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SCS ENGINEERS

December 5, 2004
File No. 04203016.02

Mr. Frank Jensen
Griffin & Jensen Tenancy in Common
16027 SE 63rd Street
Bellevue, Washington 98006

Subject: **Fifth Quarterly Groundwater Monitoring Report: November 11, 2004, Former Sooper Dry Cleaners Site, Normandy Park Shopping Center, Normandy Park, Washington**

Dear Mr. Jensen:

This letter report presents the results of the November 2004 groundwater monitoring event for the former Sooper Dry Cleaners site. This represents the fifth quarterly monitoring event conducted at the site. The project site is located in the Normandy Park Shopping Center at 17835 First Avenue South in Normandy Park, Washington (Figure 1).

BACKGROUND

Historical releases of dry cleaning solvents contaminated the shallow soils beneath the Former Sooper Dry Cleaners and along adjacent utility lines with perchloroethylene (PCE), which subsequently leached PCE into the shallow groundwater. Site cleanup activities were initiated on the property in March 2003. The remedial actions included focused soil excavation to remove suspected sources of PCE soil and groundwater contamination followed by the implementation of engineered and institutional controls to further isolate any remaining residual soil contamination. These independent cleanup activities were completed under the Washington Department of Ecology's Voluntary Cleanup Program. The state identification number for the site is TCP #NW0614.

Following the onsite remedial actions, a five year groundwater program was proposed to assess the effectiveness of the source removal and engineered/institutional control measures to reduce the levels of residual groundwater contamination and minimize potential impacts to human health and the environment. At that time, Ecology suggested that the initial year (i.e. first four quarters) of groundwater monitoring be completed and the resulting field and chemical data be evaluated before proceeding with the remaining portions of the monitoring program. The first year of post-remedial groundwater monitoring was completed between October 2003 and July 2004. Subsequent discussions with Ecology concluded that the continued presence of elevated levels of PCE beneath the shopping center warranted continuing groundwater monitoring at the site through the originally proposed five year period.

MONITORING WELL NETWORK

As illustrated on Figure 1, a total of 11 groundwater monitoring wells (MW-1 through MW-6, MW-8 and MW-10 through MW-12) are currently present on the Normandy Park shopping center. In addition, three offsite monitoring wells are located between 500 and 800 feet hydrologically downgradient (west-southwest) of the property. As detailed in the site remedial plan (SCS Engineers, June 2002), the current groundwater monitoring program incorporates both onsite and offsite groundwater sampling locations.

During the 2003/2004 reporting period, groundwater was regularly observed to be present in only five of the 11 onsite monitoring wells. Due to locally depressed water table conditions, the six remaining onsite wells were dry throughout this period. Based on these observations, the same five monitoring onsite wells (MW-5B, MW-8, MW-10, MW-11 and MW-12) will continue to be monitored during the remaining four years of the groundwater monitoring program to provide coverage within the residual plume of PCE contaminated groundwater and along the western property border. Similarly, all three off-site monitoring wells (MW-13, MW-14 and MW-15) will continue be monitored to provide coverage downgradient of the observed PCE contamination. Quarterly groundwater sampling is anticipated to continue through the second monitoring year, at which time modifications in the well network and/or the sampling frequency may be implemented to enhance the efficiency of the post-remedial monitoring program.

SAMPLING METHODS

The fifth round of quarterly groundwater monitoring was completed at the Normandy Park shopping center on November 11, 2004. Permission was obtained from the City of Normandy Park prior to sampling the offsite groundwater wells located in Marivista Park.

The depth to the water table was measured in each of the wells in the monitoring network before commencing well purging and groundwater sampling activities. The groundwater elevation was measured to the nearest 0.01 foot using an electronic water level meter. These data were used for calculation of the local groundwater flow direction and gradient.

Well purging and groundwater sampling was performed using a submersible QED bladder pump system and low-flow/low-volume well sampling techniques. Low-flow sampling can control sample turbidity and minimize sample chemistry alteration by pumping at very low flow rates from the well screen zone, avoiding disturbance to the water column in the well and minimizing stress on the surrounding formation. Samples obtained in this manner will best represent the ground-water chemistry at each location beneath the site.

Field measurements for specific conductance, pH, dissolved oxygen, Eh, turbidity, and groundwater temperature were taken throughout all well purging activities to ensure the collection of representative groundwater samples. An accurate record of all sampling activities, field measurements and site observations made during the monitoring event were maintained on separate field sampling forms (see Appendix B).

All non-disposable sampling equipment (bladder pump, water level probe) was thoroughly decontaminated with non-phosphate detergent (TSP-substitute) and clean tap water washes followed by a final distilled water rinse before each use. A new pair of disposable sampling gloves was used during the collection of each sample, and then discarded. Groundwater samples were collected directly from the pump discharge tubing into 40-milliliter (ml) glass VOA vials.

Low flow sampling methods minimized the volume of purge water that was generated during the monitoring event. The small volume of purge water generated during the sampling event was accumulated in a 55-gallon drum currently located on the shopping center property. Water that does not contain detectable PCE concentrations was discharged at the site. Water that contains PCE concentrations in excess of regulatory criteria will be retained at the site until proper disposal can be arranged.

The groundwater samples collected during the November 2004 monitoring event were submitted to a Washington Department of Ecology accredited laboratory (Severn Trent Laboratories, Tacoma, WA) and analyzed for PCE and related volatile organic compounds (VOCs) using EPA Method 8260. The samples were delivered to the laboratory the day after sample collection. Severn Trent performed all analyses within the appropriate holding time (14 days for EPA method 8260). The laboratory also performed method-specific quality control activities, including surrogate recoveries, matrix spike, duplicates, and blanks. One field duplicate was also collected and submitted to the testing laboratory to provide field and analytical quality assurance/quality control.

HYDROLOGICAL RESULTS

The depth to groundwater was measured in each of the monitoring wells sampled during the November 11, 2004 monitoring event. The groundwater elevation in each well was determined by subtracting the measured depth to groundwater from the surveyed elevation of the top of the wellhead (Table 1). The groundwater elevation contours were then plotted on a site map to indicate the local groundwater flow direction, and are illustrated on Figure 1 in Appendix A. As shown on Table 1, six of the 11 onsite groundwater monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-5A, and MW-6) were observed to be dry during this event.

TABLE 1

Summary of Water Level Measurements, November 2004

Well Location	Date	Wellhead Elevation[1](ft)	Depth to Groundwater[2] (ft)	Groundwater Elevation (ft)
MW-1	11/11/04	270.49	DRY	--
MW-2	11/11/04	270.78	DRY	--
MW-3	11/11/04	271.67	DRY	--
MW-4	11/11/04	272.01	DRY	--
MW-5A	11/11/04	271.29	DRY	--
MW-5B	11/11/04	271.10	47.08	224..02
MW-6	11/11/04	272.27	DRY	--
MW-8	11/11/04	271.06	47.24	223.82
MW-10	11/11/04	270.58	57.22	213.36
MW-11	11/11/04	271.30	52.01	219.29
MW-12	11/11/04	269.56	46.02	223.54
MW-13	11/11/04	321.72	113.77	207.95
MW-14	11/11/04	316.22	108.03	208.19
MW-15	11/11/04	319.14	109.77	209.37

1 Elevation of the top of the well casing based on the USC&GS datum for geodetic mean sea level.
2 Referenced from the top of wellhead.
– Water table elevation not available.

