Stantec

1st QUARTER 2014 SAMPLING REQUEST

Former 7-Eleven Service Station No. 14479 located at 5310 Capitol Boulevard, Tumwater, WA

Project No.	Task		Project Manager	Date		Lab:		Client Contact:
185750003	300.0700		Paul Fairbairn			Fremont		Jose Rios

Well Number	Gaug. Freq.	Gaug. Order	Samp. Freq.	Samp. Order	Analyses	Well Depth	Top of Screen	Casing Dia.	Depth of Pump intake (ft bTOC)	Comments
MW-1	Annual	5	Annual	5	NWTPHG, BTEX, Total Lead, MTBE, EDB, EDC					
MW-2	Annual	4	Annual	4	NWTPHG, BTEX, Total Lead, MTBE, EDB, EDC					
MW-3	Annual	1	Annual	1	NWTPHG, BTEX, Total Lead, MTBE, EDB, EDC					Well compromised according to last quarter notes
MW-4	Annual	2	Annual	2	NWTPHG, BTEX, Total Lead, MTBE, EDB, EDC					Well compromised according to last quarter notes
MW-5	Annual	3	Annual	3	NWTPHG, BTEX, Total Lead, MTBE, EDB, EDC					

Notes:

*Review and sign HASP prior to arriving on site. Check in with station manager and Stantec Project Manager Paul Fairbairn: Cell: 206 369 8383; Office: (425) 298-1016

* Implement Stantec low flow purging and sampling procedures.

*All wells will be sampled for NWTPH-Gx, BTEX, Total Lead, MTBE, EDB, EDC

*The wells are now historically clean, if product or sheen is found, use Stop Work Authority and contact the 7-Eleven Project Manager Paul Fairbairn immediately.

*Please gauge all selected wells first and proceed to sample all wells unless otherwise noted.

*Store water in drum on-site. Label drum with contents with a Non Hazardous Waste Drum label and note in the field log

No. wells gauged without sampling: _____ Total wells sampled: _____

Gallons Purged:

SITE VISITATION REPORT
1Q14 - Former 7-Eleven Service Station No. 14479 - Tumwater, WA

Stantec

Name(s): Emily Harper | Date: 3/24/14 | Time of Arrival Call-In: 7:45

Arrival Time: 7:45 | Departure Time: 11:15 | Time of Departure Call-In: 11:15

Who did you call? Paul Fairbairn

DRUM INVENTORY

0	WATER	0	CARBON	TOTAL OPEN TOP	0
0	SOIL	1	EMPTY	TOTAL BUNG TOP	1

ONE new drum left onsite

HEALTH AND SAFETY ASSESSMENT

HASP & hosp directions
traffic & drive thru
PPE & visibility
1st Aid & fire extinguisher
trip hazards
proper lifting tech.
stop work authority
proper gloves
pinch points

DESCRIPTION OF ACTIVITIES ONSITE AND NOTES

7:45 ARRIVE ONSITE, tlkt pad f, site walk, drum review, H&S tailgate
8:00 set up down
8:10 begin gauging
8:45 begin purging/sampling wells
10:45 finished sampling, begin cleaning up
11:15 call paul, depart site

Stantec
HYDROLOGIC DATA SHEET

Gauge Date: 3/24/11 **Project Name:** Former 7-Eleven #14479

Field Technician: Emily Harper **Project Number:** 185750003

DTP = Depth to Free Product (FP or NAPH) Below TOC
DTW = Depth to Groundwater Below TOC
DTB = Depth to Bottom of Well Casing Below TOC

Flow through cell calibrated Y___ N___ N/A

Wells checked for product and gauged prior to commencement of bailing or purging the wells Y Y___ N___

WELL OR LOCATION	WELL SCREEN DEPTH	PROPOSED INTAKE RANGE (feet below TOC)	MEASUREMENTS				PURGE? (Y/N)	SHEEN? (Y/N)	SAMPLE? (Y/N)	COMMENTS / PROBE CALIBRATION
			TIME	DTP (feet)	DTW (feet)	DTB (feet)				
MW-1			8:15		39.69	44.72				
MW-2			8:20		40.00	46.72				
MW-3			8:10		39.98	46.54				
MW-4			8:30		-	-				well clogged w/ mud
MW-5			8:25		39.72	42.13				

Stantec

WATER SAMPLE FIELD DATA SHEET

PROJECT #: 185750003 | PURGED & SAMPLED BY: Emily Harper | WELL & SAMPLE ID: MW-2

CLIENT NAME: 7-Eleven

LOCATION: Former store 14479 loc @ 5310 Capitol Boulevard, Tumwater, WA

DATE PURGED & SAMPLED: 3/24/14 | START (2400hr): 8:45 | END (2400hr): | SAMPLE TIME (2400hr): 9:00 | LOW-FLOW USED: NO

SAMPLE TYPE: Groundwater x | Surface Water | Treatment Effluent | Other

CASING DIAMETER: 2" X (0.64) | 3" (1.44) | 4" (2.45)
Casing Volume: (liters per foot)

DEPTH TO BOTTOM (feet) = 46.72 (46.72)(0.64)(2) = 8.6 L

DEPTH TO WATER (feet) = SM 3/26 40.00

WATER COLUMN HEIGHT (feet) = 6.72

ACTUAL PURGE (GAL) = 7.5 L

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (L)	TEMP. (degrees F)	CONDUCTIVITY (umhos/cm)	pH (units)	COLOR (visual)	O.R.P.
Calculated Variance of Final Three Samples:							
Acceptable Variance Limits:			≤ 10%	≤ 3%	≤ 0.1		≤ 10%

DEPTH TO PURGE INTAKE DURING PURGE: — | SAMPLE DTW: —

QTY OF SAMPLE VESSELS & PRESERVATIVE:
- 3 HCL VOA's per well
- 3 unpreserved VOA's per well
- 1 HNO3 poly per well

ANALYSES:
- NWTPH-g, BTEX-g, Total Lead
- EDB, EDC, MTBE

PURGING EQUIPMENT:	SAMPLING EQUIPMENT:
Geopump	YSI

Flow Through Cell Disconnected Prior to Sample Collection?: YES — NO —

WELL PAD CONDITION: GOOD | WELL CASING CONDITION: GOOD

WELL VAULT CONDITION: GOOD | SEAL PRESENT?: YES | BOLTS PRESENT?: 2/2

WELL INTEGRITY: GOOD | WELL TAG: N/A | LOCK#: N/A

REMARKS:

SIGNATURE:

Stantec

WATER SAMPLE FIELD DATA SHEET

Stantec

PROJECT #: 185750003 **PURGED & SAMPLED BY:** Emily Harper **WELL & SAMPLE ID:** MW-1

CLIENT NAME: 7-Eleven

LOCATION: Former store 14479 loc @ 5310 Capitol Boulevard, Tumwater, WA

DATE PURGED & SAMPLED 3/24/14 START (2400hr) 9:10 END (2400hr) _____

SAMPLE TIME (2400hr) 9:20 LOW-FLOW USED NO

SAMPLE TYPE: Groundwater x Surface Water _____ Treatment Effluent _____ Other _____

CASING DIAMETER: 2" X (0.64) 3" _____ (1.44) 4" _____ (2.45)

Casing Volume: (liters per foot)

DEPTH TO BOTTOM (feet) = 44.72 (5.03)(0.64)(2) = 6.44

DEPTH TO WATER (feet) = 39.69

WATER COLUMN HEIGHT (feet) = 5.03 ACTUAL PURGE (GL) = 7.15 L

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (L)	TEMP. (degrees F)	CONDUCTIVITY (umhos/cm)	pH (units)	COLOR (visual)	O.R.P.
Calculated Variance of Final Three Samples:							
Acceptable Variance Limits:			≤ 10%	≤ 3%	≤ 0.1		≤ 10%

DEPTH TO PURGE INTAKE DURING PURGE: — SAMPLE DTW: —

QTY OF SAMPLE VESSELS & PRESERVATIVE:

3 HCL VOA's per well

3 unpreserved VOA's per well

1 HNO3 poly per well

ANALYSES:

NWTPH-g, BTEX-g, Total Lead

EDB, EDC, MTBE

PURGING EQUIPMENT: Geopump

SAMPLING EQUIPMENT: YSI

Flow Through Cell Disconnected Prior to Sample Collection?: YES — NO —

WELL PAD CONDITION: GOOD WELL CASING CONDITION: GOOD

WELL VAULT CONDITION: GOOD SEAL PRESENT?: YES BOLTS PRESENT?: 1/1

WELL INTEGRITY: GOOD WELL TAG: N/A LOCK#: N/A

REMARKS: _____

SIGNATURE: _____

Stantec

WATER SAMPLE FIELD DATA SHEET

PROJECT #: 185750003 **PURGED & SAMPLED BY:** Emily Harper **WELL & SAMPLE ID:** MW-3

CLIENT NAME: 7-Eleven

LOCATION: Former store 14479 loc @ 5310 Capitol Boulevard, Tumwater, WA

DATE PURGED & SAMPLED 3/24/14 START (2400hr) 9:30 END (2400hr) _____

SAMPLE TIME (2400hr) 9:50 LOW-FLOW USED NO

SAMPLE TYPE: Groundwater x Surface Water _____ Treatment Effluent _____ Other _____

CASING DIAMETER: 2" x 3" _____ 4" _____

Casing Volume: (liters per foot) (0.64) (1.44) (2.45)

DEPTH TO BOTTOM (feet) = 46.54

DEPTH TO WATER (feet) = 39.98

WATER COLUMN HEIGHT (feet) = 6.56

(6.56)(0.64)(2) = 8.40

ACTUAL PURGE (GL) = 6.25 L

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (L)	TEMP. (degrees F)	CONDUCTIVITY (umhos/cm)	pH (units)	COLOR (visual)	O.R.P.
Calculated Variance of Final Three Samples:							
Acceptable Variance Limits:			≤ 10%	≤ 3%	≤ 0.1		≤ 10%

DEPTH TO PURGE INTAKE DURING PURGE: — SAMPLE DTW: —

QTY OF SAMPLE VESSELS & PRESERVATIVE:	ANALYSES:
3 HCL VOA's per well	NWTPH-g, BTEX-g, Total Lead
3 unpreserved VOA's per well	EDB, EDC, MTBE
1 HNO3 poly per well	

PURGING EQUIPMENT:	SAMPLING EQUIPMENT:
Geopump	YSI

Flow Through Cell Disconnected Prior to Sample Collection?: YES — NO —

WELL PAD CONDITION: Good WELL CASING CONDITION: Good

WELL VAULT CONDITION: Good SEAL PRESENT?: YES BOLTS PRESENT?: 1/1

WELL INTEGRITY: Good WELL TAG: N/A LOCK#: N/A

REMARKS: _____

SIGNATURE: _____

Stantec

WATER SAMPLE FIELD DATA SHEET

PROJECT #: 185750003 | PURGED & SAMPLED BY: Emily Harper | WELL & SAMPLE ID: MW-5

CLIENT NAME: 7-Eleven

LOCATION: Former store 14479 loc @ 5310 Capitol Boulevard, Tumwater, WA

DATE PURGED & SAMPLED: 3/24/14 | START (2400hr): 10:00 | END (2400hr): | SAMPLE TIME (2400hr): 10:30 | LOW-FLOW USED: NO

SAMPLE TYPE: Groundwater x | Surface Water | Treatment Effluent | Other

CASING DIAMETER: 2" 2 | 3" | 4"
Casing Volume: (liters per foot) (0.64) | (1.44) | (2.45)

DEPTH TO BOTTOM (feet) = 42.13 (2.41)(.64)(2) = 3.08

DEPTH TO WATER (feet) = 39.72

WATER COLUMN HEIGHT (feet) = 2.41

ACTUAL PURGE (GL) = 2.5 L

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (L)	TEMP. (degrees F)	CONDUCTIVITY (umhos/cm)	pH (units)	COLOR (visual)	O.R.P.
Calculated Variance of Final Three Samples:							
Acceptable Variance Limits:			≤ 10%	≤ 3%	≤ 0.1		≤ 10%

DEPTH TO PURGE INTAKE DURING PURGE: | SAMPLE DTW:

QTY OF SAMPLE VESSELS & PRESERVATIVE:	ANALYSES:
3 HCL VOA's per well	NWTPH-g, BTEX-g, Total Lead
3 unpreserved VOA's per well	EDB, EDC, MTBE
1 HNO3 poly per well	

PURGING EQUIPMENT:	SAMPLING EQUIPMENT:
Geopump	YSI

Flow Through Cell Disconnected Prior to Sample Collection?: YES | NO

WELL PAD CONDITION: Good | WELL CASING CONDITION: Good

WELL VAULT CONDITION: Good | SEAL PRESENT?: Yes | BOLTS PRESENT?: 1/1

WELL INTEGRITY: Good | WELL TAG: N/A | LOCK#: N/A

REMARKS:

SIGNATURE:

Fremont ANALYTICAL

Chain of Custody Record

3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 3/24/14 Page: 1 of: 1

Client: STANTEC
Address: 11130 NE 33rd pl ste 200
City, State, Zip Bellevue, WA 98004 Tel: 425-869-9448 x143

Project Name: 1Q14 GWM 14479
Location: TUMWATER, WA
Collected by: EMILY HARPER

Reports To (PM): PAUL FAIRBAIRN Fax: ~ Email: PAUL.FAIRBAIRN@stantec.com Project No: 185750003

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8) Total/Diss	Anions (IC)**	MTBE	EDB	EDC	Comments/Depth
1 MW-1	3/24	9:20	H2O			X									X		X	X	X	
2 MW-2	"	9:00	"			X									X		X	X	X	
3 MW-3		9:50				X									X		X	X	X	
4 MW-5		10:30				X									X		X	X	X	
5																				
6																				
7																				
8																				
9																				
10																				

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni (Pb) Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	3/26/14 11:20	x [signature]	3/26/14 11:20
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

SITE OBSERVATION REPORT

Stantec

Project:	7-Eleven 14479	File No.	
Contractor	Stantec / Holt	Project No	
Owner:	Taco Time	Project No	185750003.200.0600
Location:	Tumwater WA 5301 Capitol Blvd	Date:	8/8/13
		Page	1 of 1

The following items were noted: Weather: Cloudy ~ 70°F

0430 On-site

0435 Holt on-site
Stantec marking sewer drain which runs through probing area. Marking line based on map of the site obtained from Chip at Public Services Tumwater Had to relocate borings (24, 25, 26 & SG-1)

0500 Conded His briefing

0530-0730 Holt coring three soil gas locations & installing 6" stainless steel vapor probes (SG-1, SG-2, and SG-3). Installing each soil gas probe at 5 feet below ground. Holt used wrong size tubing ("1/4" id). Should be 1/4" o.d. Finished permanent soil gas wells with 1 inch well mounts

0800-0900 Holt setting up on SB-27. Boring to 35'
Collected physical parameters sample @ 35'

0900-0945 Holt began SB-25. Boring to ~~35'~~ 30'
some bentonite in acetate liner ~15% of volume. Continued boring at this location ~~Holt~~ Bentonite cleared at 15' bgs.

0955 Holt began SB-24. Boring to ~~14'~~ 15'

1015 Holt began SB-26. Boring to 15'

1030 Holt began SB-28. Boring to 15'

1045 Holt patching borings / ~~DPT~~ Geoprobe rig off-site

1100 Holt cleaning up site,
One 20 gallon drum of soil remains on-site. Drum is labeled. Drum located in dumpster enclosure.

Prepared by: Adam Valenti
Print Name

Sample log on seperate page.

Adam Valenti
Signature

1120 Finished work / lunch break

SITE OBSERVATION REPORT

Stantec

Project: Former 7-Eleven 14479
Contractor: Stantec / Holt
Owner: Taco Time
Location: Tumwater, WA

File No.
Project No.
Project No. 185750003.200.0600
Date: 8/8/13
Page ___ of ___

Sample Log

The following items were noted: Weather:

#	Date	Time	Sample Name	Description	Location	PID
1	8/8/13	0805	SB-27@5'	-	-	0.0
2	8/8/13	0810	SB-27@10'	-	-	7.8
3	8/8/13	0820	SB-27@15'	-	-	0.0
4	8/8/13	0825	SB-27@20'	-	-	0.0
5	8/8/13	0830	SB-27@25'	-	-	0.0
6	8/8/13	0840	SB-27@30	-	-	0.0
7	8/8/13	0850	SB-27@35'	-	-	0.0
8	8/8/13	0905	SB-25@5'	-	-	11.1
9	8/8/13	0910	SB-25@10'	-	-	0.0
10	8/8/13	0920	SB-25@15'	-	-	0.0
11	8/8/13	0930	SB-25@20'	-	-	0.0
12	8/8/13	0940	SB-25@25'	-	-	0.0
13	8/8/13	0950	SB-25@30'	-	-	0.0
14	8/8/13	1005	SB-24@5'	-	-	0.0
15	8/8/13	1010	SB-24@10'	-	-	0.0
16	8/8/13	1015	SB-24@15'	-	-	0.0
17	8/8/13	1020	SB-26@5'	-	-	0.0
18	8/8/13	1025	SB-26@10'	-	-	0.0
19	8/8/13	1030	SB-26@15'	-	-	0.0
20	8/8/13	1045	SB-28@5'	-	-	0.0
21	8/8/13	1050	SB-28@10'	-	-	0.0
22	8/8/13	1055	SB-28@15'	-	-	0.0

Prepared by:

Print Name

Signature

SITE OBSERVATION REPORT

Stantec

Project: 7-Eleven 14479
Contractor: Stantec
Owner: Taco Time (Former 7-Eleven)
Location: 5310 Capitol Blvd

File No.
Project No.
Project No.
Date: 8/27/13
Page 1 of 2

The following items were noted: Weather: Cloudy, 60°F

0700 H&S Briefing

0710-0745 setting up vapor supplies at SG-2 utilizing 1-L summa's at ~175 ml/min flow rate. Placed Isopropyl soaked rag inside vapor shroud. Purged SG-2 approx 500 ml & measured O_2% = 20.9 PID = 0.0 ppm. used syringe & PID/tedlar bag

SG-2	start time = 0749	Initial Vac =	-30 Hg (in)
SG-2	Finish time = 0754	Final Vac =	-5 Hg (in)

Shut in test - good (no leak) applied vac to sample train

0800 moved set-up to SG-1
setting up equip/purging at SG-1
Purged approx 750 ml @ SG-1
O_2% = 20.9
PID = 0.0 ppm
used syringe & tedlar bag to purge/collect O_2/PID measurements

	SG-1	start time = 0832	Initial Vac =	-30 in Hg
	SG-1	Finish time = 0837	Final Vac	-5 in Hg
Dup	SG-1	Start time 0832	Initial Vac	-30 in Hg
Dup	SG-1	Finish time 0843	Final Vac	-5 in Hg

used duplicate manifold to collect SG-1 dup simultaneously. Placed Isopropyl soaked rag inside vapor shroud.
Shut in test - good (no leak) applied vac to sample train

Prepared by:

Print Name

Signature

SITE OBSERVATION REPORT

Stantec

Project:	7-Eleven 14479	File No.	
Contractor:	Stantec	Project No.	
Owner:	Taco Time (Former 7-Eleven)	Project No.	
Location:	5310 Capitol Blvd	Date:	8/27/13
		Page	2 of 2

The following items were noted: Weather:

0855 - 0915 setting up sampling equipment at SG-3. Purged approx 500 ml
$O_2\% = 20.9$ PID = 0.0 ppm

SG-3 start time 0918 Initial vac -30 in Hg

SG-3 Finish time 0925 Final vac -5 in Hg

0930 - 0945 Packing up equipment.

1000 Off-site

Prepared by:

Adam Valenti
Print Name

Adam Valenti
Signature

SOIL VAPOR, CRAWLSPACE AND AMBIENT AIR SAMPLING DATA

Sample Type	Sample ID	Date	Elapsed Time (min)	Sample Flow Rate (1) ~~(L/min)~~ ml/min	Cumulative Volume Purged ~~(L)~~ ml	Parameters			Helium Tracer Gas			VOC (ppm_v)	Summa Canister ID	Flow Controller #	Vacuum Gauge #	Initial Vacuum (in. Hg)	Final Vacuum (in. Hg)
						CH_4 (%)	CO_2 (%)	O_2 (%)	Shroud (%) Minimum	Shroud (%) Maximum	Sample (%)						
Soil Vapor Probes	SG-1 Dup	8/27/13	11	175	750 ~~250~~ AV	0	0	20.9				0.0	SLC-032	SGM 154	Attached to summa	-30	-5
	SG-3	8/27/13	7	175	500	0	0	20.9				0.0	LC-802	SGM 221	Attached to summa	-30	-5
	←		NOT		USED						→		SLC-119	NA	Attached to summa	-30	NA
	SG-2	8/27/13	5	175	500	0	0	20.9				0.0	LC-817	SGM-140	Attached to summa	-30	-5
	SG-1	8/27/13	5	175	750 ~~250~~ AV	0	0	20.9				0.0	LC-337	SGM 132	Attached to summa	-30	-5
Crawlspace and Ambient Air Samples																	

Notes:

min - minutes
L/min - liters per minute
(1) - flow controller calibrated to ~~0.2 L/min~~ 175 ml/min by laboratory
L - liters
% - percent
ppm_v - parts per million by volume
VOC - volatile organic compounds
CH_4 - methane
CO_2 - carbon dioxide
O_2 - oxygen
** - insufficient volume for measurement

Appendix H

LABORATORY ANALYTCAL RESULTS

KIFF Analytical LLC

Report Number : 85960
Date : 09/13/2013

Laboratory Results

Adam Valenti
Stantec Consulting Corporation - Redmond, WA
12034 134th Court Northeast Suite 102
Redmond, WA 98052

Subject : 4 Samples
Project Name : 7-Eleven 14479
Project Number :

Dear Mr. Valenti,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the 2003 NELAC and TNI 2009 standards. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the National Environmental Laboratory Accreditation Program (NELAP), lab # 08263CA. If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Troy G. Turpen

Troy Turpen

85960

Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 FAX: (714) 894-7501

AIR CHAIN OF CUSTODY RECORD

DATE: 8/27/13
PAGE: 1 OF 1

LABORATORY CLIENT: Stantec Consulting Services	CLIENT PROJECT NAME / NUMBER: 7-Eleven 14479	P.O.NO.:	
ADDRESS: 12034 134th Court NE Suite 102	PROJECT ADDRESS: 5310 Capitol Blvd	LAB CONTACT OR QUOTE NO.	
CITY: Redmond STATE: WA ZIP: 98052	CITY: Tumwater STATE: WA ZIP: ~~98~~	LAB USE ONLY: 13-09-0009	
TEL: 425-298-1000 E-MAIL: Adam.Valenti@Stantec.com	PROJECT CONTACT: Paul Fairbairn		
TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS	SAMPLER(S): (NAME / SIGNATURE) Adam Valenti		

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ EDD

SPECIAL INSTRUCTIONS: Report concentrations in µg/m3
See attached Soil Gas Target Compound List

LAB USE ONLY	SAMPLE ID	FIELD ID / Point of Collection	Air Type (I) Indoor (SV) Soil Vap. (A) Ambient	Sampling Equipment: Canister ID#	Canister Size 6L or 1L	Flow Controller ID #	Start Sampling Information: Date	Time (24 hr clock)	Canister Pressure ("Hg)	Stop Sampling Information: Date	Time (24 hr clock)	Canister Pressure ("Hg)	REQUESTED ANALYSES: TO-15	Air Phase Petroleum Hydrocarbons	Isopropyl Alcohol	n-hexane
1	SG-1	SG-1	SV	LC-337	1L	SGM 132	8/27/13	0832	-30	8/27/13	0837	-5	X	X	X	X
2	SG-1 Dup	SG-1	SV	SLC-032	1L	SGM 154	8/27/13	0832	-30	8/27/13	0843	-5	X	X	X	X
3	SG-2	SG-2	SV	LC-817	1L	SGM 140	8/27/13	0749	-30	8/27/13	0754	-5	X	X	X	X
4	SG-3	SG-3	SV	LC-802	1L	SGM 221	8/27/13	0918	-30	8/27/13	0925	-5	X	X	X	X

Relinquished by: (Signature) Adam Valenti	Received by: (Signature) Patrick Holstein	Date: 8/30	Time: 12:00
Relinquished by: (Signature) Patrick Holstein 8/30 1200 (FEDEX)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature) Fedex 1-day	Date: 9/3/13	Time: 10:15

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively

04/01/13 Revision

Leaders in Analytical Science and Service

KIFF Analytical LLC

Subcontract Laboratory Report Attachments

2795 Second Street, Suite 300 Davis, CA 95618
tel 530.297.4800 fax 530.297.4808
www.kiffanalytical.com

Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 13-09-0009

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Kiff Analytical

Client Project Name: 7-Eleven 14479

Attention: Joel Kiff
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Amanda Porter

Approved for release on 09/12/2013 by:
Amanda Porter
Project Manager

ResultLink

Email your PM

ACCREDITED IN ACCORDANCE WITH nelac

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: 7-Eleven 14479
Work Order Number: 13-09-0009

Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-09-0009 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 09/03/13. They were assigned to Work Order 13-09-0009.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: EPA TO-15
Units: ug/m3

Project: 7-Eleven 14479

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SG-1	**13-09-0009-1-A**	**08/27/13 08:37**	**Air**	**GC/MS YY**	**N/A**	**09/08/13 15:44**	**130908L01**

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	1.6	1.03	
Chlorobenzene	4.1	2.4	1.03	
1,2-Dichlorobenzene	ND	3.1	1.03	
1,3-Dichlorobenzene	ND	3.1	1.03	
1,4-Dichlorobenzene	ND	3.1	1.03	
Ethylbenzene	8.9	2.2	1.03	
Hexane	ND	7.3	1.03	
Naphthalene	ND	27	1.03	
o-Xylene	34	2.2	1.03	
p/m-Xylene	48	8.9	1.03	
Toluene	32	1.9	1.03	
1,3,5-Trimethylbenzene	3.8	2.5	1.03	
1,2,4-Trimethylbenzene	11	7.6	1.03	
1,2,4-Trichlorobenzene	ND	15	1.03	
Isopropanol	ND	13	1.03	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	119	68-134	
1,2-Dichloroethane-d4	110	67-133	
Toluene-d8	106	70-130	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: EPA TO-15
Units: ug/m3

Project: 7-Eleven 14479

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SG-1 DUP	**13-09-0009-2-A**	**08/27/13 08:43**	**Air**	**GC/MS YY**	**N/A**	**09/08/13 16:41**	**130908L01**

