LUST - 7005
SHELL / T
KING / SEATTLE

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
Fax 206.328.5581
Tel 206.324.9530

SR 7/31/95 DW

DEPARTMENT OF ECOLOGY
NWRO/TCP TANKS UNIT

INTERIM CLEANUP REPORT	☒
SITE CHARACTERIZATON	☐
FINAL CLEANUP REPORT	☐
OTHER _____	☐
AFFECTED MEDIA: SOIL	☐
OTHER _____ GW	☒
INSPECTOR (INIT.) DW DATE 6-22-95	

Rec'd 7/18/95 CM

J-2043-03

May 30, 1995

Mr. Joe Hickey
Washington State Department of Ecology
Northwest Regional Office
3190 - 160th Avenue SE
Bellevue, Washington 98008-5402

Re: Results of March 1995 Groundwater Sampling
Former Shell Service Station (WIC 246-7616-7604)
803 Market Street
Seattle, Washington

Dear Mr. Hickey:

This letter presents the results of the March 1995 semi-annual groundwater sampling round for the former Shell Service Station located at 803 Market Street in Seattle, Washington.

GROUNDWATER SAMPLING PROCEDURES

Three wells (MW-1, MW-5, and MW-6) were sampled on March 13, 1995. Well locations are shown on the site and exploration plan; Figure 1. Well MW-4 was destroyed during the construction in the winter of 1989. Wells MW-2 and MW-3 have since been abandoned.

Prior to sampling, three well casing volumes of water were purged from each well or the well was bailed dry using a stainless steel bailer. The purged water was placed in drums and transported to a temporary holding facility pending approval for discharge. Groundwater samples were collected using a stainless steel bailer, which was thoroughly decontaminated with an Alconox wash, tap water rinse, and distilled water rinse. Samples were placed in laboratory-prepared sample jars and then placed in an ice chest and promptly transferred, under chain of custody protocols, to North Creek Analytical of Bothell, Washington. No duplicate samples were collected in this round of sampling.

ANALYTICAL RESULTS

Samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8020, and for total petroleum hydrocarbon as gasoline (TPH-G) using EPA Method 8015 modified. These results, as well as historical groundwater data are summarized in Table 1. Copies of the original laboratory certificates from this sampling round are presented in Attachment A.

The site wells sampled and analyzed indicate concentrations of petroleum hydrocarbons exceeding Method A Cleanup Levels.

LIMITATIONS

Work for this project was performed, and this letter report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of Washington State Department of Ecology for specific application to the referenced property. This report is not meant to represent a legal opinion. No other warranty, express or implied, is made.

Please call if you have any questions.

Sincerely,

HART CROWSER, INC.

TERRY W. MONTOYA
Project Engineer

DAVID A. HEFFNER, P.E.
Associate Engineer

TWM/DAH:cmj
BALL395.GW

Attachments:
Table 1 - Chemical Analyses Results of Groundwater Samples
Figure 1 - Site and Exploration Plan
Attachment A - Certificates of Analysis
North Creek Analytical

cc: Mr. Frank Fossati, Shell Oil Company (WIC #246-0602-1004)

Independent Action Report Update

Site Name: SHELL O.C

Inc. #: 1685 Date of Report: 5-30-95

County: KING Date Report Rec'd: _____

Reviewed by: John Bails

Comments (please include: free prod., tank info., contaminant migration, GW depth & flow, conc. trends, PCS treated?):

MONITORING - SEMI-ANNUAL GW SAMPLING RESULTS FOR 3-95. SAMPLED 3 WELLS. (1, 5 + 6)