The groundwater flow direction and gradient beneath the site were calculated using a standard three-point geometric model. Using the November 11, 2004 elevation data, groundwater flow was calculated to be towards the west-southwest, with an estimated average hydraulic gradient of 0.019 ft/ft. A slightly more pronounced hydraulic gradient (0.023 ft/ft) was calculated for the site using the water table elevation

measurements obtained during the most recent previous (July 2004) groundwater monitoring event. On average, groundwater elevations measured at the site during November 2004 were approximately one foot higher than those recorded for the July 2003 sampling period.

ANALYTICAL RESULTS

Field parameters were recorded at each monitoring well location before the collection of groundwater samples. Groundwater temperatures measured during the November 2004 sampling event in the onsite wells ranged from 11.6 to 13.2°C. Slightly lower temperatures, ranging from 10.6 to 11.2°C were observed in the three offsite wells. Groundwater pH in the onsite wells was slightly acidic, ranging between 6.0 to 7.0 standard units. Readings from the three offsite wells were similar, averaging 6.5 standard units.

Specific conductivity across the site ranged from 143 to 498 µS, with the most elevated readings being measured in onsite well MW-12 (498 µS) and offsite well MW-13 (301 µS). Dissolved oxygen (DO) levels in the onsite wells were generally high (ranging from 5.4 to 8.2 mg/L) with the exception of well MW-12 which had an anomalously low DO of 1.1 mg/L. Lower DO levels were observed at the offsite monitoring wells, ranging between 0.8 to 2.7 mg/L.

The measured field parameters generally remained consistent with measurements obtained during the previous monitoring events. All of the current field parameter data collected from the groundwater monitoring wells are recorded on the Groundwater Sampling Data Sheets in Appendix B.

The analytical results for the November 2004 quarterly groundwater monitoring event are summarized below on Table 2.

TABLE 2

Summary of Analytical Data for Halogenated and Aromatic VOCs in Groundwater November 2004 Groundwater Sampling Event

Sample Location	Sampling Date	EPA Method 8260 Analytes (µg/L)	
		PCE	TCE
MW-5B*	11/11/04	**184**	1.29
MW-8	11/11/04	**53.8**	ND
MW-10	11/11/04	**1020**	3.11
MW-11	11/11/04	2.51	ND
MW-12	11/11/04	ND	ND
MW-13	11/11/04	ND	ND
MW-14	11/11/04	ND	ND
MW-15	11/11/04	ND	ND
MTCA Method A GW Standard		**5**	**5**

Bold Analytical results exceed the Model Toxics Control Act Method A standard for this compound.
PCE Tetrachloroethylene
TCE Trichloroethene;.
ND Analyte not detected.
* Duplicate sample DUP-A collected at this location. DUP-A results were 184 µg/L for PCE and 1.33 µg/L for TCE.

Detectable PCE concentrations were reported in four (MW-5B, MW-8, MW-10 and MW-11) of the eight groundwater monitoring wells sampled during the November 2004 quarterly event. As shown on Table 2, these PCE concentrations ranged from 2.41 to 1,020 µg/L, with three onsite wells (MW-5B, MW-8 and MW-10) exceeding the 5 µg/L MTCA Method a groundwater standard.

The most elevated PCE levels (1,020 µg/L at MW-10 and 184 µg/L at MW-5B) continue to be observed near the western property border in the area immediately downgradient of the former dry cleaner tenant space. The PCE concentration in onsite well MW-11 (2.51 µg/L) remained below the MTCA Method A groundwater standard. PCE was not detected the remaining onsite monitoring well MW-12 or in any of the three offsite (MW-13, MW-14 and MW-15) monitoring wells. The PCE concentrations reported for the November 2004 monitoring event are illustrated on Figure 2 (in Appendix A).

Low concentrations of trichloroethene (TCE) were detected in onsite wells MW-5B (1.29 µg/L) and MW-10 (3.11 µg/L). In addition, cis-1,2- dichloroethene (DCE), chloroform and bromodichloroethane were reported in onsite well MW-10 at concentrations of 8.45, 19.4 and 1.03 µg/L, respectively. None of these chlorinated compounds were detected at concentrations exceeding their respective MTCA standards. Vinyl chloride, which is commonly associated with the breakdown of PCE, was not detected in any of the groundwater monitoring wells during the November 2004 event.

Overall, the PCE concentrations detected in the groundwater samples collected from the former Sooper Cleaners site during the November 2004 monitoring event are continuing to trend lower. PCE levels in onsite wells MW-11, MW-8, MW-5B and MW-10 were 2.41, 53.8, 184 and 1,020 µg/L, respectively. During the previous monitoring event (July 2004), these same wells were reported to contain 2.55, 60.8, 260 and 1,420 µg/L PCE, respectively. Offsite wells MW-13 through MW-15, which were also last monitored during July 2004, continued to report non-detects for all the contaminants of concern.

DISCUSSION

The results of the November 2004 groundwater monitoring at the Former Sooper Dry Cleaners are generally consistent with the field and chemical data previously reported for the site. Local groundwater flow was towards the west-southwest with a gradient of approximately 0.019 ft/ft.

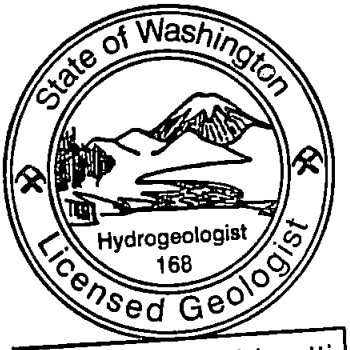
As illustrated on Figure 2, PCE levels in excess of the 5 µg/L MTCA Method A groundwater standard continue to be reported in onsite monitoring wells MW-5B, MW-8 and MW-10. However, the PCE concentrations at the site appear to be continuing their gradual decline from their pre-remedial levels. These reductions are likely related to the source removals and engineered-control infrastructure completed at the site during 2003.

In addition, neither PCE nor any of its associated breakdown products were detected in any of the offsite monitoring wells (MW-13, MW-14, or MW-15) located downgradient of the shopping center property. The latter results continue to suggest that the plume of residual PCE groundwater contamination has not migrated a significant distance downgradient (i.e. west-southwest) of the western border of the shopping center property.

The next quarterly monitoring event for the site is scheduled for February 2004.

Thank you for the opportunity to continue to provide our services. If you have any questions about the information presented above, please do not hesitate to call.