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	1.8	1.1	
Chlorobenzene	4.2	2.5	1.1	
1,2-Dichlorobenzene	ND	3.3	1.1	
1,3-Dichlorobenzene	ND	3.3	1.1	
1,4-Dichlorobenzene	ND	3.3	1.1	
Ethylbenzene	6.5	2.4	1.1	
Hexane	ND	7.8	1.1	
Naphthalene	ND	29	1.1	
o-Xylene	28	2.4	1.1	
p/m-Xylene	36	9.6	1.1	
Toluene	19	2.1	1.1	
1,3,5-Trimethylbenzene	3.0	2.7	1.1	
1,2,4-Trimethylbenzene	ND	8.1	1.1	
1,2,4-Trichlorobenzene	ND	16	1.1	
Isopropanol	18	14	1.1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	108	68-134	
1,2-Dichloroethane-d4	105	67-133	
Toluene-d8	101	70-130	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: EPA TO-15
Units: ug/m3

Project: 7-Eleven 14479

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SG-2	**13-09-0009-3-A**	**08/27/13 07:54**	**Air**	**GC/MS YY**	**N/A**	**09/08/13 17:40**	**130908L01**

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	1.8	1.11	
Chlorobenzene	3.5	2.6	1.11	
1,2-Dichlorobenzene	ND	3.3	1.11	
1,3-Dichlorobenzene	ND	3.3	1.11	
1,4-Dichlorobenzene	ND	3.3	1.11	
Ethylbenzene	6.3	2.4	1.11	
Hexane	ND	7.8	1.11	
Naphthalene	ND	29	1.11	
o-Xylene	31	2.4	1.11	
p/m-Xylene	35	9.6	1.11	
Toluene	13	2.1	1.11	
1,3,5-Trimethylbenzene	ND	2.7	1.11	
1,2,4-Trimethylbenzene	ND	8.2	1.11	
1,2,4-Trichlorobenzene	ND	16	1.11	
Isopropanol	ND	14	1.11	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	105	68-134	
1,2-Dichloroethane-d4	105	67-133	
Toluene-d8	101	70-130	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: EPA TO-15
Units: ug/m3

Project: 7-Eleven 14479

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SG-3	**13-09-0009-4-A**	**08/27/13 09:25**	**Air**	**GC/MS YY**	**N/A**	**09/08/13 18:36**	**130908L01**

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	1.7	1.08	
Chlorobenzene	ND	2.5	1.08	
1,2-Dichlorobenzene	ND	3.2	1.08	
1,3-Dichlorobenzene	ND	3.2	1.08	
1,4-Dichlorobenzene	ND	3.2	1.08	
Ethylbenzene	8.0	2.3	1.08	
Hexane	ND	7.6	1.08	
Naphthalene	ND	28	1.08	
o-Xylene	37	2.3	1.08	
p/m-Xylene	47	9.4	1.08	
Toluene	10	2.0	1.08	
1,3,5-Trimethylbenzene	2.9	2.7	1.08	
1,2,4-Trimethylbenzene	ND	8.0	1.08	
1,2,4-Trichlorobenzene	ND	16	1.08	
Isopropanol	ND	13	1.08	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	108	68-134	
1,2-Dichloroethane-d4	105	67-133	
Toluene-d8	103	70-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: EPA TO-15
Units: ug/m3

Project: 7-Eleven 14479

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**095-01-021-11955**	**N/A**	**Air**	**GC/MS YY**	**N/A**	**09/08/13 13:47**	**130908L01**

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	1.6	1	
Chlorobenzene	ND	2.3	1	
1,2-Dichlorobenzene	ND	3.0	1	
1,3-Dichlorobenzene	ND	3.0	1	
1,4-Dichlorobenzene	ND	3.0	1	
Ethylbenzene	ND	2.2	1	
Hexane	ND	7.0	1	
Naphthalene	ND	26	1	
o-Xylene	ND	2.2	1	
p/m-Xylene	ND	8.7	1	
Toluene	ND	1.9	1	
1,3,5-Trimethylbenzene	ND	2.5	1	
1,2,4-Trimethylbenzene	ND	7.4	1	
1,2,4-Trichlorobenzene	ND	15	1	
Isopropanol	ND	12	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	105	68-134	
1,2-Dichloroethane-d4	113	67-133	
Toluene-d8	98	70-130	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: 7-Eleven 14479

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: GC/MS Carbon Chain
Units: ug/m3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SG-1	**13-09-0009-1-A**	**08/27/13 08:37**	**Air**	**GC/MS YY**	**N/A**	**09/08/13 15:44**	**130908L01**

Parameter	Result	RL	DF	Qualifiers
C6-C8 Aromatic Hydrocarbons	760	130	1.03	
C9-C10 Aromatic Hydrocarbons	ND	32	1.03	
C5-C8 Aliphatic Hydrocarbons	310	39	1.03	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	108	57-129	
1,2-Dichloroethane-d4	97	47-137	
Toluene-d8	108	78-156	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SG-1	**13-09-0009-1-A**	**08/27/13 08:37**	**Air**	**GC/MS YY**	**N/A**	**09/10/13 21:29**	**130910L01**

Parameter	Result	RL	DF	Qualifiers
C9-C12 Aliphatic Hydrocarbons	3300	150	2.6	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	96	57-129	
1,2-Dichloroethane-d4	89	47-137	
Toluene-d8	105	78-156	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SG-1 DUP	**13-09-0009-2-A**	**08/27/13 08:43**	**Air**	**GC/MS YY**	**N/A**	**09/08/13 16:41**	**130908L01**

Parameter	Result	RL	DF	Qualifiers
C6-C8 Aromatic Hydrocarbons	550	130	1.1	
C9-C10 Aromatic Hydrocarbons	ND	34	1.1	
C5-C8 Aliphatic Hydrocarbons	180	42	1.1	
C9-C12 Aliphatic Hydrocarbons	1800	65	1.1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	57-129	
1,2-Dichloroethane-d4	92	47-137	
Toluene-d8	103	78-156	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: GC/MS Carbon Chain
Units: ug/m3

Project: 7-Eleven 14479

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SG-2	**13-09-0009-3-A**	**08/27/13 07:54**	**Air**	**GC/MS YY**	**N/A**	**09/08/13 17:40**	**130908L01**

Parameter	Result	RL	DF	Qualifiers
C6-C8 Aromatic Hydrocarbons	520	140	1.11	
C9-C10 Aromatic Hydrocarbons	ND	35	1.11	
C5-C8 Aliphatic Hydrocarbons	250	42	1.11	
C9-C12 Aliphatic Hydrocarbons	1700	66	1.11	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	95	57-129	
1,2-Dichloroethane-d4	93	47-137	
Toluene-d8	103	78-156	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SG-3	**13-09-0009-4-A**	**08/27/13 09:25**	**Air**	**GC/MS YY**	**N/A**	**09/08/13 18:36**	**130908L01**

Parameter	Result	RL	DF	Qualifiers
C6-C8 Aromatic Hydrocarbons	610	130	1.08	
C9-C10 Aromatic Hydrocarbons	ND	34	1.08	
C5-C8 Aliphatic Hydrocarbons	220	41	1.08	
C9-C12 Aliphatic Hydrocarbons	1100	64	1.08	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	57-129	
1,2-Dichloroethane-d4	91	47-137	
Toluene-d8	105	78-156	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-270-54**	**N/A**	**Air**	**GC/MS YY**	**N/A**	**09/08/13 13:47**	**130908L01**

Parameter	Result	RL	DF	Qualifiers
C6-C8 Aromatic Hydrocarbons	ND	120	1	
C9-C10 Aromatic Hydrocarbons	ND	31	1	
C5-C8 Aliphatic Hydrocarbons	ND	38	1	
C9-C12 Aliphatic Hydrocarbons	ND	59	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	96	57-129	
1,2-Dichloroethane-d4	100	47-137	
Toluene-d8	100	78-156	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Return to Contents

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: GC/MS Carbon Chain
Units: ug/m3

Project: 7-Eleven 14479

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-270-55**	**N/A**	**Air**	**GC/MS YY**	**N/A**	**09/10/13 20:39**	**130910L01**

Parameter	Result	RL	DF	Qualifiers
C9-C12 Aliphatic Hydrocarbons	ND	59	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	93	57-129	
1,2-Dichloroethane-d4	92	47-137	
Toluene-d8	100	78-156	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: 7-Eleven 14479

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: EPA TO-15

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-021-11955	**Air**	**GC/MS YY**	**N/A**	**09/08/13 11:20**	**130908L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Acetone	59.39	71.45	120	67.33	113	67-133	56-144	6	0-30	
Benzene	79.87	89.60	112	89.27	112	70-130	60-140	0	0-30	
Benzyl Chloride	129.4	160.3	124	156.6	121	38-158	18-178	2	0-30	
Bromodichloromethane	167.5	198.2	118	194.8	116	70-130	60-140	2	0-30	
Bromoform	258.4	275.7	107	266.1	103	63-147	49-161	4	0-30	
Bromomethane	97.08	112.0	115	105.6	109	70-139	58-150	6	0-30	
1,3-Butadiene	55.31	63.53	115	60.05	109	68-140	56-152	6	0-30	
2-Butanone	73.73	97.24	132	94.17	128	66-132	55-143	3	0-30	
Carbon Disulfide	77.85	94.35	121	93.69	120	68-146	55-159	1	0-30	
Carbon Tetrachloride	157.3	184.0	117	179.6	114	70-136	59-147	2	0-30	
Chlorobenzene	115.1	121.7	106	122.1	106	70-130	60-140	0	0-30	
Chloroethane	65.96	75.84	115	71.49	108	65-149	51-163	6	0-30	
Chloroform	122.1	138.4	113	135.8	111	70-130	60-140	2	0-30	
Chloromethane	51.63	56.85	110	55.36	107	69-141	57-153	3	0-30	
Cyclohexane	86.05	104.5	121	104.7	122	70-130	60-140	0	0-30	
Dibromochloromethane	213.0	240.1	113	236.3	111	70-138	59-149	2	0-30	
Dichlorodifluoromethane	123.6	146.9	119	141.3	114	67-139	55-151	4	0-30	
Diisopropyl Ether (DIPE)	104.5	116.1	111	112.1	107	63-130	52-141	3	0-30	
1,1-Dichloroethane	101.2	116.9	115	116.6	115	70-130	60-140	0	0-30	
1,1-Dichloroethene	99.12	98.42	99	121.4	123	70-135	59-146	21	0-30	
1,2-Dibromoethane	192.1	211.9	110	210.3	109	70-133	60-144	1	0-30	
Dichlorotetrafluoroethane	174.8	159.2	91	150.2	86	51-135	37-149	6	0-30	
1,2-Dichlorobenzene	150.3	173.3	115	167.0	111	48-138	33-153	4	0-30	
1,2-Dichloroethane	101.2	121.5	120	118.9	117	70-132	60-142	2	0-30	
1,2-Dichloropropane	115.5	130.9	113	130.6	113	70-130	60-140	0	0-30	
1,3-Dichlorobenzene	150.3	161.2	107	152.3	101	56-134	43-147	6	0-30	
1,4-Dichlorobenzene	150.3	159.7	106	150.6	100	52-136	38-150	6	0-30	
1,4-Dioxane	90.09	94.60	105	91.74	102	52-136	38-150	3	0-30	
c-1,3-Dichloropropene	113.5	142.8	126	140.2	124	70-130	60-140	2	0-30	
c-1,2-Dichloroethene	99.12	109.8	111	110.5	112	70-130	60-140	1	0-30	
t-1,2-Dichloroethene	99.12	105.6	107	104.7	106	70-130	60-140	1	0-30	
t-1,3-Dichloropropene	113.5	158.3	140	155.1	137	70-147	57-160	2	0-30	
Ethanol	188.4	195.1	104	177.7	94	37-139	20-156	9	0-30	
Ethyl Acetate	90.09	119.5	133	114.2	127	70-133	60-144	5	0-30	
Ethyl-t-Butyl Ether (ETBE)	104.5	109.2	105	109.8	105	67-130	56-140	1	0-30	
Ethylbenzene	108.6	120.3	111	120.4	111	70-130	60-140	0	0-30	
4-Ethyltoluene	122.9	137.0	111	134.5	109	68-130	58-140	2	0-30	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: 7-Eleven 14479

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: EPA TO-15

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Heptane	102.5	110.5	108	110.3	108	70-130	60-140	0	0-30	
Hexachloro-1,3-Butadiene	266.6	262.9	99	262.3	98	44-146	27-163	0	0-30	
Hexane	88.12	106.6	121	105.6	120	70-130	60-140	1	0-30	
2-Hexanone	102.4	116.5	114	115.4	113	70-136	59-147	1	0-30	
Methyl-t-Butyl Ether (MTBE)	90.13	97.99	109	99.83	111	68-130	58-140	2	0-30	
Methylene Chloride	86.84	84.25	97	93.40	108	69-130	59-140	10	0-30	
4-Methyl-2-Pentanone	102.4	123.7	121	120.7	118	70-130	60-140	3	0-30	
Naphthalene	131.1	146.1	111	150.1	115	24-144	4-164	3	0-30	
o-Xylene	108.6	120.6	111	119.7	110	69-130	59-140	1	0-30	
p/m-Xylene	217.1	245.5	113	241.8	111	70-132	60-142	2	0-30	
Propene	43.03	62.41	145	58.95	137	50-164	31-183	6	0-121	
Styrene	106.5	118.0	111	116.8	110	65-131	54-142	1	0-30	
Tert-Amyl-Methyl Ether (TAME)	104.5	103.3	99	105.0	101	69-130	59-140	2	0-30	
Tert-Butyl Alcohol (TBA)	151.6	137.0	90	169.7	112	66-144	53-157	21	0-30	
Tetrachloroethene	169.6	179.4	106	179.5	106	70-130	60-140	0	0-30	
Tetrahydrofuran	73.73	99.73	135	96.78	131	64-130	53-141	3	0-30	ME
Toluene	94.21	102.6	109	104.1	111	70-130	60-140	2	0-30	
Trichloroethene	134.3	152.9	114	150.9	112	70-130	60-140	1	0-30	
Trichlorofluoromethane	140.5	175.8	125	160.0	114	63-141	50-154	9	0-30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	191.6	225.7	118	219.3	114	70-136	59-147	3	0-30	
1,1,1-Trichloroethane	136.4	150.8	111	148.3	109	70-130	60-140	2	0-30	
1,1,2-Trichloroethane	136.4	158.8	116	154.8	113	70-130	60-140	3	0-30	
1,2,3-Trichloropropane	150.7	158.8	105	154.0	102	70-130	60-140	3	0-30	
Acrolein	57.32	70.36	123	66.46	116	59-143	45-157	6	0-30	
Acrylonitrile	54.25	43.03	79	40.94	75	61-130	50-142	5	0-30	
Methyl Methacrylate	102.4	121.5	119	120.2	117	70-130	60-140	1	0-30	
Propane	90.18	131.7	146	120.3	133	49-157	31-175	9	0-92	
Butane	118.9	129.2	109	122.4	103	66-138	54-150	5	0-30	
Methanol	98.28	88.93	90	82.60	84	11-151	0-174	7	0-30	
2,2,4-Trimethyl Pentane	116.8	130.9	112	129.9	111	70-130	60-140	1	0-30	
Isobutane	118.9	128.1	108	122.7	103	63-141	50-154	4	0-30	
1,1,1,2-Tetrafluoroethane	104.3	113.1	108	111.3	107	70-130	60-140	2	0-30	
1,3,5-Trimethylbenzene	122.9	137.6	112	135.2	110	62-130	51-141	2	0-30	
1,1,2,2-Tetrachloroethane	171.6	184.5	108	178.5	104	63-130	52-141	3	0-30	
1,2,4-Trimethylbenzene	122.9	137.7	112	133.1	108	60-132	48-144	3	0-30	
1,2,4-Trichlorobenzene	185.5	196.9	106	204.2	110	31-151	11-171	4	0-30	
Vinyl Acetate	88.03	105.9	120	103.4	117	58-130	46-142	2	0-30	
Vinyl Chloride	63.91	71.77	112	68.36	107	70-134	59-145	5	0-30	
1,1-Difluoroethane	67.54	86.09	127	82.39	122	70-131	60-141	4	0-30	

RPD: Relative Percent Difference. CL: Control Limits

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: 7-Eleven 14479

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: EPA TO-15

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Isopropanol	61.45	74.35	121	69.66	113	57-135	44-148	7	0-30	
2-Chlorotoluene	129.4	134.2	104	131.0	101	70-130	60-140	2	0-30	
Isopropylbenzene	122.9	120.4	98	119.7	97	70-130	60-140	1	0-30	
n-Propylbenzene	122.9	125.1	102	122.7	100	68-130	58-140	2	0-30	

Total number of LCS compounds: 80
Total number of ME compounds: 1
Total number of ME compounds allowed: 4
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: 7-Eleven 14479

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: GC/MS Carbon Chain
Page 4 of 5

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-270-54	**Air**	**GC/MS YY**	**N/A**	**09/08/13 09:38**	**130908L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	79.87	68.70	86	65.07	81	60-156	5	0-40	
Toluene	94.21	81.84	87	78.85	84	56-146	4	0-43	
Ethylbenzene	108.6	98.04	90	93.64	86	52-154	5	0-38	
p/m-Xylene	108.6	93.44	86	90.23	83	42-156	3	0-41	
o-Xylene	108.6	100.6	93	97.10	89	52-148	4	0-38	
Methyl-t-Butyl Ether (MTBE)	90.13	82.23	91	78.29	87	50-150	5	0-35	
1,3-Butadiene	55.31	43.47	79	42.02	76	50-150	3	0-35	
Naphthalene	131.1	85.89	66	80.31	61	40-190	7	0-35	
C5-C8 Aliphatic Hydrocarbons	569.6	540.6	95	485.7	85	47-137	11	0-30	
C9-C12 Aliphatic Hydrocarbons	885.2	869.9	98	825.7	93	47-137	5	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCSD

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Project: 7-Eleven 14479

Date Received: 09/03/13
Work Order: 13-09-0009
Preparation: N/A
Method: GC/MS Carbon Chain
Page 5 of 5

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-14-270-55	**Air**	**GC/MS YY**	**N/A**	**09/10/13 14:42**	**130910L01**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	79.87	91.54	115	91.19	114	60-156	0	0-40	
Toluene	94.21	101.7	108	102.5	109	56-146	1	0-43	
Ethylbenzene	108.6	123.2	114	123.9	114	52-154	1	0-38	
p/m-Xylene	108.6	115.4	106	116.1	107	42-156	1	0-41	
o-Xylene	108.6	123.4	114	123.7	114	52-148	0	0-38	
Methyl-t-Butyl Ether (MTBE)	90.13	117.1	130	116.8	130	50-150	0	0-35	
1,3-Butadiene	55.31	43.40	78	43.80	79	50-150	1	0-35	
Naphthalene	131.1	120.2	92	118.0	90	40-190	2	0-35	
C5-C8 Aliphatic Hydrocarbons	569.6	646.6	114	637.4	112	47-137	1	0-30	
C9-C12 Aliphatic Hydrocarbons	885.2	843.2	95	851.6	96	47-137	1	0-30	

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RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Summa Canister Vacuum Summary

Work Order: 13-09-0009

Sample Name	Vacuum Out	Vacuum In	Equipment	Description
SG-1	-29.60 in Hg	-5.00 in Hg	LC337	Summa Canister 1L
SG-1 DUP	-29.70 in Hg	-5.00 in Hg	SLC032	Summa Canister 1L
SG-2	-29.70 in Hg	-5.00 in Hg	LC817	Summa Canister 1L
SG-3	-29.70 in Hg	-5.00 in Hg	LC802	Summa Canister 1L

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Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 13-09-0009 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA TO-15	N/A	694	GC/MS YY	2
GC/MS Carbon Chain	N/A	694	GC/MS YY	2

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-09-0009 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 FAX: (714) 894-7501

AIR CHAIN OF CUSTODY RECORD

DATE: 8/27/13
PAGE: 1 OF 1

LABORATORY CLIENT: Stantec Consulting Services	CLIENT PROJECT NAME / NUMBER: 7-Eleven 14479	P.O.NO.:	
ADDRESS: 12034 134th Court NE Suite 102	PROJECT ADDRESS: 5310 Capitol Blvd	LAB CONTACT OR QUOTE NO.	
CITY: Redmond STATE: WA ZIP: 98052	CITY: Tumwater STATE: WA ZIP: ~~98~~	LAB USE ONLY 13-09-0009	
TEL: 425-298-1000 E-MAIL: Adam.Valenti@Stantec.com	PROJECT CONTACT: Paul Fairbairn		
TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS	SAMPLER(S): (NAME / SIGNATURE) Adam Valenti		
SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY) ☐ EDD			
SPECIAL INSTRUCTIONS: Report concentrations in µg/m3 See attached Soil Gas Target Compound List			

LAB USE ONLY	SAMPLE ID	FIELD ID / Point of Collection	Air Type (I) Indoor (SV) Soil Vap. (A) Ambient	Sampling Equipment: Canister ID#	Canister Size 6L or 1L	Flow Controller ID #	Start Sampling: Date	Start Sampling: Time (24 hr clock)	Start Sampling: Canister Pressure ("Hg)	Stop Sampling: Date	Stop Sampling: Time (24 hr clock)	Stop Sampling: Canister Pressure ("Hg)	REQUESTED ANALYSES: TO-15	Air Phase Petroleum Hydrocarbons	Isopropyl Alcohol	n-hexane
1	SG-1	SG-1	SV	LC-337	1L	SGM 132	8/27/13	0832	-30	8/27/13	0837	-5	X	X	X	X
2	SG-1 Dup	SG-1	SV	SLC-032	1L	SGM 154	8/27/13	0832	-30	8/27/13	0843	-5	X	X	X	X
3	SG-2	SG-2	SV	LC-817	1L	SGM 140	8/27/13	0749	-30	8/27/13	0754	-5	X	X	X	X
4	SG-3	SG-3	SV	LC-802	1L	SGM 221	8/27/13	0918	-30	8/27/13	0925	-5	X	X	X	X

Relinquished by: (Signature) Adam Valenti	Received by: (Signature) Patrick Holstein	Date: 8/30	Time: 12:00
Relinquished by: (Signature) Patrick Holstein 8/30 1200 (FEDEX)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date: 9/3/13	Time: 10:15

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively

04/01/13 Revision

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From: (530) 297-4800
Sample Receiving
KIFF ANALYTICAL
2795 2ND STREET
Suite 300
DAVIS, CA 95618

Origin ID: SMFA

FedEx Express

J13201306280326

Ship Date: 30AUG13
ActWgt: 10.0 LB
CAD: 3850663/INET3430

0009

Delivery Address Bar Code

Ref # SUMMA CANNISTERS FROM NWEST
Invoice #
PO #
Dept #

SHIP TO: (530) 297-4800 BILL THIRD PARTY

Amanda Porter
Calscience Environmental Lab
7440 LINCOLN WAY

GARDEN GROVE, CA 92841

TUE - 03 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 7965 8253 9378
0201

WZ APVA

92841
CA-US
SNA

51AG1/0SB3/1A9E

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-09-0009

SAMPLE RECEIPT FORM

Box 1 of 1

CLIENT: STANTEC CONSULTING SERVICE

DATE: 09/03/13

TEMPERATURE: Thermometer ID: SC3 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter **Initial:** JPS

CUSTODY SEALS INTACT:

☐ Box ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** JPS

☐ Sample ☐_____ ☐ No (Not Intact) ☐ Not Present **Initial:** AC

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** NC

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** [illegible]

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** [illegible]

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KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Laboratory Results

Paul Fairbairn
Stantec Consulting Corporation - Redmond, WA
12034 134th Court Northeast Suite 102
Redmond, WA 98052

Subject : 22 Soil Samples and 4 Water Samples
Project Name : 7-Eleven 14479 (Tumwater) Subsurface Investigation
Project Number : 185750003

Dear Mr. Fairbairn,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the 2003 NELAC and TNI 2009 standards. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the National Environmental Laboratory Accreditation Program (NELAP), lab # 08263CA. If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Troy G. Turpen

Troy Turpen

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Subject : 22 Soil Samples and 4 Water Samples
Project Name : 7-Eleven 14479 (Tumwater) Subsurface Investigation
Project Number : 185750003

Case Narrative

Gasoline Range Organics results for samples TB-1, FB-1,EQRP-1, and EQRR-1 by Method EPA 8260B are from a previously opened sample container. Results may be biased low. There was insufficient sample volume for analysis of an unopened container.

All soil samples were reported on a total weight (wet weight) basis.

PTS Labs provided analytical testing associated with these samples, but is not accredited by the National Environmental Laboratory Accreditation Program (NELAP). Please refer to the attached subcontract report for a list of this laboratory's current certifications.

