



# HARTCROWSER

Earth and Environmental Technologies

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

J-2224

April 16, 1998

Mr. Joseph Hickey  
Washington State Department of Ecology  
Northwest Regional Office  
3190 160th Avenue SE  
Bellevue, Washington 98008-5452

Re: Results of February 1998 Groundwater Sampling  
Former Shell Service Station (WIC 246-4060-1209)  
26010 Pacific Highway South  
Kent, Washington

*MTBE Exceedances  
but no OP/OC/PAH  
for 8260 Method of  
Verification.*

Dear Mr. Hickey:

This letter report presents the results of the February 1998 groundwater sampling and analysis for the above-referenced former Shell service station site located in Kent, Washington (Figure 1). The Shell service station closed in 1986, and Oh's Market currently occupies the site. Underground storage tanks (USTs) were removed, and petroleum-impacted soil was addressed in independent remedial actions performed at the site during February through July 1989, and in January 1997. In May 1997, the current owner reinstalled USTs for retail sale of petroleum products. In July 1997, Parametrix arranged for Tacoma Pump and Drill to replace well MW-1, which was inadvertently abandoned in November 1996.

Hart Crowser (on behalf of Shell) began monitoring groundwater at this site in July 1989. After the January 1997 remedial action, Shell proposed an additional year of quarterly groundwater monitoring, to be followed by annual monitoring if warranted. Results of the current sampling round are summarized in this letter report along with those from previous sampling rounds.



## GROUNDWATER SAMPLING PROCEDURES

Monitoring wells MW-1A, MW-2, and MW-3 were sampled on February 19, 1998. Well locations are shown on Figure 2. For quality assurance, a duplicate sample was collected from well MW-2 and labeled as MW-12. Prior to sampling, the well water levels were measured. These measurements are presented with those of previous sampling rounds in Table 1.

Wells to be sampled were purged using a stainless steel bailer. Purging consisted of removing three casing volumes of water from the well or bailing the well dry. The purge water was placed in barrels and transported to a temporary holding facility pending approval for disposal. Groundwater samples for chemical analysis were collected using a stainless steel bailer that was decontaminated between each well sampled using an Alconox solution tap water wash and two distilled water rinses. The samples were placed in a cooler and transferred to North Creek Analytical for chemical analysis.

## ANALYTICAL RESULTS

Samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and methyl tertiary-butyl ether (MTBE) using EPA Method 8020A, and for total petroleum hydrocarbons as gasoline (TPH-G) using EPA Method 8015 modified. Samples with detectable concentrations of MTBE were reanalyzed by EPA Method 8260B. Groundwater analytical results for current and previous sampling rounds are summarized in Table 1. Copies of the laboratory certificates from this sampling round are provided in Attachment A.

Results of the current sampling round indicate the following:

- ▶ Well MW-1A contained concentrations of benzene and toluene below Washington State Model Toxics Control Act (MTCA) Method A cleanup levels, and similar to the BTEX concentrations in the August 1997 sampling round.
- ▶ Benzene and MTBE concentrations in wells MW-2 and MW-3 showed large increases compared to those from previous monitoring rounds. The benzene detections are above the MTCA Method A cleanup level. MTBE detections were confirmed using EPA Method 8260B.

Current round results suggest the possibility of a recent gasoline release in the vicinity of wells MW-2 and MW-3.



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## 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.

Any questions regarding our work and this letter report, the presentation of the information, and the interpretation of the data are welcome and should be referred to the Project Manager.

We trust that this report meets your needs.