Very truly yours,



Daniel A. Venchiarutti, P.G.
Project Manager
SCS ENGINEERS

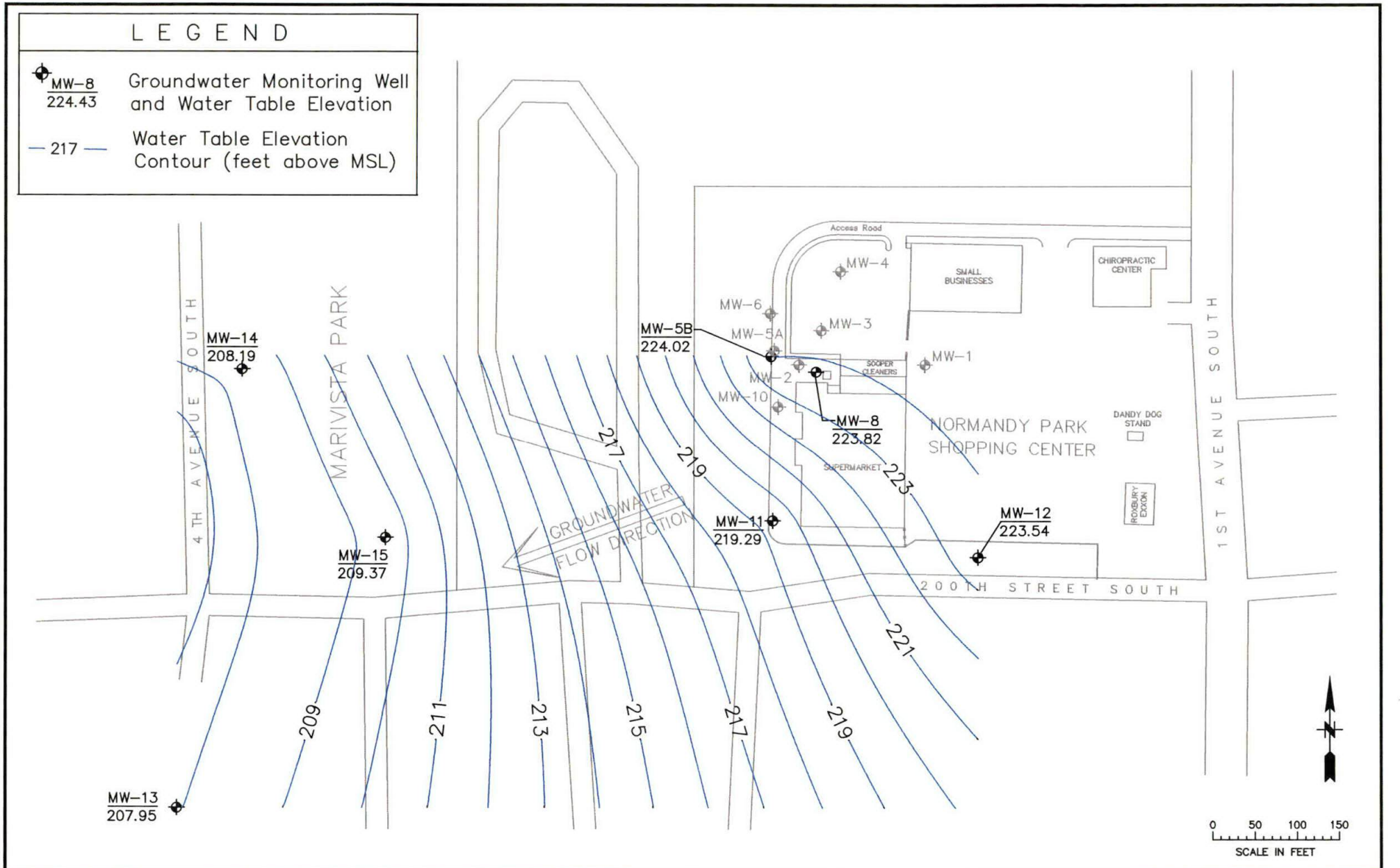
Gregory D. Helland, P.G.
Project Director
SCS ENGINEERS

Attachments

CC: Agnes Griffin, Griffin & Jensen Tenancy in Common
Bradley Helland, Washington Department of Ecology
Mark Schuster, The Schuster Group

APPENDIX A

SITE FIGURES



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STEARNS, CONRAD AND SCHMIDT
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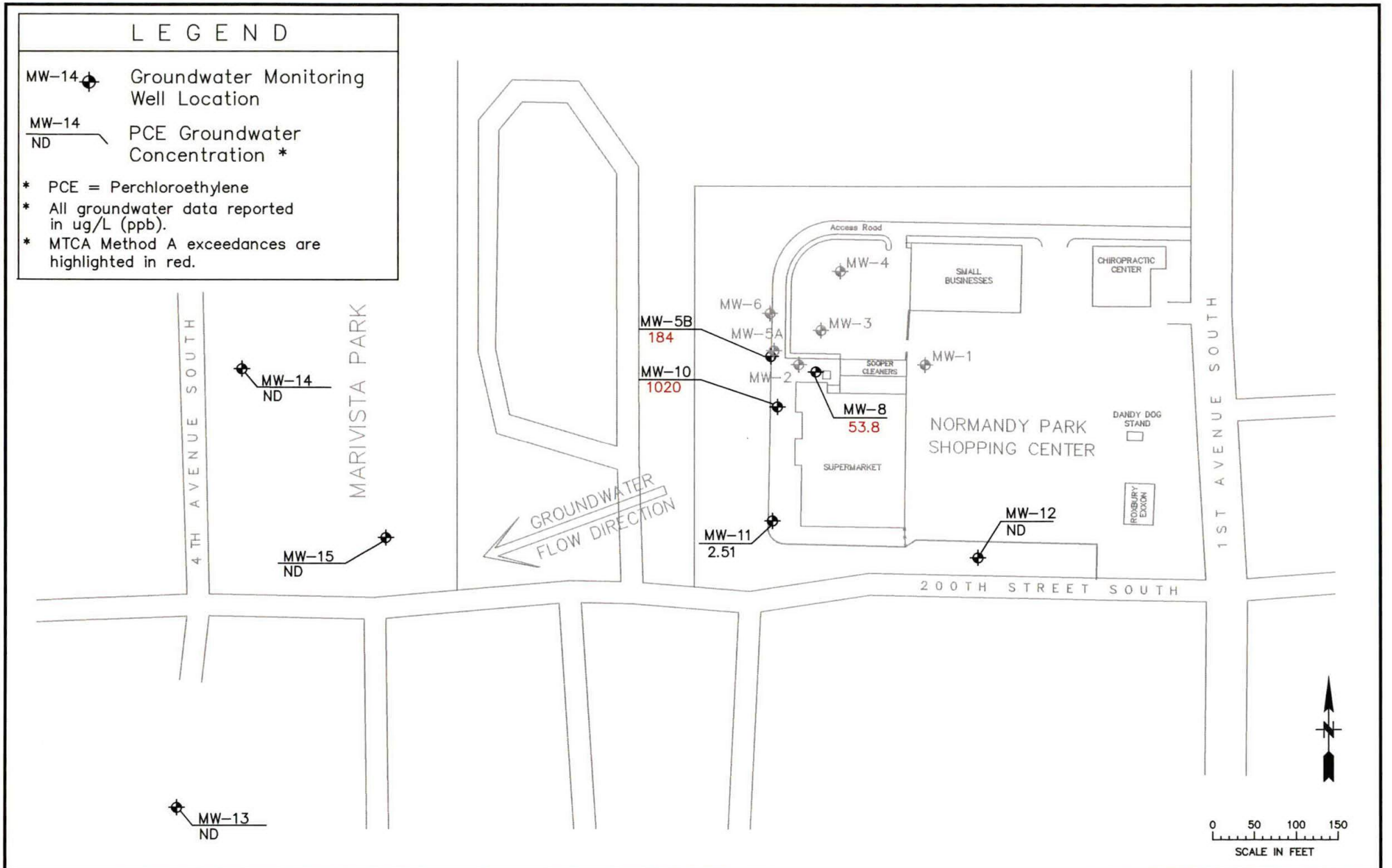
PROJECT NO. 04203016.02	DES BY E.D.
SCALE AS SHOWN	CHK BY D.V.
CAD FILE Figrue 1	APP BY G.H.