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-24@5'** Matrix : Soil Lab Number : 85669-01
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.9**	0.50	mg/Kg	EPA 6010B	08/21/13 09:23
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 13:28
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 13:28
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 13:28
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 13:28
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/14/13 22:45
4-Bromofluorobenzene (Surr)	110		% Recovery	NWTPH-Gx	08/14/13 22:45
1,2-Dichloroethane-d4 (Surr)	119		% Recovery	EPA 8260B	08/15/13 13:28
Toluene - d8 (Surr)	99.3		% Recovery	EPA 8260B	08/15/13 13:28
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/19/13 16:13
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/19/13 16:13
Octacosane (Silica Gel Surr)	104		% Recovery	NWTPH-Dx	08/19/13 16:13

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-24@10'** Matrix : Soil Lab Number : 85669-02
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**8.2**	0.50	mg/Kg	EPA 6010B	08/21/13 09:37
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 14:06
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 14:06
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 14:06
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 14:06
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/14/13 23:56
4-Bromofluorobenzene (Surr)	105		% Recovery	NWTPH-Gx	08/14/13 23:56
1,2-Dichloroethane-d4 (Surr)	116		% Recovery	EPA 8260B	08/15/13 14:06
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	08/15/13 14:06
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/19/13 16:42
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/19/13 16:42
Octacosane (Silica Gel Surr)	94.8		% Recovery	NWTPH-Dx	08/19/13 16:42

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-24@15'** Matrix : Soil Lab Number : 85669-03
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.6**	0.50	mg/Kg	EPA 6010B	08/21/13 09:42
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 14:41
Toluene	**0.028**	0.0050	mg/Kg	EPA 8260B	08/15/13 14:41
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 14:41
Total Xylenes	**0.037**	0.0050	mg/Kg	EPA 8260B	08/15/13 14:41
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 00:33
4-Bromofluorobenzene (Surr)	109		% Recovery	NWTPH-Gx	08/15/13 00:33
1,2-Dichloroethane-d4 (Surr)	113		% Recovery	EPA 8260B	08/15/13 14:41
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	08/15/13 14:41
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/19/13 17:11
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/19/13 17:11
Octacosane (Silica Gel Surr)	93.0		% Recovery	NWTPH-Dx	08/19/13 17:11

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-25@5'** Matrix : Soil Lab Number : 85669-04
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**4.0**	0.50	mg/Kg	EPA 6010B	08/21/13 09:47
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 15:17
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 15:17
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 15:17
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 15:17
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 15:17
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 01:10
1,2-Dichloroethane	< 0.0010	0.0010	mg/Kg	EPA 8260B	08/15/13 15:17
1,2-Dibromoethane	< 0.0010	0.0010	mg/Kg	EPA 8260B	08/15/13 15:17
1,2-Dichloroethane-d4 (Surr)	118		% Recovery	EPA 8260B	08/15/13 15:17
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	08/15/13 15:17
4-Bromofluorobenzene (Surr)	102		% Recovery	NWTPH-Gx	08/15/13 01:10
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/19/13 17:40
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/19/13 17:40
Octacosane (Silica Gel Surr)	101		% Recovery	NWTPH-Dx	08/19/13 17:40

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-25@10'** Matrix : Soil Lab Number : 85669-05
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**6.2**	0.50	mg/Kg	EPA 6010B	08/21/13 09:52
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 15:52
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 15:52
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 15:52
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 15:52
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 01:47
4-Bromofluorobenzene (Surr)	104		% Recovery	NWTPH-Gx	08/15/13 01:47
1,2-Dichloroethane-d4 (Surr)	116		% Recovery	EPA 8260B	08/15/13 15:52
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	08/15/13 15:52
Diesel Range Organics (Silica Gel)	**29**	25	mg/Kg	NWTPH-Dx	08/20/13 08:33
Motor Oil Range Organics (Silica Gel)	**100**	100	mg/Kg	NWTPH-Dx	08/20/13 08:33
Octacosane (Silica Gel Surr)	91.6		% Recovery	NWTPH-Dx	08/20/13 08:33

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-25@15'** Matrix : Soil Lab Number : 85669-06
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**3.1**	0.50	mg/Kg	EPA 6010B	08/21/13 10:04
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 16:28
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 16:28
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 16:28
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 16:28
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 02:21
4-Bromofluorobenzene (Surr)	103		% Recovery	NWTPH-Gx	08/15/13 02:21
1,2-Dichloroethane-d4 (Surr)	117		% Recovery	EPA 8260B	08/15/13 16:28
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	08/15/13 16:28
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/19/13 18:38
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/19/13 18:38
Octacosane (Silica Gel Surr)	107		% Recovery	NWTPH-Dx	08/19/13 18:38

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-25@20'** Matrix : Soil Lab Number : 85669-07
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.2**	0.50	mg/Kg	EPA 6010B	08/21/13 10:09
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 17:04
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 17:04
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 17:04
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 17:04
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 02:55
4-Bromofluorobenzene (Surr)	101		% Recovery	NWTPH-Gx	08/15/13 02:55
1,2-Dichloroethane-d4 (Surr)	118		% Recovery	EPA 8260B	08/15/13 17:04
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	08/15/13 17:04
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/19/13 19:37
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/19/13 19:37
Octacosane (Silica Gel Surr)	100		% Recovery	NWTPH-Dx	08/19/13 19:37

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-25@25'** Matrix : Soil Lab Number : 85669-08
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.2**	0.50	mg/Kg	EPA 6010B	08/21/13 10:14
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 11:41
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 11:41
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 11:41
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 11:41
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 03:29
4-Bromofluorobenzene (Surr)	102		% Recovery	NWTPH-Gx	08/15/13 03:29
1,2-Dichloroethane-d4 (Surr)	108		% Recovery	EPA 8260B	08/15/13 11:41
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	08/15/13 11:41
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/19/13 19:08
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/19/13 19:08
Octacosane (Silica Gel Surr)	116		% Recovery	NWTPH-Dx	08/19/13 19:08

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-25@30'** Matrix : Soil Lab Number : 85669-09
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.2**	0.50	mg/Kg	EPA 6010B	08/21/13 10:19
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 18:15
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 18:15
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 18:15
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 18:15
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 04:07
4-Bromofluorobenzene (Surr)	101		% Recovery	NWTPH-Gx	08/15/13 04:07
1,2-Dichloroethane-d4 (Surr)	119		% Recovery	EPA 8260B	08/15/13 18:15
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	08/15/13 18:15
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/19/13 20:06
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/19/13 20:06
Octacosane (Silica Gel Surr)	99.1		% Recovery	NWTPH-Dx	08/19/13 20:06

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-26@5'** Matrix : Soil Lab Number : 85669-10
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.9**	0.50	mg/Kg	EPA 6010B	08/21/13 10:24
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 18:50
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 18:50
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 18:50
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/13 18:50
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 04:41
4-Bromofluorobenzene (Surr)	104		% Recovery	NWTPH-Gx	08/15/13 04:41
1,2-Dichloroethane-d4 (Surr)	117		% Recovery	EPA 8260B	08/15/13 18:50
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	08/15/13 18:50
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/19/13 20:37
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/19/13 20:37
Octacosane (Silica Gel Surr)	94.3		% Recovery	NWTPH-Dx	08/19/13 20:37

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-26@10'** Matrix : Soil Lab Number : 85669-11
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**3.7**	0.50	mg/Kg	EPA 6010B	08/21/13 10:29
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 11:36
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 11:36
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 11:36
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 11:36
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 12:47
4-Bromofluorobenzene (Surr)	101		% Recovery	NWTPH-Gx	08/15/13 12:47
1,2-Dichloroethane-d4 (Surr)	117		% Recovery	EPA 8260B	08/16/13 11:36
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	08/16/13 11:36
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/20/13 14:02
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/20/13 14:02
Octacosane (Silica Gel Surr)	78.3		% Recovery	NWTPH-Dx	08/20/13 14:02

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-26@15'** Matrix : Soil Lab Number : 85669-12
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**3.2**	0.50	mg/Kg	EPA 6010B	08/21/13 10:34
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 12:12
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 12:12
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 12:12
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 12:12
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 17:27
4-Bromofluorobenzene (Surr)	96.5		% Recovery	NWTPH-Gx	08/15/13 17:27
1,2-Dichloroethane-d4 (Surr)	116		% Recovery	EPA 8260B	08/16/13 12:12
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	08/16/13 12:12
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/20/13 15:39
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/20/13 15:39
Octacosane (Silica Gel Surr)	87.4		% Recovery	NWTPH-Dx	08/20/13 15:39

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-27@5'** Matrix : Soil Lab Number : 85669-13
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.8**	0.50	mg/Kg	EPA 6010B	08/21/13 10:39
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 13:23
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 13:23
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 13:23
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 13:23
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 22:33
4-Bromofluorobenzene (Surr)	95.2		% Recovery	NWTPH-Gx	08/15/13 22:33
1,2-Dichloroethane-d4 (Surr)	118		% Recovery	EPA 8260B	08/16/13 13:23
Toluene - d8 (Surr)	103		% Recovery	EPA 8260B	08/16/13 13:23
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/20/13 16:08
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/20/13 16:08
Octacosane (Silica Gel Surr)	78.4		% Recovery	NWTPH-Dx	08/20/13 16:08

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-27@10'** Matrix : Soil Lab Number : 85669-14
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**7.8**	0.50	mg/Kg	EPA 6010B	08/21/13 10:44
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 13:59
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 13:59
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 13:59
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 13:59
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 23:07
4-Bromofluorobenzene (Surr)	96.8		% Recovery	NWTPH-Gx	08/15/13 23:07
1,2-Dichloroethane-d4 (Surr)	116		% Recovery	EPA 8260B	08/16/13 13:59
Toluene - d8 (Surr)	103		% Recovery	EPA 8260B	08/16/13 13:59
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/20/13 12:57
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/20/13 12:57
Octacosane (Silica Gel Surr)	75.7		% Recovery	NWTPH-Dx	08/20/13 12:57

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-27@15'** Matrix : Soil Lab Number : 85669-15
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**3.4**	0.50	mg/Kg	EPA 6010B	08/21/13 10:49
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 20:40
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 20:40
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 20:40
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 20:40
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 23:41
4-Bromofluorobenzene (Surr)	95.0		% Recovery	NWTPH-Gx	08/15/13 23:41
1,2-Dichloroethane-d4 (Surr)	118		% Recovery	EPA 8260B	08/16/13 20:40
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	08/16/13 20:40
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/20/13 16:38
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/20/13 16:38
Octacosane (Silica Gel Surr)	80.6		% Recovery	NWTPH-Dx	08/20/13 16:38

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-27@20'** Matrix : Soil Lab Number : 85669-16
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.6**	0.50	mg/Kg	EPA 6010B	08/21/13 11:00
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 12:48
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 12:48
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 12:48
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 12:48
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/16/13 00:17
4-Bromofluorobenzene (Surr)	95.1		% Recovery	NWTPH-Gx	08/16/13 00:17
1,2-Dichloroethane-d4 (Surr)	117		% Recovery	EPA 8260B	08/16/13 12:48
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	08/16/13 12:48
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/20/13 17:07
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/20/13 17:07
Octacosane (Silica Gel Surr)	93.5		% Recovery	NWTPH-Dx	08/20/13 17:07

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**

Project Number : **185750003**

Sample : **SB-27@25'** Matrix : Soil Lab Number : 85669-17

Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.2**	0.50	mg/Kg	EPA 6010B	08/21/13 11:05
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 11:00
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 11:00
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 11:00
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 11:00
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/16/13 00:51
4-Bromofluorobenzene (Surr)	95.1		% Recovery	NWTPH-Gx	08/16/13 00:51
1,2-Dichloroethane-d4 (Surr)	116		% Recovery	EPA 8260B	08/16/13 11:00
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	08/16/13 11:00
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/20/13 17:36
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/20/13 17:36
Octacosane (Silica Gel Surr)	85.9		% Recovery	NWTPH-Dx	08/20/13 17:36

KIFF Analytical LLC

Report Number : 85669
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Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-27@30'** Matrix : Soil Lab Number : 85669-18
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.5**	0.50	mg/Kg	EPA 6010B	08/21/13 11:10
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/19/13 15:07
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/19/13 15:07
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/19/13 15:07
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/19/13 15:07
Gasoline Range Organics	**8.7**	5.0	mg/Kg	NWTPH-Gx	08/16/13 01:27
4-Bromofluorobenzene (Surr)	95.0		% Recovery	NWTPH-Gx	08/16/13 01:27
1,2-Dichloroethane-d4 (Surr)	108		% Recovery	EPA 8260B	08/19/13 15:07
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	08/19/13 15:07
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/20/13 18:05
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/20/13 18:05
Octacosane (Silica Gel Surr)	86.9		% Recovery	NWTPH-Dx	08/20/13 18:05

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**

Project Number : **185750003**

Sample : **SB-27@35'** Matrix : Soil Lab Number : 85669-19

Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.1**	0.50	mg/Kg	EPA 6010B	08/21/13 11:15
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 14:08
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 14:08
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 14:08
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 14:08
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 14:08
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/16/13 02:01
1,2-Dichloroethane	< 0.0010	0.0010	mg/Kg	EPA 8260B	08/16/13 14:08
1,2-Dibromoethane	< 0.0010	0.0010	mg/Kg	EPA 8260B	08/16/13 14:08
4-Bromofluorobenzene (Surr)	92.7		% Recovery	NWTPH-Gx	08/16/13 02:01
1,2-Dichloroethane-d4 (Surr)	111		% Recovery	EPA 8260B	08/16/13 14:08
Toluene - d8 (Surr)	99.7		% Recovery	EPA 8260B	08/16/13 14:08
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/20/13 18:34
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/20/13 18:34
Octacosane (Silica Gel Surr)	97.3		% Recovery	NWTPH-Dx	08/20/13 18:34

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-28@5'** Matrix : Soil Lab Number : 85669-20
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**3.1**	0.50	mg/Kg	EPA 6010B	08/21/13 11:20
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 10:56
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 10:56
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 10:56
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 10:56
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/16/13 02:35
4-Bromofluorobenzene (Surr)	94.4		% Recovery	NWTPH-Gx	08/16/13 02:35
1,2-Dichloroethane-d4 (Surr)	106		% Recovery	EPA 8260B	08/16/13 10:56
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	08/16/13 10:56
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/21/13 08:33
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/21/13 08:33
Octacosane (Silica Gel Surr)	84.6		% Recovery	NWTPH-Dx	08/21/13 08:33

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-28@10'** Matrix : Soil Lab Number : 85669-21
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.7**	0.50	mg/Kg	EPA 6010B	08/21/13 11:32
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 21:51
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 21:51
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 21:51
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 21:51
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/13 16:19
4-Bromofluorobenzene (Surr)	102		% Recovery	NWTPH-Gx	08/15/13 16:19
1,2-Dichloroethane-d4 (Surr)	117		% Recovery	EPA 8260B	08/16/13 21:51
Toluene - d8 (Surr)	103		% Recovery	EPA 8260B	08/16/13 21:51
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/22/13 13:00
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/22/13 13:00
Octacosane (Silica Gel Surr)	98.6		% Recovery	NWTPH-Dx	08/22/13 13:00

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **SB-28@15'** Matrix : Soil Lab Number : 85669-22
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Lead	**2.2**	0.50	mg/Kg	EPA 6010B	08/21/13 11:53
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 22:26
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 22:26
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 22:26
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/13 22:26
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/16/13 03:09
4-Bromofluorobenzene (Surr)	92.0		% Recovery	NWTPH-Gx	08/16/13 03:09
1,2-Dichloroethane-d4 (Surr)	113		% Recovery	EPA 8260B	08/16/13 22:26
Toluene - d8 (Surr)	103		% Recovery	EPA 8260B	08/16/13 22:26
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/22/13 21:11
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/22/13 21:11
Octacosane (Silica Gel Surr)	98.0		% Recovery	NWTPH-Dx	08/22/13 21:11

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **TB-1** Matrix : Water Lab Number : 85669-24

Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 13:40
Toluene	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 13:40
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 13:40
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 13:40
Gasoline Range Organics	< 250	250	ug/L	NWTPH-Gx	08/17/13 03:56
4-Bromofluorobenzene (Surr)	111		% Recovery	NWTPH-Gx	08/17/13 03:56
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	08/16/13 13:40
Toluene - d8 (Surr)	99.6		% Recovery	EPA 8260B	08/16/13 13:40

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **FB-1** Matrix : Water Lab Number : 85669-25

Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 14:15
Toluene	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 14:15
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 14:15
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 14:15
Gasoline Range Organics	< 250	250	ug/L	NWTPH-Gx	08/17/13 04:35
4-Bromofluorobenzene (Surr)	111		% Recovery	NWTPH-Gx	08/17/13 04:35
1,2-Dichloroethane-d4 (Surr)	99.8		% Recovery	EPA 8260B	08/16/13 14:15
Toluene - d8 (Surr)	99.4		% Recovery	EPA 8260B	08/16/13 14:15

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **EQRP-1** Matrix : Water Lab Number : 85669-26
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 14:49
Toluene	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 14:49
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 14:49
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 14:49
Gasoline Range Organics	< 250	250	ug/L	NWTPH-Gx	08/17/13 02:44
4-Bromofluorobenzene (Surr)	107		% Recovery	NWTPH-Gx	08/17/13 02:44
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	08/16/13 14:49
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	08/16/13 14:49

KIFF Analytical LLC

Report Number : 85669
Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**
Project Number : **185750003**

Sample : **EQRR-1** Matrix : Water Lab Number : 85669-27
Sample Date :08/08/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 15:24
Toluene	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 15:24
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 15:24
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	08/16/13 15:24
Gasoline Range Organics	< 250	250	ug/L	NWTPH-Gx	08/17/13 03:22
4-Bromofluorobenzene (Surr)	113		% Recovery	NWTPH-Gx	08/17/13 03:22
1,2-Dichloroethane-d4 (Surr)	99.8		% Recovery	EPA 8260B	08/16/13 15:24
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	08/16/13 15:24

Report Number : 85669

QC Report : Method Blank Data

Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**

Project Number : **185750003**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Lead	< 0.50	0.50	mg/Kg	EPA 6010B	08/21/2013
Lead	< 0.50	0.50	mg/Kg	EPA 6010B	08/21/2013
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/19/2013
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/19/2013
Octacosane (Silica Gel Surr)	107		%	NWTPH-Dx	08/19/2013
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/20/2013
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/20/2013
Octacosane (Silica Gel Surr)	93.9		%	NWTPH-Dx	08/20/2013
Diesel Range Organics (Silica Gel)	< 25	25	mg/Kg	NWTPH-Dx	08/22/2013
Motor Oil Range Organics (Silica Gel)	< 100	100	mg/Kg	NWTPH-Dx	08/22/2013
Octacosane (Silica Gel Surr)	111		%	NWTPH-Dx	08/22/2013
Gasoline Range Organics	< 20	20	mg/Kg	NWTPH-Gx	08/14/2013
4-Bromofluorobenzene (Surr)	112		%	NWTPH-Gx	08/14/2013
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/2013
4-Bromofluorobenzene (Surr)	103		%	NWTPH-Gx	08/15/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Gasoline Range Organics	< 5.0	5.0	mg/Kg	NWTPH-Gx	08/15/2013
4-Bromofluorobenzene (Surr)	102		%	NWTPH-Gx	08/15/2013
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/2013
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/2013
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/2013
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/2013
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/2013
1,2-Dibromoethane	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/2013
1,2-Dichloroethane	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/15/2013
1,2-Dichloroethane-d4 (Surr)	104		%	EPA 8260B	08/15/2013
Toluene - d8 (Surr)	101		%	EPA 8260B	08/15/2013
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/2013
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/2013
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/2013
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/2013
Methyl-t-butyl ether (MTBE)	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/2013
1,2-Dibromoethane	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/2013
1,2-Dichloroethane	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/16/2013
1,2-Dichloroethane-d4 (Surr)	102		%	EPA 8260B	08/16/2013
Toluene - d8 (Surr)	100		%	EPA 8260B	08/16/2013

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Report Number : 85669

QC Report : Method Blank Data

Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**

Project Number : **185750003**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Gasoline Range Organics	< 250	250	ug/L	NWTPH-Gx	08/16/2013
4-Bromofluorobenzene (Surr)	116		%	NWTPH-Gx	08/16/2013
Benzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/19/2013
Ethylbenzene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/19/2013
Toluene	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/19/2013
Total Xylenes	< 0.0050	0.0050	mg/Kg	EPA 8260B	08/19/2013
1,2-Dichloroethane-d4 (Surr)	98.4		%	EPA 8260B	08/19/2013
Toluene - d8 (Surr)	100		%	EPA 8260B	08/19/2013
Benzene	< 0.50	0.50	ug/L	EPA 8260B	08/16/2013
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	08/16/2013
Toluene	< 0.50	0.50	ug/L	EPA 8260B	08/16/2013
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	08/16/2013
1,2-Dichloroethane-d4 (Surr)	99.7		%	EPA 8260B	08/16/2013
Toluene - d8 (Surr)	100		%	EPA 8260B	08/16/2013

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed

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Report Number : 85669

QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**

Project Number : **185750003**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Lead														
	85669-01	2.9	49.5	49.5	47.4	46.9	mg/Kg	EPA 6010B	8/21/13	89.9	88.8	1.09	75-125	20
Lead														
	85669-21	2.7	48.5	48.5	46.6	47.3	mg/Kg	EPA 6010B	8/21/13	90.3	91.8	1.56	75-125	20
1,2-Dibromoethane														
	85669-08	<0.0050	0.0414	0.0416	0.0521	0.0467	mg/Kg	EPA 8260B	8/15/13	126	112	11.3	70.0-130	25
1,2-Dichloroethane														
	85669-08	<0.0050	0.0411	0.0412	0.0495	0.0466	mg/Kg	EPA 8260B	8/15/13	121	113	6.49	70.0-130	25
Benzene														
	85669-08	<0.0050	0.0411	0.0412	0.0452	0.0446	mg/Kg	EPA 8260B	8/15/13	110	108	1.64	70.0-130	25
Ethylbenzene														
	85669-08	<0.0050	0.0411	0.0412	0.0421	0.0413	mg/Kg	EPA 8260B	8/15/13	102	100	2.32	70.0-130	25
Methyl-t-butyl ether														
	85669-08	<0.0050	0.0409	0.0411	0.0522	0.0485	mg/Kg	EPA 8260B	8/15/13	127	118	7.59	60.0-130	25
P + M Xylene														
	85669-08	<0.0050	0.0411	0.0412	0.0415	0.0406	mg/Kg	EPA 8260B	8/15/13	101	98.4	2.72	70.0-130	25
Toluene														
	85669-08	<0.0050	0.0411	0.0412	0.0448	0.0442	mg/Kg	EPA 8260B	8/15/13	109	107	1.75	70.0-130	25

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QC Report : Matrix Spike/ Matrix Spike Duplicate

Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**

Project Number : **185750003**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
1,2-Dibromoethane														
	85669-20	<0.0050	0.0431	0.0438	0.0402	0.0432	mg/Kg	EPA 8260B	8/16/13	93.2	98.6	5.56	70.0-130	25
1,2-Dichloroethane														
	85669-20	<0.0050	0.0427	0.0435	0.0400	0.0419	mg/Kg	EPA 8260B	8/16/13	93.7	96.4	2.84	70.0-130	25
Benzene														
	85669-20	<0.0050	0.0427	0.0435	0.0379	0.0390	mg/Kg	EPA 8260B	8/16/13	88.7	89.6	1.06	70.0-130	25
Ethylbenzene														
	85669-20	<0.0050	0.0427	0.0435	0.0377	0.0386	mg/Kg	EPA 8260B	8/16/13	88.2	88.8	0.679	70.0-130	25
Methyl-t-butyl ether														
	85669-20	<0.0050	0.0426	0.0433	0.0426	0.0458	mg/Kg	EPA 8260B	8/16/13	99.9	106	5.61	60.0-130	25
P + M Xylene														
	85669-20	<0.0050	0.0427	0.0435	0.0364	0.0375	mg/Kg	EPA 8260B	8/16/13	85.2	86.2	1.13	70.0-130	25
Toluene														
	85669-20	<0.0050	0.0427	0.0435	0.0375	0.0392	mg/Kg	EPA 8260B	8/16/13	87.8	90.3	2.80	70.0-130	25
Benzene														
	85714-37	<0.0050	0.0391	0.0394	0.0343	0.0370	mg/Kg	EPA 8260B	8/19/13	87.8	93.9	6.67	70.0-130	25
Ethylbenzene														
	85714-37	<0.0050	0.0391	0.0394	0.0348	0.0382	mg/Kg	EPA 8260B	8/19/13	89.0	97.0	8.64	70.0-130	25

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QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**

Project Number : **185750003**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
P + M Xylene														
	85714-37	<0.0050	0.0391	0.0394	0.0336	0.0371	mg/Kg	EPA 8260B	8/19/13	86.1	94.1	8.89	70.0-130	25
Toluene														
	85714-37	<0.0050	0.0391	0.0394	0.0346	0.0383	mg/Kg	EPA 8260B	8/19/13	88.5	97.2	9.40	70.0-130	25
Benzene														
	85672-03	<0.50	40.0	40.0	43.9	43.1	ug/L	EPA 8260B	8/16/13	110	108	1.72	70.0-130	25
Ethylbenzene														
	85672-03	<0.50	40.0	40.0	45.5	44.3	ug/L	EPA 8260B	8/16/13	114	111	2.59	70.0-130	25
P + M Xylene														
	85672-03	<0.50	40.0	40.0	43.2	41.7	ug/L	EPA 8260B	8/16/13	108	104	3.47	70.0-130	25
Toluene														
	85672-03	<0.50	40.0	40.0	42.6	41.8	ug/L	EPA 8260B	8/16/13	106	104	1.82	70.0-130	25

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QC Report : Laboratory Control Sample (LCS)

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**

Project Number : **185750003**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Lead	50.0	mg/Kg	EPA 6010B	8/21/13	102	85-115
Lead	50.0	mg/Kg	EPA 6010B	8/21/13	99.4	85-115
1,2-Dibromoethane	0.0402	mg/Kg	EPA 8260B	8/15/13	108	70.0-130
1,2-Dichloroethane	0.0398	mg/Kg	EPA 8260B	8/15/13	110	70.0-130
Benzene	0.0398	mg/Kg	EPA 8260B	8/15/13	107	70.0-130
Ethylbenzene	0.0398	mg/Kg	EPA 8260B	8/15/13	103	70.0-130
Methyl-t-butyl ether	0.0397	mg/Kg	EPA 8260B	8/15/13	114	60.0-130
P + M Xylene	0.0398	mg/Kg	EPA 8260B	8/15/13	101	70.0-130
Toluene	0.0398	mg/Kg	EPA 8260B	8/15/13	107	70.0-130
1,2-Dibromoethane	0.0401	mg/Kg	EPA 8260B	8/16/13	95.4	70.0-130
1,2-Dichloroethane	0.0398	mg/Kg	EPA 8260B	8/16/13	92.1	70.0-130
Benzene	0.0398	mg/Kg	EPA 8260B	8/16/13	84.4	70.0-130
Ethylbenzene	0.0398	mg/Kg	EPA 8260B	8/16/13	85.0	70.0-130
Methyl-t-butyl ether	0.0396	mg/Kg	EPA 8260B	8/16/13	91.1	60.0-130
P + M Xylene	0.0398	mg/Kg	EPA 8260B	8/16/13	82.7	70.0-130
Toluene	0.0398	mg/Kg	EPA 8260B	8/16/13	85.3	70.0-130
Benzene	0.0366	mg/Kg	EPA 8260B	8/19/13	91.0	70.0-130

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

QC Report : Laboratory Control Sample (LCS)

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**

Project Number : **185750003**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Ethylbenzene	0.0366	mg/Kg	EPA 8260B	8/19/13	92.4	70.0-130
P + M Xylene	0.0366	mg/Kg	EPA 8260B	8/19/13	89.4	70.0-130
Toluene	0.0366	mg/Kg	EPA 8260B	8/19/13	92.5	70.0-130
Benzene	40.2	ug/L	EPA 8260B	8/16/13	105	70.0-130
Ethylbenzene	40.2	ug/L	EPA 8260B	8/16/13	110	70.0-130
P + M Xylene	40.2	ug/L	EPA 8260B	8/16/13	104	70.0-130
Toluene	40.2	ug/L	EPA 8260B	8/16/13	102	70.0-130

