

1/13/02

**PHASE II
ENVIRONMENTAL
SITE ASSESSMENT
REPORT**

RECEIVED
MAR 22 2006
DEPT OF ECOLOGY

**PROPERTY LOCATED
6317 CALIFORNIA AVENUE S.W.
SEATTLE, WASHINGTON**

Short Stop 1 Site

Prepared By

Paul W. Stemen

Stemen Environmental, Inc.

1/13/02

**PHASE II
ENVIRONMENTAL
SITE ASSESSMENT
REPORT**

**PROPERTY LOCATED
6317 CALIFORNIA AVENUE S.W.
SEATTLE, WASHINGTON**

Short Stop 1 Site

Prepared By

Paul W. Stemen

Stemen Environmental, Inc.

STEMEN ENVIRONMENTAL, INC.

P.O. BOX 3644
LACEY, WASHINGTON 98509-3644
CONTR. LIC. #STEMEEI081J9

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

January 13, 2002

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

Dear Mr. Pontius:

RE: PHASE II ENVIRONMENTAL SITE ASSESSMENT FOR FORMER U.S.T.
SITE/COMMERCIAL PROPERTY LOCATED AT 6317 CALIFORNIA AVENUE S.W.,
SEATTLE, WASHINGTON. ECOLOGY SITE #101565.

SITE CHARACTERISTICS AND BACKGROUND

The subject property, Tax Parcel #762570, consists of 20,378 square feet of developed commercial property. The subject property is located in the northwest quarter of section 26, township 24 range 3 east, and is located within the boundaries of the City of Seattle, King County, Washington.

The subject property is bordered on the north by a residential building/property, on the west by residential properties, on the south by an asphalt surfaced roadway and a former full service vehicle fueling station, and on the east by California Avenue S.W., an asphalt surfaced public roadway.

The property is currently occupied by an approximately 3,400 square foot commercial building. The commercial building is surrounded by asphalt surfaced parking lots of various sizes. An earthen surfaced area is present on the southwestern portion of the property.

Available information indicates that several years ago a full service car wash was operated on this site. It is not known if any or all of the underground components/equipment associated with the car wash were removed at the time of it's closure.

The northern portion of the on-site building is currently and for several years has been occupied by a convenience store, while the southern portion of the building is currently and for several years has been occupied by a dry cleaning business.

In recent years a self service vehicle fueling station was operated in conjunction with the convenience store, on the eastern portion of the subject property. The vehicle fueling station was serviced by three underground gasoline storage tanks and their associated pump island.

In 1991, a "30 Day Notice of Intent to Close/Decommission Tanks" form was filed with the Department of Ecology by O'Sullivan Construction. The document indicated that the two (2) 10,000 gallon, and one (1) 6,000 gallon capacity underground gasoline storage tanks present on this site were to be decommissioned on approximately April 15, 1991.

Available information indicates that the three (3) underground gasoline storage tanks were excavated and removed from this site as planned. During the tank removal project, an unknown quantity of petroleum impacted soils were removed from the tank excavation pit and stockpiled on the earthen surfaced area located on the southwestern portion of the property.

The excavation was then backfilled and the area was resurfaced using asphalt.

Eventually the soils present in the petroleum impacted soils stockpiles were distributed evenly across earthen surfaced portion of the site.

Recently, during a routine historical records search, it was learned that an Underground Storage Tank Removal/Decommissioning Site Assessment Report for this site had not been properly filed with the Department of Ecology and that the tanks were still listed on the Department of Ecology's database as being "in use".

Additionally, the confirmed release of petroleum products (gasoline) to the soils and/or groundwaters beneath this site was not properly reported to the Department of Ecology.

During a recent on-site visit, I observed that most of the concrete pump island drive slabs and a capped abandoned steel pipe were still present in the asphalt surfaced parking lot located just east of the convenience store building. Additionally the outline of the asphalt patch placed over the former tank excavation/removal pit was still clearly visible.

I also observed liquids being discharged (dumped) outside the rear door of the dry cleaner's portion of the on-site building. These liquids flowed across the pavement and then pooled on the earthen surfaced portion of the property. These pooled liquids appeared to have suds on their surface. It should also be noted that the asphalt surface materials present in the discharged waters flow area appeared to be aged/distressed/etched to a greater extent than the asphalt in surrounding areas.

On April 5, 2001 I proceeded to obtain eighteen (18) discreet soil samples and five (5) discreet groundwater samples from sixteen (16) separate selected sampling locations on the subject property.

Investigative soil and groundwater sampling locations were selected based on this consultant's on-site observations, and additional information obtained during on-site conversations with knowledgeable interested parties.

The results of the Phase II Environmental Site Assessment and Site Characterization Study performed on the subject property confirmed the presence of gasoline range Total Petroleum Hydrocarbons (T.P.H.) and/or Specific Halogenated Hydrocarbons at levels that exceed the Department of Ecology's Method "A" Clean Up Levels in the soils and/or groundwaters present beneath selected locations on this site.

The samples with the highest concentrations of the above listed contaminants were confirmed in the soils and groundwaters present beneath a portion of the asphalt surfaced parking lot which is located less than 10 feet east of the northern portion of the eastern exterior wall of the on-site dry cleaner's building.

The results of this on-site investigation also confirmed the presence of Specific Halogenated Hydrocarbons in the surface and shallow subsurface soils present at selected locations on the rear (western) portion of the subject property (site).

Based on the results of these on-site investigations, a confirmed release of gasoline range T.P.H., B.T.E.X.'s, and Specific Halogenated Hydrocarbons to the soils and groundwaters beneath this site was immediately reported to the Department of Ecology's Northwest Regional Office.

Additionally, after having discussions with you and members of the Department of Ecology's Staff, this site was entered into the Department of Ecology's Voluntary Clean Up Program.

In an attempt to identify the sources and/or release points of the substances containing Specific Halogenated Hydrocarbons, and to further characterize the impacts of the releases of Specific Halogenated Hydrocarbons and Petroleum Products to the soils and groundwaters beneath this site, it was determined by all of the interested parties, that additional inquiries and/or on-site investigations should be performed.

It was agreed that these proposed on-site investigations would be primarily focused on the subsurface soils and groundwaters beneath the areas directly adjacent to the northeast corner of the dry cleaner's portion of the on-site building. The subsurface soils and groundwaters will be sampled at various depths and locations on the interior of the building as well as the exterior of the building.

Native soils present on this site from just below the surface to an approximate depth of 20 feet below ground surface (b.g.s.) consisted of brownish colored medium grained sands.

Depth to groundwater beneath this site was approximately 12 to 14 feet b.g.s. on the date of these on-site investigative sampling activities.

A body of surface waters, the Puget Sound, is present approximately one (1) mile west of the subject property.

INVESTIGATIVE SOIL AND GROUNDWATER SAMPLING

The primary objectives of these on-site investigative activities was to characterize the vertical migration of Tetrachloroethene (PERC) and other Specific Halogenated Hydrocarbons in the subsurface soils and groundwaters present beneath selected locations on the subject property. Additionally, as time allows, we will investigate the subsurface soils and/or groundwaters at additional selected locations on the subject for the presence of gasoline range T.P.H., B.T.E.X.'s, and/or Specific Halogenated Hydrocarbons.

On September 25, 2001, I proceeded to obtain seven (7) discreet soil samples and eight (8) discreet groundwater samples from six (6) separate selected sampling locations on the subject property. Two (2) of these selected sampling locations were located on the interior of the dry cleaner's portion of the on-site building, while four (4) of these sampling locations were located on the exterior of the on-site building.

Current soil and groundwater sampling locations were selected based on this consultant's on-site observations, the observations of other interested parties, and the information obtained during previous on-site investigative project.

All soil samples were field screened using a water sheen test.

Selection of various investigative soil and groundwater samples for submission for appropriate laboratory analyses was based on the results of previous on-site investigations and/or this consultants observations.

INTERIOR SAMPLING LOCATIONS

SAMPLING LOCATION IS-1

Soil sampling location IS-1 was located on the interior of the dry cleaner's portion of the on-site building. This sampling location was situated approximately 5 feet west and 10 feet south of the interior northeast corner of the dry cleaner's portion of the on-site building. This sampling location was located directly in front of the front access door/portal for the currently in use dry cleaning equipment present on this site.

A rotohammer equipped with a concrete coring bit was used to create an access port through the buildings concrete floor.

All soil and groundwater samples taken at this interior sampling location were obtained using a Limited Access Direct Push Sampling System.

Investigative soil sample IS-1-0/2 was obtained from subsurface soils present at depth of 2 feet or less b.g.s. (below ground surface), soil sample IS-1-6/8 was obtained from soils present

at depths ranging between 6 to 8 feet b.g.s., soil sample IS-1-8/10 was obtained from soils present at depths ranging between 8 to 10 feet b.g.s., soil sample IS-1-12/14 was obtained from soils present at depths ranging between 12 to 14 feet b.g.s., and soil sample IS-1-14/16 was obtained from soils present at depths ranging between 14 to 16 feet b.g.s.,

Investigative groundwater sample STDR was obtained from waters present at a depth of approximately 12 feet b.g.s. at this sampling location.

Although the Limited Access Direct Push Sampling System is capable of obtaining samples at greater depths if needed, it does require more time than exterior sampling equipment/devices. It was my decision that the vertical extent of the plume would be investigated at a selected exterior sampling location.

All of these soil and groundwater samples were immediately submitted for appropriate laboratory analyses.

SAMPLING LOCATION BRDR

Sampling location BRDR was located in the rear storage room of the Dry Cleaner's portion of the on-site building. Water sample BRDR was obtained from waters that were being deposited/discharged into an open drain from a garden hose which was attached to the rear portions of the in-use/operational on-site dry cleaning equipment.

Currently it is not known where the waters placed in this drain eventually end up.

EXTERIOR SAMPLING LOCATIONS

SAMPLING LOCATION S-13

Sampling location S-13 was located on the exterior of the on-site building. Sampling location S-13 was situated approximately 12 feet east of sampling location IS-1 and directly adjacent to previous investigative sampling location S-5.

Investigative soil sample S-13-14/17 was obtained from subsurface soils/sands present at depths ranging between 14 to 17 feet b.g.s. at this sampling location.

Investigative groundwater sample S-13-20 was obtained from waters present at a depth of 20 feet b.g.s., groundwater sample S-13-28 was obtained from waters present at a depth of 28 feet b.g.s., and groundwater sample S-13-35 was obtained from waters present at a depth of 35 feet b.g.s.

All of these soil and groundwater samples were immediately submitted for appropriate laboratory analyses.

SAMPLING LOCATION S-14

Sampling location S-14 was located approximately 15 feet east and 8 feet south of the southeast corner of the dry cleaner's portion of the on-site building.

Investigative soil sample S-14 was obtained from subsurface soils/sands present at depths ranging between 14 to 17 feet b.g.s.

Investigative groundwater sample S-14-W was obtained from waters present at a depth of approximately 20 feet b.g.s. at this sampling location.

All of these soil and groundwater samples were immediately submitted for appropriate laboratory analyses.