GROUNDWATER ELEVATION CONTOUR MAP
NOVEMBER 11, 2004
NORMANDY PARK SHOPPING CENTER
NORMANDY PARK, WA

DATE NOV 2004
FIGURE 1



SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 2405 140TH AVE NE, SUITE 107, BELLEVUE, WA 98005 (425) 746-4600	PROJECT NO. 04203016.02	DES BY E.D.	PCE GROUNDWATER MONITORING RESULTS NOVEMBER 11, 2004 NORMANDY PARK SHOPPING CENTER NORMANDY PARK, WA
	SCALE AS SHOWN	CHK BY D.V.	DATE NOV 2004
	CAD FILE Figrue 2	APP BY G.H.	FIGURE 2

APPENDIX B

GROUNDWATER SAMPLING DATA SHEETS

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Groundwater Sampling Data Sheet

SITE: Milwaukee Park

WELL ID: MW-5B

DATE: 11-11-04

WEATHER: Sunny

47.08	DTW
55	TOS
57.5	Intake
66	BOS

CONTROL SETTINGS:

Refill 9.5

Discharge 10.5

Pressure 46

WELL CONDITIONS: Locked? (Y) N — Water in Protector? Y (N) — Damage? Y (N)

Comments:

SAMPLE CONTAINERS: 3 VOAs / HCl / #VOCs

Well Location

9.5 — ±0.2 mg/L DO
10.5 — ±0.2 units pH
46 — ±0.5°C temp
336 ml/min — ±5% mS SpC
44 mins — ±5 mV ±10% turb
396-13.4

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q
1537	Start purge							
1541	47.21						313	336
1551	47.20						294	"
1611	47.15						80.3	"
1621	47.15						31.9	"
1621	47.22						17.7	"
1626	47.15						14.7	"
1631	47.16						11.2	"
1634	47.16						9.26	"
1637	47.20						8.35	"
1640	47.13						8.44	"
sample		12.1	232	7.03	7	—		

Observations (color, odor, anomalies, etc)

collected duplicate

dup A 1659

SAMPLER: Elaine Dilley
Printed Name

Signature: Elaine Dilley

SCS ENGINEERS

Groundwater Sampling Data Sheet

SITE: Newmark Park

WELL ID: MW-8-0

DATE: 11-11-04

WEATHER: overcast

47.24'	DTW
85	TOS
~87.5	Intake
90	BOS

CONTROL SETTINGS:

Refill 9.5

Discharge 10.5

Pressure 60

WELL CONDITIONS: Locked? (Y) N Water in Protector? Y (N) Damage? Y (N)

Comments:

SAMPLE CONTAINERS: 3 VOCs, HCl, 5260B

Well Location

9	0.2 mg/L DO
11	0.2 units pH
60	0.5 Temp
538-44.2	5% Spc
345	10% < 5 ntu
36 mins	

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q
1442	Start pump							
1444							51.1	330.
1447							72.3	"
1452							38.7	"
1457							24.1	"
1500							19.7	"
1505							15.8	"
1508							13.8	"
1511	47.32						12.3	"
1513	47.31						12.1	"
1515	47.31						11.4	
Sample		12.7	194	5.37	~6.0			

Observations (color, odor, anomalies, etc)

- Used water level meter
to ~~measure~~ any wells
~~check~~ ~~[illegible]~~
for first 7 readings

SAMPLER: Heather Brown Printed Name

[signature] Signature

SCS ENGINEERS

Groundwater Sampling Data Sheet

SITE: [illegible]

WELL ID: [illegible]

DATE: 11-11-04

WEATHER: Cloudy

57.22	DTW
62.50	TOS
65.00	Intake
67.50	BOS

CONTROL SETTINGS:

Refill 11.5

Discharge 8.5

Pressure 55

Well Location

11.5	0.2 DO
8.5	0.2 pH
55	0.5 [illegible]
72.7 - 16.4	5% [illegible]
330	
35 min	10% or 5

WELL CONDITIONS: Locked? Y N   Water in Protector? Y N   Damage? Y (N)

Comments:

SAMPLE CONTAINERS: [illegible] HCl, [illegible]

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q
1705	start purge							
1710	57.34	—	—	—	—	—	01.4	330
1715	57.35	—	—	—	—	—	115	"
1720	57.33	—	—	—	—	—	82.0	"
1730	57.30	—	—	—	—	—	34.6	"
1740	57.30	—	—	—	—	—	15.6	"
1745	57.30	—	—	—	—	—	14.9	"
1747	57.30	—	—	—	—	—	12.7	"
1749	57.30	—	—	—	—	—	11.0	"
1752	57.30	—	—	—	—	—	11.2	"
[illegible]		12.4	143	8.15	6.7			

Observations (color, odor, anomalies, etc)

SAMPLER: [illegible]
Printed Name

[illegible]
Signature

SCS ENGINEERS

Groundwater Sampling Data Sheet

SITE: Normandy Park
WELL ID: MW-11
DATE: 11-11-04
WEATHER: Sunny

52.01	DTW
55	TOS
57.5	Intake
66	BOS

CONTROL SETTINGS:
Refill ______
Discharge ______
Pressure ______

Well Location
9.5
10.5
40
33 cc/min
14 min

±0.2 mg/L DO
±0.2 units pH
±0.5°C Temp
±5% SpC
±2 or 5 ntu

WELL CONDITIONS: Locked? (Y) N Water in Protector? Y (N) Damage? Y (N)
Comments:
SAMPLE CONTAINERS: 3 VOAS / HCl / HVOCS

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q
1400	Start	purge						
1405	52.70						60.6	33
1410	52.70						4.94	"
1413	52.70						3.41	"
Sample		11.6	154	7.30	6.7	—		

Observations (color, odor, anomalies, etc)

SAMPLER: Chris Tinley (Name) ______ Signature: [signature]

SCS ENGINEERS

Groundwater Sampling Data Sheet

SITE: [illegible]
WELL ID: MW-12
DATE: 11-11-04
WEATHER: overcast

46.06 DTW
45.10 TOS
48.00 Intake
50.0 BOS

CONTROL SETTINGS:
Refill 12
Discharge 8
Pressure 10

Well Location
12 — 0.2 mg/L
8 — 0.2 units
40 — 0.5°C
38-4.79 — 3% Spc
330 — ±10% nth ~<5ntu
37 min

WELL CONDITIONS: Locked? (Y) N — Water in Protector? Y (N) — Damage? Y (N)
Comments:
SAMPLE CONTAINERS: 3 VOAS HCL for 8260

