5	ug/Kg	06/10/1993
1,1,2-Trichloroethane	8010	<5	ug/Kg	06/10/1993
cis-1,3-Dichloropropene	8010	<5	ug/Kg	06/10/1993
2-Chloroethylvinyl ether	8010	<20	ug/Kg	06/10/1993
Bromoform	8010	<5	ug/Kg	06/10/1993
1,1,2,2-Tetrachloroethane	8010	<5	ug/Kg	06/10/1993
Tetrachloroethene	8010	<5	ug/Kg	06/10/1993
Chlorobenzene	8010	<5	ug/Kg	06/10/1993
1,3-Dichlorobenzene	8010	<5	ug/Kg	06/10/1993
1,4-Dichlorobenzene	8010	<5	ug/Kg	06/10/1993
1,2-Dichlorobenzene	8010	<5	ug/Kg	06/10/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00526

Project Name: 7134
Date Received: 06/07/1993

Sample Number	Sample Description
16462	B-6-27

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
TCLP EXTRACTION PREP	1311	-		06/09/1993
TCLP - Cadmium, ICP	6010	<0.05	mg/L	06/11/1993
TCLP - Chromium, ICP	6010	<0.05	mg/L	06/11/1993
TCLP - Lead, GFAA	7421	<0.005	mg/L	06/14/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<100	ug/Kg	06/13/1993
Aroclor 1221	8080	<500	ug/Kg	06/13/1993
Aroclor 1232	8080	<200	ug/Kg	06/13/1993
Aroclor 1242	8080	<100	ug/Kg	06/13/1993
Aroclor 1248	8080	<100	ug/Kg	06/13/1993
Aroclor 1254	8080	<50	ug/Kg	06/13/1993
Aroclor 1260	8080	<50	ug/Kg	06/13/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00526

Project Name: 7134
Date Received: 06/07/1993

Sample Number	Sample Description
16462	B-6-27

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		1		06/10/1993
Chloromethane	8010	<5	ug/Kg	06/10/1993
Bromomethane	8010	<5	ug/Kg	06/10/1993
Vinyl Chloride	8010	<10	ug/Kg	06/10/1993
Chloroethane	8010	<5	ug/Kg	06/10/1993
Methylene Chloride	8010	<50	ug/Kg	06/10/1993
Trichlorofluoromethane	8010	<5	ug/Kg	06/10/1993
1,1-Dichloroethene	8010	<5	ug/Kg	06/10/1993
1,1-Dichloroethane	8010	<5	ug/Kg	06/10/1993
trans-1,2-Dichloroethene	8010	<5	ug/Kg	06/10/1993
cis-1,2-Dichloroethene	8010	<5	ug/Kg	06/10/1993
Chloroform	8010	<5	ug/Kg	06/10/1993
1,2-Dichloroethane	8010	<5	ug/Kg	06/10/1993
1,1,1-Trichloroethane	8010	<5	ug/Kg	06/10/1993
Carbon Tetrachloride	8010	<5	ug/Kg	06/10/1993
Bromodichloromethane	8010	<5	ug/Kg	06/10/1993
1,2-Dichloropropane	8010	<5	ug/Kg	06/10/1993
trans-1,3-Dichloropropene	8010	<5	ug/Kg	06/10/1993
Trichloroethene	8010	<5	ug/Kg	06/10/1993
Dibromochloromethane	8010	<5	ug/Kg	06/10/1993
1,1,2-Trichloroethane	8010	<5	ug/Kg	06/10/1993
cis-1,3-Dichloropropene	8010	<5	ug/Kg	06/10/1993
2-Chloroethylvinyl ether	8010	<20	ug/Kg	06/10/1993
Bromoform	8010	<5	ug/Kg	06/10/1993
1,1,2,2-Tetrachloroethane	8010	<5	ug/Kg	06/10/1993
Tetrachloroethene	8010	<5	ug/Kg	06/10/1993
Chlorobenzene	8010	<5	ug/Kg	06/10/1993
1,3-Dichlorobenzene	8010	<5	ug/Kg	06/10/1993
1,4-Dichlorobenzene	8010	<5	ug/Kg	06/10/1993
1,2-Dichlorobenzene	8010	<5	ug/Kg	06/10/1993

SURROGATE REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

06/23/1993
Job No.: 93.00526

Project Name: 7134
Date Received: 06/07/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 16461 Sample Description B-5-29				
Br,Cl-Propane (Surr.)	8010	97	%	06/10/1993
Sample Number 16462 Sample Description B-6-27				
Br,Cl-Propane (Surr.)	8010	102	%	06/10/1993

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993

NET Job Number: 93.00526

Contact: Dulcy Berri
Project: 7134

Analyte	CCV True Concentration	Concentration Found	Percent Recovery
TCLP - Cadmium, ICP	0.30	0.29	97.0
TCLP - Chromium, ICP	0.30	0.27	90.0
TCLP - Lead, GFAA	0.01	0.0086	86.0
8010 HALOGENATED VOC (S)			
Chlorobenzene	100	103	103.0
1,2-Dichloroethane	100	108	108.0
1,1-Dichloroethene	100	106	106.0
Trichloroethene	100	99.5	99.5

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993

NET Job Number: 93.00526

Contact: Dulcy Berri
Project: 7134

Analyte	LCS True Concentration	Concentration Found	LCS % Recovery
TCLP - Lead, GFAA	0.01	0.008	80.0
TCLP - Cadmium, ICP	0.30	0.26	86.7
TCLP - Chromium, ICP	0.30	0.25	83.0

LCS - Laboratory Control Standard

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993

NET Job Number: 93.00526

Contact: Dulcy Berri
Project: 7134

Analyte	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD
TCLP - Cadmium, ICP	0.26	<0.05	0.3	mg/L	86.7	0.29	0.3	mg/L	96.7	10.9
TCLP - Chromium, ICP	0.28	<0.05	0.30	mg/L	93.3	0.28	0.30	mg/L	93.3	0.0
TCLP - Lead, GFAA	0.0047	<0.005	0.010	mg/L	47.0	0.0053	0.010	mg/L	53.0	12.0
010 HALOGENATED VOC (S)										
,1-Dichloroethene	116	<5	96.15	ug/Kg	120.6	114	95.24	ug/Kg	119.7	0.7
1,2-Dichloroethane	115	<5	96.15	ug/Kg	119.6	109	95.24	ug/Kg	114.4	4.4
Trichloroethene	89.9	<5	96.15	ug/Kg	93.5	91.4	95.24	ug/Kg	96.0	2.6
Chlorobenzene	88	<5	96.15	ug/Kg	91.5	91.4	95.24	ug/Kg	96.0	4.8

NOTE: Matrix Spike Samples may not be samples from this job.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
dil.= Diluted Out

QUALITY CONTROL REPORT
BLANKS

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993

NET Job Number: 93.00526

Contact: Dulcy Berri
Project: 7134
Location: Unocal 242/Stark

Analyte	Blank Analysis	Units
TCLP - Lead, GFAA	<0.005	mg/L
TCLP - Cadmium, ICP	<0.05	mg/L
TCLP - Chromium, ICP	<0.05	mg/L
8010 HALOGENATED VOC (S)		
Bromodichloromethane	<5	ug/Kg
Bromoform	<5	ug/Kg
Bromomethane	<5	ug/Kg
Carbon Tetrachloride	<5	ug/Kg
Chlorobenzene	<5	ug/Kg
Chloroethane	<5	ug/Kg
2-Chloroethylvinyl ether	<25	ug/Kg
Chloroform	<5	ug/Kg
Chloromethane	<5	ug/Kg
Dibromochloromethane	<5	ug/Kg
1,2-Dichlorobenzene	<5	ug/Kg
1,3-Dichlorobenzene	<5	ug/Kg
1,4-Dichlorobenzene	<5	ug/Kg
1,1-Dichloroethane	<5	ug/Kg
1,2-Dichloroethane	<5	ug/Kg
1,1-Dichloroethene	<5	ug/Kg
trans-1,2-Dichloroethene	<5	ug/Kg
cis-1,2-Dichloroethene	<5	ug/Kg
1,2-Dichloropropane	<5	ug/Kg
cis-1,3-Dichloropropene	<5	ug/Kg
trans-1,3-Dichloropropene	<5	ug/Kg
Methylene Chloride	<50	ug/Kg
1,1,2,2-Tetrachloroethane	<5	ug/Kg
Tetrachloroethene	<5	ug/Kg
1,1,2-Trichloroethane	<5	ug/Kg

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

QUALITY CONTROL REPORT
BLANKS

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993

NET Job Number: 93.00526

Contact: Dulcy Berri
Project: 7134
Location: Unocal 242/Stark

Analyte	Blank Analysis	Units
Trichloroethene	<5	ug/Kg
Trichlorofluoromethane	<5	ug/Kg
Vinyl Chloride	<10	ug/Kg
Br,Cl-Propane (Surr.)	94	%
PCB-8080 (S)		
Arcolor 1016	<100	ug/Kg
Arcolor 1221	<500	ug/Kg
Arcolor 1232	<200	ug/Kg
Arcolor 1242	<100	ug/Kg
Arcolor 1248	<100	ug/Kg
Arcolor 1254	<50	ug/Kg
Arcolor 1260	<50	ug/Kg

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

QUALITY CONTROL REPORT

Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 06/23/1993

NET Job Number: 93.00526

Contact: Dulcy Berri
Project: 7134
Location: Unocal 242/Stark

Analyte	LCS Percent Recovery	MS Percent Recovery	MSD Percent Recovery	MS/MSD RPD
Aldrin	112.0	87	58	10.9
gamma-BHC (Lindane)	115	92	100	8.6
4,4-DDT	87	57	63	11.0
Dieldrin	98	78	88	12.0
Endrin	98	67	75	11.7
Heptachlor	110	88	95	7.3

NOTE: Matrix Spike Samples may not be samples from this job.

CCVS = Continuing Calibration Verification Standard
MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

Brown and Caldwell
Consultants

9620 S.W. Barbur Boulevard
Suite 200
Portland, OR 97219-6041
(503) 244-7005
FAX (503) 244-9095

26-93-071

April 9, 1993

Dr. Mark Brearley
Environmental Geologist
Unocal Corporation
Post Office Box 76
Seattle, Washington 98111

13-7134

Subject: Soils Investigation Following
Station Decommissioning
Unocal Service Station No. 5745
445 Southeast 242nd Avenue
Gresham, Oregon

Dear Dr. Brearley:

This letter report describes the results of the soil investigation by Brown and Caldwell Consultants (BCC) at the Unocal Corporation (Unocal) Service Station No. 5745 following the removal of the station's underground storage tank system. The investigation was conducted in accordance with the terms and conditions outlined in the Blanket Contract No. B1753D between Unocal and BCC. The site is located at 445 Southeast 242nd Avenue, Gresham, Oregon (Figure 1).

SITE DESCRIPTION AND LOCATION

Unocal owns or has lease agreements for the property and facility of Service Station No. 5745. A site map is included as Figure 2. The site included a service building, located on the south half of the site and two product distribution islands located to the north of the service building. The area surrounding the two pump islands was paved with concrete; asphalt paving remains across the rest of the site.

Four fiberglass underground storage tanks (USTs) including two 10,000-gallon gasoline tanks, one 550-gallon waste oil tank and one 550-gallon heating oil tank, were located at the site. The gasoline USTs were located north of the service building and the waste oil/heating oil USTs were located to the west of the service building. Two 2-inch inside-diameter (ID) fiberglass product lines extended beneath the site from the two gasoline USTs north to the two product distribution islands and south to two former product distribution islands.

In addition to the four USTs, an abandoned septic tank and cesspool were located in the southwest corner of the property.