SAMPLING LOCATION S-15

Sampling location S-15 is located approximately 7 feet south and 10 feet west of the southeast corner of the on-site building, and directly adjacent to previous investigative sampling location S-8.

Investigative groundwater sample S-15-W was obtained from waters present at a depth of approximately 20 feet b.g.s. at this sampling location.

This water sample was submitted for appropriate laboratory analyses.

SAMPLING LOCATION DW-1

Sampling location DW-1 was located approximately 5 feet north and 10 feet east of the southeast corner of the on-site building. A stormwater catch basin is present at this sampling location. This catch basin has a steel grate which covers it's surface access port.

Investigative water sample DW-1 was obtained from standing waters which were present in the lower portions of the catch basin. The surface of these pooled waters exhibited a petroleum product type sheen on their surface.

This water sample was submitted for appropriate laboratory analyses.

SOIL SAMPLING AND LABORATORY ANALYSES

All discreet soil samples were obtained using a "Direct Push Sampling System" provided and operated by factory trained technicians from Environmental Services Network Northwest, Lacey, Washington. Continuous soil corings were extended to depths ranging from approximately 1 to 35 feet below ground surface (b.g.s.). Continuous soil coring/samples (split spoon samplers) were laid out in order by depth on the surface to facilitate field screening and observation of the soils obtained from various depths.

All discreet groundwater samples were obtained using a parastaltic pump and the "Direct Push Sampling System". The system's sampling tube was purged of all collected waters and then allowed to recharge prior to the collection of these water samples.

All sampling tools/devices were properly cleaned between individual samples to prevent cross sample contamination. All soil samples were then tightly packed in recommended sample jars 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.

All soil and/or groundwater samples were screened for gasoline range T.P.H. (total petroleum hydrocarbons) using method NWTPH-Gx and Volatile Organic Compounds (V.O.C.'s) using EPA method 8021 B.

Groundwater elevations were measured using an electronic water level indicator. Depth to water was measured from the ground surface over the individual sampling location.

All laboratory analyses methods and quality controls meet or exceed current Department of Ecology recommendations for Site Checks and Site Assessments.

Laboratory analyses results for soil samples IS-1-0/2, IS-1-14/16, IS-1-6/8, IS-1-8/10, IS-1-12/14 and groundwater sample STDR confirmed the presence of Specific Halogenated Hydrocarbons at levels that exceeded the Department of Ecology's Method "A" Clean Up Levels in the sampled soils present beneath the portion of the on-site buildings concrete slab which is situated directly adjacent to and/or beneath the currently in-use dry cleaning equipment. These impacted soils are present at depths ranging from just below the surface to approximately 16 feet b.g.s.

Laboratory analyses results for soil samples IS-1-0/2, IS-1-14/16, IS-1-6/8, IS-1-8/10, IS-1-12/14, S-14, indicated no detectable presence of gasoline range T.P.H. in their respective sampled soils.

Laboratory analyses results for groundwater samples BRDR indicated no detectable presence of Specific Halogenated Hydrocarbons in the waters being discharged into the rear storage room drain.

Laboratory analyses results for groundwater sample S-14-W-20 indicated no presence of gasoline range T.P.H. and/or Specific Halogenated Hydrocarbons at levels that exceeded the Department of Ecology's Method "A" Clean Up Levels in these sampled waters.

Laboratory analyses results for groundwater samples S-13-W-20 and S-15-W-20 indicated no presence of gasoline range T.P.H. at levels that exceeded the Department of Ecology's Method "A" Clean Up Levels in these sampled waters.

Laboratory analyses results for groundwater samples S-13-W-20, S-13-35, and S-15-W-20 confirmed the presence Specific Halogenated Hydrocarbons at levels that exceeded the Department of Ecology's Method "A" Clean Up Levels in these sampled waters.

Laboratory analyses results for catch basin water sample DW-1 confirmed the presence of Special Halogenated Hydrocarbons at levels that exceeded the Department of Ecology's Method "A" Clean Up Levels in the standing/pooled waters present in the lower portions of this catch basin.

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.

FACTS AND CONCLUSIONS

1. The results of this on-site investigation confirm the presence of Specific Halogenated Hydrocarbons, at levels that exceed the Department of Ecology's Method "A" Clean Up Levels, in the subsurface soils and groundwaters directly beneath and directly adjacent to the northeast corner of the portion of the on-site building which is occupied by the Dry Cleaners. The remaining presence of Specific Halogenated Hydrocarbons in the soils present at shallow depths beneath this portion of the on-site buildings concrete slab, and the confirmed significant presence of Specific Halogenated Hydrocarbons in the groundwaters present beneath this portion of the subject property, indicates that the discharge point for liquids/materials containing these chemicals is most likely in this immediate area.

2. The results of this on-site investigation confirmed the presence of Specific Halogenated Hydrocarbons in the standing/pooled waters present in the lower portions of the catch basin located approximately 5 feet north and 10 feet east of the southeast corner of the on-site building.

Although the significant presence of Vinyl Chloride, cis-1,2 Dichloroethene, and trans-1,2-Dichloroethene indicate the breaking down/dissipation/aging of the Specific Halogenated Hydrocarbons, it is still highly possible that these chemicals were discharged/flowed into this containment basin in recent times. The exposure of the Specific Halogenated Hydrocarbons to oxygen significantly accelerates the breakdown of these chemicals.

3. The results of this on-site investigation confirmed the presence of Specific Halogenated Hydrocarbons in the subsurface soils present at depths ranging between 14 to 17 feet b.g.s. at sampling location S-14. This sampling location is in relatively close proximity to the on-site stormwater catch basin which contained waters impacted by Specific Halogenated Hydrocarbons.

It should be noted that the groundwaters sampled at this sampling location indicated no detectable presence of Specific Halogenated Hydrocarbons and/or gasoline range T.P.H.

4. The results of this on-site investigation confirmed the presence of Specific Halogenated Hydrocarbons in the groundwaters present at sampling location S-15. This sampling location is situated approximately 7 feet south and 10 feet west of the southeast corner of the on-site building.

Based on the results of the two on-site investigations of subsurface soils and groundwaters beneath this site that our company has recently performed, I have formed the following opinions:

1. The significant presence of Specific Halogenated Hydrocarbons in the soils and groundwaters in the areas directly beneath and/or directly adjacent to the northeast corner of the on-site Dry Cleaner's portion of the building can most likely be attributed to the placement/discharge of liquids containing these chemicals into a floor drain which transports these liquids to their exterior discharge point. It is likely that this speculated drain pipe is connected to the stormwater catch basin located approximately 5 feet north and 10 feet east of the southeast corner of the on-site building. It is believed that the drainage pipe system is leaking. The remaining presence of Specific Halogenated Hydrocarbons in this active catch basin would indicate that very possibly these impacted liquids have been discharged into/flowed through this speculative drainage system and into this catch basin in recent times.

The relatively significant vertical and horizontal migration of Specific Halogenated Hydrocarbons through the soils and/or groundwaters present on this site would indicate that the releases/discharges of impacted liquids containing these contaminants have taken place over an extended period of time.

2. It is highly possible that soils impacted by Specific Halogenated Hydrocarbons were excavated near the northeast corner of the Dry Cleaner's portion of the on-site building, and temporarily stockpiled on-site during the on-site U.S.T. removal activities. These stockpiled materials were screened, by laboratory analyses, for gasoline range T.P.H. and B.T.E.X.'s and that these elements were not found to be present at above acceptable levels.

These apparently suitable backfill materials were placed in the lower portions of the open excavation pit, at various selected locations, and that these backfill materials came in contact with the groundwaters that were reportedly present in lower portions of the excavation at the time backfilling activities took place. The Specific Halogenated Hydrocarbons were transferred from the impacted backfill materials to the subsurface groundwaters.

The above speculated chain of events would account for the presence of groundwaters impacted by Specific Halogenated Hydrocarbons at reportedly upgradient locations on the subject property (sample locations S-1 and S-3).

3. Available information indicates that the excavation of petroleum impacted soils during the U.S.T. removal project were suspended due to the presence of groundwaters in the lower portions of the on-site excavation. This accounts for the remaining presence of gasoline range T.P.H. and B.T.E.X.'s in the soils and/or groundwaters beneath this site at selected locations.

Additionally it should be noted that an unknown quantity of petroleum impacted soils were stockpiled on the rear (western) portion of this property for remediation purposes.

Additional Comments:

1. The Dry Cleaner's Site was recently inspected by staff members of various regulatory agencies. The results of the on-site inspections indicated that the currently operational Dry Cleaning equipment appeared to be operating within the current regulatory guidelines. These were only visual inspections of the on-site equipment.

2. The operators of the on-site Dry Cleaners were instructed, by a Metro Staff Member to cease the dumping/discharging of any liquids that could potentially contain Specific Halogenated Hydrocarbons out the rear door of the building.

Recommendations:

1. To assist in the further characterization of the groundwaters beneath this site, I would recommend the installation of a minimum of three (3) groundwater monitoring wells, at selected locations on the subject property, and the quarterly monitoring of the groundwaters beneath this site.

Additionally, I would recommend the installation of at least one (1) 4 to 6 inch recovery well at a selected location in close proximity to the northeast corner of the Dry Cleaner's portion of the on-site building. This well could be placed at current sampling location S-13.

2. I would recommend that dye be placed in all of the known on-site drains, associated with the Dry Cleaner's operations, and then flushed with an adequate quantity of water. All storm drains, monitoring wells, and surface waters should be monitored periodically for the presence of these dyed waters.

3. I would recommend the treatment of the impacted groundwaters beneath this site using an Air Sparging System. This treatment method will have a positive effect on both the Specific Halogenated Hydrocarbons and the gasoline range T.P.H. which have impacted waters. This method will also eventually have a positive effect on the impacted soils present beneath this site. The Air Sparging System would incorporate the use of the proposed on-site recovery well.

4. Additionally I would recommend the injection of air into all of the proposed monitoring wells on a periodic basis to facilitate the prompt remediation of the impacted waters.

5. In-situ bioremediation treatment of the impacted waters is also a possibility. Unfortunately the microbes/liquid materials that are typically associated with the treatment of waters impacted by Specific Halogenated Hydrocarbons have not been proven to be effective on waters impacted by petroleum hydrocarbons.

Due to the fact that Specific Halogenated Hydrocarbons seem to be the most prevalent contaminant in these impacted waters, I feel that in-situ bioremediation using a solution suited for Specific Halogenated Hydrocarbons would be an attractive remediation option in combination with the proposed Air Sparging Treatment System.

All opinions, observations, and recommendations set forth in this report are based on current available information and on-site conditions, and cannot predict or report on the impacts of future events and/or regulatory requirements on this site.