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q
12[illegible]	start purge							
1242	46.07						437	330
1252	46.10						84.9	"
1307	46.10						23.9	"
1310	46.11						12.9	"
1313	46.11						9.37	"
1316	46.11						8.31	"
1319	46.11						8.13	"
1322	46.11						7.07	"
1325	46.11						5.81	"
1328	46.11						5.46	"
1331	46.11						5.10	"
1335 Sample		13.2	414	1.16	7			

Observations (color, odor, anomalies, etc)
water has distinct odor

SAMPLER: Harley Brown
Printed Name

Signature: [signature]

115
115
115
/34

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Groundwater Sampling Data Sheet

SITE: Normandy Park
WELL ID: MW-13
DATE: 11-11-09
WEATHER: foggy
WELL CONDITIONS: Locked? (Y) N Water in Protector? Y (N) Damage? Y (N)
Comments:
SAMPLE CONTAINERS: 3 VOAs / HCl / HVOCs

113.77 DTW
185 TOS
187.50 Intake
190 BOS

CONTROL SETTINGS:
Refill ~~8.5~~ 7
Discharge ~~13.5~~ 13
Pressure 105

Well Location
7
13
105
7100-29.7 nfu
345 ml/min
49 mins
± 0.2 mg/L DO
± 0.2 mits pH
± 0.5°C temp
± 5% SpC mS
<5 ntu turb

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q
802	Start purge							
805	113.82						402	330
813	113.87						333	345
823	113.89						84.7	"
833	113.90						33.2	"
836	113.91						22.7	"
839	113.91						18.0	"
842	113.92						16.7	"
845	113.91						13.5	"
848	113.91						10.7	"
851	113.91						9.12	"
854	113.91						7.39	"
857	113.91						5.40	"
900	113.91						5.71	"
903	113.91						5.53	"
906	113.91						4.84	"
908	Sample	10.6	301	2.41	6-7	—		

Observations (color, odor, anomalies, etc)

SAMPLER: Printed Name: Dave Dillon   Signature: Dave Dillon

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Groundwater Sampling Data Sheet

SITE: [illegible] Park

WELL ID: MW-14

DATE: 11-11-04

WEATHER: Overcast

108.13	DTW
175	TOS
~177.5	Intake
180	BOS

CONTROL SETTINGS:

Refill ______

Discharge ______

Pressure ______

WELL CONDITIONS: Locked? Y N   Water in Protector? Y N   Damage? Y N

Comments:

SAMPLE CONTAINERS: 3 VOA: HCl preserved for 8260B

Well Location

7.5 — 0.2 mg/L
12.8 — 0.2 pH units
105 — 0.5 °C
[illegible] — 5% [illegible]
9.35 → 274 — 10% or <5 ntu
95 mins

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q
931	Start	purge						
936	108.46						866	330
946	108.42						472	"
955	108.42						127	"
1006	108.42						57.5	"
1016	108.42						25.5	"
1026	108.42						18.5	"
1029	108.42						12.0	"
1032	108.42						10.6	"
10[illegible]	108.42						8.[illegible]	"
1035	108.42						8.21	"
1041	108.42						7.44	"
Sample collected								
		11.2	1413	0.74	6.7			

Observations (color, odor, anomalies, etc)

SAMPLER: [illegible] Brown
Printed Name

Signature: [illegible]

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Groundwater Sampling Data Sheet

SITE: [illegible] Park
WELL ID: MW-15
DATE: 11-11-04
WEATHER: [illegible]

109.77	DTW
140	TOS
142.5	Intake
145	BOS

CONTROL SETTINGS:
Refill 8.5
Discharge 11.5
Pressure 42

Well Location
8.5
11.5
42
[illegible]
45 [illegible]
[illegible] - 33.8

WELL CONDITIONS: Locked? (Y) N Water in Protector? Y (N) Damage? Y (N)

Comments:

SAMPLE CONTAINERS: 3 VOAs / HCl / [illegible]

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q
1113	start	purge						
1117	109.84						573	330
1127	109.82						551	"
1137	109.81						156	270
1147	109.81						65.8	"
1157	109.81						31.2	"
1207	109.81						23.6	"
1216	109.81						25.3	"
Sample		11.1	261	2.69	6.7	—		

Observations (color, odor, anomalies, etc)

SAMPLER: [illegible] Name [illegible] Signature

SCS ENGINEERS **GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM**

	Conductivity	pH 7	pH 4	DO	Turbidity	Comments/Exceptions
Date					11-14-24	
Time					7:56	
Weather (sky or precip, temp)					foggy	
Barometric Pressure (*)					NA	
Type of Calibration					Secondary Standards	
Standard Value					5.49 53.7 533	
Pre-Cal Reading					5.72 54.3 537	
Post Cal Reading					5.72 54.3 537	
Descrepancy					0.23 .6 .4	
Calib. Successful?					Yes	
Calibration by					ETD	
Instrument Type, ID					HACH 210P	
Calibration Location					Field (MW-13)	

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

APPENDIX C

ANALYTICAL LABORATORY REPORTS

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: November 23, 2004

TO: Daniel Venchiarutti
SCS Engineers
2405 140th Ave. N. E., Suite 107
Bellevue, WA 98005

PROJECT: Normandy Park, WA

REPORT NUMBER: 124845

TOTAL NUMBER OF PAGES: _____

Enclosed are the test results for nine samples received at STL Seattle on November 12, 2004.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Darla Powell
Project Manager

STL Seattle

Sample Identification:

Lab. No.	Client ID	Date/Time Sampled	Matrix
124845-1	MW-15	11-11-04 12:10	Liquid
124845-2	MW-13	11-11-04 09:08	Liquid
124845-3	MW-14	11-11-04 10:41	Liquid
124845-4	MW-12	11-11-04 13:31	Liquid
124845-5	MW-11	11-11-04 14:13	Liquid
124845-6	MW-8	11-11-04 15:15	Liquid
124845-7	MW-5B	11-11-04 16:40	Liquid
124845-8	MW-10	11-11-04 17:52	Liquid
124845-9	Dup-A	11-11-04 16:59	Liquid

STL Seattle

Client Name:	SCS Engineers
Client ID:	MW-15
Lab ID:	124845-01
Date Received:	11/12/2004
Date Prepared:	11/17/2004
Date Analyzed:	11/18/2004
% Solids	-
Dilution Factor	1

Halogenated Volatile Organics by USEPA Method 5035\8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Dibromofluoromethane	104		80	120
Fluorobenzene	118		80	120
Toluene-D8	112		80	120
Ethylbenzene-d10	112		80	120
Bromofluorobenzene	97.5		80	120
Trifluorotoluene	100		80	120

Analyte		**Result (ug/L)**	**RL**	**Flags**
Chloromethane	ND		1	
Vinyl chloride	ND		0.2	
Bromomethane	ND		1	
Chloroethane	ND		1	
Trichlorofluoromethane	ND		1	
1,1-Dichloroethene	ND		1	
Methylene chloride	ND		1	
trans-1,2-Dichloroethene	ND		1	
1,1-Dichloroethane	ND		1	
cis-1,2-Dichloroethene	ND		1	
Chloroform	ND		1	
1,1,1-Trichloroethane	ND		1	
Carbon Tetrachloride	ND		1	
1,2-Dichloroethane	ND		1	
Trichloroethene	ND		1	
1,2-Dichloropropane	ND		1	
Bromodichloromethane	ND		1	
cis-1,3-Dichloropropene	ND		1	
trans-1,3-Dichloropropene	ND		1	
1,1,2-Trichloroethane	ND		1	
Tetrachloroethene	ND		1	
Dibromochloromethane	ND		1	
Chlorobenzene	ND		1	
Bromoform	ND		1	
1,1,2,2-Tetrachloroethane	ND		1	
1,3-Dichlorobenzene	ND		1	

STL Seattle

Halogenated Volatile Organics by USEPA Method 5035\8260B data for 124845-01 continued...