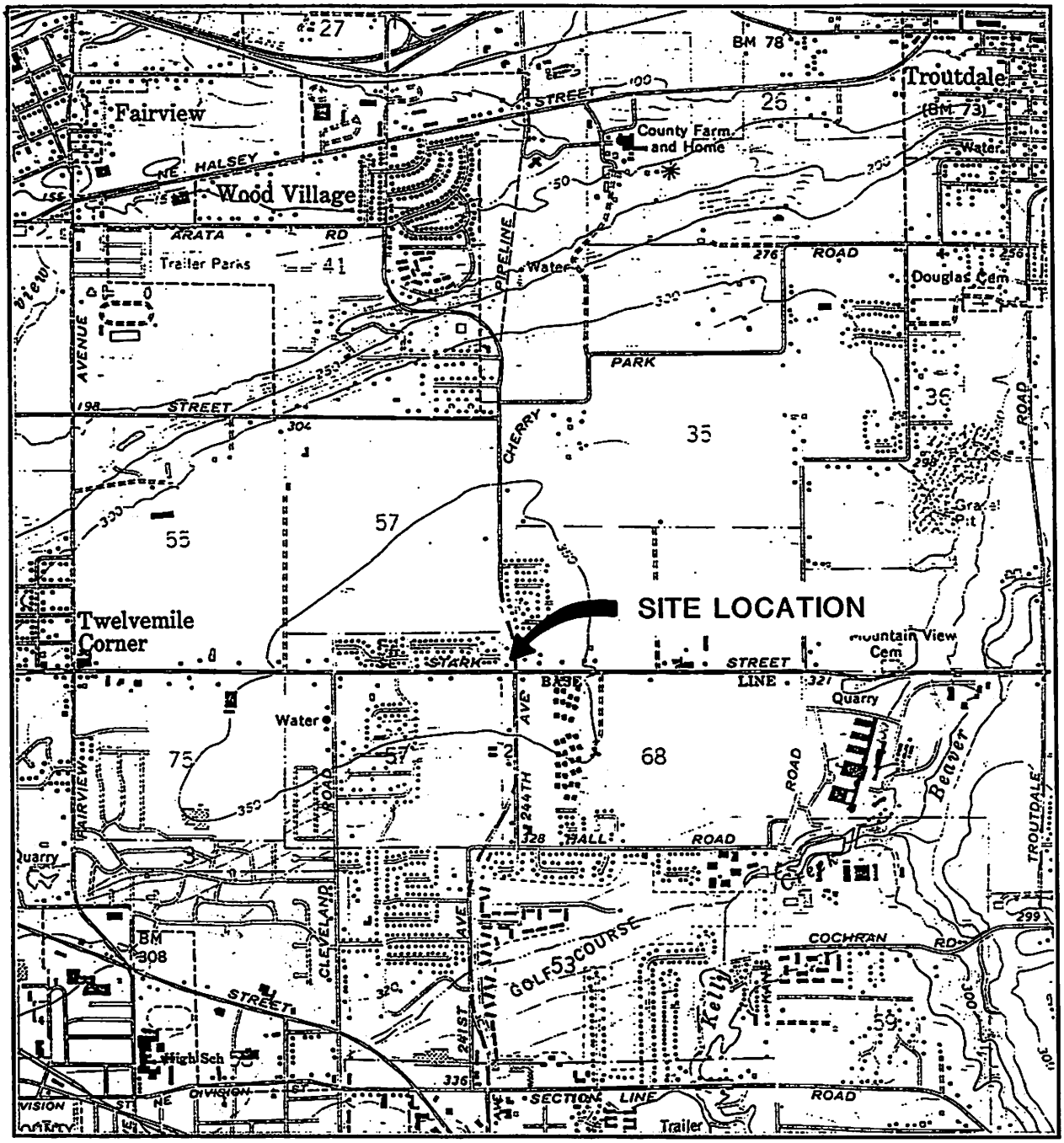

FIGURE 1
VICINITY MAP
UNOCAL SERVICE STATION NO. 5745
GRESHAM, OREGON

Brown and Caldwell Consultants

7134FIG1

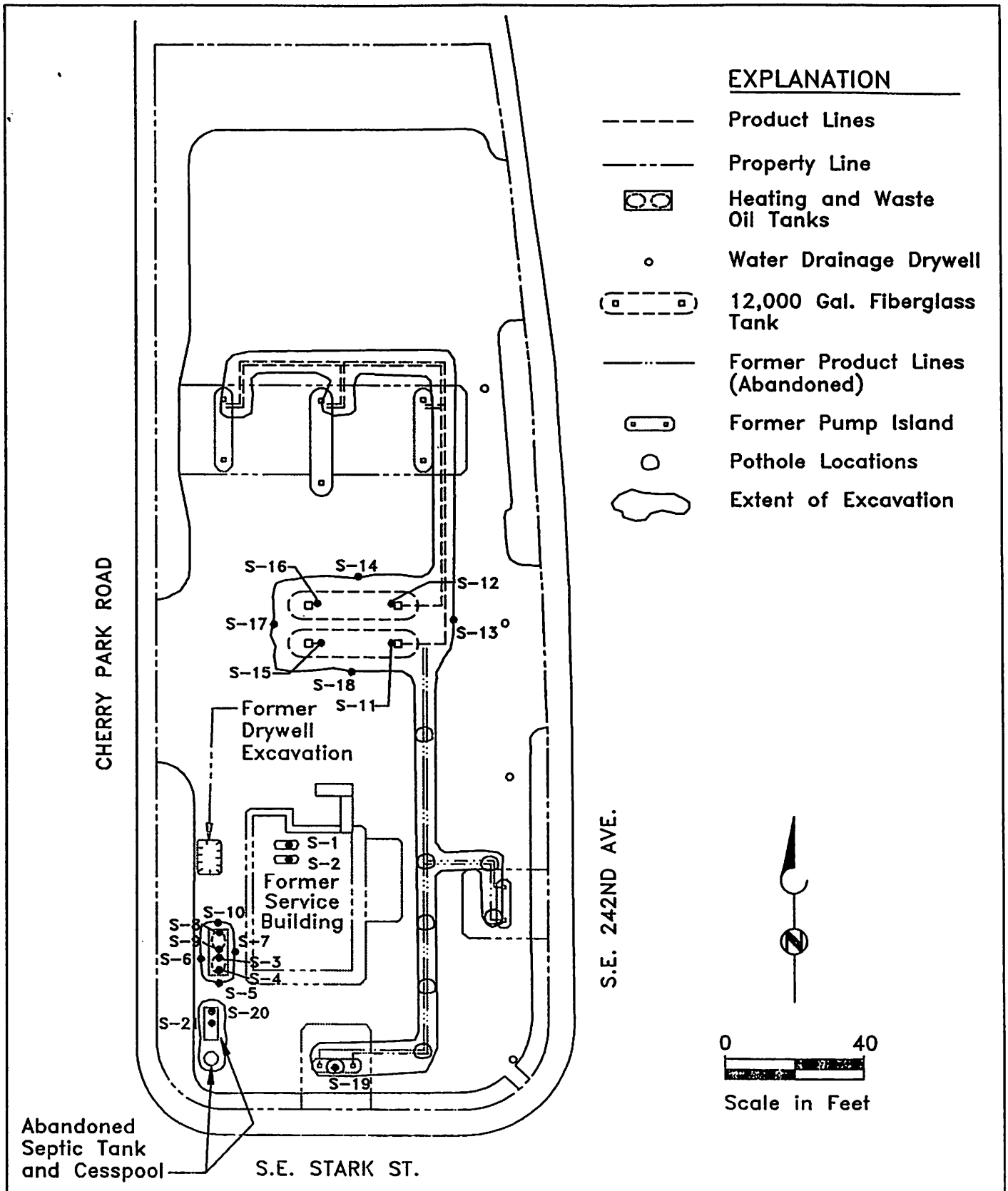

FIGURE 2
SITE MAP
UNOCAL SERVICE STATION NO. 5745
GRESHAM, OREGON

Brown and Caldwell Consultants

7134FIG2 3/23/93

The site is located approximately three miles south of the Columbia River and approximately 2 miles southwest of the Sandy River. The topography in the vicinity of the site slopes gently to the west and north. The Federal Rectangular System coordinates for the station are the Southwest 1/4 of the Southwest 1/4 of Section 35, Township 1 North, Range 3 East, Willamette Baseline and Meridian.

BACKGROUND INFORMATION

On September 8, 1992, Northwest Field Services removed a drywell structure that was connected to the floor sump in the service bay area of the service building. The drywell structure was approximately six feet deep and was constructed of three 2-feet high by 4-feet in diameter concrete rings with 4-inch drain holes. No liquid was found in the drywell and very little staining was observed on the inside of the well structure, but visible contamination appeared in the soil below the drywell structure.

The excavation was continued toward the west until contact was made with the curb and downward to approximately 19 feet which was the maximum depth the backhoe could reach. The excavation was backfilled for safety purposes. Approximately 35 cubic yards of soil were treated at Oregon Hydrocarbon, Inc.

The analytical results of this investigation indicate that total petroleum hydrocarbon concentrations of 1,000 ppm remaining in the soil adjacent to the drywell excavation (west sidewall at 19-feet depth) exceed the Oregon Department of Environmental Quality (DEQ) Soil Matrix Level 2 cleanup standard of 500 ppm. The level of PCBs in visibly contaminated sample S-1 (1.2 ppm) exceeds the Oregon Soil Cleanup Level of 0.08 ppm. A complete summary of this investigation may be found in our December 16, 1992, report.

FIELD ACTIVITIES

On February 26, 1993, Brown and Caldwell personnel were on site to observe the removal of the station's UST system and collect soil samples. Staton Construction (Staton) of Eugene, Oregon, had already completed the demolition of the service building and was ready to perform tank decommissioning and removal.

The hoists located in the former service building had already been removed by Staton; soil samples were collected from the floor of each of the excavations. The heating oil and waste oil USTs were pumped and triple-rinsed by Spencer Environmental (receipt in Appendix A). The tanks were in good condition and there were no visible signs of contamination in the excavation; soil samples were collected from the floor and sidewalls of the excavation.

The gasoline USTs were then removed after a small amount of remaining fuel was pumped into a holding tank (disposal by Spencer Environmental - receipt in Appendix A). Soil samples were collected from native soils beneath each tank and from the sidewalls of the excavation. A pair of 2-inch fiberglass product lines were found in the southeast corner of the gasoline UST pit. These lines appear to extend toward the former product distribution islands.

On March 1, 1993, Staton removed the product lines. The lines were first uncovered and drained of any remaining product and then removed from the soil. An old abandoned steel line was found in the trench extending south from the gasoline UST pit and it was removed also. The backhoe was used to pothole along the trench to check for possible contamination underlying the product lines; none was observed. One soil sample was collected from a suspect area of the former south pump island.

An abandoned steel septic tank was uncovered and removed from the southwest corner of the site. The tank was rusted through and sludge from inside the tank remained in the excavation. The cesspool connected to the septic tank was discovered to be 24 feet deep. Due to the cesspool's location, it was not removed because the excavation would have extended into Stark Street; it was also not possible to sample the cesspool floor. The cesspool was backfilled with clean gravel to reduce the chance of an accidental cave in. Samples were collected from soil beneath the septic tank and of the sludge.

Sludge removed from the service station sump was containerized onsite; sampling was performed to determine disposal options.

ANALYTICAL RESULTS

Soil samples were analyzed for hydrocarbon identification by Oregon DEQ Method TPH-HCID to characterize possible contamination. If any hydrocarbon contamination was detected, the samples were then quantified by the appropriate DEQ method. Table 1 contains the analytical results of the HCID and TPH tests for soil samples collected from the UST and septic tank excavations. In addition, samples from the hoist areas, heating/waste oil excavation and septic tank area were analyzed for PCBs (EPA Method 8080), three metals (TCLP), and volatile organics (EPA Method 8010/8020) ("waste oil tests").