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

Sincerely,



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

cc: Department of Ecology
File

SOIL SAMPLE ANALYSIS TABLE

TOTAL PETROLEUM
HYDROCARBONS (PPM)

NO! not for water

SAMPLE NUMBER	SAMPLE DATE	SAMPLE DEPTH	GASOLINE
------------------	----------------	-----------------	----------

SOIL

S-14
IS-1-2/14
S-13-14/17

9-26-01
9-26-01
9-26-01

14'-17'
14'
17'

ND
ND
ND

no: 240 ppm

ppb

WATER

S-13-W-20
S-15-W-20
S-14-W-20

9-26-01
9-26-01
9-26-01

20'
20'
20'

520
870
ND

µg/l
µg/l

WATER SPECIFIC HALOGENATED HYDROCARBONS *mg/l*

SAMPLE-NUMBER	DW-1	STDR	BRDR	S-13-W-20	S-13-W-28	S-13-W-35	S-14-W-20	S-15-W-20
DATE	9-25-01	9-25-01	9-25-01	9-25-01	9-25-01	9-25-01	9-25-01	9-25-01
VINYL CHLORIDE	2800	ND	ND	ND	ND	ND	ND	ND
BENZENE	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	3.5	ND	ND	37	1.4	270	ND	13
ETHYLBENZENE	ND	ND	ND	23	1.8	320	ND	31
XYLENES	5.9	ND	ND	110	9.1	2300	ND	190
1,1 DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND
TRANS 1,2 DICHLOROETHENE	51	ND	ND	ND	ND	ND	ND	ND
1,1 DICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2 DICHLOROETHENE	2900	33	ND	ND	ND	ND	ND	ND
CHLOROFORM	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1 TRICHLOROETHANE (TCA)	ND	ND	ND	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND
1,2 DICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE (TCE)	ND	180	ND	9.1	ND	9.1	ND	3.3
1,1,2 TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE (PCE)	5.5	4800	ND	36	3.8	180	ND	9.9
1,1,1,2 TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2 TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROMETHANE	ND	ND	ND	ND	ND	ND	ND	ND
BROMOMETHANE	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND
1,2 DICHLOROPROPANE	ND	ND	ND	ND	ND	ND	ND	ND
BROMODICHLOROMETHANE	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,3 DICHLOROPROPENE	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,3 DICHLOROPROPENE	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	ND	ND	ND	ND	ND	ND	ND	ND
BROMOBENZENE	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3 TRICHLOROPROPANE	ND	ND	ND	ND	ND	ND	ND	ND
DIBROMOMETHANE	ND	ND	ND	ND	ND	ND	ND	ND
M-DICHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND
P-DICHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND
O-DICHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND

SOIL SPECIFIC HALOGENATED HYDROCARBONS

SAMPLE-NUMBER S-13-14/17 S-14 IS-1-2/14

DATE 9-25-01 9-25-01 9-25-01

VINYL CHLORIDE	ND	ND	ND
BENZENE	ND	ND	ND
TOLUENE	11000	330	ND
ETHYLBENZENE	29000	1100	ND
XYLENES	180000	6500	120
1,1 DICHLORETHENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
TRANS 1,2 DICHLOROETHENE	ND	ND	ND
1,1 DICHLOROETHANE	ND	ND	ND
CIS-1,2 DICHLOROETHENE	ND	ND	ND
CHLOROFORM	ND	ND	ND
1,1 TRICHLOROETHANE (TCA)	ND	ND	ND
CARBON TETRACHLORIDE	ND	ND	ND
1,2 DICHLOROETHANE	ND	ND	ND
TRICHLOROETHENE (TCE)	ND	ND	ND
1,1,2 TRICHLOROETHANE	ND	ND	ND
TETRACHLOROETHENE (PCE)	5100	440	400
1,1,1,2 TRICHLOROETHANE	ND	ND	ND
1,1,1,2,2 TRICHLOROETHANE	ND	ND	ND
CHLOROMETHANE	ND	ND	ND
BROMOMETHANE	ND	ND	ND
CHLOROETHANE	ND	ND	ND
1,2 DICHLOROPROPANE	ND	ND	ND
BROMODICHLOROMETHANE	ND	ND	ND
CIS-1,3 DICHLOROPROPENE	ND	ND	ND
TRANS-1,3 DICHLOROPROPENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
BROMOFORM	ND	ND	ND
BROMOBENZENE	ND	ND	ND
1,2,3 TRICHLOROPROPANE	ND	ND	ND
DIBROMOMETHANE	ND	ND	ND
M-DICHLOROBENZENE	ND	ND	ND
P-DICHLOROBENZENE	ND	ND	ND
O-DICHLOROBENZENE	ND	ND	ND

SOIL SPECIFIC HALOGENATED HYDROCARBONS (ppm)

SAMPLE-NUMBER IS-1-0/2 IS-1-14/16 IS-1-6/8 IS-1-8/10

DATE 10-01-01 10-01-01 10-01-01 10-01-01

VINYL CHLORIDE	ND	0.06	ND	0.17
BENZENE	ND	ND	ND	ND
TOLUENE	ND	ND	ND	ND
ETHYLBENZENE	ND	ND	ND	ND
TOTAL-XYLENE	ND	ND	ND	ND
1,1 DICHLOROETHENE	ND	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND	ND
RANS 1,1 DICHLOROETHENE	ND	ND	ND	ND
1,1 DICHLOROETHANE	ND	ND	ND	ND
CIS-1,2 DICHLOROETHENE	ND	ND	ND	ND
CHLOROFORM	ND	ND	ND	ND
1,1 TRICHLOROETHANE (TCA)	ND	ND	ND	ND
CARBON TETRACHLORIDE	ND	ND	ND	ND
1,2 DICHLOROETHANE	ND	ND	ND	ND
TRICHLOROETHENE (TCE)	0.04	ND	ND	0.05
1,1,2 TRICHLOROETHANE	ND	ND	ND	ND
ETRACHLOROETHENE (PCE)	4.9	0.14	1.17	0.58
1,1,1,2 TRICHLOROETHANE	ND	ND	ND	ND
1,1,2,2 TRICHLOROETHANE	ND	ND	ND	ND

October 5, 2001

Paul Stemen
Stemen Environmental
5724 Puget Beach Road NE
Olympia, WA 98516

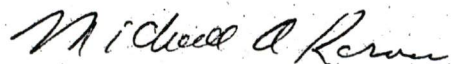
Dear Mr. Stemen:

Please find enclosed the analytical data report for the Short Stop Project in Seattle, Washington. Soil samples were analyzed for Specific Halogenated Hydrocarbons and BTEX by Method 8021B on October 3, 2001.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. 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,



Michael A. Korosec
President

ESN NORTHWEST CHEMISTRY LABORATORY

SHORT STOP PROJECT
Seattle, Washington
Stemen Environmental, Inc.

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

Sample Description	Method Blank	IS-1-0/2	IS-1-14/16	IS-1-6/8	IS-1-8/10
Date Sampled		10/1/01	10/1/01	10/1/01	10/1/01
Date Analyzed	103/01	10/3/01	10/3/01	10/3/01	10/3/01
	MDL (mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Vinyl chloride	0.25	nd	nd	nd	nd
Benzene	0.02	nd	nd	0.06	nd
Toluene	0.05	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd	nd
1,1-Dichloroethene	0.05	nd	nd	nd	nd
Methylene chloride	0.01	nd	nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd	nd	nd	nd
1,1-Dichloroethane	0.05	nd	nd	nd	nd
cis-1,2-Dichloroethene	0.05	nd	nd	nd	nd
Chloroform	0.05	nd	nd	nd	nd
1,1,1-Trichloroethane (TCA)	0.05	nd	nd	nd	nd
Carbon tetrachloride	0.05	nd	nd	nd	nd
1,2-Dichloroethane	0.05	nd	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	0.04	nd	0.05
1,1,2-Trichloroethane	0.05	nd	nd	nd	nd
Tetrachloroethene (PCE)	0.02	nd	4.9	0.14	1.17
1,1,1,2-Tetrachloroethane	0.05	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.05	nd	nd	nd	nd
Surrogate Recovery (%)	132	97	91	87	81

"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

CLIENT: STEVEN ENVIRONMENTAL INC.

DATE: 10/1/01 PAGE 1 OF 1

ADDRESS: _____

PROJECT NAME: SHORE STOP

PHONE: 360-438-5521 FAX: _____

LOCATION: SEATTLE, WA

CLIENT PROJECT #: SHORE STOP PROJECT MANAGER: PAUL STEVEN

COLLECTOR: PAUL STEVEN DATE OF COLLECTION: 9/25

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES																Total Number of Containers	Laboratory Note Number
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	TPH - HClD	TPH 8015 (gasoline)	TPH 8015 (diesel)	PAH 8100	PAH 8270	PCBs 8082	Pesticides 8081	EPH	VPH	Mettamphetamine	Pb	Hex Chrome		
1. <u>FS-1-4/2</u>	<u>0-2'</u>		<u>S.L.</u>	<u>Inc</u>	X																	
2. <u>FS-1-14/16</u>	<u>14/16</u>		<u>1</u>	<u>1</u>	X																	
3. <u>FS-1-6/8</u>	<u>6/8</u>		<u>1</u>	<u>1</u>	X																	
4. <u>FS-1-8/10</u>	<u>8/10</u>		<u>1</u>	<u>1</u>	X																	
5.																						
6.																						
7.																						
8.																						
9.																						
10.																						
11.																						
12.																						
13.																						
14.																						
15.																						
16.																						
17.																						
18.																						

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

RELINQUISHED BY (Signature) 10/1/01 DATE/TIME _____ RECEIVED BY (Signature) 9:10 AM DATE/TIME _____

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

October 11, 2001

Paul Stemen
Stemen Environmental
5724 Puget Beach Road NE
Olympia, WA 98516

Dear Mr. Stemen:

Please find enclosed the analytical data report for the Short Stop Project in Seattle, Washington. Direct Push services were conducted on September 25, 2001. Soil and water samples were analyzed for Gasoline by NWTPH-Gx and Specific Halogenated Hydrocarbons and BTEX by Method 8021B on September 26 & 27, 2001.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. 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,



Michael A. Korosec
President

ESN NORTHWEST CHEMISTRY LABORATORY

SHORT STOP PROJECT

Seattle, Washington

Stemen Environmental Incorporated

Client Project #Short Stop

Analyses of Gasoline (NWTPH-Gx) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (mg/kg)
Method Blank	9/26/01	90	nd
S-14	9/26/01	76	nd
IS-1-2/14	9/26/01	71	nd
S-13-14/17	9/26/01	70	240
Method Detection Limits			10

"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: Dean Phillips

ESN NORTHWEST CHEMISTRY LABORATORY

SHORT STOP PROJECT

Seattle, Washington

Stemen Environmental Incorporated

Client Project #Short Stop

Analyses of Gasoline (NWTPH-Gx) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (ug/l)
Method Blank	9/26/01	100	nd
S-13-W-20	9/26/01	93	520
S-15-W-20	9/26/01	89	870
S-14-W-20	9/26/01	99	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: Dean Phillips

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S10927-3
Client: STEMEN ENVIRONMENTAL
Client Job Name: SHORT STOP
Client Job Number: SHORT STOP