B IN MW-1 @ 0.990 PPM

B IN MW-5 @ 7.3 PPM

TPH-G IN MW-5 @ 70 PPM

Table 1 - Chemical Analyses Results of Groundwater Samples

Well Number/ Sampling Date	Benzene	Toluene	Ethylbenzene	Xylenes Total	TPH-G	Dissolved Oxygen	GW Elev. in feet
	Concentration in mg/L (ppm)						
MW-1							
2/25/88	ND	ND	ND	ND			89.82
5/16/88	ND	ND	ND	ND			90.16
10/4/88	ND	ND	ND	ND			88.39
4/21/89	*0.045	0.016	ND	*0.054			90.94
8/25/89	*0.027	0.013	0.018	*0.039			89.25
11/1/89	ND	0.002	0.002	0.004			89.37
1/18/90	0.001	0.001	0.001	ND			90.94
4/12/90	0.001	0.001	0.001	ND			90.44
7/16/90	*0.005	0.001	0.003	0.008			89.66
11/6/90	0.001	0.001	0.001	ND			89.50
1/28/91	*0.026	0.009	0.012	*0.050	0.50		90.81
7/23/91	*0.63	*0.25	*0.32	*1.60	6.0		89.06
1/24/92	0.001	0.001	0.001	ND	0.5		90.10
7/27/92	*0.21	0.034	*0.088	*0.250	2.0		88.97
1/5/93	*0.024	ND	0.0013	ND	0.050		
8/10/93	*1.00	*0.240	*0.44	*1.70	12.0	0.45	89.82
2/12/94	*0.26	*0.056	*0.064	*0.21	2.8	0.40	89.98
10/11/94	*0.067	ND	0.0062	ND	0.11	2.80	88.14
3/13/95	*0.990	*0.200	*0.230	*0.940	7.50	2.70	91.14
MW-2							
2/25/88	*4.6	*7.2	*0.26	*6.60			89.39
5/16/88	*3.9	*2.7	*0.25	*3.3			89.92
10/4/88	*2.5	*0.15	*0.025	*0.50			87.73
8/25/89	*11.02	*4.3	*0.61	*2.9			89.05
11/1/89	*6.2	*0.14	*0.27	*0.71			88.48
1/18/90	*2.4	*0.05	*0.05	*0.39			90.47
4/12/90	*12.0	*8.5	0.010	*5.4			90.40
7/16/90	*11.00	*2.7	*0.79	*3.0			89.47
11/6/90	*9.4	*2.6	*1.40	*11.7			89.26
1/28/91	*12.0	*16.0	*1.40	*9.9	510		89.46
7/23/91	*30.0	*25.0	*2.50	*15.0	51		90.36
1/24/92	*4.70	*1.40	0.002	*2.69	18		90.13
7/27/92	*9.8	*8.8	*1.20	*7.60	58		89.19
1/5/93	Well not sampled						90.12
2/12/94	*3.8	*0.57	*0.34	*920	7.5	0.35	90.12
10/11/94	Well abandoned.						
MW-3							
2/25/88	*0.011	0.0082	ND	0.017			90.28
5/16/88	ND	ND	ND	ND			90.95
10/4/88	ND	ND	ND	ND			89.64
11/8/88	Well abandoned.						

Well Number/ Sampling Date	Benzene	Toluene	Ethylbenzene	Xylenes Total	TPH-G	Dissolved Oxygen	GW Elev. in feet
	Concentration in mg/L (ppm)						
MW-4							
2/25/88	*0.032	0.0011	ND	0.0092			90.53
5/16/88	ND	ND	ND	ND			90.72
10/4/88	ND	ND	ND	ND			89.39
Covered during construction in winter 1989.							
MW-5							
1/5/93	*0.3	*0.29	*0.039	*0.93	7.0		90.51
1/5/93(DUP)	*0.25	*0.22	*0.047	*0.77	7.0		90.51
8/10/93	*2.8	*1.60	*0.79	*4.00	30.0	0.4	89.03
2/12/94	*2.3	*2.6	*0.80	*4.10	30.0	0.25	90.27
10/11/94	*0.063	*0.018	*0.031	*0.090	1.40	1.9	87.91
3/13/95	*7.30	*11.0	*1.50	*8.60	70.0	2.9	91.81
MW-6							
1/5/93	*0.160	*0.230	*0.290	*1.70	11.0		91.99
8/10/93	*0.270	*0.046	*0.11	*1.0	8.0	0.4	90.73
2/12/94	*0.043	0.019	*0.090	*0.32	1.8	0.6	91.4
10/11/94	*0.0013	ND	*0.00093	*0.0023	ND	2.2	89.91
3/13/95	*0.160	*0.120	*0.360	*1.50	13.0	2.8	92.34

Notes:

n/t Well was not sampled, or test not performed, at this time.

