

**GROUNDWATER
MONITORING REPORT**

MARCH 27, 2004

**SHORT STOP SITE
6317 CALIFORNIA AVENUE S.W.
SEATTLE, WASHINGTON**

Prepared By

Paul W. Stemen

Stemen Environmental, Inc.

RECEIVED

APR 16 2004

DEPT OF ECOLOGY

STEMEN ENVIRONMENTAL, INC.

PO BOX 3644
LACEY, WA. 98509-3644
CONTR. LIC. #STEMEEI081J9

Telephone 360-438-9521 Fax 360-412-1225

March 30, 2004

Mr. Vernon Pontius
7730 Cabrini Dr.
Port Orchard, WA 98367

Dear Mr. Pontius:

RE: GROUNDWATER MONITORING FOR SHORT STOP SITE LOCATED AT 6317
CALIFORNIA AVENUE S.W., SEATTLE, WASHINGTON. ECOLOGY SITE #101565

MONITORING WELL INSTALLATION

On March 5 and 6, 2003, I supervised the proper installation of five (5) groundwater monitoring wells at selected locations on the subject site. The two inch in diameter P.V.C. monitoring wells were installed by Licensed Well Drillers from Holt Drilling Inc., of Puyallup, Washington. The five (5) monitoring wells were extended to depths of approximately 32 feet b.g.s. (below ground surface) and were screened from depths of approximately 10 feet b.g.s. to 30 feet b.g.s. A two (2) foot in length sump was placed on the bottom of the monitoring well.

All excess soils (cuttings) generated during the monitoring well installation process were placed in sealable steel drums for temporary on-site storage.

Measurable quantities of water were found to be present in all of the monitoring wells on the dates of their installation.

GROUNDWATER ELEVATIONS

Groundwater elevations were measured using an electronic water level indicator and verified with a steel tape coated with water detection paste. Depth to water was measured from the top of the monitoring well monument (ground surface).

GROUND WATER SAMPLING

Prior to sampling, the monitoring wells were properly purged by removing a minimum of three (3) casing volumes of water from the wells using a disposable PVC bailer.

All waters generated during purging activities were placed in appropriate containers for transportation to an appropriate treatment/disposal facility.

The water level in the monitoring wells was stabilized to near original levels, then representative groundwater samples were obtained using a disposable PVC bailer. The sampled waters were transferred directly from the bailer to laboratory supplied containers for temporary storage.

On March 21, 2004, I obtained samples of the groundwaters beneath selected locations on the subject site via the on-site groundwater monitoring wells. Water sample MW-1 was obtained from waters present at a depth of 11.79 feet b.g.s. in monitoring well MW-1, water sample MW-2 was obtained from waters present in monitoring well MW-2 at a depth of 11.48 feet b.g.s., water sample MW-3 was obtained from waters present in monitoring well MW-3 at a depth of 14.58 feet b.g.s., water sample MW-4 was obtained from waters present in monitoring well MW-4 at a depth of 11.85 feet b.g.s., and water sample MW-5 was obtained from waters present in monitoring well MW-5 at a depth of 11.68 feet b.g.s. These samples were immediately submitted for appropriate laboratory analyses and screened for gasoline range T.P.H., and V.O.C.'s (Specific Halogenated Hydrocarbons).

Laboratory analyses results for water samples MW-1, MW-2, MW-3, MW-4, and MW-5 indicated no detectable presence of gasoline range T.P.H. in these sampled waters.

Laboratory analyses results for water sample MW-1 indicated no detectable presence of Specific Halogenated Hydrocarbons in these sampled waters.

Laboratory analyses results for water sample MW-3 confirm the detectable presence of Tetrachloroethene(PCE) at levels that do not exceed Ecology's Method "A" Clean Up Levels.

Laboratory analyses results for water samples MW-3, and MW-5 confirm the presence of Tetrachloroethene(PCE) at levels that exceed Ecology's Method "A" Clean Up Levels.

Ground water sampling was performed by Paul Stemen (myself).

*not MW-3 = 4.6
one
other MW-3 = 6.0*

LABORATORY ANALYSES

All sampling devices were properly cleaned between individual samples to prevent cross sample contamination. All samples were then tightly packed in recommended containers with no head space, properly refrigerated and transported with proper chain of custody forms to Environmental Services Network Northwest, Inc., of Lacey, Washington for appropriate laboratory analyses. Groundwater samples were screened for Gasoline Range Total Petroleum Hydrocarbons using methods NWTPH-Gx, and Specific Halogenated Hydrocarbons using

E.P.A. method 8021B. These analytical methods meet all current Department of Ecology recommendations for groundwater sample analyses and quality controls.