Analytical Results

8021B, µg/l	DW-1	STDR	BRDR	S-13-W-20	S-13-W-28
Matrix	Water	Water	Water	Water	Water
Date extracted	Reporting	09/27/01	09/27/01	09/27/01	09/27/01
Date analyzed	Limits	09/27/01	09/27/01	09/27/01	09/27/01
Chloromethane	5.0	nd	nd	nd	nd
Bromomethane	5.0	nd	nd	nd	nd
Vinyl chloride	5.0	2,800	nd	nd	nd
Chloroethane	5.0	nd	nd	nd	nd
cis-1,2-Dichloroethene	5.0	2,900	33	nd	nd
1,1-Dichloroethene	5.0	nd	nd	nd	nd
Methylene Chloride	5.0	nd	nd	nd	nd
trans-1,2-Dichloroethene	5.0	51	nd	nd	nd
1,1-Dichloroethane	5.0	nd	nd	nd	nd
Chloroform	1.0	nd	nd	nd	nd
1,1,1-Trichloroethane	1.0	nd	nd	nd	nd
Carbontetrachloride	1.0	nd	nd	nd	nd
1,2-Dichloroethane	5.0	nd	nd	nd	nd
Trichloroethene	1.0	nd	180	9.1	nd
1,2-Dichloropropane	5.0	nd	nd	nd	nd
Bromodichloromethane	5.0	nd	nd	nd	nd
cis-1,3-Dichloropropene	5.0	nd	nd	nd	nd
trans-1,3-Dichloropropene	5.0	nd	nd	nd	nd
Chlorobenzene	5.0	nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd
Tetrachloroethene	1.0	5.5	4,800	36	3.8
Dibromochloromethane	5.0	nd	nd	nd	nd
Bromoform	5.0	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	5.0	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	5.0	nd	nd	nd	nd
Bromobenzene	5.0	nd	nd	nd	nd
1,2,3-Trichloropropane	5.0	nd	nd	nd	nd
Dibromomethane(*)	0.01	nd	nd	nd	nd
m-Dichlorobenzene	1.0	nd	nd	nd	nd
p-Dichlorobenzene	1.0	nd	nd	nd	nd
o-Dichlorobenzene	1.0	nd	nd	nd	nd
Benzene	1.0	nd	nd	nd	nd
Toluene	1.0	3.5	nd	37	1.4
Ethylbenzene	1.0	nd	nd	23	1.8
Xylenes	1.0	5.9	nd	110	9.1

*-instrument detection limit

Surrogate recoveries:					
SURR1	106%	100%	100%	99%	99%
SURR2	118%	115%	114%	108%	114%
SURR3	108%	106%	104%	98%	104%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S10927-3
Client: STEMEN ENVIRONMENTAL
Client Job Name: SHORT STOP
Client Job Number: SHORT STOP

Analytical Results

8021B, µg/l	S-13-W-35	S-14-W-20	S-15-W-20
Matrix	Water	Water	Water
Date extracted	Reporting	09/27/01	09/27/01
Date analyzed	Limits	09/27/01	09/27/01
Chloromethane	5.0	nd	nd
Bromomethane	5.0	nd	nd
Vinyl chloride	5.0	nd	nd
Chloroethane	5.0	nd	nd
cis-1,2-Dichloroethene	5.0	nd	nd
1,1-Dichloroethene	5.0	nd	nd
Methylene Chloride	5.0	nd	nd
trans-1,2-Dichloroethene	5.0	nd	nd
1,1-Dichloroethane	5.0	nd	nd
Chloroform	1.0	nd	nd
1,1,1-Trichloroethane	1.0	nd	nd
Carbontetrachloride	1.0	nd	nd
1,2-Dichloroethane	5.0	nd	nd
Trichloroethene	1.0	9.3	3.3
1,2-Dichloropropane	5.0	nd	nd
Bromodichloromethane	5.0	nd	nd
cis-1,3-Dichloropropene	5.0	nd	nd
trans-1,3-Dichloropropene	5.0	nd	nd
Chlorobenzene	5.0	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd
Tetrachloroethene	1.0	180	9.9
Dibromochloromethane	5.0	nd	nd
Bromoform	5.0	nd	nd
1,1,2,2-Tetrachloroethane	5.0	nd	nd
1,1,1,2-Tetrachloroethane	5.0	nd	nd
Bromobenzene	5.0	nd	nd
1,2,3-Trichloropropane	5.0	nd	nd
Dibromomethane(*)	0.01	nd	nd
m-Dichlorobenzene	1.0	nd	nd
p-Dichlorobenzene	1.0	nd	nd
o-Dichlorobenzene	1.0	nd	nd
Benzene	1.0	nd	nd
Toluene	1.0	270	13
Ethylbenzene	1.0	320	31
Xylenes	1.0	2,300	190
*-instrument detection limit			
Surrogate recoveries:			
SURR1	95%	100%	99%
SURR2	108%	113%	113%
SURR3	97%	103%	101%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S10927-3
Client: STEMEN ENVIRONMENTAL
Client Job Name: SHORT STOP
Client Job Number: SHORT STOP

Analytical Results

8021B, µg/kg	MTH BLK		LCS S-13-14/17		S-14	IS-1-2/14
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/27/01	09/27/01	09/27/01	09/27/01	09/27/01
Date analyzed	Limits	09/27/01	09/27/01	09/27/01	09/27/01	09/27/01
Chloromethane	250	nd		nd	nd	nd
Bromomethane	250	nd		nd	nd	nd
Vinyl chloride	250	nd		nd	nd	nd
Chloroethane	250	nd		nd	nd	nd
cis-1,2-Dichloroethene	250	nd		nd	nd	nd
1,1-Dichloroethene	250	nd		nd	nd	nd
Methylene Chloride	20	nd		nd	nd	nd
trans-1,2-Dichloroethene	250	nd		nd	nd	nd
1,1-Dichloroethane	250	nd		nd	nd	nd
Chloroform	50	nd		nd	nd	nd
1,1,1-Trichloroethane	50	nd		nd	nd	nd
Carbontetrachloride	50	nd		nd	nd	nd
1,2-Dichloroethane	250	nd		nd	nd	nd
Trichloroethene	20	nd		nd	nd	nd
1,2-Dichloropropane	250	nd		nd	nd	nd
Bromodichloromethane	250	nd		nd	nd	nd
cis-1,3-Dichloropropene	250	nd		nd	nd	nd
trans-1,3-Dichloropropene	250	nd		nd	nd	nd
Chlorobenzene	250	nd		nd	nd	nd
1,1,2-Trichloroethane	50	nd		nd	nd	nd
Tetrachloroethene	50	nd	5,100	440	400	
Dibromochloromethane	250	nd		nd	nd	nd
Bromoform	250	nd		nd	nd	nd
1,1,2,2-Tetrachloroethane	250	nd		nd	nd	nd
1,1,1,2-Tetrachloroethane	250	nd		nd	nd	nd
Bromobenzene	250	nd		nd	nd	nd
1,2,3-Trichloropropane	250	nd		nd	nd	nd
Dibromomethane(*)	5.0	nd		nd	nd	nd
m-Dichlorobenzene	50	nd		nd	nd	nd
p-Dichlorobenzene	50	nd		nd	nd	nd
o-Dichlorobenzene	50	nd		nd	nd	nd
Benzene	20	nd		nd	nd	nd
Toluene	50	nd	11,000	330	nd	nd
Ethylbenzene	50	nd	29,000	1,100	nd	nd
Xylenes	50	nd	180,000	6,500	120	
*instrument detection limit						
Surrogate recoveries:						
SURR1		0%	0%	100%	94%	94%
SURR2		0%	0%	110%	109%	109%
SURR3		0%	0%	99%	101%	102%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

CHAIN-OF-CUSTODY RECORD

CLIENT: STEMEN ENVIRONMENTAL Inc
 ADDRESS: 5724 - RUGET Beach Road N.W., LA, WA
 PHONE: 3604389521 FAX: _____
 CLIENT PROJECT #: SHUNT STOP PROJECT MANAGER: PAUL SPENCER

DATE: 9/25/01 PAGE 1 OF 1
 PROJECT NAME: SHUNT STOP
 LOCATION: SANITARY UNIT
 COLLECTOR: PAUL SPENCER DATE OF COLLECTION: 9/25

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES																NOTES	Total Number of Containers	Laboratory Note Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	TPH - HCID	TPH 8015 (gasoline)	TPH 8015 (diesel)	PAH 8015 (c & o)	PAH 8100	PCBs 8270	Pesticides 8082	EPH	VPH	Methamphetamine	Pb	Hex Chrome																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
1. S-14	14/17		SOIL	JAR	X					X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		</

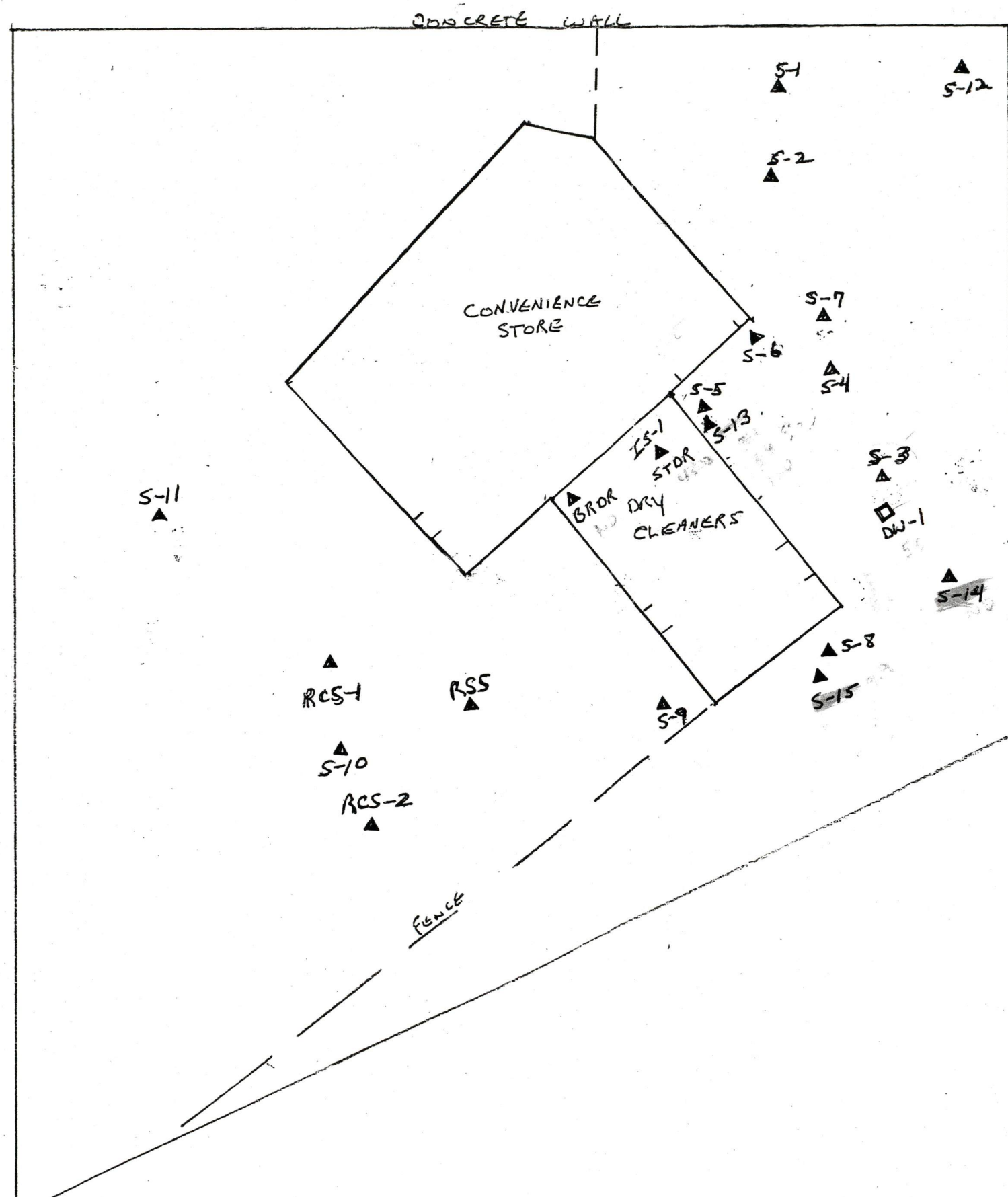
RELINQUISHED BY (Signature) [Signature] DATE/TIME 9:40 9/26/01
 RECEIVED BY (Signature) [Signature] DATE/TIME 9:41 9/26/01