Table 1. TPH Analytical Results for Soil Samples
Unocal Service Station No. 5745

Sample Number	Location and depth	HCID[a]	TPH-G[b]	TPH 418.1M[c]
S-1	North hoist floor 8'	ND	-	-
S-2	South hoist floor 8'	ND	-	-
S-3	North end floor waste oil UST 8'	ND	-	-
S-4	South end floor waste oil UST 8'	ND	-	-
S-5	South sidewall heating/waste oil 5'	ND	-	-
S-6	West sidewall heating/waste oil 4'	ND	-	-
S-7	East sidewall heating/waste oil 4'	ND	-	-
S-8	South end floor heating oil UST 8'	ND	-	-
S-9	North end floor heating oil UST 8'	ND	-	-
S-10	North sidewall heating/waste oil 5'	ND	-	-
S-11	Southeast floor gasoline UST 14'	ND	-	-
S-12	Northeast floor gasoline UST 14'	ND	-	-
S-13	East sidewall gasoline UST 8'	ND	-	-
S-14	North sidewall gasoline UST 8'	ND	-	-
S-15	Southwest floor gasoline UST 14'	ND	-	-
S-16	Northwest floor gasoline UST 14'	ND	-	-
S-17	West sidewall gasoline UST 8'	ND	-	-
S-18	South sidewall gasoline UST 8'	ND	-	-
S-19	Old south pump island 3'	Gas	47	-
S-20	Floor beneath septic tank 8'	ND	-	-
S-21	Sludge from septic tank	Gas Oil	58 -	- 30,000

[a] HCID by OR-DEQ Method TPH-HCID.
[b] Total Petroleum Hydrocarbons - Gasoline by OR-DEQ Method TPH-G, concentrations in parts per million (ppm).
[c] Total Petroleum Hydrocarbons - Heavy Oil by OR-DEQ Method TPH-418.1M, concentrations in ppm.
ND No detected petroleum hydrocarbons - no other tests necessary.

Approximate sample locations can be found on Figure 2. Samples were collected to characterize soils in place per DEQ requirements as well as to facilitate plans for possible over-excavation. Copies of chain-of-custody documents and the laboratory analytical reports are included in Appendix B.

Soil sampled from the area of a former product distribution island located along the south center edge of the site had a TPH-G concentration of 47 ppm. The sludge found in the abandoned septic tank had 58 ppm TPH-G and 30,000 ppm mixed heavy oil; PCBs at 0.58 ppm; dichlorobenzene compounds up to 4.9 ppm and chlorobenzene at 2.8 ppm (no detected metals or BTEX constituents).

Waste oil tests of samples near the former hoists and heating/waste oil pit showed no detectable TPH, PCBs, metals or volatile organics.

CONCLUSIONS

Based on the results of laboratory analysis, no contamination was detected in the heating oil/waste oil UST excavation, the gasoline UST excavation, along the product distribution lines or beneath the hoists. A small area of soil with gasoline levels well below DEQ Soil Matrix Level 2 limits of 80 ppm exists in the area of the old south pump island. The level of heavy oil detected in the sludge found in the abandoned septic tank exceeds DEQ limits of 500 ppm; DEQ limits for PCBs (0.08 ppm) are also exceeded; chlorobenzene limits (50 ppm) are met; no limits are established for dichlorobenzene. Soils beneath the septic tank had no detectable contamination.

Brown and Caldwell is preparing a detailed scope of work for site cleanup, to include removal of septic tank sludge/soils, investigation of the floor of the cesspool, test pits in the area of the former gasoline UST pit and further investigation of contamination remaining after the drywell removal in September 1992. Analytical data from sludge removed from the sump is being evaluated for disposal options. If you have any questions concerning this report please call me at (503) 244-7005.

Very truly yours,

BROWN AND CALDWELL

Dulcy Berri

Dulcy A. Berri, RG
Project Manager

DAB/TAL:jlj.wmp

cc: Mr. Andree Pollock, Oregon DEQ, Portland, Oregon

APPENDIX A
DISPOSAL RECEIPTS

7307

SPENCER
ENVIRONMENTAL SERVICES, INC.
15770 South Beaver Glen Drive
OREGON CITY, OREGON 97045

(503) 655-0896
EPA ID #ORD-980-836-415

JOB PHONE	DATE OF ORDER
	2-26-93
JOB NAME/LOCATION	
445 SE 142ND	
GRESHAM OR.	UNDER

TO STATON CONST. INC.

PHONE

ORDER TAKEN BY

TERMS: 1½% 10 Days _____ Billing Date
Net 30 Days

DESCRIPTION	AMOUNT	
TRIPLE RINSE 2-500 GALLON TANKS		
(1-WASTE OIL	250	00
1-HEATING OIL)	250	00
APPROX (23) GALLONS OF LIQUIDS @ 50¢ GAL	11	50

Signature certifies that to the best of my knowledge this product has not been mixed with hazardous waste.

A FINANCIAL CHARGE of 1½% per month may be applied to any Past Due amount. Past Due Accounts may be placed on C.O.D. without notification. If outside collection action is necessary purchaser shall pay all costs of collection including reasonable attorney's fees.

LABOR	HOURS	RATE	AMOUNT			
#20 Kevin					TOTAL MATERIAL	
					TOTAL LABOR	
WORK ORDERED BY	DATE COMPLETED	TOTAL LABOR			TAX	
					PAY THIS AMOUNT →	511 50

Thank You

SIGNATURE (I hereby acknowledge the satisfactory completion of the above described work.)

INVOICE

5274

SPENCER ENVIRONMENTAL SERVICES, INC.
[illegible] South [illegible] Drive
OREGON CITY, OREGON 97045
(503) [illegible]
EPA ID #[illegible]-415

JOB PHONE	DATE OF ORDER
	3/14/93
JOB NAME/LOCATION	
UNOCAL 242nd / Stark	
Mitchell Bros. Portland	

Emerson H2O Tank Eng
Charles [illegible] Eng

TO: STATON CONSTRUCTION
29894 "B" Airport Rd.
Eugene, OR

PHONE:

ORDER TAKEN BY: Eric

TERMS: [illegible] Days — Billing Date

pump and transport 3342 gals waste H2O and oil @ 50¢/gallon		
+ minimum 2 hour service charge @ 65.00/hr.		130.00

OFFICE TO BILL

Signature [illegible] that to the best of my knowledge this product has not been mixed [illegible]

A [illegible] of [illegible]% per month may be applied to any Past Due amount. Past due Accounts may be placed on C.O.D. without notification. If outside collection [illegible] is necessary, purchaser shall pay all costs of collection including reasonable attorney's fees.

LABOR	HOURS	RATE	AMOUNT	
				TOTAL MATERIAL
Kevin Peterson, #17				TOTAL LABOR
WORK ORDERED BY	DATE COMPLETED	TOTAL LABOR		TAX
				PAY THIS AMOUNT

Thank You [signature]

SIGNATURE [illegible]

APPENDIX B
CHAIN-OF-CUSTODY AND LABORATORY ANALYTICAL REPORTS

NATIONAL ENVIRONMENTAL TESTING, INC.

~~1 of 2~~ 00168

PORTLAND DIVISION, 17400 SW UPPER BOONES FERRY RD., SUITE 260, PORTLAND, OR 97224
(503) 624-5449 PHONE (503) 639-6889 FAX

CHAIN OF CUSTODY RECORD

COMPANY Brown & Caldwell
ADDRESS 9620 SW Barbur Portland OR
PHONE 244 7005 FAX
PROJECT NAME/LOCATION Unocal 242 / Stark
PROJECT NUMBER 7134
PROJECT MANAGER Duley Berri

SAMPLED BY Thayne Loendorf (PRINT NAME) T Loendorf SIGNATURE
(PRINT NAME) SIGNATURE

TURNAROUND TIME REG DAY (S)

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	TPH NCID	PCB 8060	BTEX 8020	TCLP Metals (3)	COMMENTS
2/26/93	0905	S-1 N Hoist	X		1	Soil	ICE	X	X	X	X	X requested by Duley Berri 3/3 FB - STAT
	0925	S-2 S Hoist	X		1			X	X	X	X	
	1120	S-3 WO N Floor	X		1			X	X	X	X	
	1125	S-4 WO S Floor	X		1			X	X	X	X	
	1130	S-5 S sidewall w/H	X		1			X				
	1130	S-6 W sidewall w/H	X		1			X				
	1135	S-7 E sidewall w/H	X		1			X				
	1140	S-8 HO S Floor	X		1			X				
	1142	S-9 HO N Floor	X		1			X				
	1145	S-10 N sidewall w/H	X		1			X				
	1450	S-11 SE Floor Gas	X		1			X				
	1455	S-12 NE Floor Gas	X		1			X				
	1500	S-13 E sidewall Gas	X		1			X				
	1505	S-14 N sidewall Gas	X		1			X				
	1510	S-15 SW Floor Gas	X		1			X				

RESULTS TO: Duley Berri

INVOICE TO: Brown & Caldwell Eugene

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
T Loendorf	2/26/93 1625				
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME 2/26/93 1625	RECEIVED FOR LABORATORY BY:

METHOD OF SHIPMENT

REMARKS:

NATIONAL ENVIRONMENTAL TESTING, INC.

8154, 8155

2 of 2

PORTLAND DIVISION, 17400 SW UPPER BOONES FERRY RD., SUITE 260, PORTLAND, OR 97224
(503) 624-5449 PHONE (503) 639-6889 FAX

CHAIN OF CUSTODY RECORD

COMPANY Brown + Caldwell
ADDRESS 9620 SW Barbur
PHONE _____ FAX _____
PROJECT NAME/LOCATION Unocal 2412 Stark
PROJECT NUMBER 7136
PROJECT MANAGER Duley Burri

SAMPLED BY Thayne Landorf (PRINT NAME) T Landorf SIGNATURE
(PRINT NAME) _____ SIGNATURE

ANALYSES

TURNAROUND TIME REG DAY (S)

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	TPH-HCID	COMMENTS
2/26/93	1514	S-16 NW floor 6AC	X		1	Soil	ICE	X	
"	1520	S-17 W sidewall 6AC	X		1	"	"	X	
"	1530	S-18 S sidewall 6AC	X		1	"	"	X	

RESULTS TO: Duley Burri

INVOICE TO: Brown + Caldwell Eugene

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
T Landorf	2/26/93 1625				
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY:
				2/26/93 1625	

METHOD OF SHIPMENT

REMARKS:

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK

NATIONAL ENVIRONMENTAL TESTING, INC.

PORTLAND DIVISION, 17400 SW UPPER BOONES FERRY RD., SUITE 260, PORTLAND, OR 97224
(503) 624-5449 PHONE (503) 639-6889 FAX

CHAIN OF CUSTODY RECORD

COMPANY Brown + Caldwell
ADDRESS 9620 SW Barbur Blvd Portland
PHONE _____ FAX _____
PROJECT NAME/LOCATION Unocal #242 + Starlet
PROJECT NUMBER 7134
PROJECT MANAGER Dulcy Burri

93.00166

SAMPLED BY Thayne Landorf (PRINT NAME) T Landorf SIGNATURE
(PRINT NAME) SIGNATURE

TURNAROUND TIME Reg DAY (S)

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	ANALYSES: HCID-TPH	TPH-Gas	TPH-Diesel	TPH-418.1m	COMMENTS
3-1-93	1040	old south S-19	X		1	soil	ice	X	⊗			⊗ Follow-up as per Dulcy Burri 3/5/93. RTM
	1315	below septic S-20	X		1	soil		X				
	1335	septic S-21	X		1	sludge		X	⊗	⊗	⊗	

RESULTS TO: Dulcy Burri

INVOICE TO: B+C Eugene

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
T Landorf	3/2/93 1145				
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY:
				3/2/93 11:30a	Derek C

METHOD OF SHIPMENT: hand

REMARKS:

NATIONAL ENVIRONMENTAL TESTING, INC.

