UNOCAL Station 0400
Seattle
VCP NW0949
LUST 5186

ENVIRONMENTAL RESOLUTIONS, INC.

July 14, 2003
ERI 031141.14.L01

Brian S. Sato, P.E.
Toxics Cleanup Program
Washington State Department of Ecology
3190 160th Avenue Southeast
Bellevue, Washington 98008-5452

ENTERED
MAY 5-18
2006

Subject: Tosco Site No. 0400, 4359 Roosevelt Way Northeast, Seattle, Washington
(VCP Identification No. NW0949)

Dear Mr. Sato:

Attached for your review and comment is a letter report entitled *Confirmation Boring and Soil Sampling Report,* dated July 14, 2003 for work conducted at the site referenced above. The report summarizes activities performed to fulfill requirements for final site closure stipulated in Department of Ecology's November 11, 2002 letter. Based on information in the report, the requirements for site closure have been satisfied. Therefore, please review and provide a response letter indicating the requirements for site closure have been met and a no further action is required.

If you have any questions or comments, please contact me at (206) 575-6285.

Sincerely,

James S. Matthiessen
Assistant Project Manager

Attachment: ERI's Confirmation Boring and Soil Sampling Report, dated July 14, 2003

cc: Timothy D. Johnson, ConocoPhillips
John Chun

ENVIRONMENTAL RESOLUTIONS, INC.

July 14, 2003
ERI 31141.14.R03

Mr. Timothy D. Johnson
ConocoPhillips Corporation
3977 Leary Way Northwest
Seattle, Washington 98107

Subject: Confirmation Boring and Soil Sampling Report, Tosco Site No. 0400, VCP #NW0949, 4359 Roosevelt Way Northeast, Seattle, Washington

Dear Mr. Johnson:

In accordance with your request, Environmental Resolutions, Inc. (ERI) has prepared this report describing results of confirmation borings and soil sampling activities conducted at the site referenced above. Drilling services were provided by Cascade Drilling, Inc. (Cascade) of Woodinville, Washington, using hollow-stem auger drilling equipment, and Applied Professional Services Inc. (APS) of Issaquah, Washington using air knife equipment.

Site Description

The site is located at the southwestern corner of the intersection of Roosevelt Way Northeast and Northeast 45th Street in Seattle, Washington, at an elevation of approximately 50 feet above mean sea level, as shown on the Site Location Map (Plate 1). The site is in a mixed commercial and residential area. The site is currently an operating 76 Service Station with a station building and two 12,000-gallon steel gasoline underground storage tanks (USTs). The locations of the station building, USTs, dispenser islands, and other select site features are shown on the Generalized Site Plan (Plate 2).

Background

Various environmental investigation and remediation activities have been conducted at the site by previous consultants beginning in 1989. The site was submitted under the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) in 2002. Ecology issued a letter on November 11, 2002 indicating remaining activities required to issue a no further action determination for the site. The letter indicated a need for additional soil sampling in the vicinity of two soil samples (PL4-3 and EX15-6) collected during excavation activities conducted in November and December 2000. A copy of the Ecology letter requesting the additional investigation is attached.

Drilling and Soil Sampling

On April 2 and May 27, 2003, ERI personnel observed the advancement of confirmation soil borings and conducted sampling activities at the location described above. A total of two soil borings (P1 and P2) were advanced using air knife equipment and 8-inch diameter hollow-stem auger equipment. Soil boring locations were selected based on proximity to previously identified impacted soil samples (PL4-3 and EX15-6) in accordance with Ecology requirements. Boring locations are shown on Plate 2.

Prior to drilling, boring P1 was cleared to approximately 4 feet below ground surface (bgs) using a posthole digger and subsequently advanced to the total depth of approximately 7 feet bgs using hollow-stem auger drilling equipment. Boring P2 was advanced at an angle of approximately 32° relative to the

surface to achieve a borehole approximately 9.5 feet long, and approximately 5 feet bgs under the existing pump island using air knife and hand auger equipment. Drilling and sampling equipment was steam-cleaned after each boring to reduce the probability of cross-contamination. Soil cuttings and decontamination rinstate were placed in DOT-approved 55-gallon drums temporarily stored on site pending treatment and disposal.