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

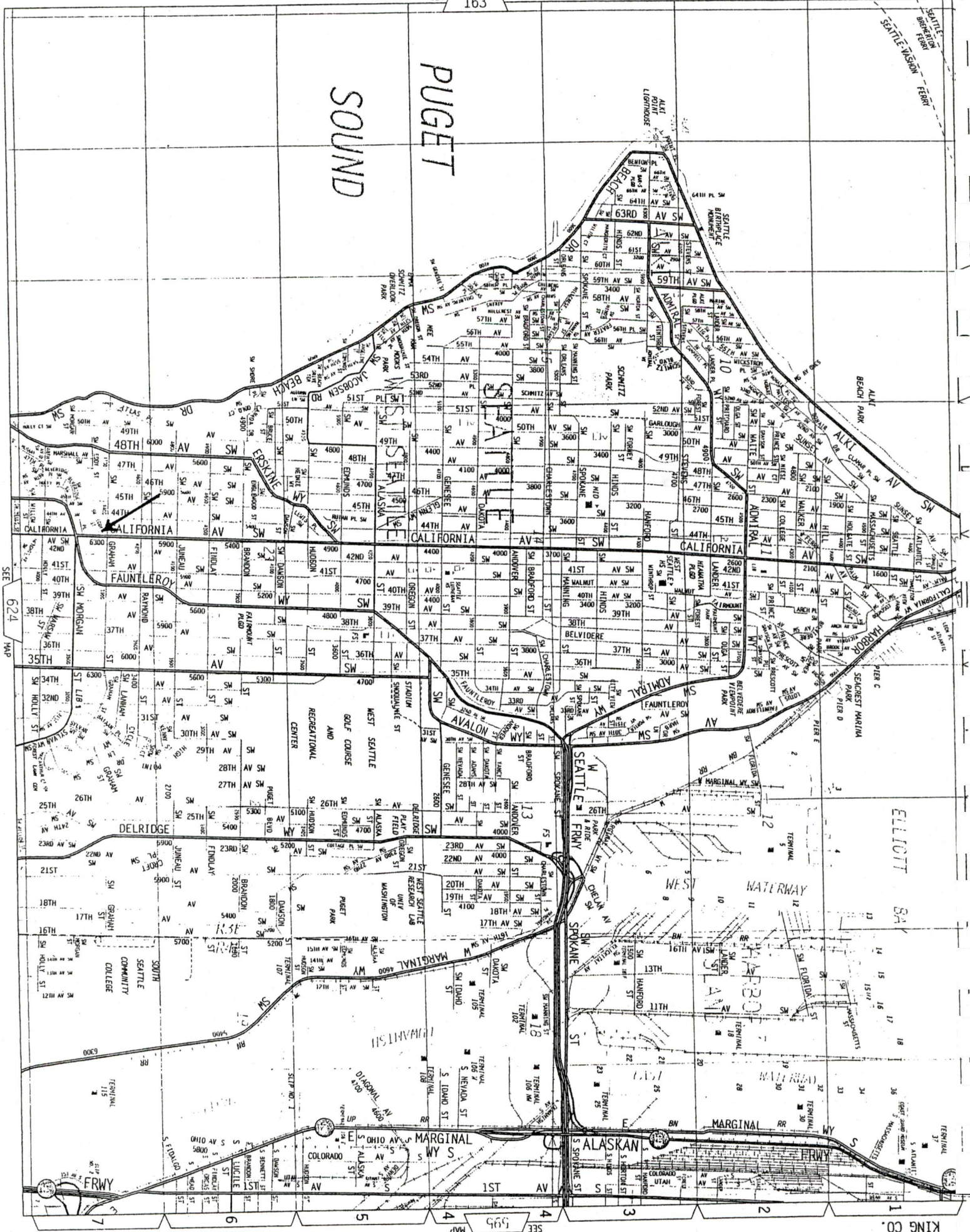
SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS _____
 CHAIN OF CUSTODY SEALS Y/N/NA _____
 SEALS INTACT? Y/N/NA _____
 RECEIVED GOOD COND./COLD _____

LABORATORY NOTES:
SAMPLE DISPOSAL INSTRUCTIONS



SCALE - 1" = 20'



copy for
Dave Coles

3/27/03

**MONITORING WELL
INSTALLATION AND
QUARTLY GROUNDWATER
MONITORING REPORT**

ER



**SHORT STOP SITE
6317 CALIFORNIA AVENUE S.W.
SEATTLE, WASHINGTON
ECOLOGY SITE #101565**

Prepared By

Paul W. Stemen

Stemen Environmental, Inc.

STEMEN ENVIRONMENTAL, INC.

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

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

May 15, 2003

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

Dear Mr. Pontius:

RE: GROUNDWATER MONITORING WELL INSTALLATION AND
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.

It was decided that the newly installed wells should be allowed adequate time to stabilize prior to sampling.

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 26, 2003, I began the process of sampling the groundwaters beneath the subject site. Water sample MW-1 was obtained from waters present at a depth of 11.38 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 11.09 feet b.g.s., water sample MW-3 was obtained from waters present in monitoring well MW-3 at a depth of 14.28 feet b.g.s., water sample MW-4 was obtained from waters present in monitoring well MW-4 at a depth of 11.35 feet b.g.s., and water sample MW-5 was obtained from waters present in monitoring well MW-5 at a depth of 11.43 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., and/or Volatile Organic Compounds in these sampled waters.

2.8 µg/L PCE

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

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 Volatile Organic Compounds using E.P.A. method 8260. These analytical methods meet all current Department of Ecology recommendations for groundwater sample analyses and quality controls.

	<u>WT</u>	<u>TOC</u>	<u>Elevation</u>
MW-1	11.38	233.01	221.63
MW-2	11.09	230.42	219.33
MW-3	14.28	230.64	216.36
MW-4	11.35	230.94	219.59
MW-5	11.43	228.62	217.19

2/27/03

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

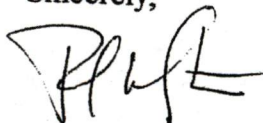
The following summary and conclusions are based on information gathered during on-site investigations described in this report.

1. Groundwater was present beneath this site on March 26, 2003, at depths ranging from 11.09 b.g.s. to 14.28 feet b.g.s.

2. Laboratory analyses results for groundwater samples obtained during this on-site investigation indicated no detectable presence of gasoline range T.P.H. and / or Volatile Organic Compounds in these sampled waters.

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



Environmental
Services Network

April 4, 2003

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 VOC's by Method 8260 on March 31, 2003.

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,

Michael A. Korosec
President

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S30328-8
Client: STEMEN ENVIRONMENTAL, INC.
Client Job Name: SHORT STOP
Client Job Number:

Analytical Results

NWTPH-Gx		MTH BLK	MW-1	MW-2	MW-3	MW-4	MW-5
Matrix	Water	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	03/30/03	03/30/03	03/30/03	03/30/03	03/30/03	03/30/03
Date analyzed	Limits	03/31/03	03/31/03	03/31/03	03/31/03	03/31/03	03/31/03

NWTPH-Gx, mg/L

Mineral spirits/Stoddard solvent	0.10	nd	nd	nd	nd	nd	nd
Gasoline	0.10	nd	nd	nd	nd	nd	nd

Surrogate recoveries:

Bromofluorobenzene	92%	88%	91%	90%	93%	83%
--------------------	-----	-----	-----	-----	-----	-----

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S30328-8
Client: STEMEN ENVIRONMENTAL, INC.
Client Job Name: SHORT STOP
Client Job Number:

Analytical Results

8260, µg/L		MTH BLK	LCS	MW-1	MW-2	MW-3	MW-4	MW-5
Matrix	Water	Water		Water	Water	Water	Water	Water
Date extracted	Reporting	03/31/03	03/29/03	03/30/03	03/30/03	03/30/03	03/30/03	03/30/03
Date analyzed	Limits	03/31/03	03/29/03	03/31/03	03/31/03	03/31/03	03/31/03	03/31/03

Surrogate recoveries

Dibromofluoromethane	115%	111%	115%	115%	95%	102%	116%
Toluene-d8	85%	89%	85%	86%	99%	95%	84%
4-Bromofluorobenzene	98%	98%	98%	97%	109%	99%	102%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

CHAIN-OF-CUSTODY RECORD

 CLIENT: STERNE ENVIRONMENTAL INC.