Sincerely,

**HART CROWSER, INC.**

**JAMES L. FEIDER**  
Project Manager

**DAVID A. HEFFNER, P.E.**  
Associate Engineer

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### Attachments:

Table 1 - Summary of Groundwater Analytical Results

Figure 1 - Vicinity Map

Figure 2 - Groundwater Elevation Contour Map

Attachment A - Laboratory Certificates

North Creek Analytical

cc: Mr. Brad Boschetto; Shell Oil Products Company (WIC #246-4060-1209)  
Mr. Kwang Oh; current owner

**Table 1 - Summary of Groundwater Analytical Results**  
**Former Shell Service Station (WIC 246-4060-1209)**  
**26010 Pacific Highway South**  
**Kent, Washington**

Sample Date	Measured GW Depth in Feet	Corrected GW Elev. in Feet	Concentration in ug/L							Dissolved Oxygen	
			TPH-G	Benzene	Toluene	Ethyl-benzene	Xylene	MTBE	in mg/L	Method	
<b>MW-1</b>											
7/7/89	4.45	93.97		<0.5	<0.5	<0.5	<1.0				
9/15/89	6.00	92.42		<0.5	<0.5	<0.5	<1.0				
1/11/90	4.72	93.70		<0.5	<0.5	<0.5	<1.0				
4/20/90	4.52	93.90		<0.5	<0.5	<0.5	<1.0				
7/17/90	5.15	93.27		<0.5	<0.5	<0.5	<1.0				
11/6/90	6.05	92.37		<0.5	<0.5	<0.5	<1.0				
2/6/91	4.07	94.35	<50.0	<0.5	2	<0.5	<1.0				
7/11/91	5.09	93.33	<50.0	<0.5	<0.5	<0.5	<1.0				
1/7/92	5.01	93.41									
7/14/92	5.57	92.85	<50.0	<0.5	<0.5	<0.5	<1.0				
1/18/93	5.57	92.85	<50.0	<0.5	<0.5	<0.5	<1.0		1.39	Probe (static)	
8/11/93	5.43	92.99	<50.0	<0.5	<0.5	<0.5	<1.0		0.4	Probe (static)	
2/2/94	5.44	92.98	<50.0	<0.5	<0.5	<0.5	<1.0		0.15	Probe (static)	
11/17/96	Well abandoned										
<b>MW-1A</b>											
08/25/97	5.42	92.64	64.3	0.825	<0.5	1.35	2.41	<2.00	5.2	Probe (static)	
11/25/97	5.34	92.72	<50.0	<0.5	<0.5	<0.5	<1.0	<2.00	1.9	Probe (static)	
02/19/98	3.72	94.34	<50.0	2.16	0.932	<0.5	<1.0	<5.00			

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			TPH-G	Benzene	Toluene	Ethyl-benzene	Xylene	MTBE	in mg/L	Method
<b>MW-2</b>										
7/7/89	3.85	93.47		<0.5	<0.5	0.7	2.6			
9/15/89	5.46	91.86		<0.5	<0.5	<0.5	<1.0			
1/11/90	4.42	92.90		<0.5	<0.5	<0.5	<1.0			
4/20/90	3.75	93.57		<0.5	<0.5	<0.5	<1.0			
7/17/90	4.62	92.70		<0.5	<0.5	<0.5	<1.0			
11/6/90	5.69	91.63		<0.5	<0.5	<0.5	<1.0			
2/6/91	3.16	94.16		1	<0.5	2	<1.0			
7/11/91	4.62	92.70		<0.5	<0.5	<0.5	<1.0			
1/7/92	4.26	93.06								
7/14/92	4.96	92.36		<0.5	<0.5	<0.5	<1.0			
1/18/93	4.96	92.36	<50.0	<0.5	<0.5	<0.5	<1.0			
8/11/93	5.03	92.29		<0.5	<0.5	<0.5	<1.0			
2/2/94	4.85	92.47		<0.5	<0.5	<0.5	<1.0			
10/10/94	7.70	89.62	<50.0	<0.5	<0.5	<0.5	<1.0			
3/08/95	3.75	93.57	<50.0	<0.5	<0.5	<0.5	<1.0		4.1	Probe (static)
3/14/96	3.00	94.32	<50.0	<0.5	<0.5	<0.5	<1.0		4.6	Probe (static)
3/14/96DUP			<50.0	<0.5	<0.5	<0.5	<1.0		3.6	Probe (static)
1/22/97	3.05	94.27	<50.0	<0.5	<0.5	<0.5	<1.0	<2.0	3.0	Probe (static)
6/5/97	3.78	93.54	<50.0	<0.5	<0.5	<0.5	<1.0	<2.0	4.2	Probe (static)
08/25/97	4.67	92.65	<50.0	<0.5	<0.5	<0.5	<1.0	<2.0	4.4	Probe (static)
11/25/97	4.57	92.75	<50.0	<0.5	0.619	<0.5	<1.0	<2.0	4.2	Probe (static)
11/25/97DUP	4.57	92.75	<50.0	<0.5	<0.5	<0.5	<1.0	<2.0		
02/19/98	3.31	94.01	<50.0	30.2	<0.5	<0.5	<1.0	26.3 <sup>(1)</sup>		
02/19/98DUP			<50.0	27.6	<0.5	<0.5	<1.0	25.1 <sup>(1)</sup>		