One soil sample (S-6-B2) was collected at approximately 6 feet bgs from boring P1 during drilling using a 2-inch diameter, split-spoon sampler driven by a 300-pound hammer. The sampler was driven 18 inches or until it met with refusal. The number of blows required to drive the sampler each 6-inch increment was recorded on the boring logs to evaluate the relative density of the materials. An additional soil sample (S-5-B2) was collected approximately 5 feet bgs from boring P2 using a 2-inch-diameter hand auger. Soil from the least-disturbed portion of the sampler was transferred to laboratory-supplied glass containers with Teflon-lined lids, and placed into an iced cooler pending transport to the laboratory. Remaining soil was then used to field-classify the samples according to the Unified Soils Classification System (USCS).

Soil samples collected from each boring were examined on site by an ERI geologist and screened for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID) or equivalent. Soil encountered during drilling generally consisted of dry to moist, brown or gray, gravely sand to sandy clay from the surface to approximately 7 feet bgs. Descriptions of materials encountered during drilling are provided on the attached boring logs.

Following drilling, the borings were properly abandoned by backfilling with bentonite chips to approximately 1 foot bgs and hydrated with water. The surface was completed to grade with traffic-rated concrete.

Laboratory Analysis and Results

Select soil samples collected from each boring were transported to the North Creek Analytical, Inc. laboratory in Bothell, Washington, and analyzed for total petroleum hydrocarbons as gasoline (TPH-G) using Ecology Method NWTPH-Gx, and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using United States Environmental Protection Agency (EPA) Method 8021B. Soil sample S-5-B2, collected approximately 5 feet bgs from boring P2, was additionally analyzed using Interim TPH Policy methods. Analytical results of Interim TPH Policy analyses are shown on Tables 2, 3, and 4.

Laboratory results indicate that soil sample S-5-B2, contained 248 parts per million (ppm) TPH-G, exceeding the Model Toxics Control Act (MTCA) Method A Cleanup Level of 100 ppm. No other analyte concentrations exceeding MTCA Method A Cleanup Levels were detected in either of the soil samples analyzed. Laboratory results are shown on Table 1 and Plate 3. Laboratory analytical reports and chain of custody documentation are attached.

Interim TPH Policy Evaluation

Following receipt of laboratory results, an evaluation of the concentrations detected by Interim TPH Policy analysis was conducted using the Ecology Soil Cleanup Level Worksheets for the direct contact pathway. Results of the evaluation indicate that the soil concentrations detected are protective of human health and the environment based on the hazard quotients and cancer risk factors calculated. Copies of the Ecology worksheets are attached.

Waste Disposal

Following drilling, approximately 55 gallons of decontamination rinsate and purge water were treated on site with activated carbon and discharged to the on-site sanitary sewer. Soil cuttings generated during drilling were placed into DOT-approved 55-gallon drums and temporarily stored on site pending off-site transport and recycling.

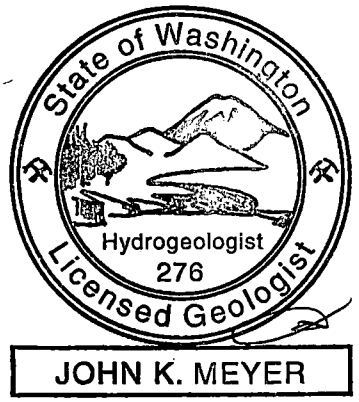
Conclusions and Recommendations

Laboratory results of soil samples collected during drilling indicate that soil sample S-5-B2, collected approximately 5 feet bgs from boring P2, contained a TPH-G concentration exceeding the MTCA Method A Cleanup Level. Subsequent evaluation using the Interim TPH Policy method analyses and the Ecology Soil Cleanup Level Worksheets for the direct contact pathway indicate that these concentrations are protective of human health and the environment based on the calculated hazard quotients and cancer risk factors. No other analyte concentrations exceeding MTCA Method A Cleanup Levels were detected in either of the samples analyzed. Based on these results, it appears contaminant concentrations in soil beneath the site have been reduced to levels that are protective of human health and the environment through a combination of natural processes and remedial excavation. ERI therefore recommends submitting a copy of this report to Ecology with a request for site closure.