Portland Division
17400 SW Upper Boones Ferry Rd.
Suite #260
Portland, OR 97224
Tel: (503) 624-5449
Fax: (503) 639-6889

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 03/02/1993
NET Account No.: 5000
NET Job Number: 93.00154

Project: 7134
Location: Unocal 242/Stark

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
14905	S-1	SOIL	02/26/1993	02/26/1993
14906	S-2	SOIL	02/26/1993	02/26/1993
14907	S-3	SOIL	02/26/1993	02/26/1993
14908	S-4	SOIL	02/26/1993	02/26/1993
14909	S-5	SOIL	02/26/1993	02/26/1993
14910	S-6	SOIL	02/26/1993	02/26/1993
14911	S-7	SOIL	02/26/1993	02/26/1993
14912	S-8	SOIL	02/26/1993	02/26/1993
14913	S-9	SOIL	02/26/1993	02/26/1993
14914	S-10	SOIL	02/26/1993	02/26/1993
14915	S-11	SOIL	02/26/1993	02/26/1993
14916	S-12	SOIL	02/26/1993	02/26/1993
14917	S-13	SOIL	02/26/1993	02/26/1993
14918	S-14	SOIL	02/26/1993	02/26/1993
14919	S-15	SOIL	02/26/1993	02/26/1993
14920	S-16	SOIL	02/26/1993	02/26/1993
14921	S-17	SOIL	02/26/1993	02/26/1993
14922	S-18	SOIL	02/26/1993	02/26/1993

Approved by:

John Swanson

John Swanson
NET, INC. Portland Project Manager

OCEAN GROUP

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/02/1993
Job No.: 93.00154

Project Name: 7134
Date Received: 02/26/1993

Sample Number 14905 — Sample Description S-1

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14906 — Sample Description S-2

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14907 — Sample Description S-3

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14908 — Sample Description S-4

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S)				

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/02/1993
Job No.: 93.00154

Project Name: 7134
Date Received: 02/26/1993

Sample Number 14908 — Sample Description S-4

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14909 — Sample Description S-5

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14910 — Sample Description S-6

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14911 — Sample Description S-7

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/02/1993
Job No.: 93.00154

Project Name: 7134
Date Received: 02/26/1993

Sample Number	Sample Description
14911	S-7

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number	Sample Description
14912	S-8

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number	Sample Description
14913	S-9

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number	Sample Description
14914	S-10

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/02/1993
Job No.: 93.00154

Project Name: 7134
Date Received: 02/26/1993

Sample Number 14915 — Sample Description S-11

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14916 — Sample Description S-12

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14917 — Sample Description S-13

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14918 — Sample Description S-14

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S)				

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/02/1993
Job No.: 93.00154

Project Name: 7134
Date Received: 02/26/1993

Sample Number 14918 — Sample Description S-14

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14919 — Sample Description S-15

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14920 — Sample Description S-16

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14921 — Sample Description S-17

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/02/1993
Job No.: 93.00154

Project Name: 7134
Date Received: 02/26/1993

Sample Number 14921 — Sample Description S-17

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

Sample Number 14922 — Sample Description S-18

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/01/1993
OAR TPH-HCID (S) Dilution Factor		1		03/01/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/01/1993
Diesel	OAR-HCID	<50	mg/Kg	03/01/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/01/1993

SURROGATE REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/02/1993
Job No.: 93.00154

Project Name: 7134
Date Received: 02/26/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 14905	Sample Description S-1			
o-Terphenyl (Surr.)	OAR-HCID	113	%	03/01/1993
Sample Number 14906	Sample Description S-2			
o-Terphenyl (Surr.)	OAR-HCID	118	%	03/01/1993
Sample Number 14907	Sample Description S-3			
o-Terphenyl (Surr.)	OAR-HCID	120	%	03/01/1993
Sample Number 14908	Sample Description S-4			
o-Terphenyl (Surr.)	OAR-HCID	120	%	03/01/1993
Sample Number 14909	Sample Description S-5			
o-Terphenyl (Surr.)	OAR-HCID	120	%	03/01/1993
Sample Number 14910	Sample Description S-6			
o-Terphenyl (Surr.)	OAR-HCID	118	%	03/01/1993
Sample Number 14911	Sample Description S-7			
o-Terphenyl (Surr.)	OAR-HCID	133	%	03/01/1993
Sample Number 14912	Sample Description S-8			
o-Terphenyl (Surr.)	OAR-HCID	122	%	03/01/1993

SURROGATE REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/02/1993
Job No.: 93.00154

Project Name: 7134
Date Received: 02/26/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 14913	Sample Description S-9			
o-Terphenyl (Surr.)	OAR-HCID	121	%	03/01/1993
Sample Number 14914	Sample Description S-10			
o-Terphenyl (Surr.)	OAR-HCID	118	%	03/01/1993
Sample Number 14915	Sample Description S-11			
o-Terphenyl (Surr.)	OAR-HCID	92	%	03/01/1993
Sample Number 14916	Sample Description S-12			
o-Terphenyl (Surr.)	OAR-HCID	93	%	03/01/1993
Sample Number 14917	Sample Description S-13			
o-Terphenyl (Surr.)	OAR-HCID	86	%	03/01/1993
Sample Number 14918	Sample Description S-14			
o-Terphenyl (Surr.)	OAR-HCID	93	%	03/01/1993
Sample Number 14919	Sample Description S-15			
o-Terphenyl (Surr.)	OAR-HCID	88	%	03/01/1993
Sample Number 14920	Sample Description S-16			
o-Terphenyl (Surr.)	OAR-HCID	92	%	03/01/1993

SURROGATE REPORT

Dulcy Berri
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Portland, OR 97219

03/02/1993
Job No.: 93.00154

Project Name: 7134
Date Received: 02/26/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 14921	Sample Description S-17			
o-Terphenyl (Surr.)	OAR-HCID	96	%	03/01/1993
Sample Number 14922	Sample Description S-18			
o-Terphenyl (Surr.)	OAR-HCID	89	%	03/01/1993

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Dulcy Berri
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Date: 03/03/1993
NET Account No.: 5000
NET Job Number: 93.00166

Project: 7134
Location: Unocal 242 / Stark

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
14971	S-19	SOIL	03/01/1993	03/02/1993
14972	S-20	SOIL	03/01/1993	03/02/1993
14973	S-21	SOIL	03/01/1993	03/02/1993

Approved by:

John Swanson

John Swanson
NET, INC. Portland Project Manager

ANALYTICAL REPORT

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03/03/1993
Job No.: 93.00166

Project Name: 7134
Date Received: 03/02/1993

Sample Number 14971 — Sample Description S-19

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/02/1993
OAR TPH-HCID (S) Dilution Factor		1		03/02/1993
Gasoline	OAR-HCID	Gas	mg/Kg	03/02/1993
Diesel	OAR-HCID	<50	mg/Kg	03/02/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/02/1993

Sample Number 14972 — Sample Description S-20

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/02/1993
OAR TPH-HCID (S) Dilution Factor		1		03/02/1993
Gasoline	OAR-HCID	<20	mg/Kg	03/02/1993
Diesel	OAR-HCID	<50	mg/Kg	03/02/1993
Heavy Oil	OAR-HCID	<100	mg/Kg	03/02/1993

Sample Number 14973 — Sample Description S-21

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-HCID (S) PREP	OAR-HCID	-		03/02/1993
OAR TPH-HCID (S) Dilution Factor		1		03/02/1993
Gasoline	OAR-HCID	Gas	mg/Kg	03/02/1993
Diesel	OAR-HCID	<50	mg/Kg	03/02/1993
Heavy Oil	OAR-HCID	Oil	mg/Kg	03/02/1993

SURROGATE REPORT

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03/03/1993
Job No.: 93.00166

Project Name: 7134
Date Received: 03/02/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 14971	Sample Description S-19			
o-Terphenyl (Surr.)	OAR-HCID	97	%	03/02/1993
Sample Number 14972	Sample Description S-20			
o-Terphenyl (Surr.)	OAR-HCID	100	%	03/02/1993
Sample Number 14973	Sample Description S-21			
o-Terphenyl (Surr.)	OAR-HCID	100	%	03/02/1993

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Date: 03/17/1993
NET Account No.: 5000
NET Job Number: 93.00168

Project: 7134
Location: Unocal 242/Stark

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
14981	S-1	SOIL	02/26/1993	02/26/1993
14982	S-2	SOIL	02/26/1993	02/26/1993

Approved by:

John Swanson

John Swanson
NET, INC. Project Manager

OCEAN GROUP

ANALYTICAL REPORT

Dulcy Berri
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Suite 200
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Portland, OR 97219

03/17/1993
Job No.: 93.00168

Project Name: 7134
Date Received: 02/26/1993

Sample Number	Sample Description
14981	S-1

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
TCLP EXTRACTION PREP	1311	-		03/04/1993
TCLP - Cadmium	6010	<0.02	mg/L	03/05/1993
TCLP - Chromium	6010	<0.05	mg/L	03/05/1993
TCLP - Lead	6010	<0.1	mg/L	03/05/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<100	ug/Kg	03/04/1993
Aroclor 1221	8080	<500	ug/Kg	03/04/1993
Aroclor 1232	8080	<200	ug/Kg	03/04/1993
Aroclor 1242	8080	<100	ug/Kg	03/04/1993
Aroclor 1248	8080	<100	ug/Kg	03/04/1993
Aroclor 1254	8080	<50	ug/Kg	03/04/1993
Aroclor 1260	8080	<50	ug/Kg	03/04/1993

ANALYTICAL REPORT

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03/17/1993
Job No.: 93.00168

Project Name: 7134
Date Received: 02/26/1993

Sample Number	Sample Description
14981	S-1

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		1		03/04/1993
Chloromethane	8010	<5	ug/Kg	03/04/1993
Bromomethane	8010	<5	ug/Kg	03/04/1993
Vinyl Chloride	8010	<10	ug/Kg	03/04/1993
Chloroethane	8010	<5	ug/Kg	03/04/1993
Methylene Chloride	8010	<50	ug/Kg	03/04/1993
Trifluorofluoromethane	8010	<5	ug/Kg	03/04/1993
1,1-Dichloroethene	8010	<5	ug/Kg	03/04/1993
1,1-Dichloroethane	8010	<5	ug/Kg	03/04/1993
trans-1,2-Dichloroethene	8010	<5	ug/Kg	03/04/1993
cis-1,2-Dichloroethene	8010	<5	ug/Kg	03/04/1993
Chloroform	8010	<5	ug/Kg	03/04/1993
1,2-Dichloroethane	8010	<5	ug/Kg	03/04/1993
1,1,1-Trichloroethane	8010	<5	ug/Kg	03/04/1993
Carbon Tetrachloride	8010	<5	ug/Kg	03/04/1993
Bromodichloromethane	8010	<5	ug/Kg	03/04/1993
1,2-Dichloropropane	8010	<5	ug/Kg	03/04/1993
trans-1,3-Dichloropropene	8010	<5	ug/Kg	03/04/1993
Trichloroethene	8010	<5	ug/Kg	03/04/1993
Dibromochloromethane	8010	<5	ug/Kg	03/04/1993
1,1,2-Trichloroethane	8010	<5	ug/Kg	03/04/1993
cis-1,3-Dichloropropene	8010	<5	ug/Kg	03/04/1993
2-Chloroethylvinyl ether	8010	<20	ug/Kg	03/04/1993
Bromoform	8010	<5	ug/Kg	03/04/1993
1,1,2,2-Tetrachloroethane	8010	<5	ug/Kg	03/04/1993
Tetrachloroethene	8010	<5	ug/Kg	03/04/1993
Chlorobenzene	8010	<5	ug/Kg	03/04/1993
1,3-Dichlorobenzene	8010	<5	ug/Kg	03/04/1993
1,4-Dichlorobenzene	8010	<5	ug/Kg	03/04/1993
1,2-Dichlorobenzene	8010	<5	ug/Kg	03/04/1993

ANALYTICAL REPORT

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03/17/1993
Job No.: 93.00168

Project Name: 7134
Date Received: 02/26/1993

Sample Number 14981 — Sample Description S-1

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
BTEX 8020 (S)				
Dilution Factor		1		03/04/1993
Benzene	8020	<0.5	mg/Kg	03/04/1993
Toluene	8020	<0.5	mg/Kg	03/04/1993
Ethylbenzene	8020	<0.5	mg/Kg	03/04/1993
Xylenes, total	8020	<0.5	mg/Kg	03/04/1993

Sample Number 14982 — Sample Description S-2

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
TCLP EXTRACTION PREP	1311	-		03/04/1993
TCLP - Cadmium	6010	<0.02	mg/L	03/05/1993
TCLP - Chromium	6010	<0.05	mg/L	03/05/1993
TCLP - Lead	6010	<0.1	mg/L	03/05/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<100	ug/Kg	03/04/1993
Aroclor 1221	8080	<500	ug/Kg	03/04/1993
Aroclor 1232	8080	<200	ug/Kg	03/04/1993
Aroclor 1242	8080	<100	ug/Kg	03/04/1993
Aroclor 1248	8080	<100	ug/Kg	03/04/1993
Aroclor 1254	8080	<50	ug/Kg	03/04/1993
Aroclor 1260	8080	<50	ug/Kg	03/04/1993