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

Report Number : 85669

QC Report : Sample Duplicate

Date : 08/23/2013

Project Name : **7-Eleven 14479 (Tumwater) Subsurface Investigation**

Project Number : **185750003**

Parameter	Sample ID	Units	Analysis Method	Date Analyzed	Sample Value	Duplicate Value	RPD	RPD Limit
Diesel Range Organics (Silica Gel)	85669-04	mg/Kg	NWTPH-Dx	8/19/13	< 25	< 25	NC	25
Motor Oil Range Organics (Silica Gel)	85669-04	mg/Kg	NWTPH-Dx	8/19/13	< 100	< 100	NC	25
Diesel Range Organics (Silica Gel)	85669-14	mg/Kg	NWTPH-Dx	8/20/13	< 25	< 25	NC	25
Motor Oil Range Organics (Silica Gel)	85669-14	mg/Kg	NWTPH-Dx	8/20/13	< 100	< 100	NC	25
Diesel Range Organics (Silica Gel)	85669-21	mg/Kg	NWTPH-Dx	8/22/13	< 25	< 25	NC	25
Motor Oil Range Organics (Silica Gel)	85669-21	mg/Kg	NWTPH-Dx	8/22/13	< 100	< 100	NC	25
Gasoline Range Organics	85669-01	mg/Kg	NWTPH-Gx	8/14/13	< 5.0	< 5.0	NC	25
Gasoline Range Organics	85669-11	mg/Kg	NWTPH-Gx	8/15/13	< 5.0	< 5.0	NC	25
Gasoline Range Organics	85669-21	mg/Kg	NWTPH-Gx	8/15/13	< 5.0	< 5.0	NC	25
Gasoline Range Organics	85670-04	ug/L	NWTPH-Gx	8/16/13	8820	9160	3.71	25

NC RPD not calculated. Both Sample and Duplicate < Lab PQL

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

KIFF Analytical LLC

2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 85669

Page 1 of 3

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Paul.Fairbairn@Stantec.com	Washington EIM Report? ☐ Yes ☐ No
Company / Address: 12034 134th Court NE Redmond WA 98052	User Location ID:
Phone Number: 425-298-1000	User Study ID:
Fax Number: 425-298-1019	Bill to:
Project #: 185750003 / P.O. #:	Sampler Print Name: Adam Valenti
Project Name: 7-Eleven 14479 (Tumwater) Subsurface Investigation	Sampler Signature: Adam Valenti
Project Address: 5310 Capitol Blvd Tumwater WA 98501	

TAT: ☐ 12 hr ☐ 24 hr ☐ 48hr ☐ 72hr ☒ 1 wk

Sample Designation	Sampling: Date	Sampling: Time	Container: 40 ml VOA	Container: Sleeve	Container: Poly	Container: Glass	Container: Tedlar	Preservative: HCl	Preservative: HNO_3	Preservative: None	Matrix: Water	Matrix: Soil	Matrix: Air	MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	NW-TPH Gx	EDB	EDC	MTBE	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010)	Mercury (EPA 245.1 / 7470 / 7471)	Total Lead (EPA 200.7 / 6010)	W.E.T. Lead (STLC)	NW-TPHDx	Naphthalenes	VPH	EPH	For Lab Use Only	PID
														circle method																					
SB-24@5'	8/8/13	1005	4		1	X						X			X	X													X		X	X			01	0.0 ppm
SB-24@10'		1010	4		1	X						X			X	X													X		X	X			02	0.0 ppm
SB-24@15'		1015	4		1	X						X			X	X													X		X	X			03	0.0 ppm
SB-25@5'		0905	4		1	X						X			X	X	X	X	X										X		X	X			04	11.1 ppm
SB-25@10'		0910	4		1	X						X			X	X													X		X	X			05	0.0 ppm
SB-25@15'		0920	4		1	X						X			X	X													X		X	X			06	0.0 ppm
SB-25@20'		0930	4		1	X						X			X	X													X		X	X			07	0.0 ppm
SB-25@25'		0940	4		1	X						X			X	X													X		X	X			08	0.0 ppm
SB-25@30'		0950	4		1	X						X			X	X													X		X	X			09	0.0 ppm
SB-26@5'	✓	1020	4		1	X						X			X	X													X		X	X			10	0.0 ppm

Relinquished by:	Date	Time	Received by:	
Adam Valenti	8/8/13	1700	P Holstein	8/12 10:45
P Holstein	8/12	10:47		
	081313	1033	Kiff Analytical LLC	

Remarks:

For Lab Use Only: Sample Receipt

Temp °C	Initials	Date	Time	Therm. ID #	Coolant Present
					Yes / No

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Distribution: White - Lab; Pink - Originator
Rev: 031308

KIFF Analytical LLC

2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 85669

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Paul.Fairbairn@Stantec.com
Company / Address: 12034 134th Court NE Redmond WA 98052
Phone Number: 425-298-1000
Fax Number: 425-298-1019
Project #: 185750003
P.O. #:
Project Name: 7-Eleven 14479 (Tumwater) Subsurface Investigation
Project Address: 5310 Capitol Blvd Tumwater WA 98501

Washington EIM Report? ☒ Yes ☐ No
User Location ID:
User Study ID:
Bill to:
Sampler Print Name: Adam Valenti
Sampler Signature: Adam Valenti

TAT: ☐ 12 hr ☐ 24 hr ☐ 48hr ☐ 72hr ☒ 1 wk

Sample Designation	Sampling: Date	Sampling: Time	Container: 40 ml VOA	Container: Sleeve	Container: Poly	Container: Glass	Container: Tedlar	Preservative: HCl	Preservative: HNO_3	Preservative: None	Matrix: Water	Matrix: Soil	Matrix: Air	MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	NW-TPH Gx	EDB	EDC	MTBE	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010)	Mercury (EPA 245.1 / 7470 / 7471)	Total Lead (EPA 200.7 / 6010)	W.E.T. Lead (STLC)	NW-TPHDx	Naphthalenes	VPH	EPH	For Lab Use Only	PID
SB-26@10'	8/8/13	1025	4		1	X									X	X												X		X	X			11	0.0 ppm
SB-26@15'		1030	4		1	X									X	X												X		X	X			12	0.0 ppm
SB-27@5'		0805	4		1	X									X	X												X		X	X			13	0.0 ppm
SB-27@10'		0810	4		1	X									X	X												X		X	X			14	7.8 ppm
SB-27@15'		0820	4		1	X									X	X												X		X	X			15	0.0 ppm
SB-27@20'		0825	4		1	X									X	X												X		X	X			16	0.0 ppm
SB-27@25'		0830	4		1	X									X	X												X		X	X			17	0.0 ppm
SB-27@30'		0840	4		1	X									X	X												X		X	X			18	0.0 ppm
SB-27@35'		0850	4		1	X									X	X	X	X	X									X		X	X			19	5.2 ppm
SB-28@5'	V	1045	4		1	X									X	X												X		X	X			20	0.0 ppm

Relinquished by:	Date	Time	Received by:	
Adam Valenti	8/8/13	1700	P Holstein	8/12 10:45
P Holstein	8/12	10'45		
	08/13/13	1033	Kiff Analytical LLC	

Remarks:

For Lab Use Only: Sample Receipt

Temp °C	Initials	Date	Time	Therm. ID #	Coolant Present
					Yes / No

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Distribution: White - Lab; Pink - Originator
Rev: 031308

KIFF Analytical LLC

2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 85669

Page 3 of 3

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Paul Fairbairn	Washington EIM Report? ☐ Yes ☐ No
Company / Address: Stantec 12034 134th Court NE 102, Redmond WA 98052	User Location ID:
Phone Number: 425-298-1000	User Study ID:
Fax Number: 425-298-1019	Bill to:
Project #: 185750003 / P.O. #:	Sampler Print Name: Adam Valenti
Project Name: 7-Eleven 14479 Subsurface Investigation	Sampler Signature: Adam Valenti
Project Address: 5310 Capitol Blvd Tumwater WA 98501	

TAT: ☐ 12 hr ☐ 24 hr ☐ 48hr ☐ 72hr ☒ 1 wk

circle method

Sample Designation	Sampling: Date	Sampling: Time	Container: 40 ml VOA	Container: Sleeve	Container: Poly	Container: Glass	Container: Tedlar	Preservative: HCl	Preservative: HNO_3	Preservative: None	Matrix: Water	Matrix: Soil	Matrix: Air	MTBE @ 0.5 ppb (EPA 8260B)	BTEX (EPA 8260B)	NW-TPH Gx	EDB	EDC	MTBE	Volatile Halocarbons (EPA 8260B)	Volatile Organics Full List (EPA 8260B)	Volatile Organics (EPA 524.2 Drinking Water)	TPH as Diesel (EPA 8015M)	TPH as Motor Oil (EPA 8015M)	CAM 17 Metals (EPA 200.7 / 6010)	5 Waste Oil Metals (Cd,Cr,Ni,Pb,Zn) (EPA 200.7 / 6010)	Mercury (EPA 245.1 / 7470 / 7471)	Total Lead (EPA 200.7 / 6010)	W.E.T. Lead (STLC)	NW-TPHDx	Naphthalenes	VPH	EPH	For Lab Use Only
SB-28@10'	8/8/13	1050	4		1	X						X			X	X												X		X	X			21 PID 0.0 ppm
SB-28@15'	↓	1055	4		1	X						X			X	X												X		X	X			22 0.0 ppm
SB-27@35'	↓	0850		1								X																						23 NA
TB-1		0545													X	X																		24
FB-1		0550													X	X																		25
EQRP-1		0555													X	X																		26
EQRR-1	↓	1100													X	X																		27

Relinquished by	Date	Time	Received by	Date / Time
Adam Valenti	8/8/13	1700	P Holstein	8/12 10:45
P Holstein	8/12/13	10:45		
	081313	1033	Kiff Analytical LLC	

Remarks: Hold SB-27@35'. (TCEQ)

For Lab Use Only: Sample Receipt

Temp °C	Initials	Date	Time	Therm. ID #	Coolant Present
					Yes / No

Distribution: White - Lab; Pink - Originator
Rev: 031308

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KIFF Analytical LLC

SAMPLE RECEIPT CHECKLIST

SRG #: 85669

Sample Receipt	Initials/Date: TJB 081313	Storage Time: 1033	Sample Login	Initials/Date: EG 081413

TAT: ☒ Standard ☐ Rush ☐ Split ☐ None

Method of Receipt: ☐ Courier ☐ Over-the-counter ☒ Shipped

Temp °C 5.2 5.6 ☐ N/A | Therm ID IR-3 | Time 0840 | Coolant present ☒ Yes ☐ No ☐ Water | ☐ Temp Excursion

For Shipments Only: Cooler Receipt Initials/Date/Time: TJB 081313 0840 | Custody Seals ☐ N/A ☒ Intact ☐ Broken

Chain-of-Custody:	Yes	No
Is COC present?	X	
Is COC signed by relinquisher?	X	
Is COC dated by relinquisher?	X	
Is the sampler's name on the COC?	X	
Are there analyses or hold for all samples?	X	

Documented on	COC	Labels	Discrepancies:
Sample ID	✓	✓	
Project ID	✓	✓	
Sample Date	✓	✓	
Sample Time	✓	✓	
Does COC match project history?	☒ N/A	☐ Yes	☐ No

Samples:	N/A	Yes	No
Are sample custody seals intact?	X		
Are sample containers intact?			X
Is preservation documented?		X	
In-house Analysis:	**N/A**	**Yes**	**No**
Are preservatives acceptable?		X	
Are samples within holding time?		X	
Are sample container types correct?		X	
Is there adequate sample volume?			X

Comments: The sodium bisulfate - preserved VOAs for samples -11 (2 of 2), -14 (2 of 2), -15 (1 and 2 of 2), and -21 (2 of 2) were received with sunken septa; there does not appear to be an air-tight seal on these containers. The sleeve for sample -23 was received cracked. Container, matrix and preservative are not indicated on the COC for samples -24 through -27; these are water samples with one HCl VOA vial apiece, which may be insufficient for analysis. Samples -07, -20 through -22 have one 8 oz soil jar apiece. Samples -01 through -06 and -08 through -19 have two 4 oz soil jars apiece. TJB 081313 1050

The coc requests lead for soil samples by 200.7. SR logged in as by EID. EG 081413 1745

CS Required: ☒

Receipt Details:

Matrix	Container Type	# of Containers
SO	VOA	88
SO	sleeve	1
SO	Glass	40
SO	Poly	22
WA	VOA	4

Proceed With Analysis: ☒ YES ☐ NO Init/Date: RT / 08/26/13

Client Communication: N/A

Leaders in Analytical Science and Service

KIFF Analytical LLC

Subcontract Laboratory Report Attachments

2795 Second Street, Suite 300 Davis, CA 95618
tel 530.297.4800 fax 530.297.4808
www.kiffanalytical.com

Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 13-08-0952

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Kiff Analytical

Client Project Name: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Attention: Joel Kiff
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Amanda Porter

Approved for release on 08/19/2013 by:
Amanda Porter
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: 7-Eleven 14479 (Tumwater) Subsurface Investigation
Work Order Number: 13-08-0952

Calscience Environmental Laboratories, Inc.

Work Order Narrative

Work Order: 13-08-0952 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 08/14/13. They were assigned to Work Order 13-08-0952.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Return to Contents

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-24@5'	**13-08-0952-1-A**	**08/08/13 10:05**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/15/13 17:36**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	97	38-134	
2-Fluorophenol	88	42-120	
Nitrobenzene-d5	88	42-150	
p-Terphenyl-d14	113	35-167	
Phenol-d6	92	46-118	
2,4,6-Tribromophenol	117	36-132	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-24@10'	**13-08-0952-2-A**	**08/08/13 10:10**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/15/13 18:02**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	82	38-134	
2-Fluorophenol	78	42-120	
Nitrobenzene-d5	78	42-150	
p-Terphenyl-d14	97	35-167	
Phenol-d6	79	46-118	
2,4,6-Tribromophenol	98	36-132	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-24@15'	**13-08-0952-3-A**	**08/08/13 10:15**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 21:39**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	87	38-134	
2-Fluorophenol	80	42-120	
Nitrobenzene-d5	79	42-150	
p-Terphenyl-d14	112	35-167	
Phenol-d6	84	46-118	
2,4,6-Tribromophenol	100	36-132	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-25@5'	**13-08-0952-4-A**	**08/08/13 09:05**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 22:06**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	91	38-134	
2-Fluorophenol	88	42-120	
Nitrobenzene-d5	85	42-150	
p-Terphenyl-d14	119	35-167	
Phenol-d6	93	46-118	
2,4,6-Tribromophenol	100	36-132	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-25@10'	**13-08-0952-5-A**	**08/08/13 09:10**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/15/13 19:21**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	75	38-134	
2-Fluorophenol	73	42-120	
Nitrobenzene-d5	74	42-150	
p-Terphenyl-d14	106	35-167	
Phenol-d6	83	46-118	
2,4,6-Tribromophenol	94	36-132	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-25@15'	**13-08-0952-6-A**	**08/08/13 09:20**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/15/13 19:47**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	80	38-134	
2-Fluorophenol	81	42-120	
Nitrobenzene-d5	76	42-150	
p-Terphenyl-d14	109	35-167	
Phenol-d6	84	46-118	
2,4,6-Tribromophenol	101	36-132	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-25@20'	**13-08-0952-7-A**	**08/08/13 09:30**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/15/13 20:13**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	71	38-134	
2-Fluorophenol	72	42-120	
Nitrobenzene-d5	65	42-150	
p-Terphenyl-d14	97	35-167	
Phenol-d6	74	46-118	
2,4,6-Tribromophenol	87	36-132	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-25@25'	**13-08-0952-8-A**	**08/08/13 09:40**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 22:33**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	78	38-134	
2-Fluorophenol	73	42-120	
Nitrobenzene-d5	70	42-150	
p-Terphenyl-d14	101	35-167	
Phenol-d6	78	46-118	
2,4,6-Tribromophenol	88	36-132	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-25@30'	**13-08-0952-9-A**	**08/08/13 09:50**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 22:59**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	81	38-134	
2-Fluorophenol	77	42-120	
Nitrobenzene-d5	75	42-150	
p-Terphenyl-d14	120	35-167	
Phenol-d6	85	46-118	
2,4,6-Tribromophenol	79	36-132	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-26@5'	**13-08-0952-10-A**	**08/08/13 10:20**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/15/13 21:31**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	85	38-134	
2-Fluorophenol	78	42-120	
Nitrobenzene-d5	75	42-150	
p-Terphenyl-d14	101	35-167	
Phenol-d6	81	46-118	
2,4,6-Tribromophenol	103	36-132	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-26@10'	**13-08-0952-11-A**	**08/08/13 10:25**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 10:39**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	83	38-134	
2-Fluorophenol	76	42-120	
Nitrobenzene-d5	76	42-150	
p-Terphenyl-d14	98	35-167	
Phenol-d6	81	46-118	
2,4,6-Tribromophenol	87	36-132	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-26@15'	**13-08-0952-12-A**	**08/08/13 10:30**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 11:05**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	81	38-134	
2-Fluorophenol	82	42-120	
Nitrobenzene-d5	80	42-150	
p-Terphenyl-d14	100	35-167	
Phenol-d6	88	46-118	
2,4,6-Tribromophenol	92	36-132	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-27@5'	**13-08-0952-13-A**	**08/08/13 08:05**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/19/13 14:30**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	88	38-134	
2-Fluorophenol	87	42-120	
Nitrobenzene-d5	80	42-150	
p-Terphenyl-d14	104	35-167	
Phenol-d6	90	46-118	
2,4,6-Tribromophenol	119	36-132	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-27@10'	**13-08-0952-14-A**	**08/08/13 08:10**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 11:58**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	84	38-134	
2-Fluorophenol	71	42-120	
Nitrobenzene-d5	77	42-150	
p-Terphenyl-d14	103	35-167	
Phenol-d6	82	46-118	
2,4,6-Tribromophenol	91	36-132	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-27@15'	**13-08-0952-15-A**	**08/08/13 08:20**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 12:25**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	82	38-134	
2-Fluorophenol	72	42-120	
Nitrobenzene-d5	77	42-150	
p-Terphenyl-d14	104	35-167	
Phenol-d6	81	46-118	
2,4,6-Tribromophenol	85	36-132	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-27@20'	**13-08-0952-16-A**	**08/08/13 08:25**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 13:18**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	77	38-134	
2-Fluorophenol	73	42-120	
Nitrobenzene-d5	70	42-150	
p-Terphenyl-d14	98	35-167	
Phenol-d6	75	46-118	
2,4,6-Tribromophenol	91	36-132	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-27@25'	**13-08-0952-17-A**	**08/08/13 08:30**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 13:45**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	84	38-134	
2-Fluorophenol	75	42-120	
Nitrobenzene-d5	78	42-150	
p-Terphenyl-d14	95	35-167	
Phenol-d6	76	46-118	
2,4,6-Tribromophenol	92	36-132	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-27@30'	**13-08-0952-18-A**	**08/08/13 08:40**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 14:12**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	75	38-134	
2-Fluorophenol	81	42-120	
Nitrobenzene-d5	77	42-150	
p-Terphenyl-d14	94	35-167	
Phenol-d6	83	46-118	
2,4,6-Tribromophenol	94	36-132	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-27@35'	**13-08-0952-19-A**	**08/08/13 08:50**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 14:38**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	83	38-134	
2-Fluorophenol	83	42-120	
Nitrobenzene-d5	80	42-150	
p-Terphenyl-d14	96	35-167	
Phenol-d6	83	46-118	
2,4,6-Tribromophenol	99	36-132	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-28@5'	**13-08-0952-20-A**	**08/08/13 10:45**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/16/13 15:05**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	87	38-134	
2-Fluorophenol	86	42-120	
Nitrobenzene-d5	81	42-150	
p-Terphenyl-d14	101	35-167	
Phenol-d6	88	46-118	
2,4,6-Tribromophenol	98	36-132	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-28@10'	**13-08-0952-21-A**	**08/08/13 10:50**	**Soil**	**GC/MS SS**	**08/15/13**	**08/15/13 19:19**	**130815L08**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	76	38-134	
2-Fluorophenol	88	42-120	
Nitrobenzene-d5	81	42-150	
p-Terphenyl-d14	86	35-167	
Phenol-d6	87	46-118	
2,4,6-Tribromophenol	69	36-132	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SB-28@15'	**13-08-0952-22-A**	**08/08/13 10:55**	**Soil**	**GC/MS SS**	**08/15/13**	**08/15/13 19:45**	**130815L08**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	73	38-134	
2-Fluorophenol	81	42-120	
Nitrobenzene-d5	76	42-150	
p-Terphenyl-d14	82	35-167	
Phenol-d6	81	46-118	
2,4,6-Tribromophenol	64	36-132	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Analytical Report

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-549-2580**	**N/A**	**Soil**	**GC/MS CCC**	**08/14/13**	**08/15/13 17:09**	**130814L12**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	97	38-134	
2-Fluorophenol	85	42-120	
Nitrobenzene-d5	85	42-150	
p-Terphenyl-d14	127	35-167	
Phenol-d6	90	46-118	
2,4,6-Tribromophenol	108	36-132	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-549-2581**	**N/A**	**Soil**	**GC/MS SS**	**08/15/13**	**08/16/13 11:53**	**130815L08**

Parameter	Result	RL	DF	Qualifiers
2-Methylnaphthalene	ND	0.50	1	
1-Methylnaphthalene	ND	0.50	1	
Naphthalene	ND	0.50	1	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	87	38-134	
2-Fluorophenol	89	42-120	
Nitrobenzene-d5	90	42-150	
p-Terphenyl-d14	90	35-167	
Phenol-d6	93	46-118	
2,4,6-Tribromophenol	80	36-132	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-08-0982-9	**Soil**	**GC/MS SS**	**08/15/13**	**08/15/13 21:08**	**130815S08**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acenaphthene	ND	10.00	9.017	90	9.200	92	49-133	2	0-18	
Acenaphthylene	ND	10.00	9.211	92	9.342	93	50-150	1	0-20	
Butyl Benzyl Phthalate	ND	10.00	9.663	97	9.839	98	50-150	2	0-20	
4-Chloro-3-Methylphenol	ND	10.00	9.490	95	10.03	100	50-128	6	0-17	
2-Chlorophenol	ND	10.00	9.166	92	9.438	94	57-111	3	0-17	
1,4-Dichlorobenzene	ND	10.00	8.236	82	7.051	71	49-127	15	0-20	
Dimethyl Phthalate	ND	10.00	8.948	89	9.535	95	50-150	6	0-20	
2,4-Dinitrotoluene	ND	10.00	9.162	92	9.629	96	50-128	5	0-18	
Fluorene	ND	10.00	9.648	96	9.901	99	50-150	3	0-20	
N-Nitroso-di-n-propylamine	ND	10.00	9.981	100	10.47	105	54-144	5	0-17	
Naphthalene	ND	10.00	8.900	89	8.709	87	50-150	2	0-20	
4-Nitrophenol	ND	10.00	8.369	84	9.058	91	30-144	8	0-21	
Pentachlorophenol	ND	10.00	7.748	77	8.179	82	29-113	5	0-22	
Phenol	ND	10.00	9.005	90	9.692	97	57-123	7	0-16	
Pyrene	ND	10.00	10.42	104	10.61	106	47-149	2	0-20	
1,2,4-Trichlorobenzene	ND	10.00	8.854	89	8.536	85	42-132	4	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SB-25@10'	**Soil**	**GC/MS CCC**	**08/14/13**	**08/15/13 21:56**	**130814S12**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acenaphthene	ND	10.00	8.541	85	9.001	90	49-133	5	0-18	
Acenaphthylene	ND	10.00	8.629	86	9.289	93	50-150	7	0-20	
Butyl Benzyl Phthalate	ND	10.00	8.876	89	9.275	93	50-150	4	0-20	
4-Chloro-3-Methylphenol	ND	10.00	8.279	83	9.126	91	50-128	10	0-17	
2-Chlorophenol	ND	10.00	8.145	81	8.615	86	57-111	6	0-17	
1,4-Dichlorobenzene	ND	10.00	7.588	76	7.980	80	49-127	5	0-20	
Dimethyl Phthalate	ND	10.00	8.657	87	9.294	93	50-150	7	0-20	
2,4-Dinitrotoluene	ND	10.00	8.031	80	8.870	89	50-128	10	0-18	
Fluorene	ND	10.00	8.859	89	9.681	97	50-150	9	0-20	
N-Nitroso-di-n-propylamine	ND	10.00	7.909	79	8.131	81	54-144	3	0-17	
Naphthalene	ND	10.00	8.140	81	8.596	86	50-150	5	0-20	
4-Nitrophenol	ND	10.00	4.719	47	5.744	57	30-144	20	0-21	
Pentachlorophenol	ND	10.00	5.348	53	6.238	62	29-113	15	0-22	
Phenol	ND	10.00	7.453	75	7.948	79	57-123	6	0-16	
Pyrene	ND	10.00	10.32	103	10.66	107	47-149	3	0-20	
1,2,4-Trichlorobenzene	ND	10.00	8.184	82	8.802	88	42-132	7	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-549-2581	**Soil**	**GC/MS SS**	**08/16/13 11:27**	**130815L08**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Acenaphthene	10.00	8.363	84	59-125	48-136	
Acenaphthylene	10.00	8.021	80	33-145	14-164	
Butyl Benzyl Phthalate	10.00	7.960	80	0-152	0-177	
4-Chloro-3-Methylphenol	10.00	8.714	87	61-121	51-131	
2-Chlorophenol	10.00	8.839	88	60-114	51-123	
1,4-Dichlorobenzene	10.00	8.518	85	61-121	51-131	
Dimethyl Phthalate	10.00	8.499	85	0-112	0-131	
2,4-Dinitrotoluene	10.00	9.236	92	51-141	36-156	
Fluorene	10.00	9.059	91	59-121	49-131	
N-Nitroso-di-n-propylamine	10.00	8.643	86	64-136	52-148	
Naphthalene	10.00	8.510	85	21-133	2-152	
4-Nitrophenol	10.00	10.51	105	38-152	19-171	
Pentachlorophenol	10.00	7.857	79	38-116	25-129	
Phenol	10.00	8.794	88	59-125	48-136	
Pyrene	10.00	8.471	85	51-141	36-156	
1,2,4-Trichlorobenzene	10.00	8.575	86	58-118	48-128	

Total number of LCS compounds: 16
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Quality Control - LCS

Kiff Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 08/14/13
Work Order: 13-08-0952
Preparation: EPA 3545
Method: EPA 8270C