HEALTH AND SAFETY

1. All on-site work was performed under the Health and Safety guidelines set forth in sections 29 CRF 1910.120 of the Federal Register and Chapter 296-62 WAC which provide regulations for individuals who are engaged in activities involving hazardous substances, including petroleum, and who perform confined space entry during field activities, also Chapter 296-155 WAC which provides State safety standards for construction work.

2. All on-site workers were 40 hour Hazmat certified.

3. A copy of the Site Safety Plan was provided to all on-site employees. The contents of this plan and all potential on-site hazards, were discussed during a personnel on-site safety meeting. Based on the contents of this safety plan all workers were required to wear at least Level D protection. First Aid materials and properly trained personnel were present on-site at all times.

4. The immediate perimeter of the work area was secured at all times by orange hazard cones.

SUMMARY AND CONCLUSIONS

The following summary and conclusions are based on information gathered during on-site investigations described in this report.

1. Groundwaters were present beneath selected locations on this site on March 21, 2004, at depths ranging from 11.48 b.g.s. to 14.58 feet b.g.s.

2. Laboratory analyses results for groundwater samples obtained during this on-site investigation confirmed the presence of Tetrachloroethene (PCE), at levels that exceed Ecology's Method "A" Clean Up Levels, in the waters present in monitoring wells MW-3, and MW-5.

If you have any questions or require further information please feel free to contact us at the above phone number.

Sincerely,

Paul W. Stemen
Ecology-Registered Site Assessment Supervisor
IFCI #0874201-26
ASTM Certified

CONCRETE WALL PROPERTY LINE

MW-1

CONVENIENCE STORE

FRONT DOOR

REAR DOOR

MW-5

DRY CLEANERS

FRONT DOOR

MW-2

SIGN POST

REAR DOOR

MW-4

MW-3

NORTH

SHORT STOP 6317 CALIFORNIA AVE. SW SEATTLE, WA.

CALIFORNIA AVE.

SUMMARY OF
GROUNDWATER
DEPTH AND
ELEVATION DATA
3/21/04

WELL NUMBER	TOP OF MONUMENT ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW-1	233.01	11.79	221.47
MW-2	230.42	11.48	218.80
MW-3	230.64	14.58	216.06
MW-4	230.94	11.85	219.09
MW-5	228.62	11.68	216.94

ALL MEASUREMENTS
ARE IN FEET

WATER SAMPLES

			TOTAL PETROLEUM		
			HYDROCARBONS (PPB)		
SAMPLE	SAMPLE	SAMPLE			
NUMBER	DATE	DEPTH	GASOLINE		
MW-1	3-23-04	11.79'	ND		
MW-2	3-23-04	11.48'	ND		
MW-3	3-23-04	14.58'	ND		
MW-4	3-23-04	11.85'	ND		
MW-5	3-23-04	11.68'	ND		

SPECIFIC HALOGENATED HYDROCARBONS WATERS (PPB)					
SAMPLE-NUMBER	MW-1	MW-2	MW-3	MW-4	MW-5
DATE	3-23-04	3-23-04	3-23-04	3-23-04	3-23-04
DEPTHS	11.79'	11.48'	14.58'	11.85'	11.68'
VINYL CHLORIDE	ND	ND	ND	ND	ND
BENZENE	ND	ND	ND	ND	ND
TOLUENE	ND	ND	ND	ND	ND
ETHYLBENZENE	ND	ND	ND	ND	ND
TOTAL XYLENES	ND	ND	ND	ND	ND
1,1 DICHLOROETHENE	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ND	ND	ND	ND	ND
1,1 DICHLOROETHENE	ND	ND	ND	ND	ND
CIS-1,2 DICHLOROETHENE	ND	ND	ND	ND	ND
CHLOROFORM	ND	ND	ND	ND	ND
1,1,1- TRICHLOROETHANE	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	ND	ND	ND	ND	ND
1,2 DICHLOROETHANE	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	1.4
1,1,2,-TRICHLOROETHANE	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	4.6	ND	26
1,1,1,2-TETRACHLOROETHANE	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ND	ND	ND	ND	ND



Environmental
Services Network

March 29, 2004

Paul Stemen
Stemen Environmental
P.O. Box 3644
Lacey, WA 98509

Dear Mr. Stemen:

Please find enclosed the analytical data report for the Short Stop Project site in Seattle, Washington. Water samples were analyzed for Gasoline by NWTPH-Gx and Specific Halogenated Hydrocarbons and BTEX by Method 8021B on March 23 & 24, 2004.

The results of these analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to Stemen Environmental for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

A handwritten signature in cursive script that reads "Michael A. Korosec".

Michael A. Korosec
President

ESN NORTHWEST CHEMISTRY LABORATORY

SHORT STOP PROJECT
Seattle, Washington
Stemen Environmental, Inc.