 DATE: 3/27/03 PAGE 1 OF 1

ADDRESS: _____

 PROJECT NAME: SHORT STOP

 PHONE: 360-438-9521 FAX: (360) 412-1225

 LOCATION: SEATTLE, WA

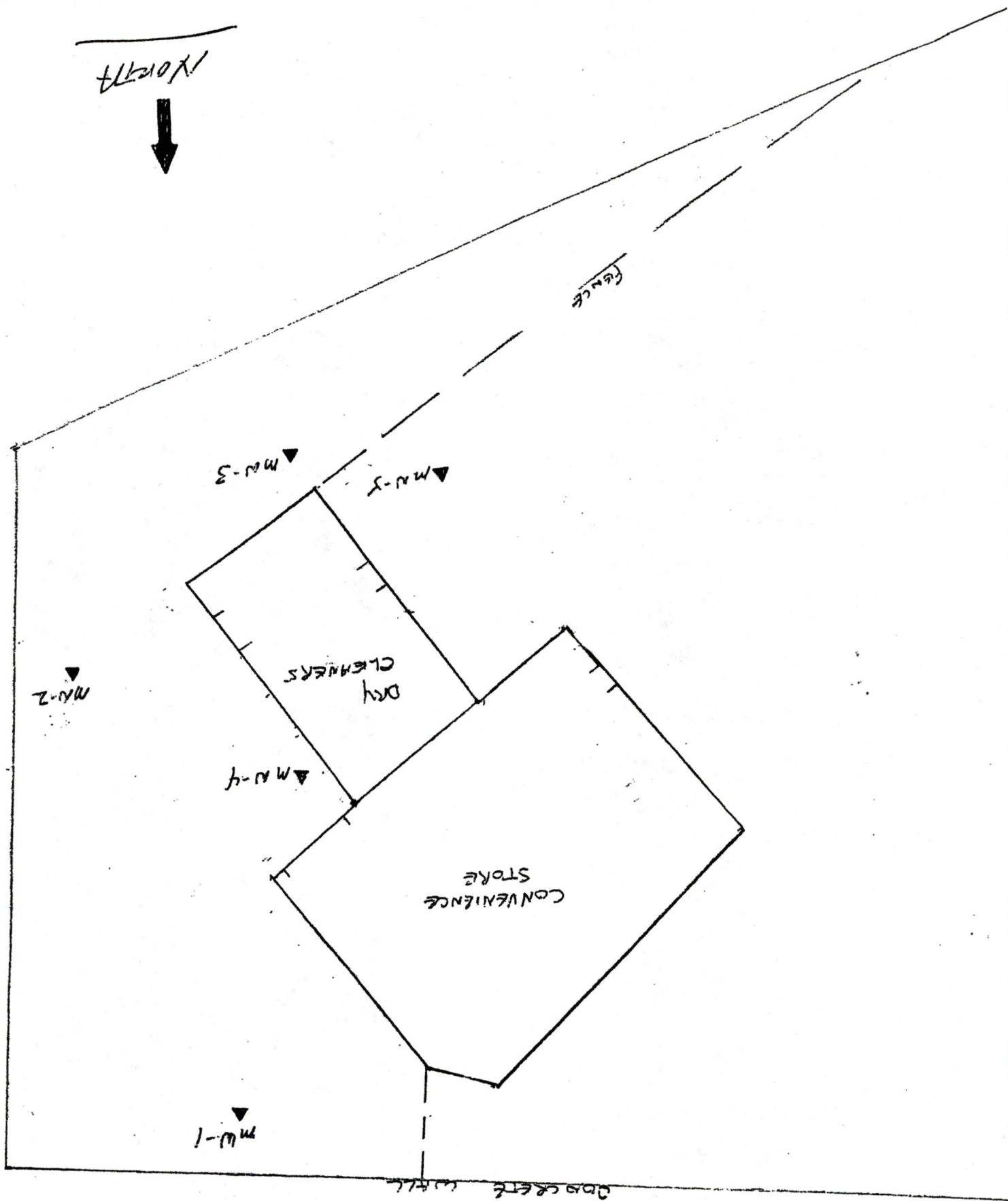
 CLIENT PROJECT #: SHORT STOP PROJECT MANAGER: PAUL STERNER

 COLLECTOR: PAUL STERNER DATE OF COLLECTION: 3/26

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES																NOTES	Total Number of Containers	Laboratory Note Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	TPH - HClO	TPH 8015 (gasoline)	TPH 8015 (diesel)	PAH 8100	PCBs 8082	Pesticides 8081	EPH	VPH	Methamphetamine	Pb	Hex Chrome																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
1. MW-1			H2O	THAL	X					X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME	SAMPLE RECEIPT		LABORATORY NOTES:
<u>[Signature]</u>	<u>3/27/03</u>	<u>MO Lumen</u>	<u>3/27/03</u>	TOTAL NUMBER OF CONTAINERS		
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME	CHAIN OF CUSTODY SEALS Y/N/NA		
				SEALS INTACT? Y/N/NA		
				RECEIVED GOOD COND./COLD		
SAMPLE DISPOSAL INSTRUCTIONS				NOTES:	Turn Around Time: 24 HR 48 HR 5 DAY	
☐ ES&N DISPOSAL @ \$2.00 each ☐ Return ☐ Pickup						

CALIFORNIA AVENUE S.W.



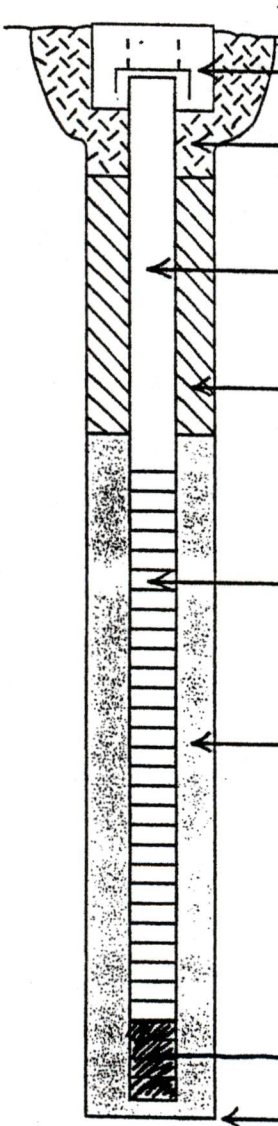
SHORT STOP SITE
6317 - CALIFORNIA AVE. S.W.
SEATTLE, WASH.

HOLT DRILLING, INC.

Resource Protection Well Report

Project Name Shortstop Cleaners
Well Identification # 1 (Tas# AKP296)
Drilling Method 4" HSA
Driller Michael Reynolds
License # 2636T

Date 3-5-03
County King NE $\frac{1}{4}$ NW $\frac{1}{4}$
Section 26 T. 25N R. 3E
Street Address 6317 California Ave. SW / W. Seattle
Start Card R61532
Consulting Firm Stemmen Environm

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	MONUMENT TYPE: <u>Flush</u>	<u>0 - .2 ft.</u> <u>Asphalt</u>
	CONCRETE SURFACE SEAL <u>1.5 ft.</u>	<u>.2 - .4 ft.</u> <u>Gravel Base</u>
	PVC BLANK <u>2" x 9.8'</u>	<u>.4 - 32 ft.</u> <u>Brn Fine-Med. Sand</u> <u>1/2 Trace Silts</u>
	BACKFILL <u>6.5 ft.</u> TYPE: <u>Bentonite</u>	<u>- ft.</u>
	PVC SCREEN <u>2" x 20'</u> SLOT SIZE: <u>.020</u> TYPE: <u>PVC</u>	<u>- ft.</u>
	GRAVEL PACK <u>22 ft.</u> MATERIAL: <u>10/20 Silica</u>	
	Sump <u>2" x 2' PVC</u>	
	WELL DEPTH <u>32' 0"</u>	

REMARKS

Signature

Michael Reynolds

HOLT DRILLING, INC.

Resource Protection Well Report

Project Name Shortstop Cleaners
 Well Identification # 2 (TAG # AKP297)
 Drilling Method 4" HSA
 Driller Michael Reynolds
 License # 2636T

Date 3-5-03
 County King, NE $\frac{1}{4}$ SW $\frac{1}{4}$
 Section 26 T. 25N R. 3E
 Street Address 6317 California Ave. SW/W Seattle
 Start Card R61532
 Consulting Firm Stemen Env.

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	MONUMENT TYPE: <u>Flush</u>	<u>0 - .2 ft.</u> <u>Asphalt</u>
	CONCRETE SURFACE SEAL <u>1.5 ft.</u>	
	PVC BLANK <u>2" x 9.8'</u>	<u>.2 - .4 ft.</u> <u>Gravel Base</u>
	BACKFILL <u>6.5 ft.</u> TYPE: <u>Bentonite</u>	<u>.4 - 10 ft.</u> <u>Brn Fine-Med Sand</u>
	PVC SCREEN <u>2" x 20'</u> SLOT SIZE: <u>.020</u> TYPE: <u>PVC</u>	<u>10 - 15 ft.</u> <u>Gry Fine-Med Sand</u>
	GRAVEL PACK <u>22 ft.</u> MATERIAL: <u>10/20 Silica</u>	<u>15 - 32 ft.</u> <u>Brn Fine-Med Sand w/Trace Silts</u>
	Sump <u>2' x 2' PVC</u>	REMARKS
	WELL DEPTH <u>32' 0"</u>	

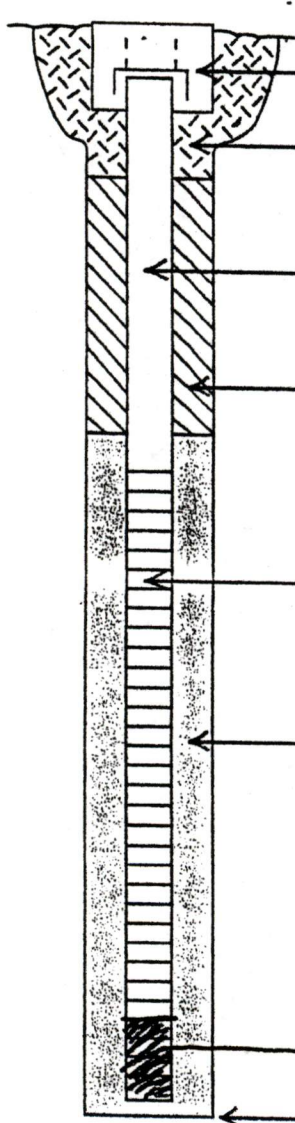
Signature Michael Reynolds

HOLT DRILLING, INC.

Resource Protection Well Report

Project Name Shortstop Cleaners
Well Identification # 3 (TAG# AKP298)
Drilling Method 4" HSA
Driller Michael Reynolds
License # 2636T

Date 5-5-03
County King NE $\frac{1}{4}$ NW $\frac{1}{4}$
Section 26 T. 25N R. 3E
Street Address 6317 California Ave. SW/W-Seattle
Start Card R61532
Consulting Firm Stemen Env.

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	MONUMENT TYPE: <u>Flush</u>	0 - .1 ft. <u>Asphalt</u>
	CONCRETE SURFACE SEAL <u>1.5</u> ft.	.1 - .3 ft. <u>Gravel Base</u>
	PVC BLANK <u>2" x 9-8'</u>	1.3 - 1.5 ft. <u>Brn Fine-Med Sand</u>
	BACKFILL <u>6-5</u> ft. TYPE: <u>Bentonite</u>	1.5 - 2.0 ft. <u>Gry Fine-Med Sand</u>
	PVC SCREEN <u>2" x 20'</u> SLOT SIZE: <u>.020</u> TYPE: <u>PVC</u>	2.0 - 3.2 ft. <u>Brn Fine-Med Sand w/Trace Silts</u>
	GRAVEL PACK <u>22</u> ft. MATERIAL: <u>14/20 Silica</u>	REMARKS
	Sump <u>2" x 2" PVC</u>	
	WELL DEPTH <u>32' 0"</u>	

Signature

Michael Reynolds

HOLT DRILLING, INC.

Resource Protection Well Report

Project Name Shortstop Cleaners
 Well Identification # 4 (TAG # AKP298) 9
 Drilling Method 4" HSA
 Driller Michael Reynolds
 License # 2636 T

Date 5-6-03
 County King, NE $\frac{1}{4}$ NW $\frac{1}{4}$
 Section 26 T. 25N R. 3E
 Street Address 6317 California Ave. SW/W. Seattle
 Start Card R61532
 Consulting Firm Stemen Env.