* Denotes exceeded cleanup target for BTEX at MTCA Method A levels.

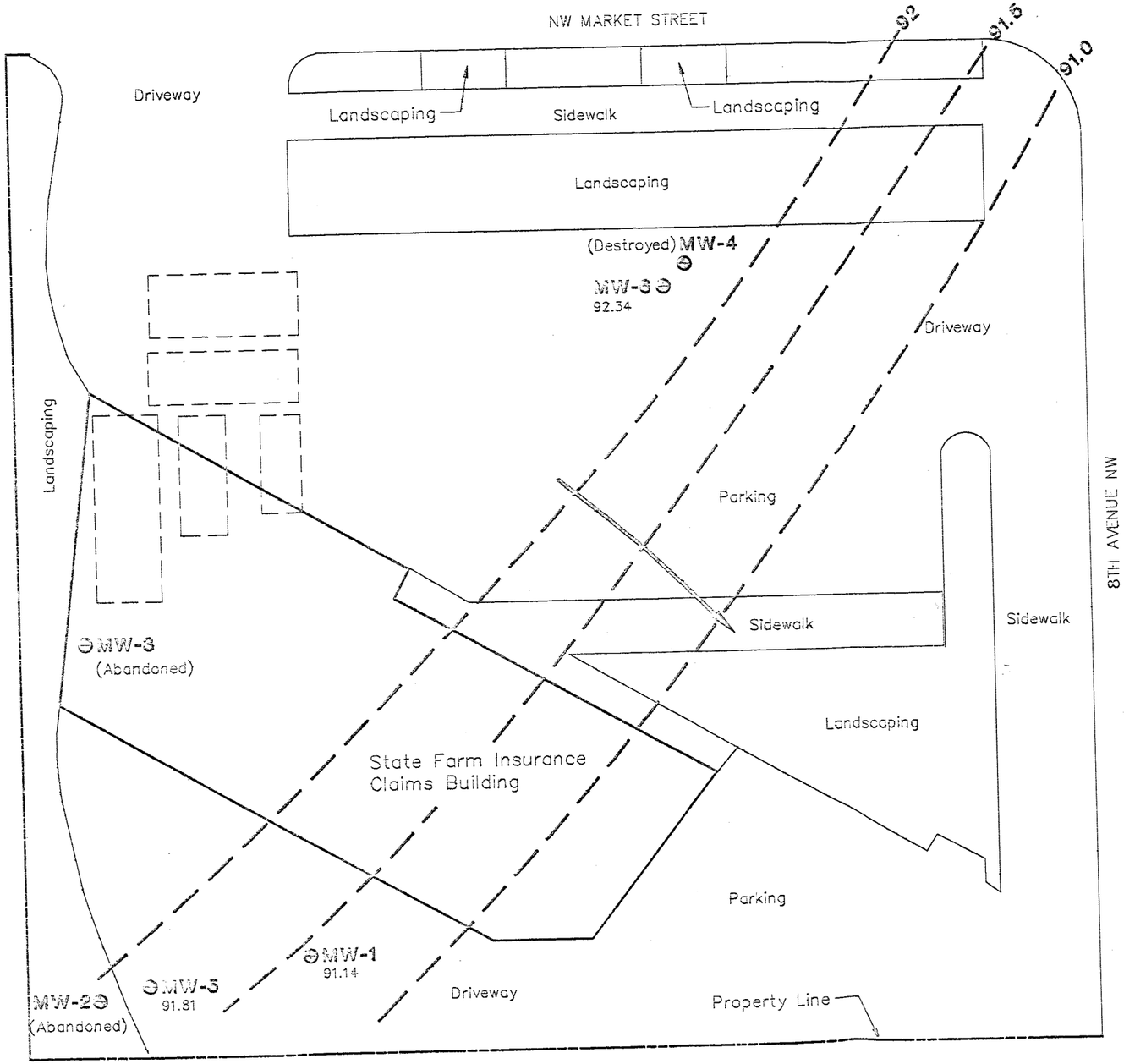
ND Not detected at method detection limits.