Limitations

Soil boring and sampling activities were conducted in accordance with generally accepted standards of environmental practice at the time performed. This investigation was conducted solely for the purpose of evaluating environmental conditions. No soil engineering or technical implications are stated or should be inferred. The evaluation of geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary from the data points available.

We appreciate the opportunity provide assistance on this project. Please call if you have any questions.



Sincerely,
Environmental Resolutions, Inc.

James S. Matthiessen
Assistant Project Manager

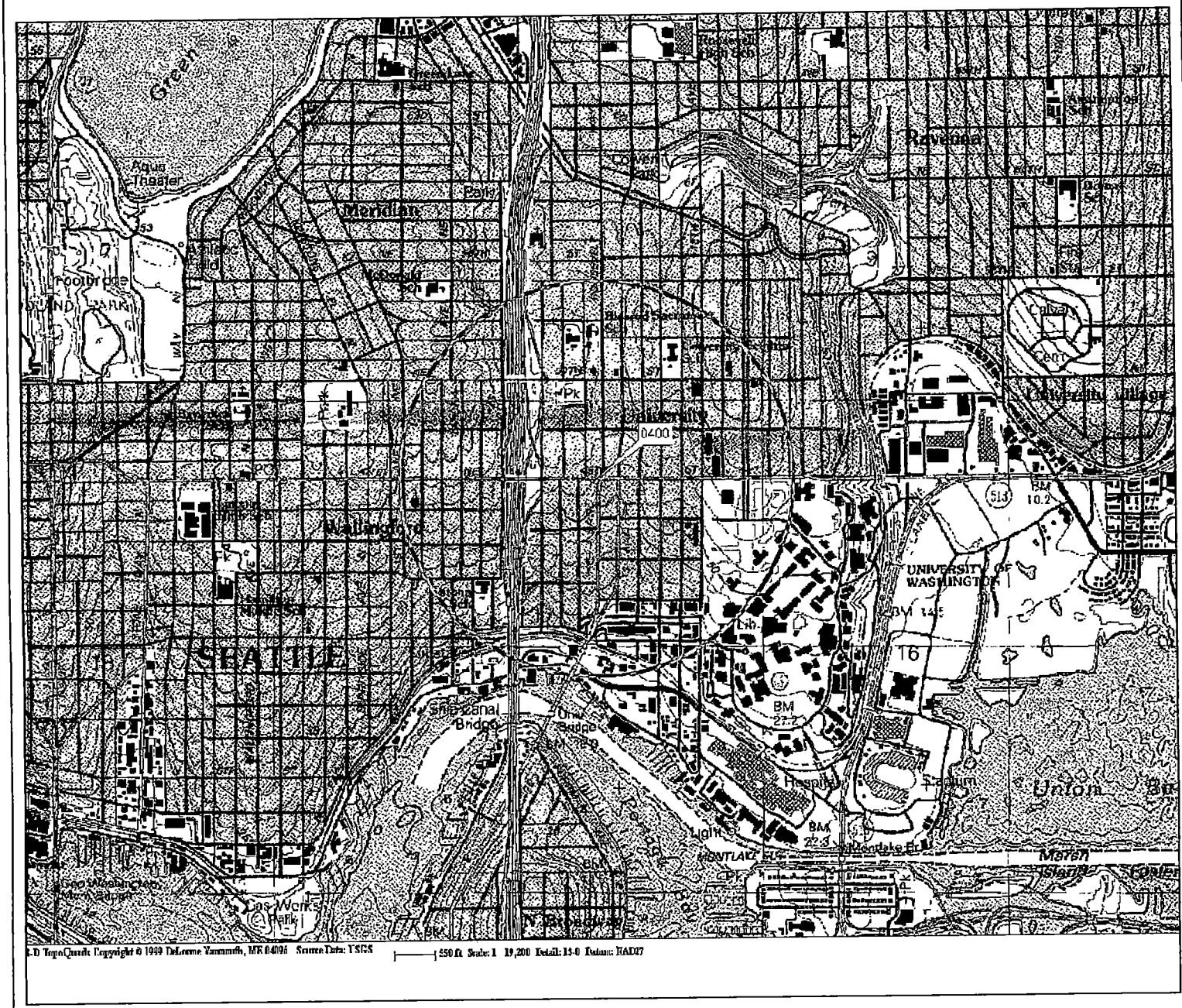
John K. Meyer, R.G.
Branch Manager

Attachments: Plate 1: Site Location Map
Plate 2: Generalized Site Plan
Plate 3: Soil Sample Analysis Map 04/02/03 and 05/27/03

Table 1: Soil Sample Analytical Results – TPH-G, BTEX
Table 2: Soil Sample Analytical Results – Extractable Petroleum Hydrocarbons (EPHs)
Table 3: Soil Sample Analytical Results – Volatile Petroleum Hydrocarbons (VPHs)
Table 4: Soil Sample Analytical Results – BTEX, Naphthalene, n-Hexane, MTBE, PAHs

Ecology Letter dated November 11, 2002
Unified Soils Classification System Chart
Boring Logs
Laboratory Reports and Chain of Custody Documentation
Ecology Worksheets:

- Soil Cleanup Levels: Worksheet for Data Entry
- Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact Pathway: Method B – Unrestricted Land Use
- Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact Pathway: Method C – Industrial Land Use



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS 2550 ft Scale: 1 19,200 Detail: 13-0 Datum: NAD27