ANALYTICAL REPORT

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03/17/1993
Job No.: 93.00168

Project Name: 7134
Date Received: 02/26/1993

Sample Number	Sample Description
14982	S-2

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		1		03/04/1993
Chloromethane	8010	<5	ug/Kg	03/04/1993
Bromomethane	8010	<5	ug/Kg	03/04/1993
Vinyl Chloride	8010	<10	ug/Kg	03/04/1993
Chloroethane	8010	<5	ug/Kg	03/04/1993
Methylene Chloride	8010	<50	ug/Kg	03/04/1993
Trifluorofluoromethane	8010	<5	ug/Kg	03/04/1993
1,1-Dichloroethene	8010	<5	ug/Kg	03/04/1993
1,1-Dichloroethane	8010	<5	ug/Kg	03/04/1993
trans-1,2-Dichloroethene	8010	<5	ug/Kg	03/04/1993
cis-1,2-Dichloroethene	8010	<5	ug/Kg	03/04/1993
Chloroform	8010	<5	ug/Kg	03/04/1993
1,2-Dichloroethane	8010	<5	ug/Kg	03/04/1993
1,1,1-Trichloroethane	8010	<5	ug/Kg	03/04/1993
Carbon Tetrachloride	8010	<5	ug/Kg	03/04/1993
Bromodichloromethane	8010	<5	ug/Kg	03/04/1993
1,2-Dichloropropane	8010	<5	ug/Kg	03/04/1993
trans-1,3-Dichloropropene	8010	<5	ug/Kg	03/04/1993
Trichloroethene	8010	<5	ug/Kg	03/04/1993
Dibromochloromethane	8010	<5	ug/Kg	03/04/1993
1,1,2-Trichloroethane	8010	<5	ug/Kg	03/04/1993
cis-1,3-Dichloropropene	8010	<5	ug/Kg	03/04/1993
2-Chloroethylvinyl ether	8010	<20	ug/Kg	03/04/1993
Bromoform	8010	<5	ug/Kg	03/04/1993
1,1,2,2-Tetrachloroethane	8010	<5	ug/Kg	03/04/1993
Tetrachloroethene	8010	<5	ug/Kg	03/04/1993
Chlorobenzene	8010	<5	ug/Kg	03/04/1993
1,3-Dichlorobenzene	8010	<5	ug/Kg	03/04/1993
1,4-Dichlorobenzene	8010	<5	ug/Kg	03/04/1993
1,2-Dichlorobenzene	8010	<5	ug/Kg	03/04/1993

ANALYTICAL REPORT

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03/17/1993
Job No.: 93.00168

Project Name: 7134
Date Received: 02/26/1993

Sample Number	Sample Description
14982	S-2

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
BTEX 8020 (S)				
Dilution Factor		1		03/04/1993
Benzene	8020	<0.5	mg/Kg	03/04/1993
Toluene	8020	<0.5	mg/Kg	03/04/1993
Ethylbenzene	8020	<0.5	mg/Kg	03/04/1993
Xylenes, total	8020	<0.5	mg/Kg	03/04/1993

SURROGATE REPORT

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03/17/1993
Job No.: 93.00168

Project Name: 7134
Date Received: 02/26/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 14981	Sample Description S-1			
Br,Cl-Propane (Surr.)	8010	86	%	03/04/1993
aaa-Trifluorotoluene (Surr.)	8020	96	%	03/04/1993
Sample Number 14982	Sample Description S-2			
Br,Cl-Propane (Surr.)	8010	103	%	03/04/1993
aaa-Trifluorotoluene (Surr.)	8020	97	%	03/04/1993

Ref: 7134

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
TCLP-Cadmium	0.02	mg/L	98	ND	88	100	12.7
TCLP-Chromium	0.05	mg/L	96	ND	86	99	14.3
TCLP-Lead	0.1	mg/L	104	ND	94	78	18.6
Benzene	0.5	mg/Kg	84	ND	99	106	6.8
Toluene	0.5	mg/Kg	90	ND	88	100	12.8
1,1-DCE	5	ug/Kg	92	ND	89	91	2.2
1,2-DCA	5	ug/Kg	107	ND	79	77	2.6
TCE	5	ug/Kg	90	ND	88	95	7.7
CL Benzene	5	ug/Kg	92	ND	92	94	2.2
Aroclor 1254	50	ug/Kg	99	ND	100	100	<1.0

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Date: 03/12/1993
NET Account No.: 5000
NET Job Number: 93.00155

Project: 7134
Location: Unocal 242/Stark

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
14923	S-3	SOIL	02/26/1993	02/26/1993
14924	S-4	SOIL	02/26/1993	02/26/1993

Approved by:

John Swanson for Marty French

Marty French
NET, INC. Division Manager

ANALYTICAL REPORT

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03/12/1993
Job No.: 93.00155

Project Name: 7134
Date Received: 02/26/1993

Sample Number	Sample Description
14923	S-3

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
TCLP EXTRACTION PREP	1311	-		03/02/1993
TCLP - Cadmium	6010	<0.02	mg/L	03/03/1993
TCLP - Chromium	6010	<0.05	mg/L	03/03/1993
TCLP - Lead	6010	<0.1	mg/L	03/03/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<100	ug/Kg	03/04/1993
Aroclor 1221	8080	<500	ug/Kg	03/04/1993
Aroclor 1232	8080	<200	ug/Kg	03/04/1993
Aroclor 1242	8080	<100	ug/Kg	03/04/1993
Aroclor 1248	8080	<100	ug/Kg	03/04/1993
Aroclor 1254	8080	<50	ug/Kg	03/04/1993
Aroclor 1260	8080	<50	ug/Kg	03/04/1993

ANALYTICAL REPORT

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03/12/1993
Job No.: 93.00155

Project Name: 7134
Date Received: 02/26/1993

Sample Number	Sample Description
14923	S-3

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		1		03/04/1993
Chloromethane	8010	<5	ug/Kg	03/04/1993
Bromomethane	8010	<5	ug/Kg	03/04/1993
Vinyl Chloride	8010	<10	ug/Kg	03/04/1993
Chloroethane	8010	<5	ug/Kg	03/04/1993
Methylene Chloride	8010	<50	ug/Kg	03/04/1993
Trifluorofluoromethane	8010	<5	ug/Kg	03/04/1993
1,1-Dichloroethene	8010	<5	ug/Kg	03/04/1993
1,1-Dichloroethane	8010	<5	ug/Kg	03/04/1993
trans-1,2-Dichloroethene	8010	<5	ug/Kg	03/04/1993
cis-1,2-Dichloroethene	8010	<5	ug/Kg	03/04/1993
Chloroform	8010	<5	ug/Kg	03/04/1993
1,2-Dichloroethane	8010	<5	ug/Kg	03/04/1993
1,1,1-Trichloroethane	8010	<5	ug/Kg	03/04/1993
Carbon Tetrachloride	8010	<5	ug/Kg	03/04/1993
Bromodichloromethane	8010	<5	ug/Kg	03/04/1993
1,2-Dichloropropane	8010	<5	ug/Kg	03/04/1993
trans-1,3-Dichloropropene	8010	<5	ug/Kg	03/04/1993
Trichloroethene	8010	<5	ug/Kg	03/04/1993
Dibromochloromethane	8010	<5	ug/Kg	03/04/1993
1,1,2-Trichloroethane	8010	<5	ug/Kg	03/04/1993
cis-1,3-Dichloropropene	8010	<5	ug/Kg	03/04/1993
2-Chloroethylvinyl ether	8010	<20	ug/Kg	03/04/1993
Bromoform	8010	<5	ug/Kg	03/04/1993
1,1,2,2-Tetrachloroethane	8010	<5	ug/Kg	03/04/1993
Tetrachloroethene	8010	<5	ug/Kg	03/04/1993
Chlorobenzene	8010	<5	ug/Kg	03/04/1993
1,3-Dichlorobenzene	8010	<5	ug/Kg	03/04/1993
1,4-Dichlorobenzene	8010	<5	ug/Kg	03/04/1993
1,2-Dichlorobenzene	8010	<5	ug/Kg	03/04/1993

ANALYTICAL REPORT

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03/12/1993
Job No.: 93.00155

Project Name: 7134
Date Received: 02/26/1993

Sample Number	Sample Description
14923	S-3

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
BTEX 8020 (S)				
Dilution Factor		1		03/04/1993
Benzene	8020	<0.5	mg/Kg	03/04/1993
Toluene	8020	<0.5	mg/Kg	03/04/1993
Ethylbenzene	8020	<0.5	mg/Kg	03/04/1993
Xylenes, total	8020	<0.5	mg/Kg	03/04/1993

Sample Number	Sample Description
14924	S-4

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
TCLP EXTRACTION PREP	1311	-		03/02/1993
TCLP - Cadmium	6010	<0.02	mg/L	03/03/1993
TCLP - Chromium	6010	<0.05	mg/L	03/03/1993
TCLP - Lead	6010	<0.1	mg/L	03/03/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<100	ug/Kg	03/04/1993
Aroclor 1221	8080	<500	ug/Kg	03/04/1993
Aroclor 1232	8080	<200	ug/Kg	03/04/1993
Aroclor 1242	8080	<100	ug/Kg	03/04/1993
Aroclor 1248	8080	<100	ug/Kg	03/04/1993
Aroclor 1254	8080	<50	ug/Kg	03/04/1993
Aroclor 1260	8080	<50	ug/Kg	03/04/1993

ANALYTICAL REPORT

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03/12/1993
Job No.: 93.00155

Project Name: 7134
Date Received: 02/26/1993

Sample Number	Sample Description
14924	S-4

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		1		03/04/1993
Chloromethane	8010	<5	ug/Kg	03/04/1993
Bromomethane	8010	<5	ug/Kg	03/04/1993
Vinyl Chloride	8010	<10	ug/Kg	03/04/1993
Chloroethane	8010	<5	ug/Kg	03/04/1993
Methylene Chloride	8010	<50	ug/Kg	03/04/1993
Trifluorofluoromethane	8010	<5	ug/Kg	03/04/1993
1,1-Dichloroethene	8010	<5	ug/Kg	03/04/1993
1,1-Dichloroethane	8010	<5	ug/Kg	03/04/1993
trans-1,2-Dichloroethene	8010	<5	ug/Kg	03/04/1993
cis-1,2-Dichloroethene	8010	<5	ug/Kg	03/04/1993
Chloroform	8010	<5	ug/Kg	03/04/1993
1,2-Dichloroethane	8010	<5	ug/Kg	03/04/1993
1,1,1-Trichloroethane	8010	<5	ug/Kg	03/04/1993
Carbon Tetrachloride	8010	<5	ug/Kg	03/04/1993
Bromodichloromethane	8010	<5	ug/Kg	03/04/1993
1,2-Dichloropropane	8010	<5	ug/Kg	03/04/1993
trans-1,3-Dichloropropene	8010	<5	ug/Kg	03/04/1993
Trichloroethene	8010	<5	ug/Kg	03/04/1993
Dibromochloromethane	8010	<5	ug/Kg	03/04/1993
1,1,2-Trichloroethane	8010	<5	ug/Kg	03/04/1993
cis-1,3-Dichloropropene	8010	<5	ug/Kg	03/04/1993
2-Chloroethylvinyl ether	8010	<20	ug/Kg	03/04/1993
Bromoform	8010	<5	ug/Kg	03/04/1993
1,1,2,2-Tetrachloroethane	8010	<5	ug/Kg	03/04/1993
Tetrachloroethene	8010	<5	ug/Kg	03/04/1993
Chlorobenzene	8010	<5	ug/Kg	03/04/1993
1,3-Dichlorobenzene	8010	<5	ug/Kg	03/04/1993
1,4-Dichlorobenzene	8010	<5	ug/Kg	03/04/1993
1,2-Dichlorobenzene	8010	<5	ug/Kg	03/04/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/12/1993
Job No.: 93.00155

Project Name: 7134
Date Received: 02/26/1993

Sample Number	Sample Description
14924	S-4

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
BTEX 8020 (S)				
Dilution Factor		1		03/04/1993
Benzene	8020	<0.5	mg/Kg	03/04/1993
Toluene	8020	<0.5	mg/Kg	03/04/1993
Ethylbenzene	8020	<0.5	mg/Kg	03/04/1993
Xylenes, total	8020	<0.5	mg/Kg	03/04/1993

SURROGATE REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/12/1993
Job No.: 93.00155

Project Name: 7134
Date Received: 02/26/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 14923	Sample Description S-3			
Br,Cl-Propane (Surr.)	8010	85	%	03/04/1993
aaa-Trifluorotoluene (Surr.)	8020	95	%	03/04/1993
Sample Number 14924	Sample Description S-4			
Br,Cl-Propane (Surr.)	8010	91	%	03/04/1993
aaa-Trifluorotoluene (Surr.)	8020	79	%	03/04/1993

Ref: 7134

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
TCLP-Cadmium	0.02	mg/L	87	ND	82	84	2.4
TCLP-Chromium	0.05	mg/L	83	ND	92	94	2.2
TCLP-Lead	0.1	mg/L	100	ND	70	94	29.3
Benzene	0.5	mg/Kg	84	ND	96	96	<1.0
Toluene	0.5	mg/Kg	84	ND	98	98	<1.0
1,1-DCE	5	ug/Kg	101	ND	75	84	12.1
1,2-DCA	5	ug/Kg	107	ND	78	80	3.0
TCE	5	ug/Kg	96	ND	82	92	12.4
CL Benzene	5	ug/Kg	87	ND	92	105	13.6
Aroclor 1254	50	ug/Kg	99	ND	95	89	7.1

NATIONAL ENVIRONMENTAL TESTING, INC.