Dissolved oxygen was measured by lowering the probe of a Yellow Springs Instruments (YSI) Model 57 Dissolved Oxygen Meter into the well to be monitored.

204303.wk1

Site and Exploration Plan

803 Market Street, Seattle, Washington



MW-1 Monitoring Well Location and Number

91.14 Groundwater Elevation in Feet

—91.0— Groundwater Elevation Contour in Feet

Inferred Groundwater Flow Direction

N

0 15 30

Scale in Feet

HARTCROWSER

J-2043-03 5/95

Figure 1

cvd 5/31/95 1-1 HC.pcp
204303.02

ATTACHMENT A
CERTIFICATES OF ANALYSIS
NORTH CREEK ANALYTICAL

NORTH CREEK ANALYTICAL

18939 120th Avenue N.E., Suite 101 • Bothell, WA 98011-9508 (206) 481-9200 • FAX 485-2992
East 11115 Montgomery, Suite B • Spokane, WA 99206-4776 (509) 924-9200 • FAX 924-9290
9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Hart Crowser, Seattle	Project Name:	Shell #246-7616-7604	
1910 Fairview Ave. E.	Client Project #:	Not Provided	
Seattle, WA 98102			Received: Mar 14, 1995
Attention: Terry Montoya	NCA Project #:	B503209	Reported: Mar 21, 1995

PROJECT SUMMARY PAGE

Laboratory Sample Number	Sample Description	Sample Matrix	Date Sampled
B503209-01	MW-1	Water	3/13/95
B503209-02	MW-5	Water	3/13/95
B503209-03	MW-6	Water	3/13/95

The results in this report apply to the samples analyzed in accordance with the chain of custody document.
This analytical report must be reproduced in its entirety.

NORTH CREEK ANALYTICAL Inc.

Matthew T. Essig
Project Manager

NORTH CREEK ANALYTICAL

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Hart Crowser, Seattle	Client Project ID:	Shell #246-7616-7604	Sampled:	Mar 13, 1995
1910 Fairview Ave. E.	Sample Matrix:	Water	Received:	Mar 14, 1995
Seattle, WA 98102	Analysis Method:	WTPH-G	Analyzed:	Mar 16-20, 1995
Attention: Terry Montoya	First Sample #:	B503209-01	Reported:	Mar 21, 1995

TOTAL PETROLEUM HYDROCARBONS-GASOLINE RANGE

Sample Number	Sample Description	Sample Result mg/L (ppm)	Surrogate Recovery %
B503209-01	MW-1	7.5	130
B503209-02	MW-5	70	115
B503209-03	MW-6	13	107
BLK031695	Method Blank	N.D.	98

Reporting Limit:	**0.050**

4-Bromofluorobenzene surrogate recovery control limits are 50 - 150 %.
Volatile Total Petroleum Hydrocarbons are quantitated as Gasoline Range Organics (toluene - dodecane).
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Matthew T. Essig
Project Manager

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Hart Crowser, Seattle	Client Project ID: Shell #246-7616-7604	Analyst:	R. Hager
1910 Fairview Ave. E.	Sample Matrix: Water		F. Shino
Seattle, WA 98102	Analysis Method: WTPH-G		
Attention: Terry Montoya	Units: mg/L (ppm)	Analyzed:	Mar 16, 1995
		Reported:	Mar 21, 1995