**Table 1 - Summary of Groundwater Analytical Results**  
**Former Shell Service Station (WIC 246-4060-1209)**  
**26010 Pacific Highway South**  
**Kent, Washington**

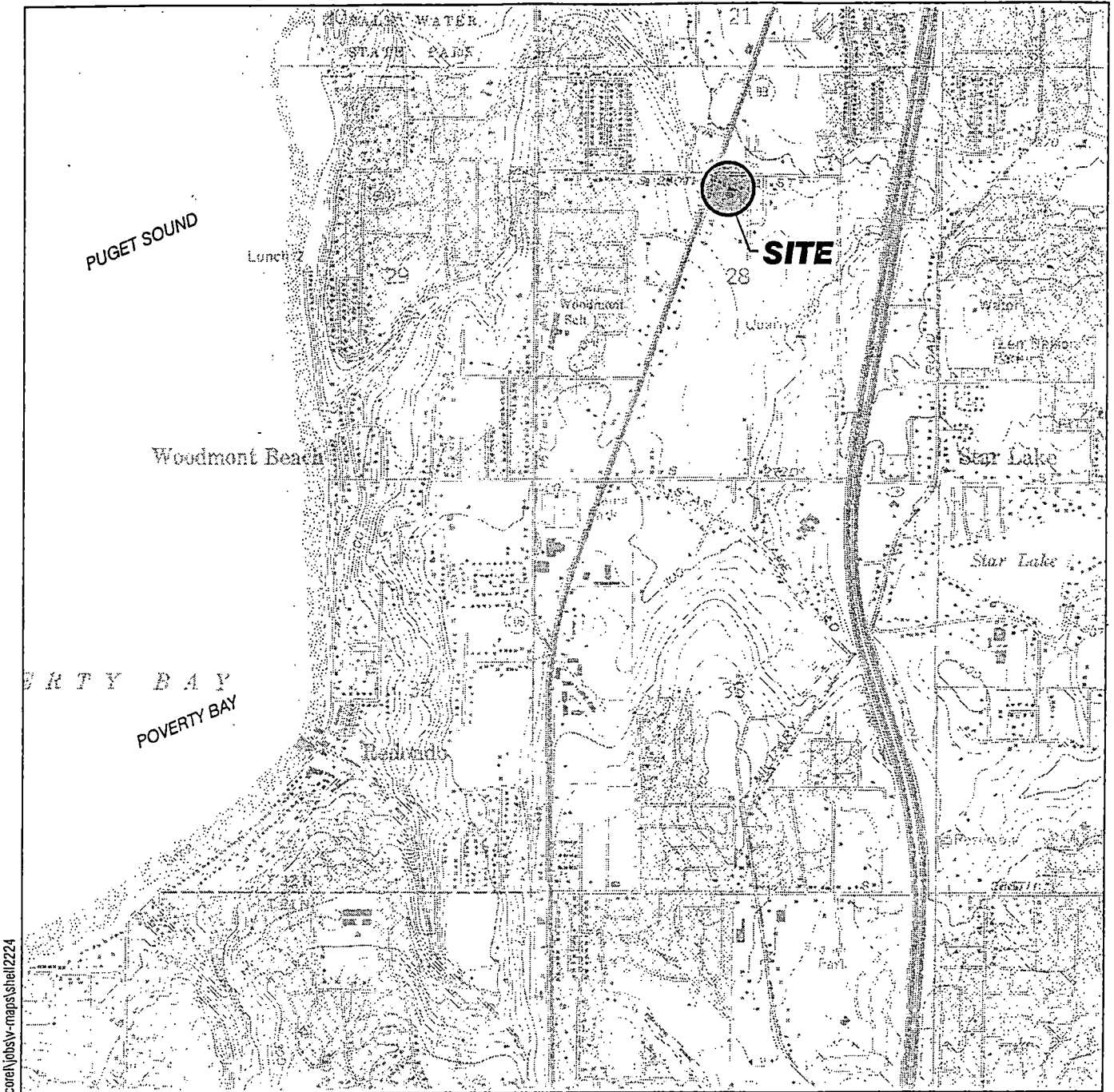
Sample Date	Measured GW Depth in Feet	Corrected GW Elev. in Feet	Concentration in ug/L						Dissolved Oxygen	
			TPH-G	Benzene	Toluene	Ethyl-benzene	Xylene	MTBE	in mg/L	Method
<b>MW-3</b>										
7/7/89	4.11	92.09		630	230	84	328			
9/15/89	5.97	90.23		430	14	120	136			
1/11/90	3.95	92.25		<0.5	<0.5	<0.5	2			
4/20/90	3.62	92.58		250	9	29	48			
7/17/90	4.72	91.48		250	<0.5	<0.5	<1.0			
11/6/90	6.09	90.11		3	<0.5	4	3			
2/6/91	2.93	93.27		120	8	17	36			
7/11/91	4.57	91.63		110	2.7	61	32			