Project: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	LCS Batch Number
099-12-549-2580	**Soil**	**GC/MS CCC**	**08/15/13 16:43**	**130814L12**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Acenaphthene	10.00	9.285	93	59-125	48-136	
Acenaphthylene	10.00	8.876	89	33-145	14-164	
Butyl Benzyl Phthalate	10.00	9.280	93	0-152	0-177	
4-Chloro-3-Methylphenol	10.00	8.511	85	61-121	51-131	
2-Chlorophenol	10.00	8.122	81	60-114	51-123	
1,4-Dichlorobenzene	10.00	8.663	87	61-121	51-131	
Dimethyl Phthalate	10.00	9.244	92	0-112	0-131	
2,4-Dinitrotoluene	10.00	8.492	85	51-141	36-156	
Fluorene	10.00	9.785	98	59-121	49-131	
N-Nitroso-di-n-propylamine	10.00	7.474	75	64-136	52-148	
Naphthalene	10.00	8.954	90	21-133	2-152	
4-Nitrophenol	10.00	5.427	54	38-152	19-171	
Pentachlorophenol	10.00	6.277	63	38-116	25-129	
Phenol	10.00	7.392	74	59-125	48-136	
Pyrene	10.00	10.23	102	51-141	36-156	
1,2,4-Trichlorobenzene	10.00	8.961	90	58-118	48-128	

Total number of LCS compounds: 16
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

Work Order: 13-08-0952 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 8270C	EPA 3545	513	GC/MS CCC	1
EPA 8270C	EPA 3545	851	GC/MS SS	1

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order: 13-08-0952 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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KIFF Analytical LLC
2795 Second Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4808

Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1427
714-895-5494

13-08-0952

COC No. **85669** Page 1 of 3

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF to): Jennifer Worsley

EDF Report? NO

Company/Address: Kiff Analytical

Phone No.: 530-297-4800 FAX No.: 530-297-4808

Project Number: P.O. No.: **85669**

Project Name: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Project Address:

Recommended but not mandatory to complete this section:

Sampling Company Log Code:

Global ID:

Deliverables to (Email Address): inbox@kiffanalytical.com

Sample Designation	Sampling Date	Sampling Time	Container / Preservative: 4 Oz. Glass None	4 Oz. Glass None	Matrix: Soil	Analysis Request: 1- and 2-Methylnaphthalene by EPA 8270	Naphthalene by EPA 8270	Due Date: August 19, 2013	For Lab Use Only
SB-24@5'	08/08/13	10:05	1		X	X	X	X	1
SB-24@10'	08/08/13	10:10	1		X	X	X	X	2
SB-24@15'	08/08/13	10:15	1		X	X	X	X	3
SB-25@5'	08/08/13	09:05	1		X	X	X	X	4
SB-25@10'	08/08/13	09:10	1		X	X	X	X	5
SB-25@15'	08/08/13	09:20	1		X	X	X	X	6
SB-25@20'	08/08/13	09:30		1	X	X	X	X	7
SB-25@25'	08/08/13	09:40	1		X	X	X	X	8
SB-25@30'	08/08/13	09:50	1		X	X	X	X	9
SB-26@5'	08/08/13	10:20	1		X	X	X	X	10

Relinquished by:	Date	Time	Received by:
[signature]	08/13/13	1700	
Relinquished by:	Date	Time	Received by:
Relinquished by: (CONTRACT)	Date 8/14/13	Time 09:00	Received by Laboratory: [signature]

Remarks:

Bill to: Accounts Payable

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KIFF Analytical LLC
2795 Second Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4808

Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1427
714-895-5494

0952

COC No. **85669**

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF to): Jennifer Worsley

EDF Report? NO

Company/Address: Kiff Analytical

Phone No.: 530-297-4800 | FAX No.: 530-297-4808

Project Number: | P.O. No.: **85669**

Project Name: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Project Address:

Recommended but not mandatory to complete this section:

Sampling Company Log Code:

Global ID:

Deliverables to (Email Address): inbox@kiffanalytical.com

Sample Designation	Sampling Date	Sampling Time	Container / Preservative: 4 Oz. Glass None	4 Oz. Glass None	Matrix: Soil	Analysis Request: 1- and 2-Methylnaphthalene by EPA 8270	Naphthalene by EPA 8270	Due Date: August 19, 2013	For Lab Use Only
SB-26@10'	08/08/13	10:25	1		X	X	X	X	11
SB-26@15'	08/08/13	10:30	1		X	X	X	X	12
SB-27@5'	08/08/13	08:05	1		X	X	X	X	13
SB-27@10'	08/08/13	08:10	1		X	X	X	X	14
SB-27@15'	08/08/13	08:20	1		X	X	X	X	15
SB-27@20'	08/08/13	08:25	1		X	X	X	X	16
SB-27@25'	08/08/13	08:30	1		X	X	X	X	17
SB-27@30'	08/08/13	08:40	1		X	X	X	X	18
SB-27@35'	08/08/13	08:50	1		X	X	X	X	19
SB-28@5'	08/08/13	10:45		1	X	X	X	X	20

	Date	Time	
Relinquished by: [signature] Kiff Analytical	8/13/13	1700	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by: CONTINUED	8/14/13	09:00	Received by Laboratory: [signature]

Remarks:

Bill to: Accounts Payable

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KIFF Analytical LLC
2795 Second Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4808

Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1427
714-895-5494

0952

COC No. **85669** Page 3 of 3

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF to): Jennifer Worsley

EDF Report? NO

Company/Address: Kiff Analytical

Recommended but not mandatory to complete this section:

Sampling Company Log Code:

Global ID:

Phone No.: 530-297-4800 FAX No.: 530-297-4808

Project Number:

P.O. No.: **85669**

Deliverables to (Email Address): inbox@kiffanalytical.com

Project Name: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Project Address:

Sample Designation	Sampling Date	Sampling Time	Container / Preservative: 4 Oz. Glass None	4 Oz. Glass None	Matrix: Soil	Analysis Request: 1- and 2-Methylnaphthalene by EPA 8270	Naphthalene by EPA 8270	Due Date: August 19, 2013	For Lab Use Only
SB-28@10'	08/08/13	10:50		1	X	X	X	X	21
SB-28@15'	08/08/13	10:55		1	X	X	X	X	22

Relinquished by:	Date	Time	Received by:
Kiff Analytical	08/13/13	1700	
Relinquished by:	Date	Time	Received by:
Relinquished by: (CONTRACT)	8/14/13	09:00	Received by Laboratory:

Remarks:

Bill to: Accounts Payable

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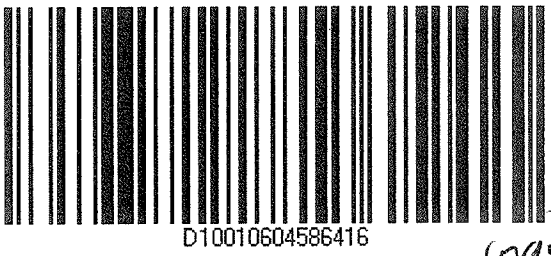

0952

Date Printed 8/13/2013

Tracking#D10010604586416

Shipped From:
KIFF ANALYTICAL
2795 2ND STREET 300
DAVIS, CA 95618

Sent By: SAMPLE RECEIVINGX125
Phone#: (530)297-4800
wgt(lbs): 17
Reference: SUBS 85669
Reference 2: 600

Ship To Company:	*Service:* **S**
CALSCIENCE ENVIRONMENTAL LABS **7440 LINCOLN WAY** **GARDEN GROVE, CA 92841** **SAMPLE RECEIVING (714)895-5494**	*Sort Code:* **ORG** *Special Services:* **Signature Required**

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-08-0952

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: KIFF DATE: 08/14/13

TEMPERATURE: Thermometer ID: SC3 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 1.9 °C - 0.2 °C (CF) = 1.7 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: JS

CUSTODY SEALS INTACT:

☑ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☐ N/A Initial: JS

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: JS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☐	☐	☑
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☑4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** JS

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** hc

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** JS

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PTS Laboratories, Inc.

8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

September 13, 2013

Jennifer Worsley
Kiff Analytical, LLC
2795 Second Street, Suite 300
Davis, CA 95618

Re: PTS File No: 43529
Physical Properties Data
7-Eleven 14479 (Tumwater) Subsurface Investigation; 185750003

Dear Ms. Worsley:

Please find enclosed report for Physical Properties analyses conducted upon the sample received from your 7-Eleven 14479 (Tumwater) Subsurface Investigation; 185750003 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. An electronic version of the report has previously been sent to your attention via the internet. The sample is currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the sample will be disposed of at that time. You may contact me regarding storage, disposal, or return of the sample.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact Rachel Spitz at (562) 347-2504.

Sincerely,
PTS Laboratories, Inc.

Michael Mark Brady, P.G.
District Manager

Encl.

PTS Laboratories

Project Name: 7-Eleven 14479 (Tumwater) Subsurface Investigation **PTS File No:** 43529
Project Number: 185750003 **Client:** Kiff Analytical, LLC

TEST PROGRAM - 20130820

CORE ID	Depth ft.	Core Recovery ft.	Grain Size Analysis	Effective Porosity Mod. ASTM D425	TCEQ/ TNRCC Package		Notes
		Plugs:	Grab	Vert. 1.5"	Vert. 1"		
Date Received: 20130820							
SB-27 @ 35'	**N/A**	**0.50**	**X**	**X**	**X**		
TOTALS:	**1 core**	**0.50**	**1**	**1**	**1**		**1**

Laboratory Test Program Notes

Contaminant identification: _____

Standard TAT for basic analysis is 10 business days.

ASTM D422: Dry Sieve only, Hydrometer analysis must be requested prior to initiating tests. Additional costs would apply.

Effective Porosity: Includes Total Porosity.

TCEQ/TNRCC Package: Intrinsic permeability to water/hydraulic conductivity, total porosity, air-filled porosity, dry bulk density, volumetric moisture content, and foc.

PTS File No: 43529
Client: Kiff Analytical, LLC

PTS Laboratories

PHYSICAL PROPERTIES DATA - TNRCC RG-36 RBCA SOIL PARAMETERS

PROJECT NAME: 7-Eleven 14479 (Tumwater) Subsurface Investigation
PROJECT NO: 185750003

			METHODS:	API RP40	ASTM D2216/API RP40	API RP40		EPA 9100/API RP40	
								25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	DRY BULK DENSITY, g/cc	VOLUMETRIC MOISTURE CONTENT AS FRACTION OF Vb, cm^3/cm^3	AIR-FILLED POROSITY (2), % Vb	TOTAL POROSITY (2), % Vb	INTRINSIC PERMEABILITY TO WATER (3), cm^2	HYDRAULIC CONDUCTIVITY (3), cm/s
SB-27 @ 35'	35	V	20130828	1.27	0.083	44.6	52.9	6.61E-08	6.66E-03

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Air Filled = pore channels not occupied by pore fluids; Total Porosity = all interconnected pore channels.
(3) Permeability to water and hydraulic conductivity measured at saturated conditions.
Vb = Bulk Volume, cc
Water = filtered Laboratory Fresh (tap) or Site water.

PTS Laboratories

PTS File No: 43529
Client: Kiff Analytical, LLC
Report Date: 09/13/13

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: 7-Eleven 14479 (Tumwater) Subsurface Investigation
Project No: 185750003

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
SB-27 @ 35'	35	20130910	1035	SOIL	2850	2.85E-03
Blank	N/A	20130910	1035	BLANK	ND	ND
SRM D079-542	N/A	20130910	1035	SRM	3290	3.29E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D079-542	97	75-125	3400	2550	4250

ND = Not Detected

PTS Laboratories, Inc.

Kiff Analytical, LLC
PTS File No: 43529

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: 7-Eleven 14479 (Tumwater) Subsurface Investigation
PROJECT NO: 185750003

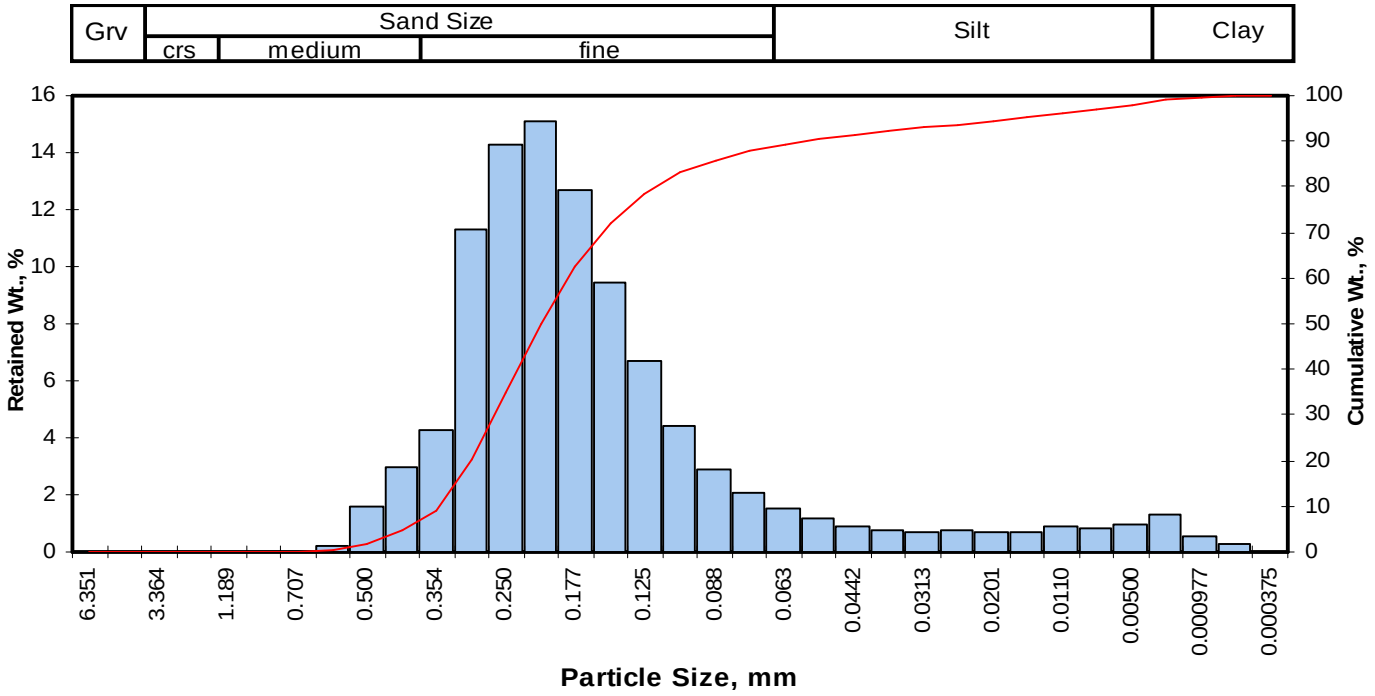
Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
SB-27 @ 35'	35	Fine sand	0.210	0.00	0.00	4.82	83.09	9.90	2.19	12.09

(1) Based on Mean from Trask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Kiff Analytical, LLC	**PTS File No:**	43529
Project:	7-Eleven 14479 (Tumwater) Subsurface Investigation	**Sample ID:**	SB-27 @ 35'
Project No:	185750003	**Depth, ft:**	35



Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.24	0.24	0.24
0.0197	0.500	1.00	35	1.62	1.62	1.86
0.0166	0.420	1.25	40	2.96	2.96	4.82
0.0139	0.354	1.50	45	4.31	4.31	9.13
0.0117	0.297	1.75	50	11.30	11.30	20.43
0.0098	0.250	2.00	60	14.30	14.30	34.73
0.0083	0.210	2.25	70	15.10	15.10	49.83
0.0070	0.177	2.50	80	12.70	12.70	62.53
0.0059	0.149	2.75	100	9.43	9.43	71.96
0.0049	0.125	3.00	120	6.66	6.66	78.62
0.0041	0.105	3.25	140	4.38	4.38	83.00
0.0035	0.088	3.50	170	2.87	2.87	85.87
0.0029	0.074	3.75	200	2.04	2.04	87.91
0.0025	0.063	4.00	230	1.49	1.49	89.40
0.0021	0.053	4.25	270	1.15	1.15	90.55
0.00174	0.0442	4.50	325	0.93	0.93	91.48
0.00146	0.0372	4.75	400	0.76	0.76	92.24
0.00123	0.0313	5.00	450	0.67	0.67	92.91
0.000986	0.0250	5.32	500	0.79	0.79	93.70
0.000790	0.0201	5.64	635	0.71	0.71	94.41
0.000615	0.0156	6.00		0.70	0.70	95.11
0.000435	0.0110	6.50		0.90	0.90	96.01
0.000308	0.00781	7.00		0.86	0.86	96.87
0.000197	0.00500	7.65		0.94	0.94	97.81
0.000077	0.00195	9.00		1.33	1.33	99.14
0.000038	0.000977	10.00		0.58	0.58	99.72
0.000019	0.000488	11.00		0.26	0.26	99.98
0.000015	0.000375	11.38		0.02	0.02	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	1.26	0.0164	0.417
10	1.52	0.0137	0.349
16	1.65	0.0125	0.318
25	1.83	0.0111	0.281
40	2.09	0.0093	0.235
50	2.25	0.0083	0.210
60	2.45	0.0072	0.183
75	2.86	0.0054	0.137
84	3.34	0.0039	0.099
90	4.13	0.0022	0.057
95	5.94	0.0006	0.016

Measure	Trask	Inman	Folk-Ward
Median, phi	2.25	2.25	2.25
Median, in.	0.0083	0.0083	0.0083
Median, mm	0.210	0.210	0.210
Mean, phi	2.26	2.49	2.41
Mean, in.	0.0082	0.0070	0.0074
Mean, mm	0.209	0.177	0.188
Sorting	1.431	0.843	1.131
Skewness	0.937	0.286	0.431
Kurtosis	0.247	1.780	1.856

Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	4.82
Fine Sand	200	83.09
Silt	>0.005 mm	9.90
Clay	<0.005 mm	2.19
	Total	**100**

Phone: (562) 907-3607
Fax: (562) 907-3610

KIFF Analytical LLC

2795 Second Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4808

PTS Labs
8100 Secura Way
Santa Fe Springs, CA 90670
562-907-3607

43529

COC No. **85669** Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF to): Jennifer Worsley

EDF Report? NO

Company/Address: Kiff Analytical

Phone No.: 530-297-4800 FAX No.: 530-297-4808

Project Number: 185750003 P.O. No.: **85669**

Project Name: 7-Eleven 14479 (Tumwater) Subsurface Investigation

Project Address:

Recommended but not mandatory to complete this section:

Sampling Company Log Code:

Global ID:

Deliverables to (Email Address): inbox@kiffanalytical.com

Sample Designation	Sampling Date	Sampling Time	Container / Preservative: Sleeve None	Matrix: Soil	Analysis Request: Grain Size Distribution	Effective Porosity	TCEQ/TNRCC Package	TAT: Standard	For Lab Use Only
SB-27@35'	08/08/13	08:50	1	X	X	X	X	X	

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Relinquished by:	Date	Time	Received by:
[signature]	08/19/13	1700	[signature] 8/20/13 9:50
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:

Remarks: Methods: EPA 9100, ASTM D2216, Walkley-Black.

Bill to: Accounts Payable

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Stantec Consulting Corporation
Paul Fairbairn
11130 NE 33rd Pl, Suite 200
Bellevue, WA 98004

RE: 1Q14 GWM 14479
Lab ID: 1403280

April 01, 2014

Attention Paul Fairbairn:

Fremont Analytical, Inc. received 4 sample(s) on 3/26/2014 for the analyses presented in the following report.

1,2-Dibromoethane (EDB) by EPA Method 8011
Gasoline by NWTPH-Gx
Total Metals by EPA Method 200.8
Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Date: *04/01/2014*

CLIENT: Stantec Consulting Corporation
Project: 1Q14 GWM 14479
Lab Order: 1403280

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1403280-001	MW-1	03/24/2014 9:20 AM	03/26/2014 11:20 AM
1403280-002	MW-2	03/24/2014 9:00 AM	03/26/2014 11:20 AM
1403280-003	MW-3	03/24/2014 9:50 AM	03/26/2014 11:20 AM
1403280-004	MW-5	03/24/2014 10:30 AM	03/26/2014 11:20 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1403280**
Date: **4/1/2014**

CLIENT: Stantec Consulting Corporation
Project: 1Q14 GWM 14479

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Analytical Report

WO#: **1403280**
Date Reported: **4/1/2014**

Client: Stantec Consulting Corporation
Collection Date: 3/24/2014 9:20:00 AM
Project: 1Q14 GWM 14479
Lab ID: 1403280-001
Matrix: Water
Client Sample ID: **MW-1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
1,2-Dibromoethane (EDB) by EPA Method 8011				Batch ID: 7039		Analyst: PH
1,2-Dibromoethane (EDB)	ND	0.00922		µg/L	1	4/1/2014 1:04:00 PM
Gasoline by NWTPH-Gx				Batch ID: R13292		Analyst: GH
Gasoline	ND	50.0		µg/L	1	3/28/2014 6:09:00 AM
Surr: 4-Bromofluorobenzene	98.5	65-135		%REC	1	3/28/2014 6:09:00 AM
Surr: Toluene-d8	100	65-135		%REC	1	3/28/2014 6:09:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R13291		Analyst: GH
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	3/28/2014 6:09:00 AM
1,2-Dichloroethane	ND	1.00		µg/L	1	3/28/2014 6:09:00 AM
Benzene	ND	1.00		µg/L	1	3/28/2014 6:09:00 AM
Toluene	ND	1.00		µg/L	1	3/28/2014 6:09:00 AM
Ethylbenzene	ND	1.00		µg/L	1	3/28/2014 6:09:00 AM
m,p-Xylene	ND	1.00		µg/L	1	3/28/2014 6:09:00 AM
o-Xylene	ND	1.00		µg/L	1	3/28/2014 6:09:00 AM
Surr: Dibromofluoromethane	107	61.7-130		%REC	1	3/28/2014 6:09:00 AM
Surr: Toluene-d8	93.0	62.1-129		%REC	1	3/28/2014 6:09:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.8	66.8-124		%REC	1	3/28/2014 6:09:00 AM
Total Metals by EPA Method 200.8				Batch ID: 6986		Analyst: MC
Lead	2.38	1.00		µg/L	1	3/26/2014 11:22:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1403280**
Date Reported: **4/1/2014**

Client: Stantec Consulting Corporation
Collection Date: 3/24/2014 9:00:00 AM
Project: 1Q14 GWM 14479
Lab ID: 1403280-002
Matrix: Water
Client Sample ID: **MW-2**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
1,2-Dibromoethane (EDB) by EPA Method 8011				Batch ID: 7039		Analyst: PH
1,2-Dibromoethane (EDB)	ND	0.00909		µg/L	1	4/1/2014 1:15:00 PM
Gasoline by NWTPH-Gx				Batch ID: R13292		Analyst: GH
Gasoline	ND	50.0		µg/L	1	3/28/2014 6:40:00 AM
Surr: 4-Bromofluorobenzene	95.1	65-135		%REC	1	3/28/2014 6:40:00 AM
Surr: Toluene-d8	99.8	65-135		%REC	1	3/28/2014 6:40:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R13291		Analyst: GH
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	3/28/2014 6:40:00 AM
1,2-Dichloroethane	ND	1.00		µg/L	1	3/28/2014 6:40:00 AM
Benzene	ND	1.00		µg/L	1	3/28/2014 6:40:00 AM
Toluene	ND	1.00		µg/L	1	3/28/2014 6:40:00 AM
Ethylbenzene	ND	1.00		µg/L	1	3/28/2014 6:40:00 AM
m,p-Xylene	ND	1.00		µg/L	1	3/28/2014 6:40:00 AM
o-Xylene	ND	1.00		µg/L	1	3/28/2014 6:40:00 AM
Surr: Dibromofluoromethane	109	61.7-130		%REC	1	3/28/2014 6:40:00 AM
Surr: Toluene-d8	95.3	62.1-129		%REC	1	3/28/2014 6:40:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.4	66.8-124		%REC	1	3/28/2014 6:40:00 AM
Total Metals by EPA Method 200.8				Batch ID: 6986		Analyst: MC
Lead	1.59	1.00		µg/L	1	3/26/2014 11:33:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1403280**
Date Reported: **4/1/2014**

Client: Stantec Consulting Corporation
Collection Date: 3/24/2014 9:50:00 AM
Project: 1Q14 GWM 14479
Lab ID: 1403280-003
Matrix: Water
Client Sample ID: **MW-3**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
1,2-Dibromoethane (EDB) by EPA Method 8011				Batch ID: 7039		Analyst: PH
1,2-Dibromoethane (EDB)	ND	0.00918		µg/L	1	4/1/2014 1:21:00 PM
Gasoline by NWTPH-Gx				Batch ID: R13292		Analyst: GH
Gasoline	ND	50.0		µg/L	1	3/28/2014 7:40:00 AM
Surr: 4-Bromofluorobenzene	95.9	65-135		%REC	1	3/28/2014 7:40:00 AM
Surr: Toluene-d8	99.6	65-135		%REC	1	3/28/2014 7:40:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R13291		Analyst: GH
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	3/28/2014 7:40:00 AM
1,2-Dichloroethane	ND	1.00		µg/L	1	3/28/2014 7:40:00 AM
Benzene	ND	1.00		µg/L	1	3/28/2014 7:40:00 AM
Toluene	ND	1.00		µg/L	1	3/28/2014 7:40:00 AM
Ethylbenzene	ND	1.00		µg/L	1	3/28/2014 7:40:00 AM
m,p-Xylene	ND	1.00		µg/L	1	3/28/2014 7:40:00 AM
o-Xylene	ND	1.00		µg/L	1	3/28/2014 7:40:00 AM
Surr: Dibromofluoromethane	112	61.7-130		%REC	1	3/28/2014 7:40:00 AM
Surr: Toluene-d8	96.4	62.1-129		%REC	1	3/28/2014 7:40:00 AM
Surr: 1-Bromo-4-fluorobenzene	96.2	66.8-124		%REC	1	3/28/2014 7:40:00 AM
Total Metals by EPA Method 200.8				Batch ID: 6986		Analyst: MC
Lead	1.14	1.00		µg/L	1	3/26/2014 11:45:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1403280**
Date Reported: **4/1/2014**