HYDROCARBON QUALITY CONTROL DATA REPORT

ACCURACY ASSESSMENT
Laboratory Control Sample

Gasoline

Spike Conc. Added:	0.100
Spike Result:	0.105
% Recovery:	105
Upper Control Limit %:	114
Lower Control Limit %:	55

PRECISION ASSESSMENT
Sample Duplicate

Gasoline Range Organics

Sample Number:	B503209-02
Original Result:	70
Duplicate Result:	75
Relative % Difference	6.9
Maximum RPD:	38

NORTH CREEK ANALYTICAL Inc.

Matthew T. Essig
Project Manager

% Recovery: $\frac{\text{Spike Result}}{\text{Spike Concentration Added}} \times 100$

Relative % Difference: $\frac{\text{Original Result - Duplicate Result}}{(\text{Original Result + Duplicate Result}) / 2} \times 100$

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Hart Crowser, Seattle	Client Project ID:	Shell #246-7616-7604	Sampled:	Mar 13, 1995
1910 Fairview Ave. E.	Sample Matrix:	Water	Received:	Mar 14, 1995
Seattle, WA 98102	Analysis Method:	EPA 8020	Analyzed:	Mar 16-20, 1995
Attention: Terry Montoya	First Sample #:	B503209-01	Reported:	Mar 21, 1995

BTEX DISTINCTION

Sample Number	Sample Description	Benzene mg/L (ppm)	Toluene mg/L (ppm)	Ethyl Benzene mg/L (ppm)	Xylenes mg/L (ppm)	Surrogate Recovery %
B503209-01	MW-1	0.99	0.20	0.23	0.94	98
B503209-02	MW-5	7.3	11	1.5	8.6	97
B503209-03	MW-6	0.16	0.12	0.36	1.5	86
BLK031695	Method Blank	N.D.	N.D.	N.D.	N.D.	79
Reporting Limits:		**0.00050**	**0.00050**	**0.00050**	**0.0010**	

4-Bromofluorobenzene surrogate recovery control limits are 55 - 144 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Matthew T. Essig
Project Manager

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No: _____

Date: 3/13/95
Page 1 of 1

Site Address: 803 N.W. MARKET STREET

WIC#: 246-7616-7604

Shell Engineer: FRANK FOSSATI
Phone No.: 714 520-3362
Fax #:

Consultant Name & Address: ~~HART~~ CROWSER, 1910 FAIRVIEW AVE E, SEATTLE, WA 98102

Consultant Contact: TERRY MONTOYA
Phone No.: 206 324-9530
Fax #:

Comments:

Sampled by:

Printed Name: T JAISWAL

Analysis Required

LAB: NORTH CREEK

CHECK ONE (1) BOX ONLY	CT/DT
G.W. Monitoring	☑ 4461
Site Investigation	☐ 4441
Soil Classify/Disposal	☐ 4442
Water Classify/Disposal	☐ 4443
Soil/Air Rem. or Sys. O & M	☐ 4452
Water Rem. or Sys. O & M	☐ 4453
Other	☐

TURN AROUND TIME
- 24 hours ☐
- 48 hours ☐
- 15 days ☑ (Normal)
- Other ☐ _____

NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.

UST AGENCY: _____

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW-1	3/13/95			X		2						X				N	GW	B503209-01
MW-5	3/13/95			X		12						X				N	GW Recvd Broken vial	-02
MW-6	3/13/95			X		2						X				N	GW	-03

	Printed Name:	Date:	Received (signature):	Printed Name:	Date:
Relinquished By (signature):	J FELDER	3-14-95 Time: 0935	NCA	DANA HEINR	3/14/95 Time: 1395
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):	Printed Name:	Date: Time:
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):	Printed Name:	Date: Time:

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

Rev 1/1/93

Shell Oil Chain of Custody

Earth and Environmental Technologies

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