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	MONUMENT TYPE: <u>Flush</u>	<u>0 - 1.2 ft.</u> <u>Asphalt</u>
	CONCRETE SURFACE SEAL <u>1.5 ft.</u>	<u>1.2 - 1.4 ft.</u> <u>Ground Base</u>
	PVC BLANK <u>2" x 9.8'</u>	<u>1.4 - 15 ft.</u> <u>Brn Fine-Med. Sand</u>
	BACKFILL <u>6.5 ft.</u> TYPE: <u>Bentonite</u>	<u>15 - 20 ft.</u> <u>Gry Fine-Med. Sand</u>
	PVC SCREEN <u>2" x 20'</u> SLOT SIZE: <u>.020</u> TYPE: <u>PVC</u>	<u>20 - 32 ft.</u> <u>Brn. Fine-Med. Sand w/ Trace</u> <u>Silts</u>
	GRAVEL PACK <u>22 ft.</u> MATERIAL: <u>10/20</u>	REMARKS
	Sump <u>2" x 2' PVC</u>	
	WELL DEPTH <u>32' 8"</u>	

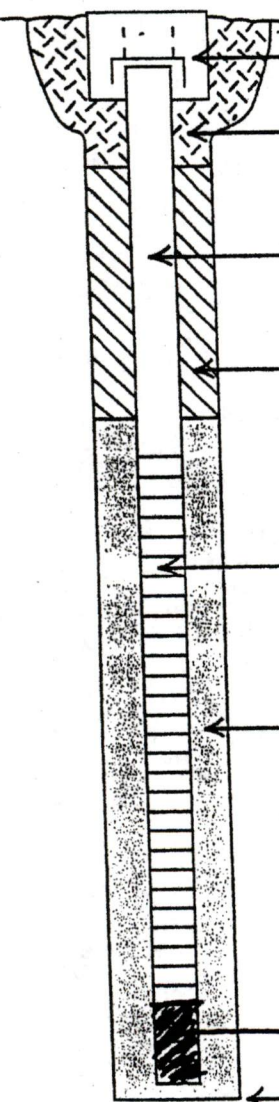
Signature Michael Reynolds

HOLT DRILLING, INC.

Resource Protection Well Report

Project Name Shortstop Cleaners
Well Identification # 5 (TAG # AKP300)
Drilling Method 4" HSA
Driller Michael Reynolds
License # 2636T

Date 5-6-03
County King NE $\frac{1}{4}$ NW $\frac{1}{4}$
Section 26 T. 25N R. 3E
Street Address 6317 California Ave. SW/W. Seattle
Start Card R61532
Consulting Firm Stemen Env.

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	MONUMENT TYPE: <u>Flush</u>	<u>0 - .1 ft.</u> <u>Asphalt</u>
	CONCRETE SURFACE SEAL <u>1.5 ft.</u>	<u>.1 - .2 ft.</u> <u>Gravel Base</u>
	PVC BLANK <u>2" x 9.8'</u>	<u>.2 - 15 ft.</u> <u>Brn Fine-Med Sand</u>
	BACKFILL <u>6.5 ft.</u> TYPE: <u>Bentonite</u>	<u>15 - 32 ft.</u> <u>Gry-Brn Fine-Med. Sand</u> <u>w/Trace Silt</u>
	PVC SCREEN <u>2" x 20'</u> SLOT SIZE: <u>.020</u> TYPE: <u>PVC</u>	<u>- ft.</u>
	GRAVEL PACK <u>22 ft.</u> MATERIAL: <u>10/20 Silica</u>	
	Sump <u>2" x 2' PVC</u>	
	WELL DEPTH <u>32.0'</u>	

REMARKS

Signature

Michael Reynolds

7/25/03

**GROUNDWATER
MONITORING REPORT**



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

Prepared By

Paul W. Stemen

Stemen Environmental, Inc.

STEMEN ENVIRONMENTAL, INC.

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

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

July 25, 2003

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).

The elevations of the tops of the on-site monitoring wells were determined by C&C Surveying of Mountlake Terrace, WA.

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 July 23, 2003, I began the process of sampling the groundwaters beneath the subject site. Water sample MW-1 was obtained from waters present at a depth of 12.04 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 11.82 feet b.g.s., water sample MW-3 was obtained from waters present in monitoring well MW-3 at a depth of 14.86 feet b.g.s., water sample MW-4 was obtained from waters present in monitoring well MW-4 at a depth of 11.88 feet b.g.s., and water sample MW-5 was obtained from waters present in monitoring well MW-5 at a depth of 12.20 feet b.g.s. These samples were immediately submitted for appropriate laboratory analyses and screened for gasoline range T.P.H., and Specific Halogenated Hydrocarbons.

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

LABORATORY ANALYSES

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.

> huh?

Laboratory analyses results for water sample MW-1, MW-3, and MW-5 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 sample MW-2 confirm the presence of Tetrachloroethene (PCE) and Trichloroethene (TCE) at levels that exceed Ecology's Method "A" Clean Up Levels.

Laboratory analyses results for water sample MW-4 confirm the detectable presence of Tetrachloroethene (PCE) at levels that do not exceed Ecology's Method "A" Clean Up Levels.

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 Volatile Organic Compounds 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.

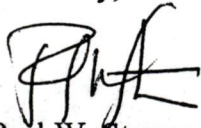
huh?
17ppb > 5ppb

1. Groundwater was present beneath this site on July 24, 2003, at depths ranging from 11.82 b.g.s. to 14.86 feet b.g.s.

2. Laboratory analyses results for groundwater samples MW-2, and MW-4 confirmed the presence of Specific Halogenated Hydrocarbons at levels that exceed Ecology's Method "A" Clean Up Levels in the waters present in their respective monitoring wells.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Stemen', with a stylized flourish at the end.

Paul W. Stemen

Ecology-Registered Site Assessment Supervisor

IFCI #0874201-26

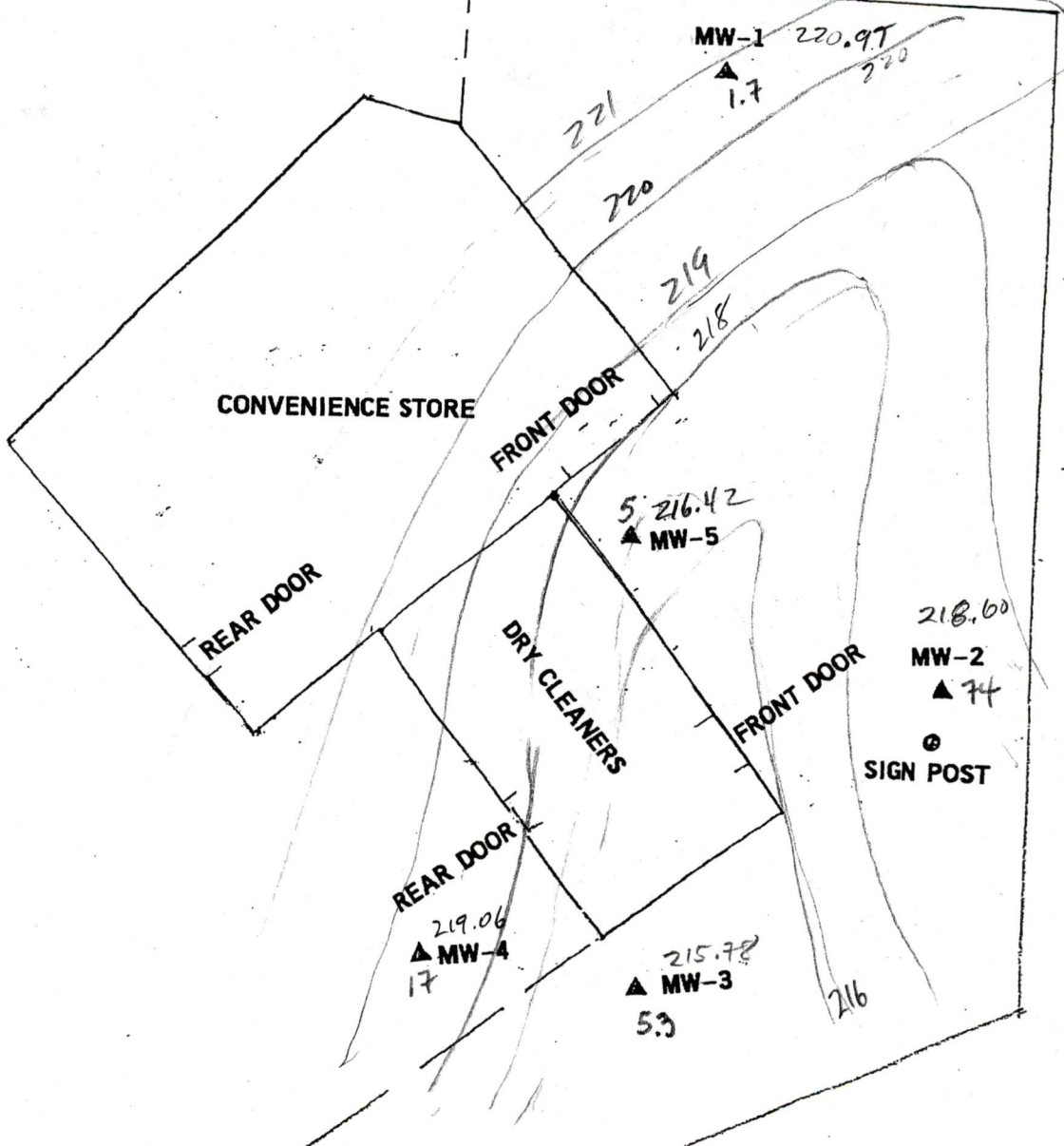
ASTM Certified

MTCR for
PCE = 5 ppb

PCE ppb

GW Elevation

CONCRETE WALL PROPERTY LINE



CALIFORNIA AVE.

NORTH

SHORT STOP 6317 CALIFORNIA AVE. SW SEATTLE, WA.

SUMMARY OF
GROUNDWATER
DEPTH AND
ELEVATION DATA
7/23/03

WELL NUMBER	TOP OF MONUMENT ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW-1	233.01	12.04	220.97
MW-2	230.42	11.82	218.60
MW-3	230.64	14.86	215.78
MW-4	230.94	11.88	219.06
MW-5	228.62	12.20	216.42

ALL MEASUREMENTS
ARE IN FEET

	WATER LABORATORY ANALYSES CHARTS				
			TOTAL PETROLEUM		
			HYDROCARBONS (PPB)		
SAMPLE NUMBER	SAMPLE DATE	SAMPLE DEPTH	GASOLINE		
MW-1	7-23-03		ND		
MW-2	7-23-03		ND		
MW-3	7-23-03		ND		
MW-4	7-23-03		ND		
MW-5	7-23-03		ND		

SPECIFIC HALOGENATED HYDROCARBONS WATERS (PPB)					
SAMPLE-NUMBER	MW-1	MW-2	MW-3	MW-4	MW-5
DATE	7-23-03	7-23-03	7-23-03	7-23-03	7-23-03
DEPTHS					
VINYL CHLORIDE	ND	ND	ND	ND	ND
BENZENE	ND	ND	ND	ND	ND
TOLUENE	ND	ND	1.1	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	1.9	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	6.7	ND	1	ND
1,1,2,-TRICHLOROETHANE	ND		ND	ND	ND
TETRACHLOROETHENE	1.7	74	5	17	5
1,1,1,2-TETRACHLOROETHANE	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ND	ND	ND	ND	ND

July 25, 2003

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

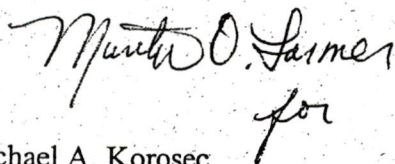
Dear Mr. Stemen:

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 July 24, 2003.