Client: Stantec Consulting Corporation
Collection Date: 3/24/2014 10:30:00 AM
Project: 1Q14 GWM 14479
Lab ID: 1403280-004
Matrix: Water
Client Sample ID: **MW-5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
1,2-Dibromoethane (EDB) by EPA Method 8011				Batch ID: 7039		Analyst: PH
1,2-Dibromoethane (EDB)	ND	0.00933		µg/L	1	4/1/2014 1:26:00 PM
Gasoline by NWTPH-Gx				Batch ID: R13292		Analyst: GH
Gasoline	ND	50.0		µg/L	1	3/28/2014 8:10:00 AM
Surr: 4-Bromofluorobenzene	93.9	65-135		%REC	1	3/28/2014 8:10:00 AM
Surr: Toluene-d8	100	65-135		%REC	1	3/28/2014 8:10:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R13291		Analyst: GH
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	3/28/2014 8:10:00 AM
1,2-Dichloroethane	ND	1.00		µg/L	1	3/28/2014 8:10:00 AM
Benzene	ND	1.00		µg/L	1	3/28/2014 8:10:00 AM
Toluene	ND	1.00		µg/L	1	3/28/2014 8:10:00 AM
Ethylbenzene	ND	1.00		µg/L	1	3/28/2014 8:10:00 AM
m,p-Xylene	ND	1.00		µg/L	1	3/28/2014 8:10:00 AM
o-Xylene	ND	1.00		µg/L	1	3/28/2014 8:10:00 AM
Surr: Dibromofluoromethane	112	61.7-130		%REC	1	3/28/2014 8:10:00 AM
Surr: Toluene-d8	97.1	62.1-129		%REC	1	3/28/2014 8:10:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.2	66.8-124		%REC	1	3/28/2014 8:10:00 AM
Total Metals by EPA Method 200.8				Batch ID: 6986		Analyst: MC
Lead	8.00	1.00		µg/L	1	3/26/2014 11:56:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1403280
CLIENT: Stantec Consulting Corporation
Project: 1Q14 GWM 14479

QC SUMMARY REPORT

Total Metals by EPA Method 200.8

Sample ID: **MB-6986** SampType: **MBLK** Units: **µg/L** Prep Date: **3/26/2014** RunNo: **13278**
Client ID: **MBLKW** Batch ID: **6986** Analysis Date: **3/26/2014** SeqNo: **267092**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.00									

Sample ID: **LCS-6986** SampType: **LCS** Units: **µg/L** Prep Date: **3/26/2014** RunNo: **13278**
Client ID: **LCSW** Batch ID: **6986** Analysis Date: **3/26/2014** SeqNo: **267093**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	49.6	1.00	50.00	0	99.3	85	115				

Sample ID: **1403265-001BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/26/2014** RunNo: **13278**
Client ID: **BATCH** Batch ID: **6986** Analysis Date: **3/26/2014** SeqNo: **267095**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.00						0		30	

Sample ID: **1403265-001BMS** SampType: **MS** Units: **µg/L** Prep Date: **3/26/2014** RunNo: **13278**
Client ID: **BATCH** Batch ID: **6986** Analysis Date: **3/26/2014** SeqNo: **267096**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	252	1.00	250.0	0.5855	100	70	130				

Sample ID: **1403265-001BMSD** SampType: **MSD** Units: **µg/L** Prep Date: **3/26/2014** RunNo: **13278**
Client ID: **BATCH** Batch ID: **6986** Analysis Date: **3/26/2014** SeqNo: **267099**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	252	1.00	250.0	0.5855	101	70	130	251.6	0.153	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/1/2014*

Work Order: 1403280
CLIENT: Stantec Consulting Corporation
Project: 1Q14 GWM 14479

QC SUMMARY REPORT

1,2-Dibromoethane (EDB) by EPA Method 8011

Sample ID: **MB-7039**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **4/1/2014**			RunNo: **13352**	
Client ID: **MBLKW**	Batch ID: **7039**					Analysis Date: **4/1/2014**			SeqNo: **268959**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	ND	0.0100									

Sample ID: **LCS-7039**	SampType: **LCS**			Units: **µg/L**		Prep Date: **4/1/2014**			RunNo: **13352**	
Client ID: **LCSW**	Batch ID: **7039**					Analysis Date: **4/1/2014**			SeqNo: **268960**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	0.363	0.0100	0.4000	0	90.8	60	140				

Sample ID: **1403280-001CDUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **4/1/2014**			RunNo: **13352**	
Client ID: **MW-1**	Batch ID: **7039**					Analysis Date: **4/1/2014**			SeqNo: **268962**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	ND	0.00917						0		30	

Sample ID: **1403280-004CMS**	SampType: **MS**			Units: **µg/L**		Prep Date: **4/1/2014**			RunNo: **13352**	
Client ID: **MW-5**	Batch ID: **7039**					Analysis Date: **4/1/2014**			SeqNo: **268966**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	0.411	0.00928	0.3711	0	111	60	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1403280
CLIENT: Stantec Consulting Corporation
Project: 1Q14 GWM 14479

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **1403271-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/27/2014** RunNo: **13292**
Client ID: **BATCH** Batch ID: **R13292** Analysis Date: **3/27/2014** SeqNo: **267641**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0						0		30	
Surr: Toluene-d8	49.9		50.00		99.8	65	135		0	0	
Surr: 4-Bromofluorobenzene	47.4		50.00		94.7	65	135		0	0	

Sample ID: **LCS-R13292** SampType: **LCS** Units: **µg/L** Prep Date: **3/27/2014** RunNo: **13292**
Client ID: **LCSW** Batch ID: **R13292** Analysis Date: **3/27/2014** SeqNo: **267661**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	507	50.0	500.0	0	101	65	135				
Surr: Toluene-d8	50.0		50.00		100	65	135				
Surr: 4-Bromofluorobenzene	49.5		50.00		98.9	65	135				

Sample ID: **MB-R13292** SampType: **MBLK** Units: **µg/L** Prep Date: **3/27/2014** RunNo: **13292**
Client ID: **MBLKW** Batch ID: **R13292** Analysis Date: **3/27/2014** SeqNo: **267662**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0									
Surr: Toluene-d8	50.0		50.00		100	65	135				
Surr: 4-Bromofluorobenzene	48.8		50.00		97.5	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/1/2014*

Work Order: 1403280
CLIENT: Stantec Consulting Corporation
Project: 1Q14 GWM 14479

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1403270-001AMS** SampType: **MS** Units: **µg/L** Prep Date: **3/27/2014** RunNo: **13291**
Client ID: **BATCH** Batch ID: **R13291** Analysis Date: **3/27/2014** SeqNo: **267614**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	16.2	1.00	20.00	0	81.0	60.9	132				
1,2-Dichloroethane	19.3	1.00	20.00	0	96.5	63.4	137				
Benzene	19.6	1.00	20.00	0	97.8	65.4	138				
Toluene	19.1	1.00	20.00	0	95.7	64	139				
Ethylbenzene	19.8	1.00	20.00	0	98.9	64.5	136				
m,p-Xylene	39.7	1.00	40.00	0	99.2	63.3	135				
o-Xylene	19.4	1.00	20.00	0	96.9	65.4	134				
Surr: Dibromofluoromethane	57.1		50.00		114	61.7	130				
Surr: Toluene-d8	50.5		50.00		101	62.1	129				
Surr: 1-Bromo-4-fluorobenzene	51.6		50.00		103	66.8	124				

Sample ID: **1403280-002BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/28/2014** RunNo: **13291**
Client ID: **MW-2** Batch ID: **R13291** Analysis Date: **3/28/2014** SeqNo: **267630**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.00						0		30	
1,2-Dichloroethane	ND	1.00						0		30	
Benzene	ND	1.00						0		30	
Toluene	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Surr: Dibromofluoromethane	54.6		50.00		109	61.7	130		0		
Surr: Toluene-d8	47.4		50.00		94.9	62.1	129		0		
Surr: 1-Bromo-4-fluorobenzene	48.4		50.00		96.7	66.8	124		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/1/2014*

Work Order: 1403280
CLIENT: Stantec Consulting Corporation
Project: 1Q14 GWM 14479

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-R13291** SampType: **LCS** Units: **µg/L** Prep Date: **3/27/2014** RunNo: **13291**
Client ID: **LCSW** Batch ID: **R13291** Analysis Date: **3/27/2014** SeqNo: **267635**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	16.3	1.00	20.00	0	81.7	67.7	131				
1,2-Dichloroethane	20.2	1.00	20.00	0	101	70	129				
Benzene	19.8	1.00	20.00	0	99.2	76	123				
Toluene	19.3	1.00	20.00	0	96.6	71.5	130				
Ethylbenzene	20.5	1.00	20.00	0	103	72	130				
m,p-Xylene	41.1	1.00	40.00	0	103	73	131				
o-Xylene	20.2	1.00	20.00	0	101	72.1	131				
Surr: Dibromofluoromethane	56.9		50.00		114	61.7	130				
Surr: Toluene-d8	49.9		50.00		99.9	62.1	129				
Surr: 1-Bromo-4-fluorobenzene	52.1		50.00		104	66.8	124				

Sample ID: **MB-R13291** SampType: **MBLK** Units: **µg/L** Prep Date: **3/27/2014** RunNo: **13291**
Client ID: **MBLKW** Batch ID: **R13291** Analysis Date: **3/27/2014** SeqNo: **267636**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.00									
1,2-Dichloroethane	ND	1.00									
Benzene	ND	1.00									
Toluene	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Surr: Dibromofluoromethane	54.3		50.00		109	61.7	130				
Surr: Toluene-d8	47.2		50.00		94.3	62.1	129				
Surr: 1-Bromo-4-fluorobenzene	48.9		50.00		97.8	66.8	124				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Sample Log-In Check List

Client Name:	**STANTEC**	Work Order Number:	**1403280**
Logged by:	**Chelsea Ward**	Date Received:	**3/26/2014 11:20:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all coolers received at a temperature of >0°C to 10.0°C	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is the headspace in the VOA vials?	Yes ☐	No ☑	NA ☐
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC	Condition
Cooler	5.8	Good
Sample	4.3	Good

Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1403280

Date: 3/24/14

Page: 1 of: 1

Client: STANTEC

Address: 11130 NE 33rd pl ste 200

City, State, Zip: Bellevue WA 98004 Tel: 425-869-9448 x143

Project Name: 1Q14 GWM 14479

Location: TUMWATER, WA

Collected by: EMILY HARPER

Reports To (PM): PAUL FAIRBAIRN Fax: —

Email: PAUL.FAIRBAIRN@stantec.com Project No: 185750003

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270) - SIM)	PAH (EPA 8270) - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8) Total/ Dissolved (circle) Pb	Anions (IC)**	MTBE	FDB	EDB	Comments/Depth
1 MW-1	3/24	9:20	H2O			X	X								X		X	X	X	
2 MW-2		9:00				X	X								X		X	X	X	
3 MW-3		9:50				X	X								X		X	X	X	
4 MW-5		10:30				X	X								X		X	X	X	
5																				
6																				
7																				
8																				
9																				
10																				

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni (Pb) Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	3/26/14 11:20	x	3/26/14 11:20
Relinquished	Date/Time	Received	
x		x	

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Appendix I

OTHER SUPPORTING DOCUMENTATION

Estimated Groundwater Velocity

Former 7-Eleven Store No. 14479

5310 Capitol Boulevard, Tumwater, Washington

$$Vgw = [(K)(i)(U)]/n$$

where,

V_{gw} = groundwater velocity (ft/day)

K= 0.0028 [hydraulic conductivity (cm/sec)]

i= 0.039 [average hydraulic gradient (ft/ft)]

U= 2834.65 [unit converstion factor = 2834.646 (ft/day)/(cm/sec)]

n= 0.529 [porosity]

$$V_{gw} = \frac{[(0.0028\ cm/s)(0.039 ft/ft)(2834.646\ (ft/day)/(cm/sec))]}{0.529} = 0.6\ ft/day$$

Polygon Parameters

Polygon Title	Polygon1

Area of Polygon	Vertical Cell Dimension	Number Of Cells	Height of Polygon
100	1	38	38
Square ft	ft	Cells	ft

Soil Parameters

Soil Type | Reference Soil Type Profiles

Soil Type Name	Sand

Dry Bulk Density	Effective Porosity	Volumetric Water Content	Soil Organic Carbon Content
1.27	0.529	0.083	0.00285
g/cm3	(n)	(Vc)	(foc)

Boundary Conditions

Recharge Rate	Concentration of Recharge Water	Upper Boundary Vapor Condition	Lower Boundary Vapor Condition
1	0	0	0
ft/year	mg/L	mg/L	mg/L

Output Options

Create Groundwater and Soil Contaminant Profile

(•) Yes ( ) No

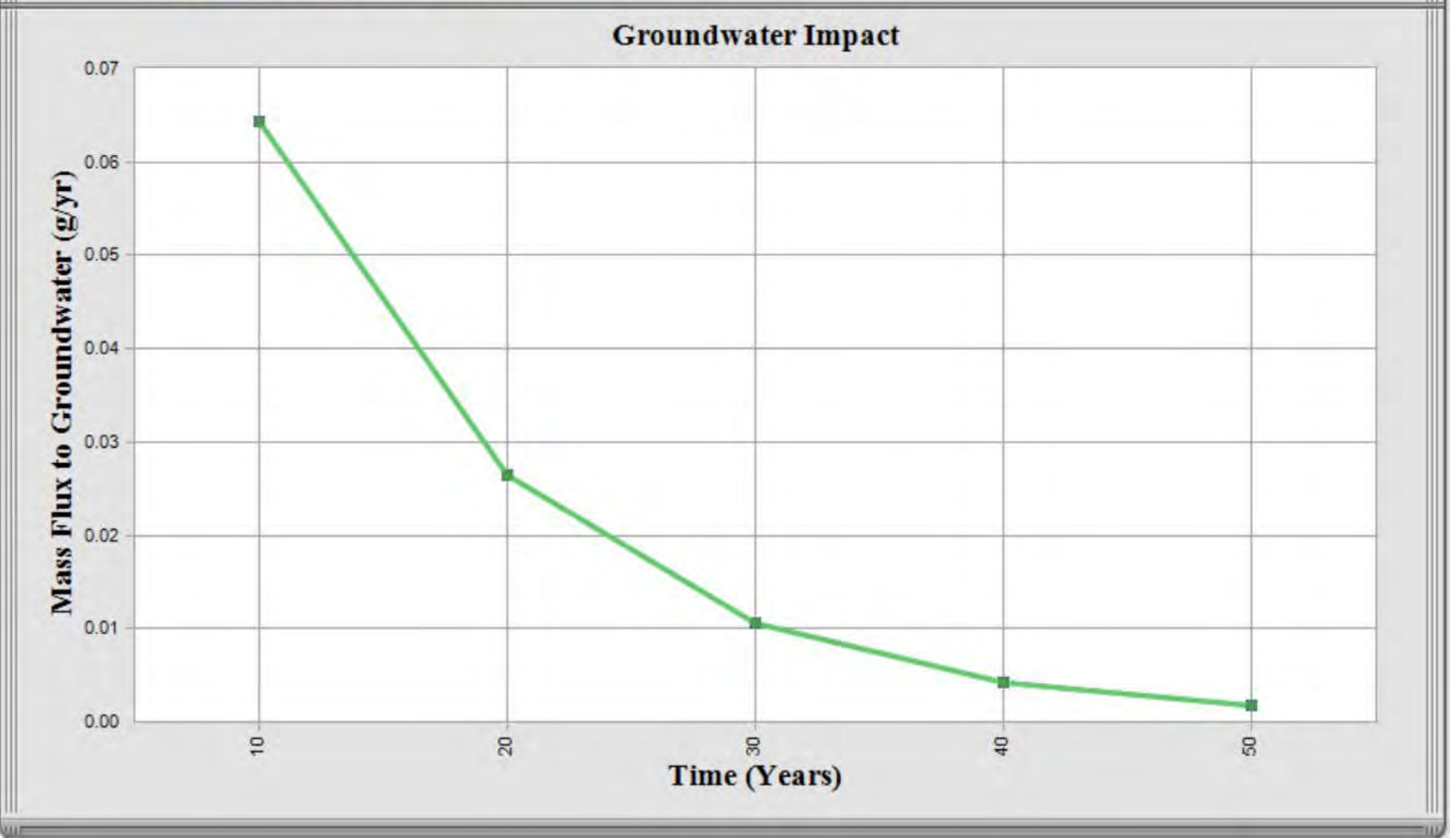
Soil Contaminant Profile Time (Years)

10

Initial Contaminant Concentrations

	Upper Cell	Lower Cell	Initial Concentration (ug/kg)
▶	1	10	0
	11	20	4.7
	21	29	13.7
	30	32	58.2
	33	38	0
*			

File Copy To Clipboard View Tools



Stantec Consulting Services Inc.
12034 134th Court NE, Suite 102
Redmond, WA 98052
Tel: (425) 298-1000
Fax: (425) 298-1019

May 8, 2012

Mr. Scott Rose
Washington State Department of Ecology
SWRO Toxics Cleanup Program
PO Box 47775
Olympia, Washington 98504-7775

Reference: Work Plan for Further Assessment
Former 7-Eleven Store #14479
5310 Capitol Boulevard Tumwater, Washington
Facility/Site No.: 97196866
VCP No.: SW0956

Dear Mr. Rose:

Stantec Consulting Services Inc. (Stantec), on behalf of 7-Eleven. Inc. (7-Eleven) has prepared the following work plan for the former 7-Eleven Store Number 14479, located at 5310 Capitol Boulevard, in Tumwater, Washington (the site). The objective of the proposed scope of work is to assess current conditions at the site in order to provide empirically derived recommendations for site closure; derivation of site-specific cleanup levels; or, determine the need for remedial activities. The proposed work will also provide information requested in the September 10, 2009 Washington Department of Ecology (Ecology) response to the *Feasibility Study and Disproportionate Cost Analysis* prepared by Stantec and dated June 2, 2009.

SITE DESCRIPTION

The site is located in a residential and commercial area on the northeast corner of Capitol Boulevard and Ruby Street in Tumwater, Washington (***Figures 1 and 2***).

The site is currently a Taco Time fast-food restaurant. The site was formerly a convenience store operated by 7-Eleven. Prior to April 2002, the site stored and dispensed gasoline. The former subsurface facilities related to storing and dispensing gasoline consisted of two 10,000-gallon and one 12,000-gallon steel underground storage tanks (USTs) with associated piping and a single dispenser island (Figure 2).

The site is situated at approximately 120 feet above mean sea level. Barnes Lake is located approximately 1,600 feet to the northwest, and the Deschutes River is approximately 0.5 miles northeast of the site. The topography in the vicinity of the site is relatively flat.

PREVIOUS INVESTIGATIONS

On April 8 through 11, 2002, a representative of Shaw Environmental & Infrastructure (Shaw) supervised the removal of the three gasoline USTs and ancillary piping at the site. The concrete dispenser island and all associated product piping was exposed and removed. The tanks were reported as being in good condition, with no identifiable leaks observed. Potential hydrocarbon contamination was identified beneath the eastern turbine and the northern dispenser. Impacted soil excavated from these areas was stockpiled separately. Nine soil samples were collected from the tank pit and dispenser excavation. Soil samples were collected from each sidewall of the excavation and from beneath each UST, the 12,000-gallon tank turbine, and the dispenser island. Benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons characterized as gasoline (TPH-G) concentrations were reported exceeding the Model Toxics Control Act

(MTCA) Method A soil cleanup levels in soil samples collected under the east turbine, north dispenser, and soil stockpile. These stockpiled soils were used to backfill the excavation in the vicinity of the former dispenser island and eastern turbine pump. Imported soil was used to backfill the remaining excavation to surface grade.

On May 23, 2002, under Shaw supervision, Cascade Drilling, Inc. of Woodinville, Washington (Cascade) advanced four borings (GP-1 through GP-4, Figure 3) to assess the extent of petroleum hydrocarbon-impacted soil and groundwater at the site. The benzene concentration in the soil sample collected from GP-2 at 30 to 32 feet below ground surface (bgs) exceeded the benzene MTCA Method A soil cleanup level. TPH-G was detected in the sample collected from GP-1 at 15 to 17 feet bgs at a concentration greater than the MTCA Method A soil cleanup level. In the grab groundwater samples collected from the borings, benzene was detected at concentrations greater than the MTCA Method A groundwater cleanup level in the groundwater samples collected from the borings GP-2, GP-3, and GP-4. The TPH-G concentration was greater than the MTCA Method A groundwater cleanup level in the groundwater sample collected from GP-2.

On August 1, 2002, under Shaw supervision, Holocene Drilling, Inc. of Pacific, Washington installed five groundwater monitoring wells (MW-1 through MW-5, Figures 2 and 3). BTEX and TPH-G concentrations did not exceed their respective MTCA Method A soil cleanup levels for all soil samples collected from the well borings. On August 22, 2002, groundwater samples were collected from the monitoring wells. Benzene concentrations exceeded the MTCA Method A groundwater cleanup level in the groundwater samples collected from MW-1 and MW-2.

On November 4, 2003, under SECOR supervision, Cascade advanced eight borings (SB-1 through SB-8) to further delineate previously identified soil impacts. MTCA Method A soil cleanup levels were exceeded in three soil samples collected from the eight borings, indicating that hydrocarbon-impacted soils were identified at depths ranging from approximately 18 feet to 22 feet bgs at locations in the immediate vicinity of the former dispenser islands (Figure 3).

On May 1, 2004, under SECOR supervision, Cascade advanced four soil borings (EP-1 through EP-4) to depths ranging from 12 to 24 feet bgs, in order to further delineate previously identified soil impacts. All the soil samples submitted contained concentrations of TPH-G and BTEX less than MTCA Method A cleanup levels (Figure 3).

Between December 2005 and June 2007, under SECOR supervision, Cascade advanced a total of 14 borings (SB-9 through SB-22) to a maximum depth of 30 feet bgs to further assess the current condition of source-area subsurface soils located beneath the former dispenser island and the north end of the former tank pit. Samples were also collected for additional analysis as required to run MTCA Method B calculations. Soil analytical results confirmed the presence of TPH-G exceeding the MTCA Method A Cleanup Level in borings SB-10 (15 and 20 feet bgs), SB-17 (17 and 21 feet bgs), and SB-22 (21 feet bgs). Method B calculations indicated that the TPH-G concentrations in the soil were not protective of groundwater. No samples contained BTEX concentrations above their respective MTCA Method A cleanup levels (Figure 3).

On June 2, 2009 Stantec submitted a Feasibility Study and Disproportionate Cost Analysis to Ecology. For the purposes of the study, MTCA Method A cleanup levels were proposed for use at the site for the following reasons:

- All petroleum hydrocarbon constituents have been reported below their respective cleanup levels with the exception of TPH-G in soil.

- Table 740-1 of the MTCA Cleanup Regulations (Method A Cleanup Levels for Unrestricted Land Uses) indicates that the cleanup level for gasoline mixtures without benzene and the total of ethylbenzene, toluene, and xylenes are less than 1% of the gasoline mixture is 100 milligrams per kilogram (mg/kg). Using analytical data from the most recent soil assessment, the maximum

concentrations of ethylbenzene, toluene, and xylenes are 0.19% of the total gasoline mixture, and benzene was not detected, thus the 100 mg/kg cleanup level will be used.

CURRENT CONDITIONS

Results of the previous investigations indicate that petroleum hydrocarbon impacts to soil remain at a depth range of approximately 14 to 24 feet bgs in the vicinity of the former dispensers and in the northern portion of the tank bed. Petroleum hydrocarbons do not appear to be migrating to surrounding soils or to the groundwater (***Figure 3a***).

A summary of soil sample results collected during each of the historical sampling events cited is summarized in Table 1. The locations of the soil samples are shown on ***Figures 3a and 3b***.

Groundwater monitoring of the wells installed in August 2002 was initially conducted on a quarterly and most recently on an annual basis for a total of seven historical events. Groundwater samples were submitted for TPH-G/BTEX analysis. Detected concentrations of TPH-G/BTEX in the groundwater samples collected from all the wells have been less than MTCA Method A groundwater cleanup levels for four consecutive quarters (December 2002, February 2003, May 2003, and August 2003), as well as the six annual monitoring events (November 2004, November 2005, August 2008, February 2009, January 2010 and March 2011). Results of groundwater sampling of the monitoring wells at the site are summarized in Table 1.

Stantec reviewed Ecology's electronic databases regarding the regulatory status of the site. The site is listed in Ecology's UST and Leaking Underground Storage Tank (LUST) databases under site identification number 8629, release identification number 591567 and Ecology Identifier 97196866. The release notification date is listed as April 30, 2002, and the site is listed as "Cleanup Started".

GEOLOGY AND HYDROLOGY

Sediments deposited by a number of glacial outwash and retreat episodes predominantly associated with the Upper Pleistocene Vashon drift underlie the site vicinity area. The regional sediments consist primarily of deposits of clays, silts, and fine to medium grained sands. Rivers, streams, and post-glacial lakes deposited outwash sediments consisting of stratified sand, silt, and clay during the glacial retreats. With the exception of the most recent recessional deposits, the outwash sediments have been over-consolidated by the overriding ice sheets.

The principal aquifers in the Puget Sound Region are in glacial drift that, along with finer grained interglacial sediments, underlies the basin lowland to depths of more than 1,000 feet, and in alluvial deposits that underlie the major lowland and mountain river valleys.

The subsurface soils observed in onsite borings consist predominantly of sands to a maximum depth of 49 feet bgs (total depth of exploration). Depth to groundwater varies seasonally from approximately 41 to 48 feet bgs and has historically flowed to the northeast. Historical groundwater gauging data is included in Table 1.

SCOPE OF WORK

Stantec proposes the following scope of work to further assess subsurface soil and soil vapor conditions at on-site locations.

The scope of work includes the following tasks:

- Pre-Field Activities;
- Collection of soil vapor samples;
- Tier I Vapor Intrusion Assessment
- Collection of soil samples;
- Groundwater monitoring;

- Revise Conceptual Site Model;
- Waste Management; and,
- Reporting.

Details of each of these tasks are discussed below.

1) PRE-FIELD ACTIVITIES

Stantec will modify the existing site-specific *Health and Safety Plan* for the proposed scope of work as required by the Occupational Health and Safety Administration (OSHA) Standard "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120). The document will be reviewed and signed by Stantec personnel and subcontractors performing work at the Site.

Prior to conducting subsurface work in previously unassessed areas of the site, the municipal Utility Notification Center will be contacted to delineate subsurface piping near the site with surface markings. In addition, a private utility locator service will be contracted to clear the areas surrounding the proposed boring locations.

Stantec will coordinate site access with the current occupants and arrange for receipt of the necessary sampling containers and equipment.

2) SOIL VAPOR SAMPLING ACTIVITIES

Soil gas sampling and analysis will be conducted to evaluate the potential presence of soil gas impacted with petroleum hydrocarbon in select locations at the Site. Stantec will install up to 6 shallow soil vapor probes (SG-1 through SG-6) as shown on ***Figures 3a and 3b***. Following installation, Stantec will collect soil vapor samples from the new soil gas probes. All work will be performed in accordance with the Washington State Department of Ecology, *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* (Review Draft October 2009)

Two samples will be placed to evaluate residual or current impacts near the former tank basin. Four probes will be installed in up-gradient and down gradient positions. These locations will be used to assist evaluation of impacted soil vapor which may be present beyond locations of previously identified vadose zone soil impacts. Once in the field, the soil gas probes can be moved as necessary to avoid utilities, landscaping or other features.