Portland Division
17400 SW Upper Boones Ferry Rd.
Suite #260
Portland, OR 97224
Tel: (503) 624-5449
Fax: (503) 639-6889

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 03/12/1993
NET Account No.: 5000
NET Job Number: 93.00186

Project: 7134
Location: Unocal 242 / Stark

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
15038	S-19	SOIL	03/01/1993	03/02/1993
15039	S-21	SLUDGE	03/01/1993	03/02/1993

Approved by:

John Swanson for Marty French

Marty French
NET, INC. Division Manager

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/12/1993
Job No.: 93.00186

Project Name: 7134
Date Received: 03/02/1993

Sample Number: 15038
Sample Description: S-19

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-GAS (S)				
Dilution Factor		2		03/10/1993
TPH-Gas	OAR TPH-G	47	mg/Kg	03/10/1993

Sample Number: 15039
Sample Description: S-21

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
OAR TPH-GAS (S)				
Dilution Factor		2		03/10/1993
TPH-Gas	OAR TPH-G	58	mg/Kg	03/10/1993
OAR TPH-DIESEL (S) PREP		-		03/09/1993
OAR TPH-DIESEL (S)				
Dilution Factor		1		03/09/1993
TPH-Diesel	OAR TPH-D	<20	mg/Kg	03/09/1993
OAR TPH-418.1M (S) PREP		-		03/08/1993
OAR TPH-418.1M (S)	TPH-418.1	30,000	mg/Kg	03/09/1993

SURROGATE REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/12/1993
Job No.: 93.00186

Project Name: 7134
Date Received: 03/02/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number 15038	**Sample Description** S-19			
aaa-Trifluorotoluene (Surr.)	OAR TPH-G	95	%	03/10/1993
4-Bromofluorobenzene (Surr.)	OAR TPH-G	88	%	03/10/1993
Sample Number 15039	**Sample Description** S-21			
aaa-Trifluorotoluene (Surr.)	OAR TPH-G	93	%	03/10/1993
4-Bromofluorobenzene (Surr.)	OAR TPH-G	82	%	03/10/1993
o-Terphenyl (Surr.)	OAR TPH-D	104	%	03/09/1993

Ref: 7134

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
TPH-Gas	10	mg/Kg	97	ND	114	118	3.4
TPH-Diesel	20	mg/Kg	105	ND	82	88	7.1
TPH-418.1	5	mg/Kg	102	ND	123	127	3.2

NATIONAL ENVIRONMENTAL TESTING, INC.

Portland Division
17400 SW Upper Boones Ferry Rd.
Suite #260
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Tel: (503) 624-5449
Fax: (503) 639-6889

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

Date: 03/17/1993
NET Account No.: 5000
NET Job Number: 93.00195

Project: 7134
Location: Unocal 242 & Stark

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
15086	S-21	SOIL	03/01/1993	03/02/1993

Approved by:

John Swanson
NET, INC. Project Manager

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/17/1993
Job No.: 93.00195

Project Name: 7134
Date Received: 03/02/1993

Sample Number	Sample Description
15086	S-21

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
TCLP EXTRACTION PREP	1311	-		03/10/1993
TCLP - Cadmium	6010	<0.02	mg/L	03/15/1993
TCLP - Chromium	6010	<0.05	mg/L	03/15/1993
TCLP - Lead	6010	<0.1	mg/L	03/15/1993
PCBs - (SOIL)				
Aroclor 1016	8080	<100	ug/Kg	03/09/1993
Aroclor 1221	8080	<500	ug/Kg	03/09/1993
Aroclor 1232	8080	<200	ug/Kg	03/09/1993
Aroclor 1242	8080	<100	ug/Kg	03/09/1993
Aroclor 1248	8080	<100	ug/Kg	03/09/1993
Aroclor 1254	8080	580	ug/Kg	03/09/1993
Aroclor 1260	8080	<50	ug/Kg	03/09/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/17/1993
Job No.: 93.00195

Project Name: 7134
Date Received: 03/02/1993

Sample Number	Sample Description
15086	S-21

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
8010 HALOGENATED VOC (S)				
Dilution Factor		100.		03/09/1993
Chloromethane	8010	<500.	ug/Kg	03/09/1993
Bromomethane	8010	<500.	ug/Kg	03/09/1993
Vinyl Chloride	8010	<1000.	ug/Kg	03/09/1993
Chloroethane	8010	<500.	ug/Kg	03/09/1993
Methylene Chloride	8010	<5000.	ug/Kg	03/09/1993
Trifluorofluoromethane	8010	<500.	ug/Kg	03/09/1993
1,1-Dichloroethene	8010	<500.	ug/Kg	03/09/1993
1,1-Dichloroethane	8010	<500.	ug/Kg	03/09/1993
trans-1,2-Dichloroethene	8010	<500.	ug/Kg	03/09/1993
cis-1,2-Dichloroethene	8010	<500.	ug/Kg	03/09/1993
Chloroform	8010	<500.	ug/Kg	03/09/1993
1,2-Dichloroethane	8010	<500.	ug/Kg	03/09/1993
1,1,1-Trichloroethane	8010	<500.	ug/Kg	03/09/1993
Carbon Tetrachloride	8010	<500.	ug/Kg	03/09/1993
Bromodichloromethane	8010	<500.	ug/Kg	03/09/1993
1,2-Dichloropropane	8010	<500.	ug/Kg	03/09/1993
trans-1,3-Dichloropropene	8010	<500.	ug/Kg	03/09/1993
Trichloroethene	8010	<500.	ug/Kg	03/09/1993
Dibromochloromethane	8010	<500.	ug/Kg	03/09/1993
1,1,2-Trichloroethane	8010	<500.	ug/Kg	03/09/1993
cis-1,3-Dichloropropene	8010	<500.	ug/Kg	03/09/1993
2-Chloroethylvinyl ether	8010	<2000.	ug/Kg	03/09/1993
Bromoform	8010	<500.	ug/Kg	03/09/1993
1,1,2,2-Tetrachloroethane	8010	<500.	ug/Kg	03/09/1993
Tetrachloroethene	8010	<500.	ug/Kg	03/09/1993
Chlorobenzene	8010	2,800	ug/Kg	03/09/1993
1,3-Dichlorobenzene	8010	1,600	ug/Kg	03/09/1993
1,4-Dichlorobenzene	8010	4,900	ug/Kg	03/09/1993
1,2-Dichlorobenzene	8010	4,100	ug/Kg	03/09/1993

ANALYTICAL REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/17/1993
Job No.: 93.00195

Project Name: 7134
Date Received: 03/02/1993

Sample Number	Sample Description
15086	S-21

PARAMETERS	METHODS	RESULTS		DATE ANALYZED
BTEX 8020 (S)				
Dilution Factor		100		03/09/1993
Benzene	8020	<50.	mg/Kg	03/09/1993
Toluene	8020	<50.	mg/Kg	03/09/1993
Ethylbenzene	8020	<50.	mg/Kg	03/09/1993
Xylenes, total	8020	<50.	mg/Kg	03/09/1993

SURROGATE REPORT

Dulcy Berri
Brown and Caldwell
Suite 200
9620 S.W. Barbur Blvd.
Portland, OR 97219

03/17/1993
Job No.: 93.00195

Project Name: 7134
Date Received: 03/02/1993

SURROGATES	METHODS	RESULTS		DATE ANALYZED
Sample Number: 15086 — Sample Description: S-21				
Br,Cl-Propane (Surr.)	8010	83	%	03/09/1993
aaa-Trifluorotoluene (Surr.)	8020	80	%	03/09/1993

Ref: 7134

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
TCLP-Cadmium	0.02	mg/L	97	ND	88	86	2.3
TCLP-Chromium	0.05	mg/L	93	ND	98	94	4.2
TCLP-Lead	0.1	mg/L	92	ND	94	94	<1.0
Benzene	0.5	mg/Kg	83	ND	83	86	3.6
Toluene	0.5	mg/Kg	91	ND	86	88	2.3
1,1-DCE	5	ug/Kg	91	ND	71	72	1.4
1,2-DCA	5	ug/Kg	100	ND	79	73	7.9
TCE	5	ug/Kg	90	ND	87	83	4.7
CL Benzene	5	ug/Kg	84	ND	94	99	5.2
Aroclor 1254	50	ug/Kg	102	ND	102	113	10.2

UNOCAL CORPORATION

DRYWELL INVESTIGATION REPORT
UNOCAL SERVICE STATION NO. 5745
445 SOUTHEAST 242ND AVENUE
GRESHAM, OREGON

DECEMBER 16, 1992

26-93-0178

Brown and Caldwell
Consultants

9620 S.W. Barbur Boulevard
Suite 200
Portland, OR 97219-6041
(503) 244-7005
FAX (503) 244-9095

December 16, 1992

Mr. Leigh Carlson
Environmental Engineer
Unocal Corporation
Post Office Box 76
Seattle, Washington 98111

13-7134-17

Subject: Drywell Investigation Report
Unocal Service Station No. 5745
445 Southeast 242nd Avenue
Gresham, Oregon

Dear Mr. Carlson:

Brown and Caldwell is pleased to present this report which summarizes the field methods and analytical results of our site investigation at Unocal Service Station No. 5745, located at 445 Southeast 242nd Avenue, Gresham, Oregon (Figure 1). The purpose of the investigation was to observe the removal of the station's drywell and identify and initially assess any related contaminated soil.

SITE DESCRIPTION AND LOCATION

Unocal owns the property and facility of Service Station No. 5745. A site map is included as Figure 2. The site includes a service building, located on the south half of the site and two product distribution islands located to the north of the service building. The area surrounding the two pump islands is paved with concrete; the remainder of the site is paved with asphalt.

Four underground storage tanks (UST) including two 10,000-gallon gasoline tanks, one 550-gallon waste oil tank and one 550-gallon heating oil tank are located beneath the site. The gasoline USTs are located north of the service building and the waste oil/heating oil USTs are located to the west of the service building. Two 2-inch inside diameter (ID) fiberglass product lines extend beneath the site from the two gasoline USTs north to the two product distribution islands.

In addition to the four USTs, one 4-foot diameter, 6-foot deep drywell was located approximately 13 feet west of the service building. A 4-inch diameter drain line extends approximately 30 feet east from the dry well, beneath the service building, to the lube room sump.