Analyses of Gasoline (NWTPH-Gx) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (ug/l)
Method Blank	3/23/04	107	nd
MW-1	3/23/04	101	nd
MW-2	3/23/04	99	nd
MW-3	3/23/04	92	nd
MW-4	3/23/04	92	nd
MW-5	3/23/04	99	nd
MW-5 Dup.	3/23/04	101	nd
Method Detection Limits			100

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65% TO 135%

ANALYSES PERFORMED BY: Marilyn Farmer

ESN NORTHWEST CHEMISTRY LABORATORY

SHORT STOP PROJECT

Seattle, Washington

Stemen Environmental, Inc.

Specific Halogenated and Aromatic Hydrocarbons (EPA 8021B) in Water

Sample Description		Method Blank	MW-1	MW-2	MW-3	MW-3 Dup.	MW-4	MW-5
Date Sampled			3/22/04	3/22/04	3/22/04	3/22/04	3/22/04	3/22/04
Date Analyzed		3/24/04	3/24/04	3/24/04	3/24/04	3/24/04	3/24/04	3/24/04
	MDL (ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Vinyl chloride	5.0	nd	nd	nd	nd	nd	nd	nd
Benzene	1.0	nd	nd	nd	nd	nd	nd	nd
Toluene	1.0	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd	nd	nd	nd
Total Xylenes	1.0	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd	nd
Methylene chloride	1.0	nd	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	1.0	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd	nd
Chloroform	1.0	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane (TCA)	1.0	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	1.0	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	1.0	nd	nd	nd	nd	nd	nd	nd
Trichloroethene (TCE)	1.0	nd	nd	nd	nd	nd	nd	1.4
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	1.0	nd	nd	nd	4.6	6.0	nd	26
1,1,1,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd	nd	nd
Surrogate Recovery (%)		100	97	98	90	103	104	87

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65%- 135%

ANALYSES PERFORMED BY: Marilyn Farmer

ESN NORTHWEST CHEMISTRY LABORATORY

SHORT STOP PROJECT

Seattle, Washington

Stemen Environmental, Inc.

QA/QC Data - EPA 8021B Analyses

Sample Description: MW-1							
Matrix Spike				Matrix Spike Duplicate			RPD
	Spiked Conc. (ug/l)	Measured Conc. (ug/l)	Spike Recovery (%)	Spiked Conc. (ug/l)	Measured Conc. (ug/l)	Spike Recovery (%)	(%)
Benzene	5.00	3.89	78	5.00	4.36	87	11.39
Toluene	5.00	5.84	117	5.00	5.63	113	3.66
1,1-Dichloroethene	5.00	5.51	110	5.00	5.06	101	8.51
Trichloroethene (TCE)	5.00	5.84	117	5.00	4.94	99	16.70
Surrogate Spike			79			66	17.93

Laboratory Control Sample			
	Spiked Conc. (ug/l)	Measured Conc. (ug/l)	Spike Recovery (%)
Benzene	5.00	5.28	106
Toluene	5.00	5.28	106
1,1-Dichloroethene	5.00	3.52	70
Trichloroethene (TCE)	5.00	5.15	103
Surrogate Spike			103

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%

ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Marilyn Farmer

CHAIN-OF-CUSTODY RECORD

CLIENT: STEMER ENVIRONMENTAL INC
 ADDRESS: _____
 PHONE: 360 438 9521 FAX: _____
 CLIENT PROJECT #: SHUNT STOP PROJECT MANAGER: PAUL STEMER

DATE: 3/23/04 PAGE 1 OF 1
 PROJECT NAME: SHUNT STOP
 LOCATION: SEATTLE, WA
 COLLECTOR: PAUL STEMER DATE OF COLLECTION: 3/21

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES																Total Number of Containers	Laboratory Note Number
					VOA 8021B	VOA 8021B BTEX Only	VOA 80280	SEMI VOL 8270	TPH - HCID	TPH 8015 (gasoline)	TPH 8015 (diesel)	PAH 8015 (d & o)	PAH 8100	PCBs 8080	Pesticides 8081	EPH	VPH	Methamphetamine	Pb	Hex Chrome		
1. MW-1			H2O	VIAL	X				X													
2. MW-2					X				X													
3. MW-3					X				X													
4. MW-4					X				X													
5. MW-5					X				X													
6.																						
7.																						
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18.																						

RELINQUISHED BY (Signature) _____ DATE/TIME _____ RECEIVED BY (Signature) _____ DATE/TIME _____

RELINQUISHED BY (Signature) [Signature] DATE/TIME 3/23/04 RECEIVED BY (Signature) [Signature] DATE/TIME 10:10

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS _____

CHAIN OF CUSTODY SEALS Y/N/NA _____

SEALS INTACT? Y/N/NA _____

RECEIVED GOOD COND./COLD _____

NOTES: _____

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR 5 DAY

SAMPLE DISPOSAL INSTRUCTIONS

☐ ESN DISPOSAL @ \$2.00 each ☐ Return ☐ Pickup