Procedures are described in the following sections regarding the installation of shallow soil gas probes and the collection of soil gas samples.

Stantec personnel will maintain detailed notes (e.g., site conditions, weather, sampling processes, pertinent dates and times) during activities associated with the installation and sampling of the probes/wells.

<u>Installation of Shallow Soil Vapor Probes</u>

Shallow soil vapor probes will be installed following the general procedure outlined below, and as shown on Figure 3:

- Following removal/penetration of concrete or asphalt surfaces, soil gas probe borings will be installed using a hand auger. The approximately 2-inch diameter borings will be advanced to a depth of approximately 5 feet bgs.

- Two inches of #3 sand will be placed into the bottom of the borehole. The 3 to 6-inch long stainless steel or ceramic implant with attached ¼-inch diameter Teflon™ tubing, will then be inserted into the

borehole. The tubing will extend 12 to 24 inches above the ground surface and be capped with a Swagelok™ cap.

- Following installation of the tubing and implant, approximately 6 inches of #3 sand will be placed around and above the implant such that the implant is centered in the sand pack.

- Two inches of dry granular bentonite is then inserted into the borehole above the sand pack, to a depth of approximately 4-feet below the top of the borehole. Hydrated bentonite will be added above the dry bentonite to approximately 16-inches below the top of the borehole. Bentonite will be hydrated by adding alternating lifts of dry granular bentonite and water followed by in-situ mixing.

- Each soil gas probe will be completed with concrete to form a surface seal. Care will be taken to completely immobilize implant tubing during the surface completion.

- Atmospheric air entrained during probe installation will be purged from the assembly soon after installation and monitored for O2, CH4, and VOCs using an FID until reading stabilize.

- Since installation of probe borings will disrupt subsurface conditions, soil gas sampling will not occur for a minimum of one-week to allow adequate subsurface equilibration.

Soil Vapor Sample Collection

Stantec personnel will maintain detailed notes during the soil vapor sample collection activities. Notes will include weather conditions, vacuum leak test data, purge data, and sample collection/tracer gas monitoring data. A vapor sample collection data log is included in ***Appendix A***.

Stantec will coordinate with the contracted laboratory for shipment of the appropriate sample containers and equipment to perform soil vapor sampling. For this project, Air Toxics Ltd. (ATL) of Folsom, California has been selected as the project laboratory. ATL is accredited in the State of Washington for air analysis using both EPA Method TO-15 and ASTM D 1946 (C935). Stantec will provide the laboratory with the required Target Compound List and the project laboratory reporting limits (LRLs).

Stantec will request the laboratory to provide the following supplies for each sampling event:

- Eight batch-certified 1-liter (L) Summa™ canisters (5 primary samples, 1 duplicate and two spares) paired with laboratory-certified flow controllers (with built-in particulate filters) calibrated to deliver approximately 175 milliliters per minute (mL/min);

- Approximately 45 feet of 1/4-inch O.D Teflon tubing;

- 16 stainless or brass compression fittings and ferrules;

- Soil gas sampling manifold for duplicate collection;

- Six, 1-liter Tedlar Bags (as needed) for field screening and leak testing.

The laboratories will measure and record canister vacuum using both their fixed, calibrated equipment and provided analog gauges at the time of shipment. The purpose of this process is to assess variability in measurement between calibrated vacuum gauges (typically used for reporting “receipt” vacuum) used and field gauges supplied by the laboratory (ΔP digital-analog). This data will then be used to evaluate occurrence of leaks during return shipment of canisters to the laboratory. Upon receipt, the initial vacuum of each canister will be measured and recorded by Stantec using laboratory-supplied vacuum gauges. Laboratory and field vacuum measurements will be compared to determine if there is evidence that vacuum loss occurred during shipment.

Stantec will procure the following equipment and supplies for each sampling event:

- Two-way ¼-inch diameter Swagelok® valves;
- Helium gas and helium detector/monitor (Mark Products Model 9821 or equivalent with appropriate detection range of 0.01 to 100%);
- Landtec GEM™ 2000 for field screening of CO2, O2 and CH4.
- Lung Box and sampling pump; and,
- Proper hand tools to secure connections and fittings (7/16 and 9/16-inch wrenches).

Shut-In Test

Leakage of atmospheric air into the sampling equipment during sample collection can compromise sample integrity and dilute measured soil vapor concentrations, possibly to the point that the concentration is below the method reporting limit (i.e., a false negative). Contaminants in ambient air can also enter the sampling system and be detected in the sample from a non-contaminated sampling probe (i.e., a false positive). Air leakage can occur at the land surface into the probe and, less likely, through loose fittings in the aboveground sampling equipment.

To avoid leaks, the connections, fittings, and other parts associated with the sampling equipment will be checked to verify that they are tightly fit.

A shut-in test involves performing a vacuum test on the aboveground sampling equipment (e.g., valves, lines and fittings). This test will be performed by closing all of the sampling valves and evacuating the line to a measured vacuum of approximately 50 inches of water column (in. H2O) using a gas-tight syringe or sampling pump. If a pump is used, the valve is closed and the pump turned off. If constant vacuum as measured by a vacuum gauge connected to the line via a “T” fitting is maintained for 1 minute, the sampling equipment will pass the vacuum test. If there is observable loss of vacuum, fittings will be re-tightened and the test repeated. Results of the vacuum leak test will be recorded on the soil vapor sample collection data log provided in Appendix A.

Permeability Testing

Subsurface soils at the Site consist of interbedded sands, silts and clays. As such there is a potential for low permeability conditions to be present. Qualitatively this may be assessed using a gas-tight syringe. If a high vacuum condition is present the plunger on the syringe will be difficult to withdraw.

Low-flow conditions may be assessed quantitatively by connecting a vacuum gauge to the probe tubing (as close as possible to surface seal). A pump and flow-meter equipped with rotameter are then used to withdraw soil gas at a measured rate. If a probe cannot sustain a flow rate of approximately 100 mL/min with an applied vacuum of less than 100 inches water column (in. wc.) for 2 to 3 minutes, low flow conditions exist. An alternate procedure for sample collection under low-flow conditions may include collection of a smaller aliquot of soil gas followed by a period of time for the vacuum to dissipate (dependent of gas permeability of soils around sand pack). The process is repeated until approximately 800 mL of soil gas is collected in the 1-liter Summa® canister.

In the event that lower flow conditions are encountered, data collected as part of this testing may be used to derive actual permeability using the following equation derived from Johnson et. Al[1].

$$k=(Q/H)^{\wedge} * (\mu/\pi)* [\ln(Rw/RI)]/[Pw*\{ 1-(PATM/Pw)2\}]$$

Where:

K = Permeability
H = Well screen length through vadose zone (m)
π = 3.1416
μ = Dynamic viscosity (typically 0.0182 centipoise for air @ STP)
PW = Absolute Pressure at Wellhead (PATM minus wellhead vacuum)
PATM = Atmospheric Pressure (about 390 inches H2O)
RW = Radius of well (m)
RI = Radius of Influence (ROI) (estimated 1 to 10m)

Leak Testing

The leak check procedure involves using a tracer gas to test for ambient air leakage around the surface seal and into the sampling system. Helium will be used as the tracer gas for this project because it has low toxicity, does not disrupt analytical measurements, is generally not found at contaminated sites, and has a high purity. Laboratory-grade helium is recommended and will be obtained from an analytical laboratory or directly from a helium supplier.

A sampling enclosure (shroud) will be constructed to facilitate leak testing during soil vapor sample collection. With the assumption that the surface sampling train has passed the shut-in test, the shroud will be of sufficient size to cover the surface seal. Tubing from the subsurface probe is passed through a dedicated opening in the shroud to the Summa ™ canister. The sampling enclosure will be filled to at least 10% laboratory-grade helium, and a helium detector (e.g., Mark Products Model 9821) will be used to measure the percentage of helium in the enclosure at the start and end of the sampling interval. Rapid depletion of helium indicates that there is an inadequate seal between the shroud and ground surface and corrective measures are necessary.

Helium present in the sample train may be quantitatively measured in the field by collecting one volume of purge air in a Tedlar bag. Alternatively the sample train may be fitted with a separate port fitted to a sampling pump for collecting air into a Tedlar bag placed inside a lung box. Helium is measured using the portable helium detector. If logistically feasible, these methods allow for corrective measures to be taken at the time of sample collection. However, in all cases, all samples will also be analyzed in the laboratory using ASTM D-1946 (fixed gases).

The presence of helium in the bag of less than 5% of the helium concentration in the shroud generally is not indicative of ambient air intrusion (and subsequent dilution of the sample) into the sample train. Helium present at higher percentages will require corrective action including reapplication of materials used to establish the surface seal. Particular attention will be paid to ensuring that soil vapor implant tubing is immobilized to prevent annulus formation around it. In the event that helium is detected at greater than 5% of the shroud concentration after corrective measures, the boring must be abandoned and relocated. If a field detector is used that provides parts per million measurements these may be converted (for helium only) to percent helium as follows:

$$\text{Percent Helium} = \text{Parts Per Million (ppmv)} \times 0.0001$$

[1] Johnson, P.C., Kemblowski, M.W., and Cololthart, J.D., 1990. *Quantitative Analysis for the Cleanup of Petroleum Hydrocarbon-Contaminated Soils by In-Situ Soil Venting.* GROUNDWATER, vol 28, No. 3, May-June 1990.

Purging

After the sampling equipment passes the vacuum test, the probe or well will be purged to remove internal air from the sample train (tubing and vapor implant only). Three volumes will be purged from each sampling location. Purge volumes will be calculated by:

$$\text{Volume to be purged} = [\pi * (Di/2)2\ L] * x + Va + Vm$$

Where:

π = 3.1416
Di =Tubing inner diameter (inches)
L = Tubing length (inches)
X = Conversion constant (16.39 ml/in3)
Va = Annulus volume
Vm = manifold volume

Purging will be performed at each location using either a dedicated purge Summa canister or low-flow pump. For canister purging an approximately 1-inch of mercury (in Hg) drop in vacuum in the 6-L purge canister corresponds to an approximate purge volume of 200 mL.

The flow rate during canister purging will be approximately equivalent to the flow rate during sampling, which is set by the flow controller provided by the laboratory. If a pump is used, the flow rate will be set (and field calibrated) to 175 mL/min. Purge data for each probe/well will be recorded on the log provided in Appendix A.

Collecting Soil Vapor Samples

With the leak test shroud still in place, collection of soil vapor samples from a particular probe will begin immediately. Each sample from the soil vapor wells will be collected in a 1-L batch-certified Summa™ canister at an approximate collection rate of 175 ml/min. After the Summa™ canister valve is opened and the canister begins to fill, the pressure gauge on the flow controller will be observed to verify that the vacuum in the canister is decreasing over time. If the flow controller is working correctly, it will take approximately 5 minutes for the vacuum to decrease to 5 in Hg; however, the actual sampling duration may be slightly more or less than 5 minutes. The Summa™ canister valve will be closed and sampling will cease when a vacuum of 5 in Hg is obtained.

A duplicate sample will be collected from one shallow soil gas probe location using a laboratory-supplied dual collection manifold.

Sample collection and tracer gas monitoring data for each probe will be recorded on the soil vapor sample collection data log provided in ***Appendix A.***

<u>Sample Storage and Transport</u>

Soil vapor samples will be properly labeled and placed within secure packaging received from the laboratory. Soil vapor samples will not be chilled since contaminants may condense in the canisters at low temperatures. All samples will be shipped to the project laboratory via FedEx next-day air. Samples will be transported under chain-of-custody protocol (including noting the final canister vacuums and serial numbers of the canisters and flow controllers). The project laboratory will measure receipt vacuum in accordance with procedures described in 3.2.3.1 above. Pre-field planning will prevent sample shipments from arriving at the laboratory during weekends.

Laboratory Analysis

Soil gas samples will be submitted to the laboratory for the following analyses:

- Volatile Organic Compounds by US EPA Method TO-15[2] full-scan acquisition mode.
- Fixed gases (carbon dioxide, oxygen, methane and helium) by ASTM Method D-1946.

The VOC target compound list for soil gas samples is presented in Table 1.

Table 1. Soil Gas Target Compound List

Target Analyte	CAS	MRL [1]	
		µg/m^3	ppbv
Toluene	108-88-3	1.3	0.33
Chlorobenzene	108-90-7	1.3	0.28
Ethylbenzene	100-41-4	1.3	0.30
m,p-Xylenes	179601-23-1	2.5	0.30
o-Xylene	95-47-6	1.3	0.30
n-Hexane	110-54-3	1.3	0.35
1,3,5-Trimethylbenzene	108-67-8	1.3	0.25
1,2,4-Trimethylbenzene	95-63-6	1.3	0.25
1,3-Dichlorobenzene	541-73-1	1.3	0.21
1,4-Dichlorobenzene	106-46-7	1.3	0.21
1,2-Dichlorobenzene	95-50-1	1.3	0.21
1,2,4-Trichlorobenzene	120-82-1	1.3	0.17
Naphthalene	91-20-3	1.3	0.24
Benzene	71-43-2	1.3	0.40

[1] Method Reporting Limit. Actual MRL highly dependent on concentrations of detected compounds and canister dilution factors.
µg/m^3 = micrograms per cubic meter
ppbv = parts per billion volume
Bold compounds have established Table B-1 vapor intrusion screening levels (Ecology 2009)

3) Tier I Vapor Intrusion Assessment

Following receipt of soil gas analytical results, a Tier I Vapor Intrusion Screening Assessment will be performed which is intended to evaluate potential human health risks resulting from vapor intrusion only to *future* hypothetical site occupants and uses other than an active gasoline station. The assessment at a minimum will include the following:

- Overlaying VOC plume on figure depicting current building footprints and developable land;
- Comparing soil gas results to generic screening levels developed using conservative assumptions;
- Where soil gas exceeds generic screening levels, data will be input to the Johnson & Ettinger model as modified by Cal-EPA OEHHA. This model is proposed because the available EPA on-line version still employs route-to-route extrapolation which is no longer an accepted practice. The model will then derive a predicted indoor air concentration which can be compared to acceptable indoor air levels (MTCA A, B or C) established for future uses other than active gasoline station.

4) SOIL SAMPLING AND ANALYSIS

[2] *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*, Second Edition, U.S. EPA, January 1999.

Previous investigations at the site have not identified the presence of soil impacted by petroleum hydrocarbon constituents including TPH-G at depths of approximately 10 feet below the ground surface (bgs). However, petroleum constituents and TPH-G have been identified at a few locations at depths greater than 15 feet bgs. In order to confirm cleanup levels have been met at the point of compliance (15 feet bgs for direct contact and protection of the environment) soil samples will be collected from depths of 14 and 15 feet bgs in locations where maximum (and worst-case) soil impacts have previously been documented (e.g., SB-7, SB-10 and SB-17). In addition, soil samples will be collected from the same depths in two locations where low concentrations of TPH-G were previously reported (EP-3 and SB-9).

To evaluate changes in soil impacts since previous sampling and analysis in 2007, one sample will be collected at 20 feet bgs and one at 25 feet bgs as near as possible to the location with the highest reported concentration of TPH-G (SB-7).

Soil Boring, Soil Sampling and Analysis

Stantec will supervise the advancement of 5 soil borings to a maximum depth of 15.5 feet below ground surface (bgs) and one boring to a maximum depth of 25 feet bgs using a Geoprobe direct-push drilling method at the locations shown on ***Figures 3a and 3b***.

Soils will be logged continuously for stratigraphic assessment. Soil samples will be collected at approximately 14 and 15 feet bgs in 5 locations and 20 and 25 feet bgs in one location and submitted for laboratory analysis.

Down-hole drilling equipment will be cleaned before advancing each borehole, and sampling equipment will be cleaned between each sampling interval. Each soil sample will be screened for hydrocarbon vapors using a portable photoionization detector (PID). The PID will be calibrated in the field prior to soil sample collection per the manufacturer's specifications. Soils encountered during drilling will be logged using the Unified Soil Classification System by a Stantec field geologist, working under the supervision of a Washington State Licensed Geologist.

Soil samples for analysis will be collected in accordance with EPA Method 5035A, labeled and placed on ice in an insulated container for delivery to Kiff Analytical, LLC (Kiff) laboratory located in Davis, California under proper chain-of-custody (COC) documentation. Soil samples will be analyzed for TPH-G by Ecology Method NWTPH-Gx; lead by EPA Method 6010; and, benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8260B. In accordance with WAC 173-340-747, to evaluate the leaching pathway for protection of groundwater, based on preliminary laboratory results, samples with reported detections of total lead and TPH-G may be analyzed using EPA Method 1312 (Synthetic Precipitation Leaching Procedure) or EPA Method 1311 (Toxicity Characterization Leaching Procedure). The selected leaching procedure will depend on soil pH.

In accordance with WAC 173-340-747(5) [variable parameter three-phase used to derive soil concentrations] and (9) [empirical demonstration that soil concentrations are protective of groundwater], the following site-specific parameters will be measured at the laboratory:

- Soil organic carbon for uncontaminated soil at depths greater than 1 meter;
- Soil bulk density by ASTM 2049;
- Soil volumetric water content by ASTM 2216;
- Soil porosity.

5) GROUNDWATER SAMPLING AND ANALYSIS

Groundwater monitoring and sampling will be conducted to evaluate the groundwater quality by collecting representative samples from the existing monitoring well network. Prior to sampling, depth to water in each groundwater monitor well will be measured. Approximately three well volumes of water will be purged.

Groundwater samples will then be collected using low-flow procedures. If the well is slow to recover, the sample will not be collected until the water level has approached 80 percent of its initial level. The groundwater sample will be slowly transferred to laboratory-cleaned sample containers, sealed with Teflon®-lined caps, and placed in cooled storage.

Groundwater samples will be submitted to Kiff for analysis of TPH-G by Ecology Method NWTPH-Gx; total lead by EPA Method 6010; BTEX, methyl tert-butyl ether, 1,2-dichloroethane, by EPA Method 8260B and, ethylene dibromide (EDB) by EPA Method 8011. To evaluate existing natural biodegradation or the presence of conditions suitable for natural biodegradation, the following geochemical parameters will be collected using either field or laboratory measurement:

- Conductivity;
- Dissolved oxygen;
- Ferrous iron;
- Total dissolved iron;
- Oxidation-reduction potential;
- Nitrate;
- Sulfate;
- Manganese; and,
- Alkalinity.

6) PREPARE REVISED CONCEPTUAL SITE MODEL

Data collected as part of this assessment will be used to modify the existing Conceptual Site Model (CSM) for the Site specifically where evaluation of exposure pathways require change (exposure pathway considered based on site data to be incomplete. In addition, data obtained from use of an alternate fate and transport model with site-specific inputs along with TPH depletion calculations will be provided as part of the CSM.

7) WASTE HANDLING AND STORAGE

Soil cuttings and development and decontamination water generated during the drilling operations will be temporarily stored onsite in properly labeled Department of Transportation (DOT) approved 55-gallon drums. The soil and development and decontamination water will be removed by Stantec's disposal contractor to an appropriate disposal facility. The drums will be temporarily stored onsite for approximately 2-3 weeks pending characterization and disposal.

8) REPORTING

Stantec will prepare an assessment report summarizing the fieldwork completed and data collected as follows:

- Details of field procedures and operations;
- Boring and soil vapor probe logs ;
- Tabulated results of the soil, soil vapor, and groundwater sample analyses;
- Updated map depicting all sample locations.
- Where appropriate an updated conceptual site model.

If you have any questions or comments regarding this submittal, please contact the Stantec project manager, Paul Fairbairn, at (425) 372-1600.

Sincerely,

STANTEC CONSULTING SERVICES INC.

Paul Fairbairn
Project Manager

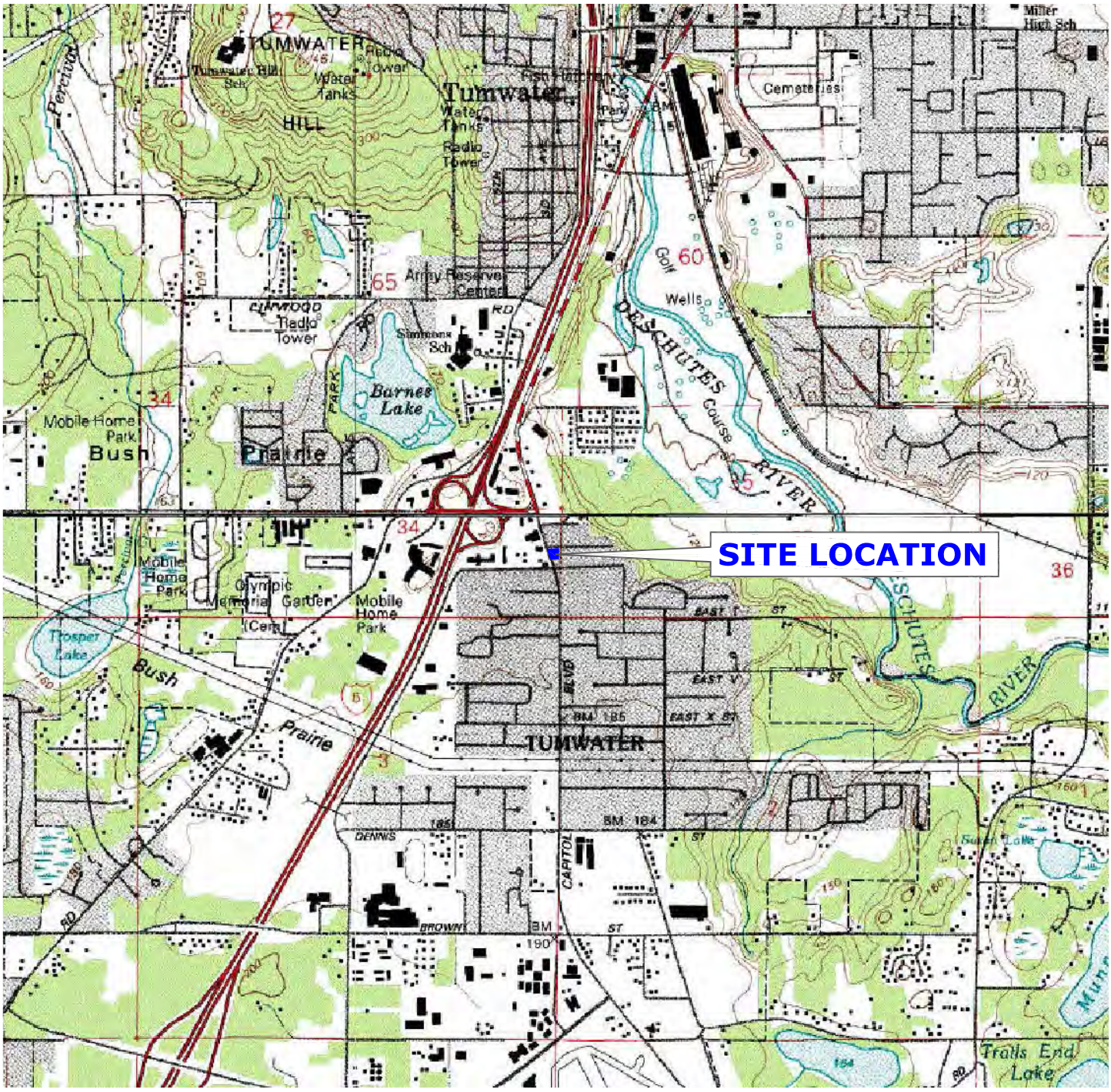
Patrick H. Vaughan, MS, CEM, REA II
Senior Scientist

Phil Haberman, L.G., L.E.G.
Senior Geologist

Attachments:

Figure 1 – Site Location Map
Figure 2 – Site Vicinity Map
Figure 3a – Site Plan with Proposed Soil Boring and Soil Vapor Probe Locations
Figure 3b – Site Plan with Proposed Soil Boring and Soil Vapor Probe Locations
Table 1 – Summary of Soil Analytical Results
Table 2 – Groundwater Monitoring and Analytical Results

Appendix A – Soil Vapor Sample Collection Data Log
Appendix B – Further Action Determination Letter, Ecology, June 3, 2008



REFERENCE: USGS 7.5 MINUTE QUADRANGLE; MAYTOWN, WASHINGTON; 1990

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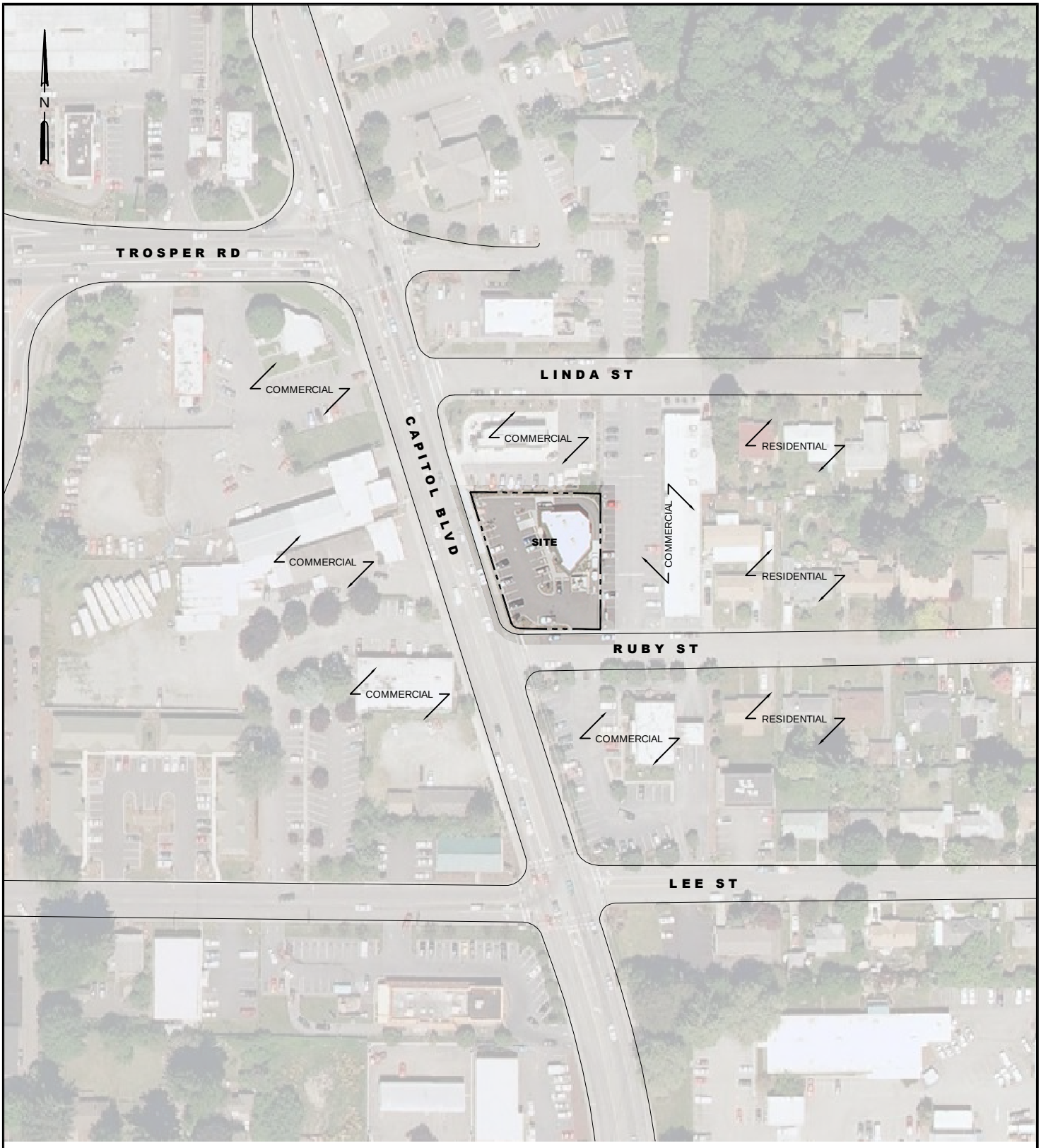
FOR: 7-ELEVEN
FORMER FACILITY NO. 14479
5310 CAPITOL BPULEVARD
TUMWATER, WASHINGTON