7/14/92	5.05	91.15		120	<0.5	37	14			
1/18/93	5.05	91.15		45	<0.5	14	9.6			
8/11/93	5.03	91.17		450	6.2	150	22			
2/2/94	4.59	91.61		68	1.5	32	4.7			
10/10/94	8.13	88.07	2,100	120	7	56	15		2.9	Probe (static)
3/08/95	3.50	92.70	1,100	54	2.3	16	8		2.5	Probe (static)
3/14/96	2.80	93.40	2,100	71	52	58	91		2.9	Probe (static)
1/22/97	2.11	94.09	856	21.5	<0.5	20.4	1.35	6.32	0.52	Probe (static)
6/5/97	1.70	94.50	427	2.09	<0.5	1.72	<1.0	<2.00	4.0	Probe (static)
8/25/97	3.37	92.83	150	1.04	<0.5	0.501	<1.0	<2.00	3.2	Probe (static)
8/25/97DUP	3.37	92.83	147	1.03	<0.5	<0.5	<1.0	<2.00	3.2	Probe (static)
11/25/97	4.06	92.14	66.2	<0.5	<0.5	<0.5	<1.0	<2.00	0.6	Probe (static)
02/19/98	2.63	93.57	153	200	<1.00	<1.00	<2.00	44.4 <sup>(1)</sup>		