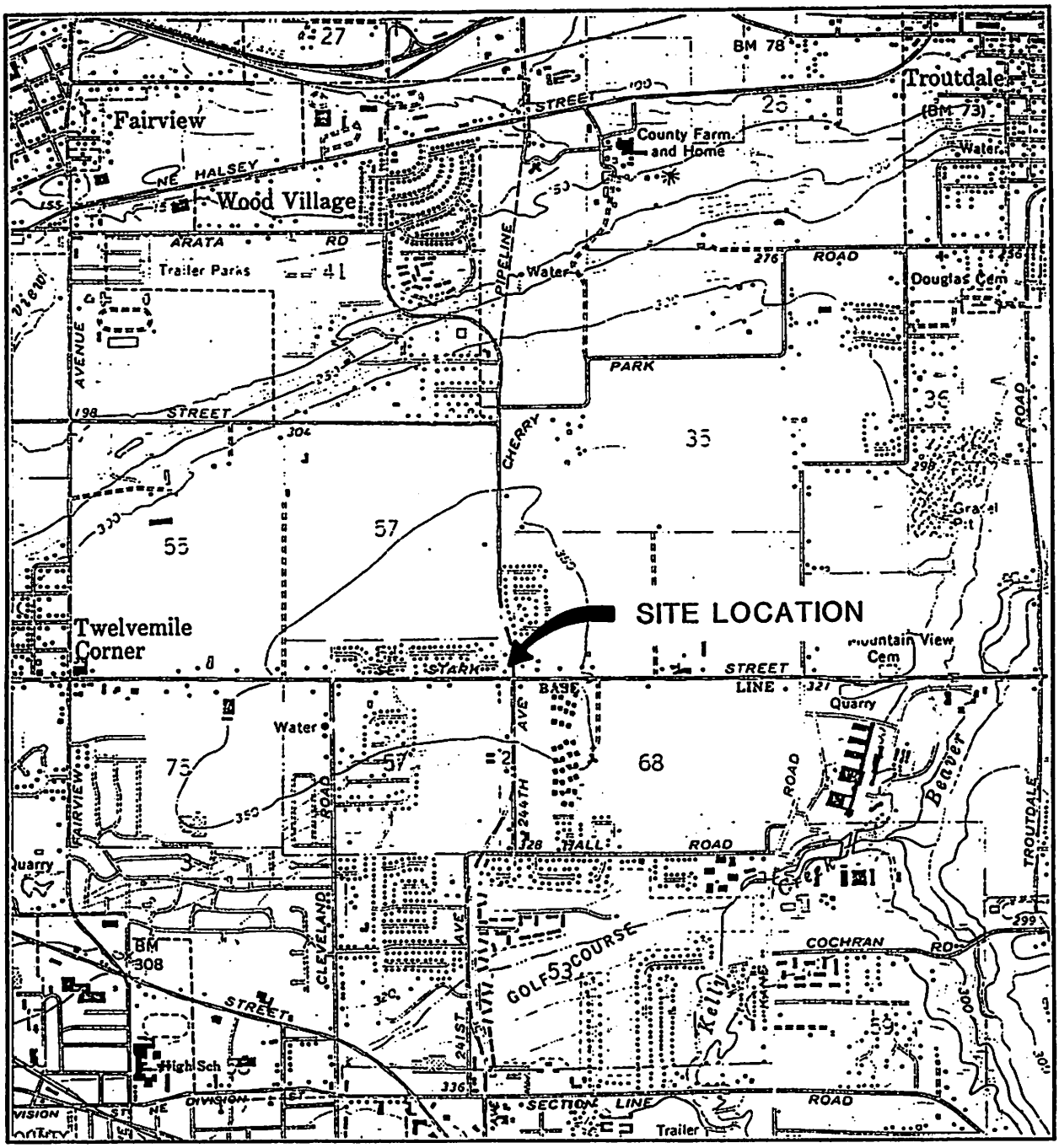

FIGURE 1
VICINITY MAP
UNOCAL SERVICE STATION NO. 5745
GRESHAM, OREGON

Brown and Caldwell Consultants

7134FIG1

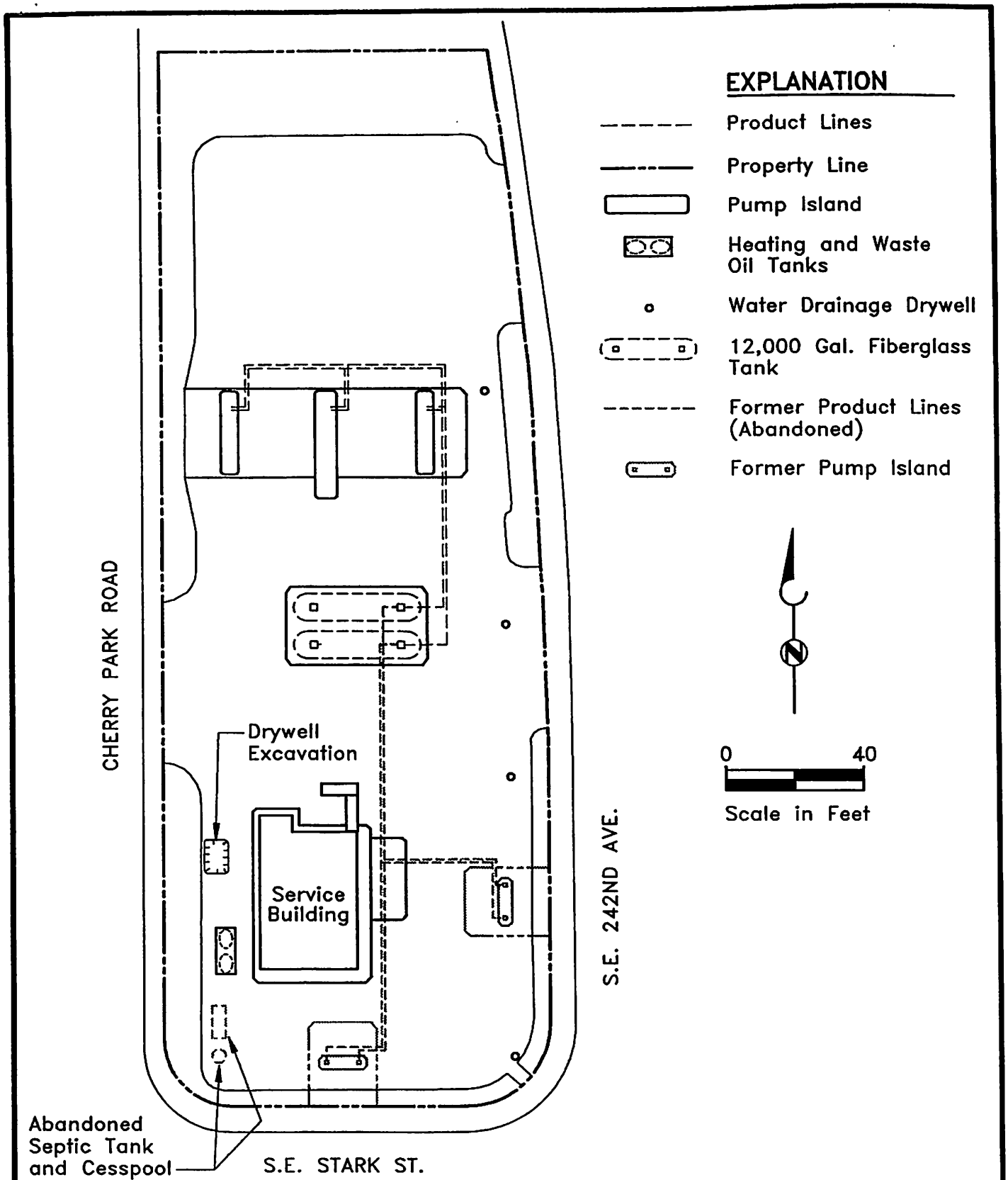

FIGURE 2
SITE MAP
UNOCAL SERVICE STATION NO. 5745
GRESHAM, OREGON

Brown and Caldwell Consultants

7134FIG2

The site is located approximately three miles south of the Columbia River and approximately 2 miles southwest of the Sandy River. The topography in the vicinity of the site slopes gently to the west and north. The Federal Rectangular System coordinates for the station are the southwest 1/4 of the southwest 1/4 of Section 35, Township 1 North, Range 3 East, Willamette Baseline and Meridian.

FIELD ACTIVITIES AND RESULTS

This section discusses events relating to the removal of the station's drywell. Fieldwork performed by Brown and Caldwell is also discussed. These activities included observing the removal of the drywell, directing the excavation of contaminated soils, and collection and field screening of soil samples. Field methods used during the investigation and soil sample analytical results are also presented.

Soil Excavation and Sampling

Fieldwork was conducted on September 8, 1992. Northwest Field Services removed approximately seven feet of soil located above the drywell structure. The cover of the drywell appeared to be clean concrete with no visible signs of hydrocarbon contamination. The drywell structure was approximately six feet deep and was constructed of three 2-feet high by 4-feet in diameter concrete rings with 4-inch drain holes. No liquid was found in the drywell and very little staining was observed on the inside of the well structure.

Soils surrounding the top of the drywell structure had no visible contamination. Native soils are clayey silts, with interbedded layers of coarse sand and gravel. Coarse gravels and cobbles to 3-inches in diameter were used as backfill material around the drywell.

After the removal of the bottom ring it was discovered that the drywell structure had no concrete bottom. Soil sample S-1 was collected at approximately 13 feet below ground surface from soils which had a detectable hydrocarbon odor. The excavation was continued toward the west until contact was made with the curb and downward to approximately 19 feet which was the maximum depth the backhoe could reach. The visible contamination appeared to continue in a thin lense downward to the west.

Two soil samples were collected from 19 feet depth, S-2 from the floor and S-3 from the west sidewall. Approximately 35 cubic yards of contaminated soils were removed from the drywell excavation and stockpiled at the site.

A total of three soil samples (S-1 through S-3) were collected during the investigation. Sample S-1 was collected to characterize the contamination. Samples S-2 and S-3 were collected to characterize the soil remaining in place after the excavation activities ceased.

No groundwater was encountered during the investigation. The maximum depth of the excavation was approximately 19 feet.

Field Screening and Sampling Methods

Field screening was conducted during the investigation to assist in determining the extent of the excavation. Field screening was conducted using a Photo-Vac Micro-Tip photoionization detector (PID). The PID is sensitive to most organic vapors that may be associated with hydrocarbon-contaminated soils.

Field screening procedures also included visual and olfactory observations of the soil from the excavations, and performing field sheen tests. The sheen tests were performed to determine the presence of heavier, nonaromatic and nonvolatile hydrocarbons. Field sheen test procedures consisted of adding clean water to the soil removed from the excavation, agitating the mixture in a glass jar, and observing for an iridescent film or sheen floating on the water.

Soil samples were collected for laboratory analysis by pushing a clean glass jar into the soil removed from the excavation with a backhoe. The soil samples were labeled according to sample location and depth, immediately stored in an iced container, and delivered to the project laboratory under chain-of-custody procedures. A copy of the chain-of-custody document is included in Appendix A.

Analytical Results

The three soil samples S-1, S-2 and S-3 were delivered to Pacific Environmental Laboratory, Inc., in Beaverton, Oregon, for analysis. Samples S-1 and S-3 were analyzed for hydrocarbon identification by Oregon DEQ Method TPH-HCID and detected hydrocarbons were then quantified. Samples S-1 and S-2 were also analyzed for aromatic and halogenated volatile organic compounds (EPA Methods 8010/8020), PCBs (EPA Method 8080), and three metals (EPA TCLP Methods 1311, 3005, and 6010).

Table 1 lists sample locations and total petroleum hydrocarbons (TPH) concentrations. A copy of the laboratory analytical report is included in Appendix A.

Sample S-1, collected from the floor of the drywell to characterize the contamination, contained 5.8 parts per million (ppm) TPH as gasoline and 10,000 ppm TPH as mixed heavy oils. Also detected in S-1 were 1.2 ppm PCBs, 12 parts per billion (ppb) tetrachloroethene, 0.11 ppm cadmium and 0.80 ppm lead; no BTEX constituents were detected.