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,



Michael A. Korosec
President

ESN NORTHWEST CHEMISTRY LABORATORY

SHORT STOP PROJECT

Seattle, Washington

Stemen Environmental, Incorporated

Analyses of Gasoline (NWTPH-Gx) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (ug/l)
Method Blank	7/24/03	112	nd
MW-1	7/24/03	78	nd
MW-1 Dup	7/24/03	77	nd
MW-2	7/24/03	93	nd
MW-3	7/24/03	115	nd
MW-4	7/24/03	107	nd
MW-5	7/24/03	109	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: Dean Phillips

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-4	MW-5
Date Sampled			7/23/03	7/23/03	7/23/03	7/23/03	7/23/03
Date Analyzed		7/24/03	7/24/03	7/24/03	7/24/03	7/24/03	7/24/03
	MDL (ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Vinyl chloride	5.0	nd	nd	nd	nd	nd	nd
Benzene	1.0	nd	nd	nd	nd	nd	nd
Toluene	1.0	nd	nd	nd	1.1	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd	nd	nd
Total Xylenes	1.0	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
Methylene chloride	1.0	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	1.0	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	1.0	nd	nd	1.9	nd	nd	nd
Chloroform	1.0	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane (TCA)	1.0	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	1.0	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	1.0	nd	nd	nd	nd	nd	nd
Trichloroethene (TCE)	1.0	nd	nd	6.7	nd	1.0	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	1.0	nd	1.7	74	5.0	17	5.0
1,1,1,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd	nd
Surrogate Recovery (%)		104	93	int.	90	101	108

"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: CMT1-40'			
Matrix Spike			
	Spiked Conc. (ug/l)	Measured Conc. (ug/l)	Spike Recovery (%)
Benzene	5.0	4.67	93
Toluene	5.0	4.67	93
1,1-Dichloroethene	5.0	4.44	89
Trichloroethene (TCE)	5.0	4.67	93
Surrogate Spike			120

Laboratory Control Sample			
	Spiked Conc. (ug/l)	Measured Conc. (ug/l)	Spike Recovery (%)
Benzene	5.0	5.36	107
Toluene	5.0	5.45	109
1,1-Dichloroethene	5.0	5.35	107
Trichloroethene (TCE)	5.0	5.65	113
Surrogate Spike			99

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Marilyn Farmer

CHAIN-OF-CUSTODY RECORD

CLIENT: STEMEN ENVIRONMENTAL Inc

ADDRESS: _____

PHONE: 360-438-9521 FAX: _____

CLIENT PROJECT #: SHUNT STOP PROJECT MANAGER: PAUL STEWART

DATE: 7/23/03 PAGE 1 OF 1

PROJECT NAME: SHUNT STOP

LOCATION: SEATTLE, WA

COLLECTOR: PAUL STEWART DATE OF COLLECTION: 7/23

					COLLECTOR: <u> </u> <u> </u>																	COLLECTION <u>7/23</u>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES																	Total Number of Containers	Laboratory Note Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
					VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	TPH - HCID	TPH 8015 (gasoline)	TPH 8015 (diesel)	PAH 8015 (6 & o)	PAH 8270	PCBs 8082	Pesticides 8081	EPH	VPH	Methamphetamine	Pb	Hex Chrome																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
1. <u>MW-1</u>				<u>VIAL</u>	X					X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

RELINQUISHED BY (Signature) [Signature] DATE/TIME 7/23/03 RECEIVED BY (Signature) [Signature] DATE/TIME 7-23-03

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

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:

STEMEN
PRICES

SAMPLE DISPOSAL INSTRUCTIONS

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

Turn Around Time: 24 HR 48 HR 5 DAY

12/15/03

**GROUNDWATER
MONITORING REPORT**



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

Prepared By

Paul W. Stemen

Stemen Environmental, Inc.

STEMEN ENVIRONMENTAL, INC.

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

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

December 15, 2003

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).

The elevations of the tops of the on-site monitoring wells were determined by C&C Surveying of Mountlake Terrace, WA.

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 December 7, 2003, I began the process of sampling the groundwaters beneath the subject site. Water sample MW-1 was obtained from waters present at a depth of 11.75 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 11.55 feet b.g.s., water sample MW-3 was obtained from waters present in monitoring well MW-3 at a depth of 14.43 feet b.g.s., water sample MW-4 was obtained from waters present in monitoring well MW-4 at a depth of 11.70 feet b.g.s., and water sample MW-5 was obtained from waters present in monitoring well MW-5 at a depth of 11.60 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-4 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-2, 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).

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. Groundwater was present beneath this site on December 7, 2003, at depths ranging from 11.60 b.g.s. to 14.43 feet b.g.s.
2. Laboratory analyses results for groundwater samples obtained during this on-site investigation confirmed the presence of Tetrachloroethene (PCE) in the waters present in monitoring wells MW-2, MW-3, and MW-5 at levels that exceed Ecology's Method "A" Clean Up Levels.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul W. Stemen', written over the printed name.

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

CALIFORNIA AVE.

NORTH

SHORT STOP 6317 CALIFORNIA AVE. SW SEATTLE, WA.

SUMMARY OF
GROUNDWATER
DEPTH AND
ELEVATION DATA
12/7/03

WELL NUMBER	TOP OF MONUMENT ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW-1	233.01	11.75	221.51
MW-2	230.42	11.55	218.87
MW-3	230.64	14.43	216.21
MW-4	230.94	11.70	219.24
MW-5	228.62	11.60	217.02

ALL MEASUREMENTS
ARE IN FEET

	WATER LABORATORY ANALYSES CHARTS				
			TOTAL PETROLEUM		
			HYDROCARBONS (PPB)		
SAMPLE	SAMPLE	SAMPLE			
NUMBER	DATE	DEPTH	GASOLINE		
MW-1	12-7-03		ND		
MW-2	12-7-03		ND		
MW-3	12-7-03		ND		
MW-4	12-7-03		ND		
MW-5	12-7-03		ND		

SPECIFIC HALOGENATED HYDROCARBONS WATERS (PPB)					
SAMPLE-NUMBER	MW-1	MW-2	MW-3	MW-4	MW-5
DATE	12-7-03	12-7-03	12-7-03	12-7-03	12-7-03
DEPTHS					
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	2.7
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	1.1	ND	2
1,1,2,-TRICHLOROETHANE	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	10	11	4.8	39
1,1,1,2-TETRACHLOROETHANE	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ND	ND	ND	ND	ND



Environmental
Services Network

December 15, 2003

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 by Method 8021B on December 10, 2003.

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 dark ink, appearing to read "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	12/10/03	93	nd
MW-1	12/10/03	108	nd
MW-2	12/10/03	94	nd
MW-3	12/10/03	96	nd
MW-4	12/10/03	102	nd
MW-5	12/10/03	97	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: Dean Phillips

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-4	MW-5
Date Sampled			12/9/03	12/9/03	12/9/03	12/9/03	12/9/03
Date Analyzed		12/10/03	12/10/03	12/10/03	12/10/03	12/10/03	12/10/03
	MDL (ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Vinyl chloride	5.0	nd	nd	nd	nd	nd	nd
Benzene	1.0	nd	nd	nd	nd	nd	nd
Toluene	1.0	nd	nd	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd	nd	nd
Total Xylenes	1.0	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
Methylene chloride	1.0	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	1.0	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
Chloroform	1.0	nd	nd	nd	nd	nd	2.7
1,1,1-Trichloroethane (TCA)	1.0	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	1.0	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	1.0	nd	nd	nd	nd	nd	nd
Trichloroethene (TCE)	1.0	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	1.1	nd	2.0
Tetrachloroethene (PCE)	1.0	nd	nd	10	11	4.8	nd
1,1,1,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd	39
1,1,2,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd	nd
Surrogate Recovery (%)		71	107	88	93	100	96

"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 & Dean Phillips

ESN NORTHWEST CHEMISTRY LABORATORY

SHORT STOP PROJECT
Seattle, Washington
Stemen Environmental, Inc.

QA/QC Data - EPA 8021B Analyses

Sample Description: BPPW-1			
Matrix Spike			
	Spiked Conc. (ug/l)	Measured Conc. (ug/l)	Spike Recovery (%)
Benzene	5.00	5.56	111
Toluene	5.00	6.32	126
1,1-Dichloroethene	5.00	5.85	117
Trichloroethene (TCE)	5.00	3.54	71
Surrogate Spike			98

Laboratory Control Sample			
	Spiked Conc. (ug/l)	Measured Conc. (ug/l)	Spike Recovery (%)
Benzene	5.00	4.63	93
Toluene	5.00	5.42	108
1,1-Dichloroethene	5.00	4.96	99
Trichloroethene (TCE)	5.00	4.61	92
Surrogate Spike			74

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

ANALYSES PERFORMED BY: Marilyn Farmer & Dean Phillips

CHAIN-OF-CUSTODY RECORD

CLIENT: James Environmental Inc

ADDRESS: _____

PHONE: 560-430-9521 FAX: _____

CLIENT PROJECT #: Star Sur PROJECT MANAGER: PAUL SMITH

DATE: 12/9/03 PAGE 1 OF 1

PROJECT NAME: Short STOP

LOCATION: SEATTLE, WA

COLLECTOR: PAUL STEIN DATE OF COLLECTION 12/72

DATE OF COLLECTION 12/7

Sample Number		Depth	Time	Sample Type	Container Type	ANALYSES														NOTES	Total Number of Containers	Laboratory Number										
						VOA 8021B	VOA 8021B BTEX Only	VOA 8280	SEMI VOL 8270	TPH - HCID	TPH 8015 (gasoline)	TPH 8015 (diesel)	PAH 8100 (6 & 9)	PAH 8100	PCBs 8082	Pesticides 8081	EPH	VPH	Methamphetamine				Pb	Hex Chrome								
1.	MW 1			mw	Free	X				X																						
2.	MW 2					X				X																						
3.	MW 3					X				X																						
4.	MW 4					X				X																						
5.	MW 5					X				X																						
6.																																
7.																																
8.																																
9.																																
10.																																
11.																																
12.																																
13.																																
14.																																
15.																																
16.																																
17.																																
18.																																

RELINQUISHED BY (Signature)

RELINQUISHED BY (Signature)

DATE/TIME

DATE/TIME

RECEIVED BY (Signature)

RECEIVED BY (Signature)

DATE/TIME

DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

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

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