Notes : <XXX Not detected at concentration indicated.

(1) The sample was confirmed for MTBE by EPA 8260B.

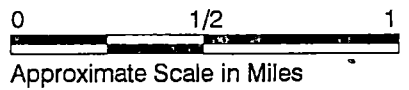
# Vicinity Map

## 26010 Pacific Highway South, Kent, Washington



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Note: Base map prepared from USGS 7.5 minute quadrangle map of Poverty Bay, Washington, photorevised 1981.



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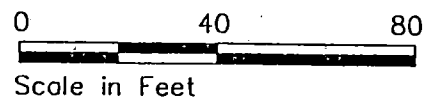
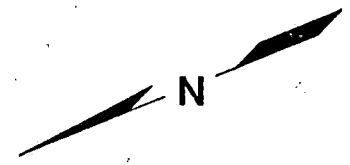
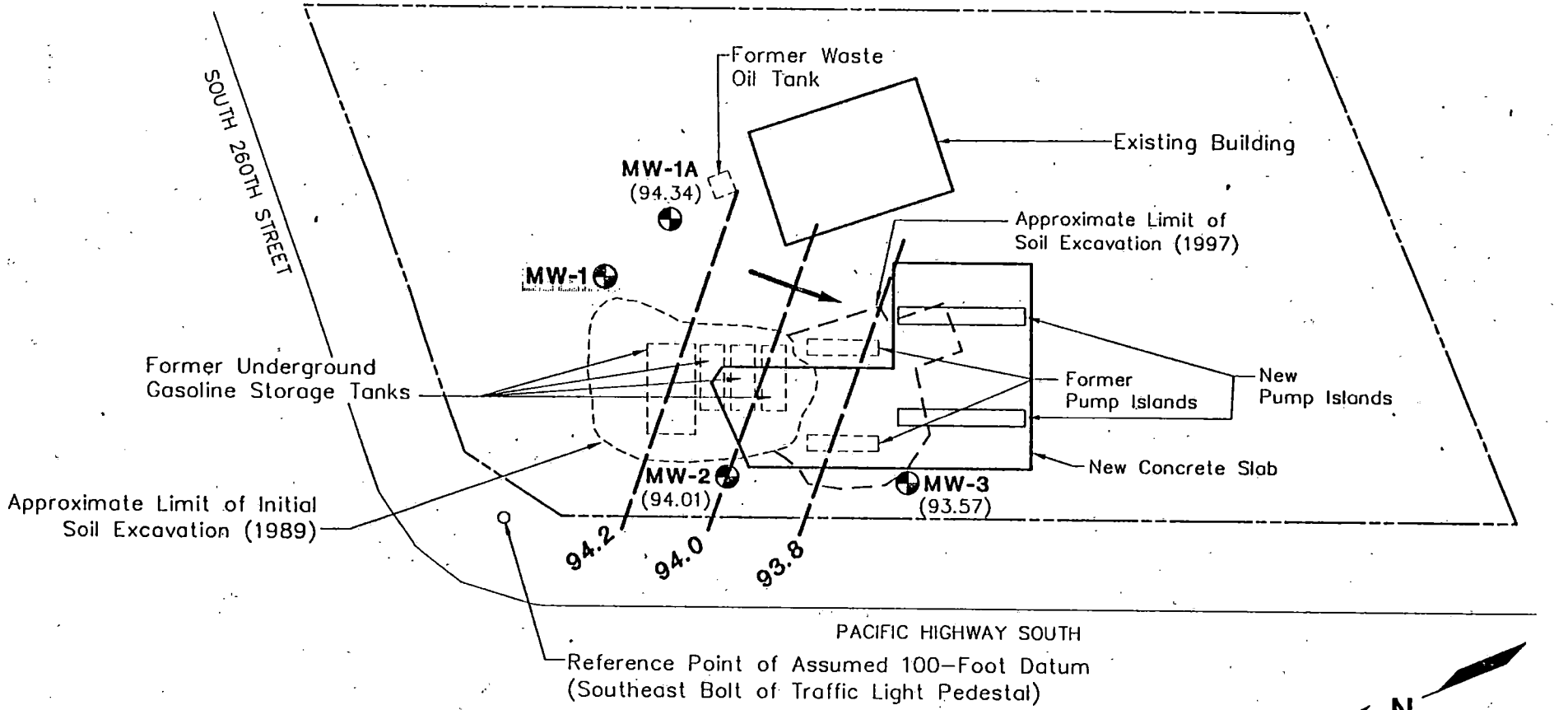
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Figure 1

# Groundwater Elevation Contour Map

26010 Pacific Highway South

Kent, Washington



- MW-2 Existing Monitoring Well Location and Number
- 94.0 Groundwater Elevation Contour in Feet
- (93.57) Groundwater Elevation in Feet (Measured February 19, 1998)
- Inferred Groundwater Flow Direction
- MW-1 Abandoned Monitoring Well Location and Number

Note: Base map prepared from drawing entitled "Site Plan, Figure 2," by Geo Engineers, Inc. for the Windsor Financial Group, dated April 1988.

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 Figure 2  
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