Analyte	Result (ug/L)	RL	Flags
1,4-Dichlorobenzene	ND	1	
1,2-Dichlorobenzene	ND	1	

STL Seattle

Client Name:	SCS Engineers
Client ID:	MW-13
Lab ID:	124845-02
Date Received:	11/12/2004
Date Prepared:	11/17/2004
Date Analyzed:	11/17/2004
% Solids	-
Dilution Factor	1

Halogenated Volatile Organics by USEPA Method 5035\8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Dibromofluoromethane	97.5		80	120
Fluorobenzene	117		80	120
Toluene-D8	113		80	120
Ethylbenzene-d10	115		80	120
Bromofluorobenzene	98.2		80	120
Trifluorotoluene	102		80	120

Analyte	**Result (ug/L)**	**RL**	**Flags**
Chloromethane	ND	1	
Vinyl chloride	ND	0.2	
Bromomethane	ND	1	
Chloroethane	ND	1	
Trichlorofluoromethane	ND	1	
1,1-Dichloroethene	ND	1	
Methylene chloride	ND	1	
trans-1,2-Dichloroethene	ND	1	
1,1-Dichloroethane	ND	1	
cis-1,2-Dichloroethene	ND	1	
Chloroform	ND	1	
1,1,1-Trichloroethane	ND	1	
Carbon Tetrachloride	ND	1	
1,2-Dichloroethane	ND	1	
Trichloroethene	ND	1	
1,2-Dichloropropane	ND	1	
Bromodichloromethane	ND	1	
cis-1,3-Dichloropropene	ND	1	
trans-1,3-Dichloropropene	ND	1	
1,1,2-Trichloroethane	ND	1	
Tetrachloroethene	ND	1	
Dibromochloromethane	ND	1	
Chlorobenzene	ND	1	
Bromoform	ND	1	
1,1,2,2-Tetrachloroethane	ND	1	
1,3-Dichlorobenzene	ND	1	

STL Seattle

Halogenated Volatile Organics by USEPA Method 5035\8260B data for 124845-02 continued...

Analyte	Result (ug/L)	RL	Flags
1,4-Dichlorobenzene	ND	1	
1,2-Dichlorobenzene	ND	1	

STL Seattle

Client Name:	SCS Engineers
Client ID:	MW-14
Lab ID:	124845-03
Date Received:	11/12/2004
Date Prepared:	11/17/2004
Date Analyzed:	11/17/2004
% Solids	-
Dilution Factor	1

Halogenated Volatile Organics by USEPA Method 5035\8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Dibromofluoromethane	98.8		80	120
Fluorobenzene	112		80	120
Toluene-D8	107		80	120
Ethylbenzene-d10	104		80	120
Bromofluorobenzene	96.2		80	120
Trifluorotoluene	107		80	120

Analyte	**Result (ug/L)**	**RL**	**Flags**
Chloromethane	ND	1	
Vinyl chloride	ND	0.2	
Bromomethane	ND	1	
Chloroethane	ND	1	
Trichlorofluoromethane	ND	1	
1,1-Dichloroethene	ND	1	
Methylene chloride	ND	1	
trans-1,2-Dichloroethene	ND	1	
1,1-Dichloroethane	ND	1	
cis-1,2-Dichloroethene	ND	1	
Chloroform	ND	1	
1,1,1-Trichloroethane	ND	1	
Carbon Tetrachloride	ND	1	
1,2-Dichloroethane	ND	1	
Trichloroethene	ND	1	
1,2-Dichloropropane	ND	1	
Bromodichloromethane	ND	1	
cis-1,3-Dichloropropene	ND	1	
trans-1,3-Dichloropropene	ND	1	
1,1,2-Trichloroethane	ND	1	
Tetrachloroethene	ND	1	
Dibromochloromethane	ND	1	
Chlorobenzene	ND	1	
Bromoform	ND	1	
1,1,2,2-Tetrachloroethane	ND	1	
1,3-Dichlorobenzene	ND	1	

STL Seattle

Halogenated Volatile Organics by USEPA Method 5035\8260B data for 124845-03 continued...

Analyte		Result (ug/L)	RL	Flags
1,4-Dichlorobenzene	ND		1	
1,2-Dichlorobenzene	ND		1	

STL Seattle

Client Name:	SCS Engineers
Client ID:	MW-12
Lab ID:	124845-04
Date Received:	11/12/2004
Date Prepared:	11/17/2004
Date Analyzed:	11/17/2004
% Solids	-
Dilution Factor	1

Halogenated Volatile Organics by USEPA Method 5035\8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Dibromofluoromethane	101		80	120
Fluorobenzene	133	X9	80	120
Toluene-D8	116		80	120
Ethylbenzene-d10	116		80	120
Bromofluorobenzene	97.5		80	120
Trifluorotoluene	113		80	120

Analyte		**Result (ug/L)**	**RL**	**Flags**
Chloromethane	ND		1	
Vinyl chloride	ND		0.2	
Bromomethane	ND		1	
Chloroethane	ND		1	
Trichlorofluoromethane	ND		1	
1,1-Dichloroethene	ND		1	
Methylene chloride	ND		1	
trans-1,2-Dichloroethene	ND		1	
1,1-Dichloroethane	ND		1	
cis-1,2-Dichloroethene	ND		1	
Chloroform	ND		1	
1,1,1-Trichloroethane	ND		1	
Carbon Tetrachloride	ND		1	
1,2-Dichloroethane	ND		1	
Trichloroethene	ND		1	
1,2-Dichloropropane	ND		1	
Bromodichloromethane	ND		1	
cis-1,3-Dichloropropene	ND		1	
trans-1,3-Dichloropropene	ND		1	
1,1,2-Trichloroethane	ND		1	
Tetrachloroethene	ND		1	
Dibromochloromethane	ND		1	
Chlorobenzene	ND		1	
Bromoform	ND		1	
1,1,2,2-Tetrachloroethane	ND		1	
1,3-Dichlorobenzene	ND		1	

STL Seattle

Halogenated Volatile Organics by USEPA Method 5035\8260B data for 124845-04 continued...