FN 311410001

EXPLANATION

1/2-mile radius circle

N

APPROXIMATE SCALE

0 0.5 1 mile

SOURCE:
Modified from a map
provided by
DeLorme 3-D TopoQuads

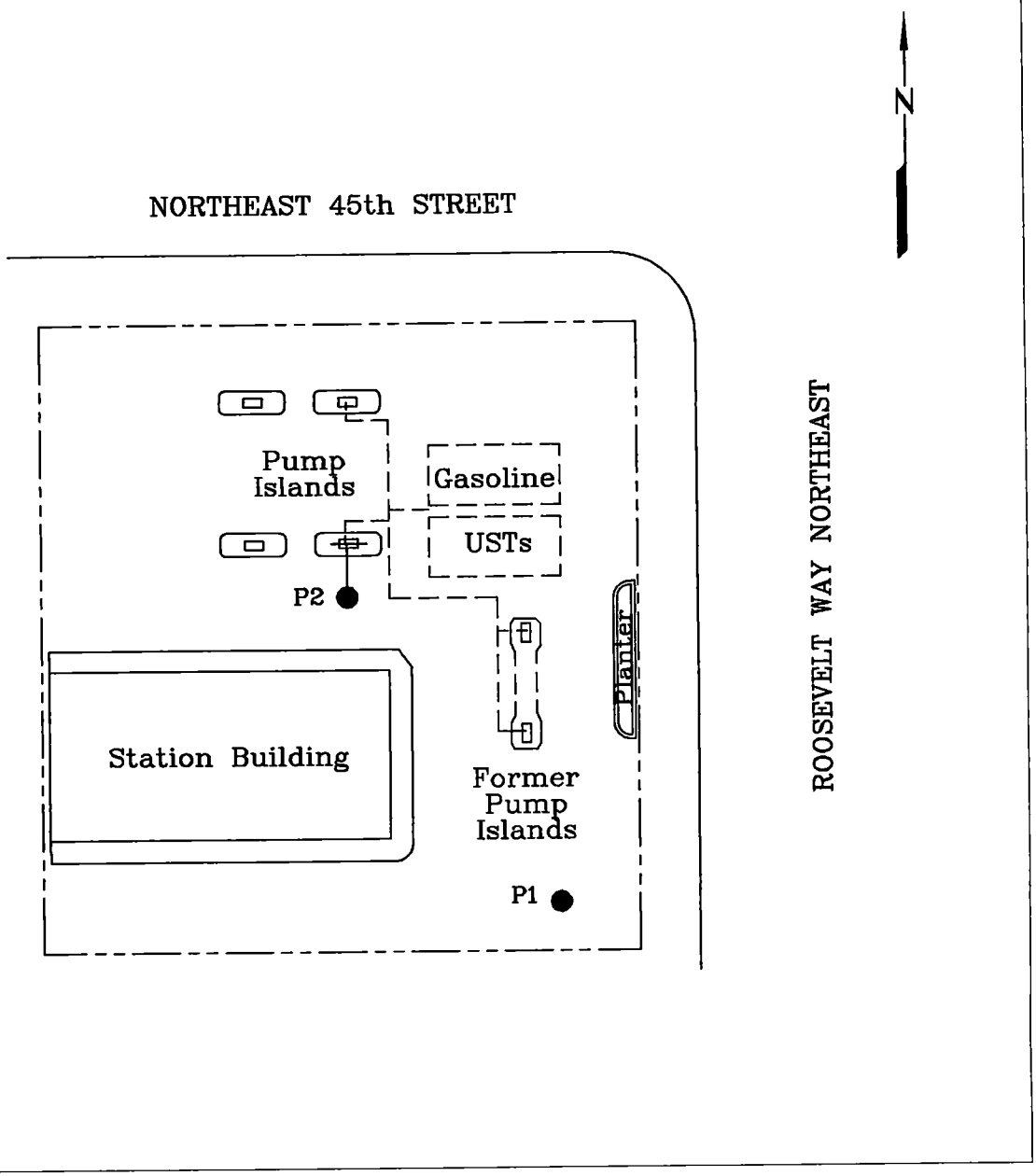
ERI ENVIRONMENTAL RESOLUTIONS, INC

SITE LOCATION MAP

TOSCO SITE NO. 0400
4359 Roosevelt Way Northeast
Seattle, Washington

PROJECT NO. 31141

PLATE 1



FN 31141.14.R03.0002

EXPLANATION

- – – – – – Former sub–surface entities
- – – – – – Current sub–surface entities
- ● P1 Confirmation boring

APPROXIMATE SCALE

0 30 60 FEET

SOURCE:
Modified from a map provided by ConocoPhillips Corporation

ENVIRONMENTAL RESOLUTIONS, INC.