TPH as mixed heavy oil was detected in samples S-2 and S-3, from the overexcavated floor (deeper than S-1) and west sidewall, respectively (Table 1). No BTEX or halogenated volatile organics were detected in S-3; no detectable metals were found in S-2 or S-3.

Table 1. Soil Sample Analytical Results Summary
Drywell Excavation
Unocal Service Station No. 5745

Sample Number	Location description	Sample depth (feet)	TPH-G[a]	TPH[b]
S-1	Drywell floor	13	5.8	10,000
S-2	Excavation floor	19	<5.0	340
S-3	West sidewall	19	-	1,000

[a] TPH as gasoline by DEQ Method TPH-G, concentration in parts per million (ppm).
[b] TPH as mixed heavy oils by DEQ Method 418.1M, concentrations in ppm.
- Not analyzed by this method.

CONCLUSIONS AND RECOMMENDATIONS

Soil Conditions

The analytical results of this investigation indicate that hydrocarbon concentrations of 1,000 ppm remaining in the soil adjacent to the drywell excavation (west sidewall at 19 feet depth) exceed the Oregon DEQ Soil Matrix Level 2 cleanup standard of 500 ppm. Levels of PCBs in visibly contaminated sample S-1 (1.2 ppm) exceeds the Oregon Soil Cleanup Level of 0.08 ppm.

Due to site constraints, the full extent of the contaminant lense could not be defined. Further investigation will be conducted in this area in conjunction with future planned UST decommissioning, to further define the extent of contamination.

Contaminated stockpiled soils have been characterized for treatment offsite; no sludges or other wastes were generated by the drywell removal.

If you have any questions, please feel free to call me at (503) 244-7005.

Very truly yours,

BROWN AND CALDWELL

Dulcy Berri

Dulcy A. Berri, RG
Project Manager

DAB/TAL:wmp.ljw

cc: Mr. Rai Peterson, Oregon Department of Environmental Quality, Northwest Region

APPENDIX A

LABORATORY ANALYTICAL REPORT AND CHAIN-OF-CUSTODY DOCUMENT

PACIFIC
ENVIRONMENTAL
LABORATORY INC.

October 12, 1992

Brown & Caldwell
9620 S.W. Barbur Blvd.
Suite 200
Portland, OR 97219

Attn: Dulcy Berri

Re: PROJECT - 242ND & STARK
PEL #92-2927

Enclosed is the lab report for your samples which were received on September 8, 1992.

I. Sample Description

Three Soil Samples

The samples were received under a chain of custody.

The samples were received in containers consistent with EPA protocol.

II. Quality Control

No project specific QC was requested. In-house QC data is available upon request.

III. Analytical Results

Test methods may include minor modifications of published methods such as detection limits or parameter lists. Solid and waste samples are reported on an "as received" basis unless otherwise noted.

Compounds not detected are listed under results as ND.

Sincerely,

Howard Holmes
Project Manager

Robert R. May
Rob May
Project Manager

9405 S.W. Nimbus Ave. ■ Beaverton, OR 97005 ■ (503) 644-0660 ■ FAX # (503) 644-2202

METHOD: T.C.L.P. per EPA 1311, 3005, 6010
Results in mg/L (ppm)

Compound	S-1	S-3	Method Blank	Detection Limit
Cadmium	0.11	ND	ND	0.050
Chromium	ND	ND	ND	0.050
Lead	0.80	ND	ND	0.10

METHOD: T.C.L.P. per EPA 1311, 3005, 6010, 7000 series
Results in mg/L (ppm)

Compound	S-2	Method Blank	Detection Limit
Cadmium	ND	ND	0.050
Chromium	ND	ND	0.050
Lead	ND	ND	0.20

METHOD: TPH-HCID per Oregon DEQ
Detection limits in mg/kg (ppm)

Compound	S-1	S-3	Method Blank	Detection Limit
Gasoline	Detected	ND	ND	20
Diesel	Detected	Detected	ND	50
Bunker/Related	Detected	Detected	ND	--

TPH-HCID Surrogate Recoveries (%)

Compound	S-1	S-3	Method Blank
1-chlorooctadecane (50-150%)	(d)	131	84

(d) Unable to calculate surrogate recovery due to matrix interference.

METHOD: TPH-G per Oregon DEQ
Soil results in mg/kg (ppm)

Compound	S-1	Method Blank
Gasoline	5.8	ND
Detection Limit	5.0	5.0

Compound	S-2	Method Blank
Gasoline	ND	ND
Detection Limit	5.0	5.0

TPH-G Surrogate Recoveries (%)

Compound	S-1	Method Blank
4-Bromofluorobenzene (63-126%)	97	102
Trifluorotoluene (50-150%)	58	120

Compound	S-2	Method Blank
4-Bromofluorobenzene (63-126%)	80	86
Trifluorotoluene (50-150%)	102	114

METHOD: TPH-418.1M per Oregon DEQ
Results in mg/kg (ppm)

Sample I.D.	TPH
S-1	10,000
S-3	1,000
Method Blank	ND
Detection Limit	20
S-2	340
Method Blank	ND
Detection Limit	20

METHOD: BTEX per EPA 8020 by GC/MS
Soil results in ug/kg (ppb)

Compound	S-1	S-3	Method Blank (1)	Method Blank (2)
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Total Xylenes	ND	ND	ND	ND
Detection Limit	10	2.0	2.0	2.0

8020 Surrogate Recoveries (%)

Compound	S-1	S-3	Method Blank (1)	Method Blank (2)
4-Bromofluorobenzene (74-121%)	88	89	92	95

METHOD: Halogenated Volatile Organic Compounds per EPA 8010 (GC/MS)
Results in ug/kg (ppb)

Compound	S-1	Detection Limit
Bromodichloromethane	ND	10
Bromoform	ND	10
Bromomethane	ND	50
Carbon tetrachloride	ND	10
Chlorobenzene	ND	10
Chloroethane	ND	50
2-Chloroethyl Vinyl Ether	(y)	--
Chloroform	ND	10
Chloromethane	ND	50
Dibromochloromethane	ND	10
1,2-Dichlorobenzene	ND	10
1,3-Dichlorobenzene	ND	10
1,4-Dichlorobenzene	ND	10
Dichlorodifluoromethane	ND	25
1,1-Dichloroethane	ND	10
1,2-Dichloroethane	ND	10
1,1-Dichloroethene	ND	10
cis-1,2-Dichloroethene	ND	10
trans-1,2,-Dichloroethene	ND	10
1,2-Dichloropropane	ND	10
cis-1,3-Dichloropropene	ND	10
trans-1,3-Dichloropropene	ND	10
Methylene chloride	ND	10
1,1,2,2-Tetrachloroethane	ND	10
Tetrachloroethene	12	10
1,1,1-Trichloroethane	ND	10
1,1,2-Trichloroethane	ND	10
Trichloroethene	ND	10
Trichlorofluoromethane	ND	30
Vinyl chloride	ND	25

8010 Surrogate Recoveries (%)

Compound	S-1
1,2-Dichloroethane-d4 (70-121%)	99
4-Bromofluorobenzene (74-121%)	88

(y) Due to low response, we are unable to calculate results for this compound.

METHOD: Halogenated Volatile Organic Compounds per EPA 8010 (GC/MS)
Results in ug/kg (ppb)

Compound	S-3	Method Blank (1)	Method Blank (2)	Detection Limit
Bromodichloromethane	ND	ND	ND	2.0
Bromoform	ND	ND	ND	2.0
Bromomethane	ND	ND	ND	10
Carbon tetrachloride	ND	ND	ND	2.0
Chlorobenzene	ND	ND	ND	2.0
Chloroethane	ND	ND	ND	10
2-Chloroethyl Vinyl Ether	(y)	(y)	(y)	--
Chloroform	ND	ND	ND	2.0
Chloromethane	ND	ND	ND	10
Dibromochloromethane	ND	ND	ND	2.0
1,2-Dichlorobenzene	ND	ND	ND	2.0
1,3-Dichlorobenzene	ND	ND	ND	2.0
1,4-Dichlorobenzene	ND	ND	ND	2.0
Dichlorodifluoromethane	ND	ND	ND	5.0
1,1-Dichloroethane	ND	ND	ND	2.0
1,2-Dichloroethane	ND	ND	ND	2.0
1,1-Dichloroethene	ND	ND	ND	2.0
cis-1,2-Dichloroethene	ND	ND	ND	2.0
trans-1,2,-Dichloroethene	ND	ND	ND	2.0
1,2-Dichloropropane	ND	ND	ND	2.0
cis-1,3-Dichloropropene	ND	ND	ND	2.0
trans-1,3-Dichloropropene	ND	ND	ND	2.0
Methylene chloride	ND	ND	ND	2.0
1,1,2,2-Tetrachloroethane	ND	ND	ND	2.0
Tetrachloroethene	ND	ND	ND	2.0
1,1,1-Trichloroethane	ND	ND	ND	2.0
1,1,2-Trichloroethane	ND	ND	ND	2.0
Trichloroethene	ND	ND	ND	2.0
Trichlorofluoromethane	ND	ND	ND	2.0
Vinyl chloride	ND	ND	ND	5.0

8010 Surrogate Recoveries (%)

Compound	S-3	Method Blank (1)	Method Blank (2)
1,2-Dichloroethane-d4 (70-121%)	94	98	97
4-Bromofluorobenzene (74-121%)	89	92	95

(y) Due to low response, we are unable to calculate a result for this compound.

PACIFIC ENVIRONMENTAL LABORATORY INC.

METHOD: PCB's per EPA 8080
Results in mg/kg (ppm)

Compound	S-1	Method Blank
Aroclor	1254	--
Amount in Sample	1.2	ND
Detection Limit	1.0	0.10

8080 Surrogate Recoveries (%)

Compound	S-1	Method Blank
2,4,5,6-Tetrachloro-m-xylene (60-140%)	84	101

PACIFIC ENVIRONMENTAL LABORATORY INC.

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Beaverton, OR 97005
(503) 644-0660
Fax (503) 644-2202

CHAIN OF CUSTODY RECORD

COMPANY Brown + Caldwell | PROJECT NAME 242nd + Stark | LAB PROJECT NUMBER 92-2927

PROJECT MANAGER Duley Berri | PROJECT NUMBER

COLLECTED BY TRL | P.O. NUMBER | RUSH ☐ YES ☑ NO

COMMENTS

IF SAMPLE IS LIQUID & HAS SEDIMENT OR PARTICULATE, SHALL WE:
_____ Test Filtrate Only?
_____ Mix Sample by Shaking?
_____ Test Particulate Only?

IF SAMPLE IS MULTI-PHASED, SHALL WE:
_____ Test Each Phase separately?
_____ Test only ONE Phase? Which Phase?
_____ Mix All Phases by Shaking?

PEL NO.	SAMPLE I.D.	DATE	TIME	PRESERV.	MATRIX: SOIL	MATRIX: WATER	MATRIX: OTHER	NUMBER OF CONTAINERS	TPH - HCID OAR/DEQ	QUANT. IF DETECTED (✓)	TPH - Gasoline OAR/DEQ	TPH - Diesel OAR/DEQ	TPH - 418.1 Modified OAR/DEQ	8015M - Gas	8015M - Diesel	TPH 418.1	BTEX 602/8020	Halogenated Volatiles 601/8010	Volatiles 624/8240	Semivolatiles 625/8270	PCB's 608/8080	Chlorinated Pesticides 608/8080	TCLP (3) Metals	REMARKS
	S-1	9/8/92	1140	Ice	X			2	X	✓							X	X					X	
	S-2	↓	1340	↓	X			2																Hold pending results of S-1
	S-3	↓	1410	↓	X			2	X	✓							X	X					X	

ALL SAMPLES WILL BE DISPOSED OF 30 DAYS AFTER RECEIPT

RELINQUISHED BY	COMPANY	DATE/TIME	RECEIVED BY	COMPANY
[signature]	B+C	9/8/92 1524	Sara Cole	PEL
RELINQUISHED BY	COMPANY	DATE/TIME	RECEIVED BY	COMPANY
RELINQUISHED BY	COMPANY	DATE/TIME	RECEIVED BY	COMPANY

Note: Samples are discarded 30 days after receipt unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client's expense.