Analyte	Result (ug/L)	RL	Flags
1,4-Dichlorobenzene	ND	1	
1,2-Dichlorobenzene	ND	1	

STL Seattle

Client Name:	SCS Engineers
Client ID:	MW-11
Lab ID:	124845-05
Date Received:	11/12/2004
Date Prepared:	11/17/2004
Date Analyzed:	11/17/2004
% Solids	-
Dilution Factor	1

Halogenated Volatile Organics by USEPA Method 5035\8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Dibromofluoromethane	112		80	120
Fluorobenzene	118		80	120
Toluene-D8	115		80	120
Ethylbenzene-d10	117		80	120
Bromofluorobenzene	105		80	120
Trifluorotoluene	115		80	120

Analyte	**Result (ug/L)**	**RL**	**Flags**
Chloromethane	ND	1	
Vinyl chloride	ND	0.2	
Bromomethane	ND	1	
Chloroethane	ND	1	
Trichlorofluoromethane	ND	1	
1,1-Dichloroethene	ND	1	
Methylene chloride	ND	1	
trans-1,2-Dichloroethene	ND	1	
1,1-Dichloroethane	ND	1	
cis-1,2-Dichloroethene	ND	1	
Chloroform	ND	1	
1,1,1-Trichloroethane	ND	1	
Carbon Tetrachloride	ND	1	
1,2-Dichloroethane	ND	1	
Trichloroethene	ND	1	
1,2-Dichloropropane	ND	1	
Bromodichloromethane	ND	1	
cis-1,3-Dichloropropene	ND	1	
trans-1,3-Dichloropropene	ND	1	
1,1,2-Trichloroethane	ND	1	
Tetrachloroethene	2.51	1	
Dibromochloromethane	ND	1	
Chlorobenzene	ND	1	
Bromoform	ND	1	
1,1,2,2-Tetrachloroethane	ND	1	
1,3-Dichlorobenzene	ND	1	

STL Seattle

Halogenated Volatile Organics by USEPA Method 5035\8260B data for 124845-05 continued...

Analyte	Result (ug/L)	RL	Flags
1,4-Dichlorobenzene	ND	1	
1,2-Dichlorobenzene	ND	1	

STL Seattle

Client Name:	SCS Engineers
Client ID:	MW-8
Lab ID:	124845-06
Date Received:	11/12/2004
Date Prepared:	11/17/2004
Date Analyzed:	11/17/2004
% Solids	-
Dilution Factor	1

Halogenated Volatile Organics by USEPA Method 5035\8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Dibromofluoromethane	108		80	120
Fluorobenzene	117		80	120
Toluene-D8	114		80	120
Ethylbenzene-d10	122	X9	80	120
Bromofluorobenzene	99.3		80	120
Trifluorotoluene	111		80	120

Analyte	**Result (ug/L)**	**RL**	**Flags**
Chloromethane	ND	1	
Vinyl chloride	ND	0.2	
Bromomethane	ND	1	
Chloroethane	ND	1	
Trichlorofluoromethane	ND	1	
1,1-Dichloroethene	ND	1	
Methylene chloride	ND	1	
trans-1,2-Dichloroethene	ND	1	
1,1-Dichloroethane	ND	1	
cis-1,2-Dichloroethene	ND	1	
Chloroform	ND	1	
1,1,1-Trichloroethane	ND	1	
Carbon Tetrachloride	ND	1	
1,2-Dichloroethane	ND	1	
Trichloroethene	ND	1	
1,2-Dichloropropane	ND	1	
Bromodichloromethane	ND	1	
cis-1,3-Dichloropropene	ND	1	
trans-1,3-Dichloropropene	ND	1	
1,1,2-Trichloroethane	ND	1	
Tetrachloroethene	53.8	1	
Dibromochloromethane	ND	1	
Chlorobenzene	ND	1	
Bromoform	ND	1	
1,1,2,2-Tetrachloroethane	ND	1	
1,3-Dichlorobenzene	ND	1	

STL Seattle

Halogenated Volatile Organics by USEPA Method 5035\8260B data for 124845-06 continued...

Analyte	Result (ug/L)	RL	Flags
1,4-Dichlorobenzene	ND	1	
1,2-Dichlorobenzene	ND	1	

STL Seattle

Client Name:	SCS Engineers
Client ID:	MW-5B
Lab ID:	124845-07
Date Received:	11/12/2004
Date Prepared:	11/17/2004
Date Analyzed:	11/17/2004
% Solids	-
Dilution Factor	1

Halogenated Volatile Organics by USEPA Method 5035\8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Dibromofluoromethane	102		80	120
Fluorobenzene	113		80	120
Toluene-D8	114		80	120
Ethylbenzene-d10	118		80	120
Bromofluorobenzene	97.9		80	120
Trifluorotoluene	116		80	120

Analyte		**Result (ug/L)**	**RL**	**Flags**
Chloromethane	ND		1	
Vinyl chloride	ND		0.2	
Bromomethane	ND		1	
Chloroethane	ND		1	
Trichlorofluoromethane	ND		1	
1,1-Dichloroethene	ND		1	
Methylene chloride	ND		1	
trans-1,2-Dichloroethene	ND		1	
1,1-Dichloroethane	ND		1	
cis-1,2-Dichloroethene	ND		1	
Chloroform	ND		1	
1,1,1-Trichloroethane	ND		1	
Carbon Tetrachloride	ND		1	
1,2-Dichloroethane	ND		1	
Trichloroethene		1.29	1	
1,2-Dichloropropane	ND		1	
Bromodichloromethane	ND		1	
cis-1,3-Dichloropropene	ND		1	
trans-1,3-Dichloropropene	ND		1	
1,1,2-Trichloroethane	ND		1	
Tetrachloroethene		184	1	D10
Dibromochloromethane	ND		1	
Chlorobenzene	ND		1	
Bromoform	ND		1	
1,1,2,2-Tetrachloroethane	ND		1	
1,3-Dichlorobenzene	ND		1	

STL Seattle

Halogenated Volatile Organics by USEPA Method 5035\8260B data for 124845-07 continued...

Analyte	Result (ug/L)	RL	Flags
1,4-Dichlorobenzene	ND	1	
1,2-Dichlorobenzene	ND	1	

STL Seattle

Client Name:	SCS Engineers
Client ID:	MW-10
Lab ID:	124845-08
Date Received:	11/12/2004
Date Prepared:	11/17/2004
Date Analyzed:	11/17/2004
% Solids	-
Dilution Factor	1

Halogenated Volatile Organics by USEPA Method 5035\8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Dibromofluoromethane	103		80	120
Fluorobenzene	114		80	120
Toluene-D8	111		80	120
Ethylbenzene-d10	104		80	120
Bromofluorobenzene	92.1		80	120
Trifluorotoluene	106		80	120

Analyte		**Result (ug/L)**	**RL**	**Flags**
Chloromethane	ND		1	
Vinyl chloride	ND		0.2	
Bromomethane	ND		1	
Chloroethane	ND		1	
Trichlorofluoromethane	ND		1	
1,1-Dichloroethene	ND		1	
Methylene chloride	ND		1	
trans-1,2-Dichloroethene	ND		1	
1,1-Dichloroethane	ND		1	
cis-1,2-Dichloroethene		8.45	1	
Chloroform		19.4	1	
1,1,1-Trichloroethane	ND		1	
Carbon Tetrachloride	ND		1	
1,2-Dichloroethane	ND		1	
Trichloroethene		3.11	1	
1,2-Dichloropropane	ND		1	
Bromodichloromethane		1.03	1	
cis-1,3-Dichloropropene	ND		1	
trans-1,3-Dichloropropene	ND		1	
1,1,2-Trichloroethane	ND		1	
Tetrachloroethene		1020	1	D100
Dibromochloromethane	ND		1	
Chlorobenzene	ND		1	
Bromoform	ND		1	
1,1,2,2-Tetrachloroethane	ND		1	
1,3-Dichlorobenzene	ND		1	

STL Seattle

Halogenated Volatile Organics by USEPA Method 5035\8260B data for 124845-08 continued...