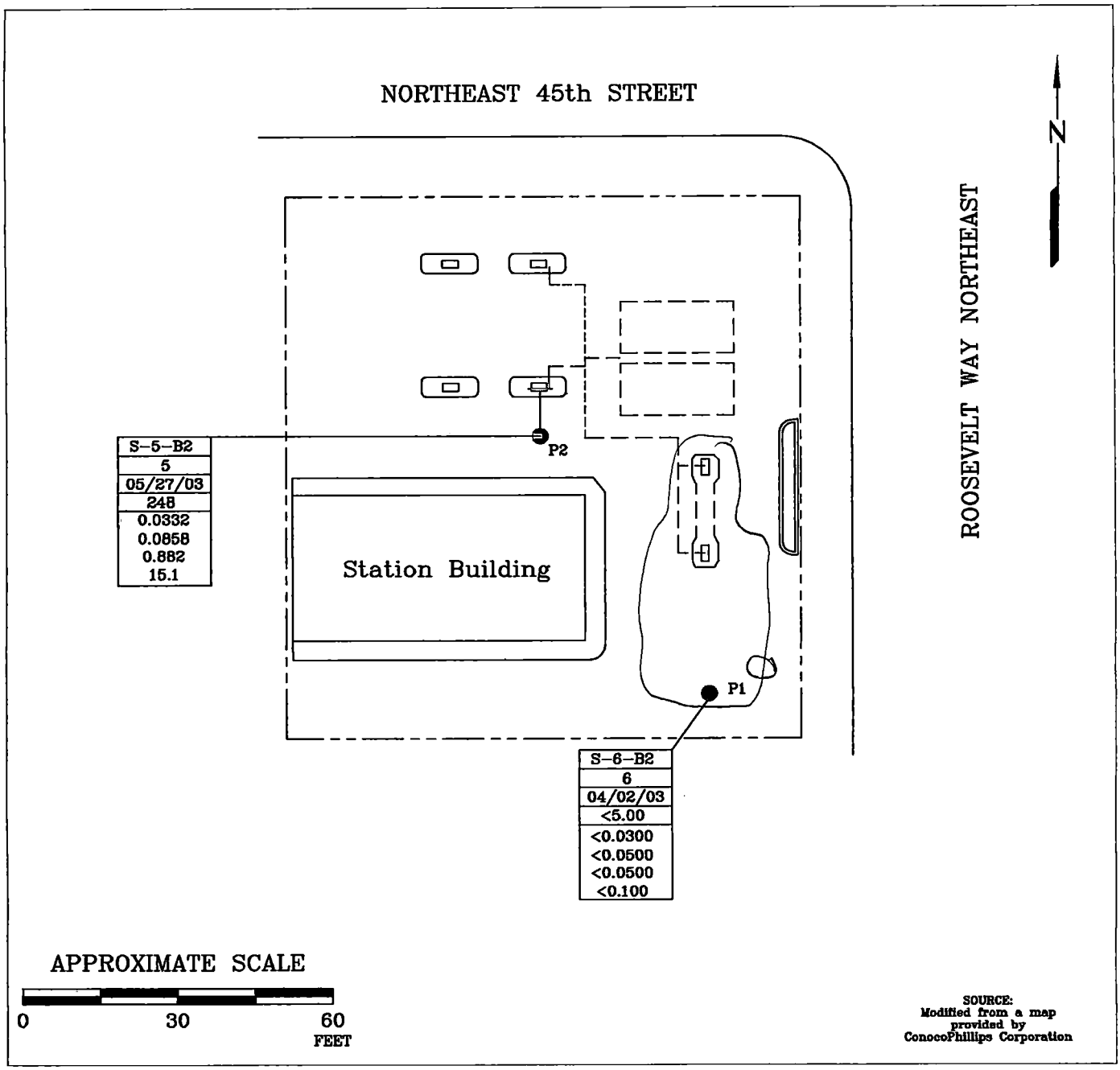
GENERALIZED SITE PLAN

TOSCO SITE NO. 0400
4359 Roosevelt Way Northeast
Seattle, Washington

PROJECT NO. 31141

PLATE 2

AJL: 06/27/03



FN 31141.14.R03.0003

EXPLANATION

- P1 — Confirmation Boring Location
- P2 — Direction and horizontal extent of Confirmation Boring. Bored at approximately 32° relative to horizon for 9.5 ft

Laboratory Results in mg/kg (ppm)

S-5-B2	Sample Name
5	Sample Depth in feet below ground surface
05/27/03	Date Sampled
248	Total Petroleum Hydrocarbons as Gasoline
0.0332	Benzene
0.0858	Toluene
0.882	Ethylbenzene
0.882	Total Xylenes

Numbers in Red Exceed MTCA Method A Cleanup Levels

<5.00 = Less Than the Stated Laboratory Reporting Limit

ENVIRONMENTAL RESOLUTIONS, INC.

SOIL SAMPLE ANALYSIS MAP
04/02/03 AND 05/27/03

TOSCO SITE NO. 0400
4359 Roosevelt Way Northeast
Seattle, Washington

PROJECT NO. 31141

PLATE 3

AJL: 07/02/03

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
TPH-G, BTEX
Tosco Site No. 0440
4359 Roosevelt Way Northeast
Seattle, Washington
April 2 and May 27, 2003
Page 1 of 1

Sample Name	Sample Depth	Location	Date Sampled	TPH-G	B	T	E	X
S-6-B2	6	P1	04/02/03	<5.00	<0.0300	<0.0500	<0.0500	<0.100
S-5-B2	5	P2	05/27/03	248	0.0332	0.0858	0.882	15.1
MTCA Method A Cleanup Levels				100	0.5	40	20	20

EXPLANATION:
All concentrations are in mg/kg (ppm).
Depth of samples are in feet below ground surface.
TPH-G = Total Petroleum Hydrocarbons as Gasoline by Ecology Method NWTPH-Gx
B = Benzene; T = Toluene; E = Ethylbenzene; X = Total Xylenes
BTEX = Aromatic compounds by EPA Method 8021B
< = Less than the stated laboratory reporting limit
Shaded values equal or exceed MTCA Method A Cleanup Levels.
Sample S-5-B2 is referred to as sample S-S-B2 in laboratory report.

TABLE 2
SOIL SAMPLE ANALYTICAL RESULTS
EXTRACTABLE PETROLEUM HYDROCARBONS (EPHs)
Tosco Site No. 0400
4359 Roosevelt Way Northeast
Seattle, Washington
May 27, 2003

Sample Name	Depth	Sample Location	Aliphatics					Aromatics				
			C8-C10	C10-C12	C12-C16	C16-C21	C21-C34	C8-C10	C10-C12	C12-C16	C16-C21	C21-C34
S-5-B2	5	P2	37.9	46.3	<20.0	20.5	327	86.1	104	37.1	<20.0	174

EXPLANATION:
All concentrations are in mg/kg (ppm).
Depths are in feet below ground surface.
Analyses performed using WA MTCA-EPH
< = Less than the stated laboratory method reporting limit

TABLE 3
SOIL SAMPLE ANALYTICAL RESULTS
VOLATILE PETROLEUM HYDROCARBONS (VPHs)
Tosco Site No. 0400
4359 Roosevelt Way Northeast
Seattle, Washington
May 27, 2003

Sample Name	Depth	Sample Location	Aliphatics				Aromatics		
			C5-C6	C6-C8	C8-C10	C10-C12	C8-C10	C10-C12	C12-C13
S-5-B2	5	P2	<5.00	<5.00	<5.00	28.7	29.1	58.3	20.1

EXPLANATION:
All concentrations are in mg/kg (ppm).
Depths are in feet below ground surface.
Analyses performed using WA MTCA-VPH
< = Less than the stated laboratory method reporting limit

TABLE 4
SOIL SAMPLE ANALYTICAL RESULTS
NAPHTHALENE, n-HEXANE, MTBE, PAHs
Tosco Site No. 0400
6728 196th Street Southwest
4359 Roosevelt Way Northeast
May 27, 2003

Sample Name	Depth	Sample Location	Naphthalene	n-Hexane	MTBE	Polyaromatic Hydrocarbons (PAHs)						
						BA	B(b)F	B(k)F	B(a)P	Chrysene	DBA	IP
S-5-B2	5	P2	6.44	<1.00	<1.00	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100

EXPLANATION:
All concentrations are in mg/kg (ppm).
Depths are in feet below ground surface.
MTBE = Methyl tert-butyl ether
Naphthalene, n-Hexane and MTBE by WDOE Interim TPH Policy Method using 8260B
BA = Benzo(a)anthracene
B(b)F = Benzo(b)fluoranthene
B(k)F = Benzo(k)fluoranthene
B(a)P = Benzo(a)pyrene
DBA = Dibenzo(a,h)anthracene
IP = Indeno(1,2,3-cd)pyrene
PAHs by EPA Method 8270C
< = Less than the stated laboratory reporting limit