Analyte	Result (ug/L)	RL	Flags
1,4-Dichlorobenzene	ND	1	
1,2-Dichlorobenzene	ND	1	

STL Seattle

Client Name:	SCS Engineers
Client ID:	DUP-A
Lab ID:	124845-09
Date Received:	11/12/2004
Date Prepared:	11/17/2004
Date Analyzed:	11/17/2004
% Solids	-
Dilution Factor	1

Halogenated Volatile Organics by USEPA Method 5035\8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Dibromofluoromethane	100		80	120
Fluorobenzene	114		80	120
Toluene-D8	109		80	120
Ethylbenzene-d10	114		80	120
Bromofluorobenzene	105		80	120
Trifluorotoluene	106		80	120

Analyte		**Result (ug/L)**	**RL**	**Flags**
Chloromethane	ND		1	
Vinyl chloride	ND		0.2	
Bromomethane	ND		1	
Chloroethane	ND		1	
Trichlorofluoromethane	ND		1	
1,1-Dichloroethene	ND		1	
Methylene chloride	ND		1	
trans-1,2-Dichloroethene	ND		1	
1,1-Dichloroethane	ND		1	
cis-1,2-Dichloroethene	ND		1	
Chloroform	ND		1	
1,1,1-Trichloroethane	ND		1	
Carbon Tetrachloride	ND		1	
1,2-Dichloroethane	ND		1	
Trichloroethene		1.33	1	
1,2-Dichloropropane	ND		1	
Bromodichloromethane	ND		1	
cis-1,3-Dichloropropene	ND		1	
trans-1,3-Dichloropropene	ND		1	
1,1,2-Trichloroethane	ND		1	
Tetrachloroethene		184	1	D10
Dibromochloromethane	ND		1	
Chlorobenzene	ND		1	
Bromoform	ND		1	
1,1,2,2-Tetrachloroethane	ND		1	
1,3-Dichlorobenzene	ND		1	

STL Seattle

Halogenated Volatile Organics by USEPA Method 5035\8260B data for 124845-09 continued...

Analyte		Result (ug/L)	RL	Flags
1,4-Dichlorobenzene	ND		1	
1,2-Dichlorobenzene	ND		1	

STL Seattle

Lab ID:	Method Blank - VOA1038
Date Received:	-
Date Prepared:	11/17/2004
Date Analyzed:	11/17/2004
% Solids	-
Dilution Factor	1

Halogenated Volatile Organics by USEPA Method 5035\8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Dibromofluoromethane	99.9		80	120
Fluorobenzene	116		80	120
Toluene-D8	112		80	120
Ethylbenzene-d10	110		80	120
Bromofluorobenzene	94.8		80	120
Trifluorotoluene	91.8		80	120

Analyte	**Result (ug/L)**	**RL**	**Flags**
Chloromethane	ND	1	
Vinyl chloride	ND	0.2	
Bromomethane	ND	1	
Chloroethane	ND	1	
Trichlorofluoromethane	ND	1	
1,1-Dichloroethene	ND	1	
Methylene chloride	ND	1	
trans-1,2-Dichloroethene	ND	1	
1,1-Dichloroethane	ND	1	
cis-1,2-Dichloroethene	ND	1	
Chloroform	ND	1	
1,1,1-Trichloroethane	ND	1	
Carbon Tetrachloride	ND	1	
1,2-Dichloroethane	ND	1	
Trichloroethene	ND	1	
1,2-Dichloropropane	ND	1	
Bromodichloromethane	ND	1	
cis-1,3-Dichloropropene	ND	1	
trans-1,3-Dichloropropene	ND	1	
1,1,2-Trichloroethane	ND	1	
Tetrachloroethene	ND	1	
Dibromochloromethane	ND	1	
Chlorobenzene	ND	1	
Bromoform	ND	1	
1,1,2,2-Tetrachloroethane	ND	1	
1,3-Dichlorobenzene	ND	1	

STL Seattle

Halogenated Volatile Organics by USEPA Method 5035\8260B data for VOA1038 continued...

Analyte	Result (ug/L)	RL	Flags
1,4-Dichlorobenzene	ND	1	
1,2-Dichlorobenzene	ND	1	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	VOA1038
Date Prepared:	11/17/2004
Date Analyzed:	11/17/2004
QC Batch ID:	VOA1038

Halogenated Volatile Organics by USEPA Method 5035\8260B

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
1,1-Dichloroethene	0	5	5.17	103	5.21	104	0.97	
Benzene	0	5	5.12	102	5.69	114	11	
Trichloroethene	0	5	4.84	96.7	5.06	101	4.4	
Toluene	0	5	4.55	91	5.05	101	10	
Chlorobenzene	0	5	4.79	95.8	4.97	99.4	3.7	

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

DATA QUALIFIERS AND ABBREVIATIONS

B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.

C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.

C3: Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be ≤ 30%.

C4: Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 30%. The original analysis was reported unless anomalies were noted.

M: GC/MS confirmation was performed. The result derived from the original analysis was reported.

D: The reported result for this analyte was calculated based on a secondary dilution factor.

E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

MCL: Maximum Contaminant Level

MDL: Method Detection Limit

RL: Reporting Limit

N: See analytical narrative

ND: Not Detected

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product.

X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike recovery was not determined due to the required dilution.

X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

X8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.

Chain of Custody Record

Sea
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

124845 Vol.

SEVERN TRENT STL

Client	Project Manager	Date	Chain of Custody Number
SCS Engineers	Dan Venchiarutti	11-12-04	14587
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
2405 140th Ave. NE, Ste. 107	(425)746-4600 / (425)746-6717		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Bellevue, ~~WA~~ / WA / 98005	H. Brown/E. Dilley	Darla Rowell	
Project Name and Location (State)	**Carrier/Waybill Number**		
Normandy Park, WA			
Contract/Purchase Order/Quote No.			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: Halogenated VOCs SW8260B	Special Instructions/ Conditions of Receipt
1 MW-15	11-11-04	1210		X						3			X	
2 MW-13	↓	908		↓						↓			↓	
3 MW-14		1041												
4 MW-12		1331												
5 MW-11		1413												
6 MW-8		1515												
7 MW-5B		1640												
8 MW-10		1752												
9 Dup-A	↓	1659		↓						↓			↓	
10														
11														
12														

Cooler
☐ Yes ☐ No Cooler Temp:_____

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days)
☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Hayley Brown	11-12-04		1. Received By: Darla Newton STL	11-12-04	1535
2. Relinquished By:			2. Received By:	11-12-04	16:00
3. Relinquished By:			3. Received By:		

Comments

$2000

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

STL8274-580 (12/02)