SITE LOCATION MAP

FIGURE: **1**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212302328	DJH	RM	PF	2/28/11



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APPROXIMATE SCALE IN FEET

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SITE VICINITY MAP

FIGURE: **2**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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LEGEND:

- SUBJECT PROPERTY LINE BOUNDARY
- MW-1 GROUNDWATER MONITORING WELL
- SB-11 SOIL BORING WITH PETROLEUM HYDROCARBONS BELOW MTCA METHOD A CULS
- SB-10 SOIL BORING WITH DETECTED PETROLEUM HYDROCARBONS ABOVE MTCA METHOD A CULS
- PROPOSED SOIL VAPOR SAMPLE
- PROPOSED SOIL BORING

N

0 20 40

APPROXIMATE SCALE IN FEET

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SITE PLAN WITH PROPOSED SOIL BORING AND SOIL VAPOR PROBE LOCATIONS

FIGURE: **3a**

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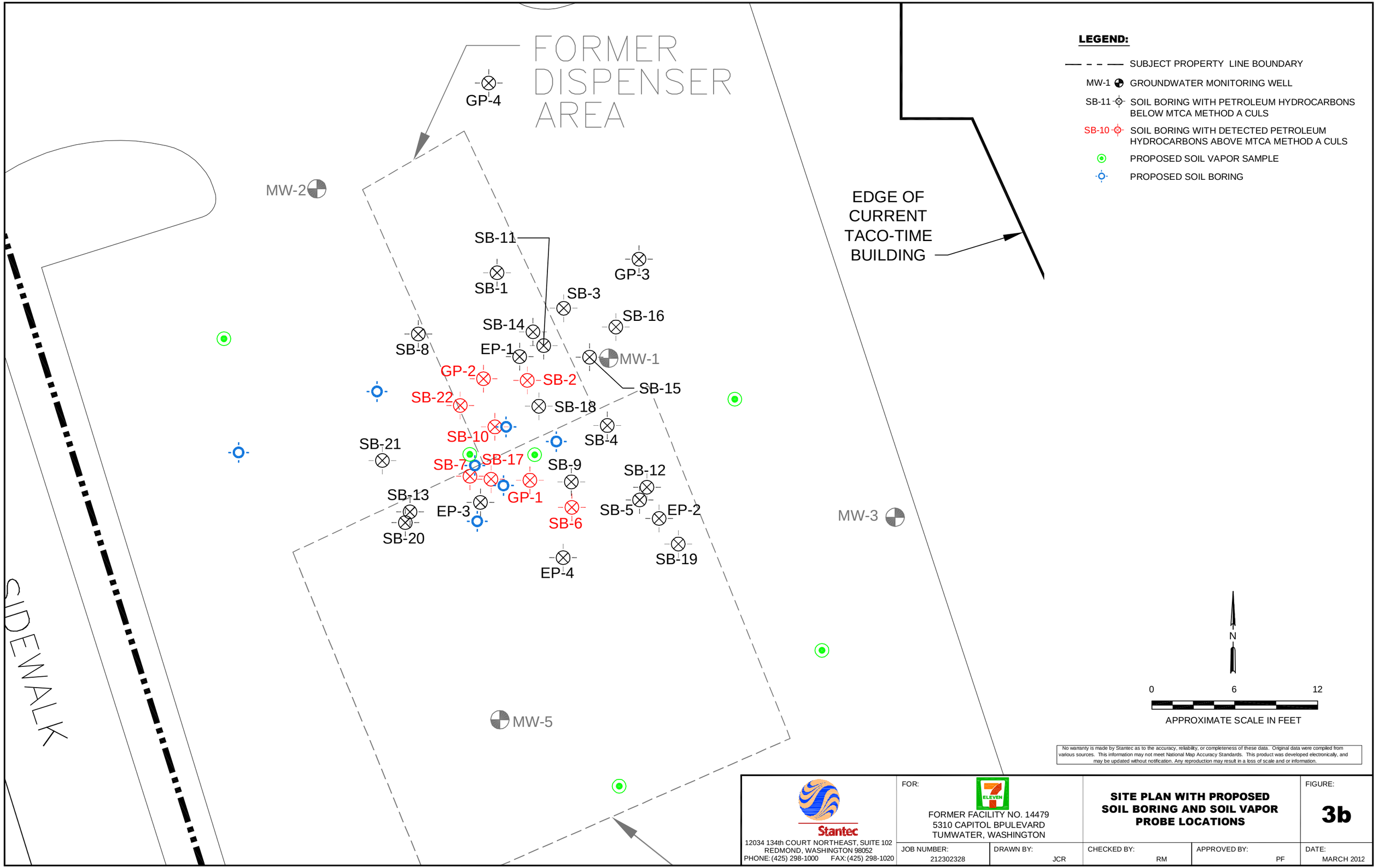

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SITE PLAN WITH PROPOSED SOIL BORING AND SOIL VAPOR PROBE LOCATIONS

FIGURE: **3b**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212302328	JCR	RM	PF	MARCH 2012

Table 1
Soil Analytical Data - TPH and BTEX
Former 7-Eleven Store No. 14479
5310 Capitol Boulevard, Tumwater, Washington
All concentrations in milligrams per kilogram (mg/kg)

Sample ID	Sample Depth (ft bgs)	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-G	TPH-D	TPH-O
GP-1	5-7	05/23/02	<0.0223	0.0234	<0.0445	0.0838	<4.45		
	15-17	05/23/02	<0.0217	0.0444	0.0495	0.6830	**111.0**	--	--
	25-27	05/23/02	0.0137	0.1980	0.0299	0.2927	6.03	--	--
	30-32	05/23/02	0.0130	0.2100	0.0355	0.4080	4.64	--	--
	35-37	05/23/02	<0.0204	0.0093	<0.0408	0.1223	<4.08	--	--
GP-2	5-7	05/23/02	<0.0216	0.0726	0.00904	0.0170	4.54	--	--
	12-12	05/23/02	<0.0213	0.0747	0.0189	0.2168	4.91	--	--
	20-22	05/23/02	0.0073	0.0561	0.0204	0.0539	<4.01	--	--
	30-32	05/23/02	**0.0582**	1.1300	0.2080	2.6430	21.4	--	--
	35-37	05/23/02	0.0146	0.2310	0.0401	0.3255	3.46	--	--
	40-42	05/23/02	<0.0232	0.0326	0.0142	0.0931	<4.65	--	--
GP-3	5-7	05/23/02	<0.0214	<0.0428	<0.0428	<0.1283	<4.28	--	--
	15-17	05/23/02	0.0047	0.0202	0.0167	0.0281	<4.33	--	--
	20-22	05/23/02	0.0103	0.0839	0.0239	0.0742	<4.12	--	--
	30-32	05/23/02	0.0171	0.2680	0.0394	0.2970	<4.19	--	--
	40-42	05/23/02	<0.0241	0.0633	0.0149	0.0897	<4.82	--	--
GP-4	5-7	05/23/02	<0.0205	<0.0411	<0.0411	<0.1233	<4.11	--	--
	10-12	05/23/02	<0.0203	<0.0406	<0.0406	<0.1219	<4.06	--	--
	20-22	05/23/02	<0.0214	<0.0428	<0.0428	<0.1283	<4.28	--	--
	30-32	05/23/02	<0.0209	<0.0418	<0.0418	<0.1255	<4.18	--	--
	40-42	05/23/02	<0.0255	<0.0510	<0.0510	<0.1530	<5.10	--	--
MW-1	2.5-4	08/01/02	<0.0219	0.0114	<0.0439	0.0413	<4.39	--	--
	17.5-19	08/01/02	<0.000834	<0.00167	<0.00167	<0.00501	<4.17	--	--
	27.5-29	08/01/02	<0.0217	0.0342	<0.0435	0.1161	<4.35	--	--
	37.5-39	08/01/02	<0.0211	0.0659	0.00821	0.1382	<4.22	--	--
	42.5-44	08/01/02	<0.0241	0.0245	<0.0483	0.0567	<4.83	--	--
MW-2	7.5-9	08/01/02	<0.000825	<0.00165	<0.00165	<0.00495	<4.13	--	--
	27.5-29	08/01/02	<0.0219	0.0503	0.00922	0.1538	2.26	--	--
	37.5-39	08/01/02	<0.0208	0.0434	<0.0417	0.1153	<4.17	--	--
	42.5-44	08/01/02	<0.000963	<0.00193	<0.00193	<0.00578	<4.82	--	--
MW-3	7.5-9	08/01/02	<0.000826	<0.00165	<0.00165	<0.00496	<4.13	--	--
	37.5-39	08/01/02	<0.0205	0.0298	<0.0411	0.05989	<4.11	--	--
MW-4	37.5-39	08/01/02	<0.000846	<0.00169	<0.00169	<0.00507	<4.23	--	--
	42.5-44	08/01/02	<0.0212	0.00975	<0.0425	0.0462	<4.25	--	--
MW-5	27.5-29	08/01/02	0.0103	0.244	0.0757	0.425	3.03	--	--
	37.5-39	08/01/02	<0.0202	0.0161	<0.0403	0.036	<4.03	--	--
	42.5-44	08/01/02	<0.024	0.0111	<0.048	<0.096	<4.8	--	--
SB-1	10	11/04/03	<0.011	<0.054	<0.054	<0.108	11	--	--
	14	11/04/03	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
	22	11/04/03	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
SB-2	18	11/04/03	<0.012	<0.058	<0.058	<0.116	<5.8	--	--
	22	11/04/03	<0.012	<0.10	0.45	7.90	**950**	--	--
	26	11/04/03	<0.010	<0.052	<0.052	<0.104	<5.2	--	--
SB-3	10	11/04/03	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
	14	11/04/03	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
	22	11/04/03	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
SB-4	10	11/04/03	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
	14	11/04/03	<0.011	<0.054	<0.054	<0.108	<5.4	--	--
	18	11/04/03	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
SB-5	14	11/04/03	<0.011	<0.054	<0.054	<0.108	<5.4	--	--
	18	11/04/03	<0.021	<0.11	<0.11	<0.22	<11	--	--
	22	11/04/03	<0.022	<0.11	<0.11	<0.22	<11	--	--
SB-6	14	11/04/03	<0.011	<0.055	<0.055	<0.11	<5.5	--	--
	18	11/04/03	<0.021	<0.11	<0.11	0.86	**230**	--	--
	22	11/04/03	<0.011	<0.053	<0.053	0.19	<5.3	--	--

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5310 Capitol Boulevard, Tumwater, Washington
All concentrations in milligrams per kilogram (mg/kg)

Sample ID	Sample Depth (ft bgs)	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-G	TPH-D	TPH-O
SB-7	14	11/04/03	<0.011	<0.054	<0.054	<0.108	<5.4	--	--
	18	11/04/03	<.21	**11**	**32**	**790**[E]	**6,700**	--	--
	22	11/04/03	<0.010	<0.052	<0.052	1.34	9.1	--	--
SB-8	10	11/04/03	<0.011	<0.054	<0.054	<0.108	<5.4	--	--
	14	11/04/03	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
	22	11/04/03	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
EP-1	8	05/01/04	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
	10	05/01/04	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
	14	05/01/04	<0.011	<0.056	<0.056	<0.112	<5.6	--	--
	20	05/01/04	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
	22	05/01/04	<0.010	<0.052	<0.052	<0.104	<5.2	--	--
	24	05/01/04	<0.011	<0.054	<0.054	<0.108	<5.4	--	--
EP-2	8	05/01/04	<0.011	<0.057	<0.057	<0.114	<5.7	--	--
	10	05/01/04	<0.011	<0.054	<0.054	<0.108	<5.4	--	--
	12	05/01/04	<0.011	<0.053	<0.053	<0.106	<5.3	--	--
EP-3	17	05/01/04	<0.011	<0.054	<0.054	<0.108	<5.4	--	--
	18	05/01/04	<0.010	<0.052	<0.052	0.120	6.0	--	--
	19	05/01/04	<0.010	<0.052	<0.052	<0.104	<5.2	--	--
EP-4	10	05/01/04	<0.011	<0.055	<0.055	<0.110	<5.5	--	--
	14	05/01/04	<0.011	<0.054	<0.054	<0.108	<5.4	--	--
	18	05/01/04	<0.010	<0.052	<0.052	<0.104	<5.2	--	--
	22	05/01/04	<0.010	<0.052	<0.052	<0.104	<5.2	--	--
SB-9	10	12/19/05	<0.020	<0.031	<0.031	<0.062	<3.1	--	--
	15	12/19/05	<0.020	<0.047	<0.047	<0.094	6.8 [o]	--	--
	20	12/19/05	<0.020	<0.091	<0.091	<0.182	<9.1	--	--
	25	12/19/05	<0.020	<0.049	<0.049	<0.098	<4.9	--	--
	29	12/19/05	<0.020	<0.051	<0.051	<0.102	<5.1	--	--
SB-10	10	12/19/05	<0.020	<0.061	<0.061	<0.122	<6.1	--	--
	15	12/19/05	<0.023	<0.11	1.5	93	**2,400**	--	--
	20	12/19/05	<0.020	<0.092	2.9	198[E]	**4,800**	--	--
	26	12/19/05	<0.020	<0.052	<0.052	<0.104	<5.2	--	--
	30	12/19/05	<0.020	0.063	<0.045	0.71	5.2	--	--
SB-11	10	12/19/05	<0.020	<0.056	<0.056	<0.112	<5.6	--	--
	15	12/19/05	<0.020	<0.054	<0.054	<0.108	<5.4	--	--
	20	12/19/05	<0.020	<0.055	<0.055	<0.110	<5.5	--	--
	26	12/19/05	<0.020	<0.052	<0.052	<0.104	<5.2	--	--
	30	12/19/07	<0.020	<0.057	<0.057	<0.114	<5.7	--	--
SB-12	10	12/19/05	<0.020	<0.044	<0.044	<0.088	<4.4	--	--
	15	12/19/05	<0.020	<0.054	<0.054	<0.108	<5.4	--	--
	20	12/19/05	<0.020	<0.055	<0.055	<0.110	<5.5	--	--
	24	12/19/05	<0.020	<0.056	<0.056	<0.112	<5.6	--	--
SB-13	10	12/19/05	<0.020	<0.055	<0.055	<0.110	<5.5	--	--
	15	12/19/05	<0.020	<0.052	<0.052	<0.104	<5.2	--	--
	20	12/19/05	<0.020	<0.051	<0.051	<0.102	<5.1	--	--
	24	12/19/05	<0.020	<0.049	<0.049	<0.098	<4.9	--	--
SB-14	10	06/14/06	<0.020	<0.066	<0.066	<0.132	<6.6	--	--
	15	06/14/06	<0.020	<0.070	<0.070	<0.140	<7.0	<33	<67
	20	06/14/06	<0.020	<0.067	<0.067	<0.134	<6.7	<27	<53
	25	06/14/06	<0.020	<0.057	<0.057	<0.114	<5.7	<27	<53
	30	06/14/06	<0.020	<0.064	<0.064	<0.128	<6.4	--	--
SB-15	10	06/14/06	<0.020	<0.067	<0.067	<0.134	<6.7	--	--
	15	06/14/06	<0.020	<0.066	<0.066	<0.132	<6.6	<28	<55
	20	06/14/06	<0.020	<0.060	<0.060	<0.120	<6.0	--	--
	25	06/14/06	<0.020	<0.070	<0.070	<0.140	<7.0	--	--
	30	06/14/06	<0.020	<0.061	<0.061	<0.122	<6.1	--	--

Table 1
Soil Analytical Data - TPH and BTEX
Former 7-Eleven Store No. 14479
5310 Capitol Boulevard, Tumwater, Washington
All concentrations in milligrams per kilogram (mg/kg)

Sample ID	Sample Depth (ft bgs)	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	TPH-G	TPH-D	TPH-O
SB-16	10	06/14/07	<0.020	<0.057	<0.057	<0.114	<5.7	--	--
	15	06/14/07	<0.020	<0.078	<0.078	<0.156	<7.8	--	--
	20	06/14/07	<0.020	<0.071	<0.071	<0.142	<7.1	--	--
	25	06/14/07	<0.020	<0.061	<0.061	<0.122	<6.1	--	--
	30	06/14/07	<0.020	<0.057	<0.057	<0.114	<5.7	--	--
SB-17	13	06/22/07	<0.020	<0.064	<0.064	<0.128	<6.4	--	--
	17	06/22/07	<0.020	<0.076	<0.076	0.083	**250** ^{o}	--	--
	21	06/22/07	<0.020	<0.070	0.17	4.7	**2,400** ^{o}	560	<52
	25	06/22/07	<0.020	<0.062	<0.062	<0.124	<6.2	--	--
	29	06/22/07	<0.020	<0.060	<0.060	<0.120	<6.0	--	--
SB-18	13	06/22/07	<0.020	<0.061	<0.061	<0.122	<6.1	--	--
	17	06/22/07	<0.020	<0.066	<0.066	<0.132	<6.6	--	--
	25	06/22/07	<0.020	<0.062	<0.062	<0.124	<6.2	--	--
SB-19	17	06/22/07	<0.020	<0.078	<0.078	<0.156	<7.8	--	--
	21	06/22/07	<0.020	<0.060	<0.060	<0.120	<6.0	--	--
SB-20	17	06/25/07	<0.020	<0.075	<0.075	<0.150	<7.5	--	--
	21	06/25/07	<0.020	<0.058	<0.058	<0.116	<5.8	--	--
SB-21	13	06/25/07	<0.020	<0.066	<0.066	<0.132	<6.6	--	--
	17	06/25/07	<0.020	<0.064	<0.064	<0.128	<6.4	--	--
	21	06/25/07	<0.020	<0.056	<0.056	<0.112	<5.6	--	--
	25	06/25/07	<0.020	<0.074	<0.074	<0.148	<7.4	--	--
	29	06/25/07	<0.020	<0.059	<0.059	<0.118	<5.9	--	--
SB-22	17	06/25/07	<0.020	<0.061	<0.061	<0.122	<6.1	--	--
	22	06/25/07	<0.022	<0.11	<0.11	<0.22	**1,300** ^{o}		
	25	06/25/07	<0.020	<0.066	<0.066	<0.132	<6.6	--	--
	MTCA Method A Cleanup Level		**0.03**	**7**	**6**	**9**	**30/100**[1]	**2,000**	**2,000**

ft bgs = Feet below ground surface
TPH-G = Total petroleum hydrocarbons characterized as gasoline, by Ecology Method WTPH-Gx
TPH-D = Total petroleum hydrocarbons characterized as diesel, by Ecology Method NWTPH-Dx.
TPH-O = Total petroleum hydrocarnons characterized as heavy oil, by Ecology Method NWTPH-Dx
BOLD = Results exceed MTCA Method A Soil Cleanup Levels
< = result is below practical quantitation limits
E = The value reported exceeds the quantitation range and is an estimate.
o = Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
MTCA = Model Toxics Control Act
1 = Gasoline mixtures without benzene and where the total of ethylbenzene, toluene, and xylene are less than 1% of the gasoline mixture have a cleanup level of 100 mg/kg; all other mixtures are 30 mg/kg

TABLE 2
Groundwater Monitoring and Analytical Results
Former 7-Eleven Store No. 14479
5310 Capitol Boulevard
Tumwater, Washington

Sample ID	Date	Groundwater Concentrations (µg/L)										Depth to Groundwater (feet btoc)	Groundwater Elevation
		Benzene	Toluene	Ethyl Benzene	Total Xylenes	TPH-G	MTBE	EDB	EDB	Total Lead	Dissolved Lead		
MW-1	08/22/02	**9.7**	58.4	1.41	18.00	174				--	--	42.03	64.37
106.4	12/13/02	<0.5	1.32	<1.0	4.43	<100				--	--	43.45	62.95
	02/17/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	42.62	63.78
	05/20/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	41.32	65.08
	08/14/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	44.33	62.07
	11/17/04	<1.0	<1.0	<1.0	<2.0	<100				--	--	45.09	61.31
	11/14/05	<1.0	<1.0	<1.0	<2.0	<100				--	--	46.02	60.38
	08/18/08	<0.20	<1.0	<0.20	<0.60	<100				--	--	44.38	62.02
	02/05/09	<5.0	<5.0	<5.0	<10.0	<100				--	--	40.75	65.65
	01/12/10	<1.0	<1.0	<1.0	<2.0	<100				**40**	<1.0	41.80	64.60
	02/07/11	<0.50	<0.50	<0.50	<0.50	<250				<5.0	<5.0	39.46	66.94
	02/27/12	<0.50	<0.50	<0.50	<0.50	<250	<0.50	<0.010	<0.50	<0.0050	--	39.33	67.07
MW-2	08/22/02	**11.1**	64.9	3.46	35.80	182				--	--	42.16	63.88
106.04	12/13/02	4.84	65.9	4.01	8.13	503				--	--	43.55	62.49
	02/17/03	<1.0	3.5	<1.0	8.1	<100				--	--	42.72	63.32
	05/20/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	41.42	64.62
	08/14/03	<1.0	1.2	<1.0	31.9	120				--	--	44.41	61.63
	11/17/04	<1.0	<1.0	<1.0	8.2	<100				--	--	45.18	60.86
	11/14/05	<1.0	<1.0	<1.0	<2.0	<100				--	--	48.19	57.85
	08/18/08	<0.20	<1.0	<0.20	<0.60	<100				--	--	44.46	61.58
	02/05/09	<5.0	<5.0	<5.0	<10.0	<100				--	--	41.05	64.99
	01/12/10	<1.0	<1.0	<1.0	<2.0	<100				1.4	<1.0	42.11	63.93
	02/07/11	<0.50	<0.50	<0.50	<0.50	<250				<5.0	<5.0	39.76	66.28
	02/27/12	<0.50	<0.50	<0.50	<0.50	<250	<0.50	<0.010	<0.50	<0.0050	--	39.64	66.40
MW-3	08/22/02	<0.5	<1.0	<1.0	<3.1	<100				--	--	42.11	64.56
106.67	12/13/02	<0.5	<1.0	<1.0	<3.0	<100				--	--	43.49	63.18
	02/17/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	42.67	64.00
	05/20/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	41.39	65.28
	08/14/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	44.41	62.26
	11/17/04	<1.0	<1.0	<1.0	<2.0	<100				--	--	45.18	61.49
	11/14/05	<1.0	<1.0	<1.0	<2.0	<100				--	--	42.69	63.98
	08/18/08	--	--	--	--	--				--	--	44.28	62.39
	02/05/09	<1.0	<1.0	<1.0	<2.0	<100				--	--	41.02	65.65
	01/12/10	<1.0	<1.0	<1.0	<2.0	<100				12	<1.0	42.04	64.63
	02/07/11	<0.50	<0.50	<0.50	<0.50	<250				<5.0	<5.0	39.75	66.92
	02/27/12	Unable to sample.										39.63	67.04
MW-4	08/22/02	<0.5	<1.0	0.72	<2.0	<100				--	--	43.64	62.47
106.11	12/13/02	<0.5	<1.0	<1.0	<3.0	<100				--	--	44.86	61.25
	02/17/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	44.05	62.06
	05/20/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	42.82	63.29
	08/14/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	45.86	60.25
	11/17/04	--	--	--	--	--				--	--	46.55	59.56
	11/14/05	<1.0	<1.0	<1.0	<2.0	<100				--	--	43.44	62.67
	08/18/08	--	--	--	--	--				--	--	DRY	--
	02/05/09	Obstruction in the well; unable to sample											
	01/12/10	Obstruction in the well; unable to sample											
	02/07/11	Obstruction in the well; unable to sample											
	02/27/12	Obstruction in the well; unable to sample											
MW-5	08/22/02	1.1	5.8	0.60	2.48	ND				--	--	41.65	64.50
106.15	12/13/02	<0.5	<1.0	<1.0	<3.0	<100				--	--	43.12	63.03
	02/17/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	42.29	63.86
	05/20/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	40.97	65.18
	08/14/03	<1.0	<1.0	<1.0	<2.0	<100				--	--	43.95	62.20
	11/17/04	1.7	<1.0	<1.0	<2.0	<100				--	--	44.76	61.39
	11/14/05	<1.0	<1.0	<1.0	<2.0	<100				--	--	42.19	63.96
	08/18/08	--	--	--	--	--				--	--	43.95	62.20
	02/05/09	<1.0	<1.0	<1.0	1.2	<100				--	--	41.80	64.35
	01/12/10	<1.0	<1.0	<1.0	<2.0	<100				**20**	<1.0	41.92	64.23
	02/07/11	<0.50	<0.50	<0.50	<0.50	<250				<5.0	<5.0	39.48	66.67
	02/27/12	<0.50	<0.50	<0.50	<0.50	<250	<0.50	<0.010	<0.50	<0.0050	--	39.36	66.79
MTCA Method A CULs		**5**	**1,000**	**700**	**1,000**	**800/1,000[a]**	**20**	**0.01**	**5**	**15**	**15**		

Explanation of Abbreviations:

µg/L = micrograms per liter
TPH-G = total petroleum hydrocarbons in the gasoline range
MTBE = methyl tertiary butyl ether
EDB = 1,2-Dibromoethane
EDC = 1,2-Dichloroethane
btoc = below top of casing
< = analyte not reported above the specified laboratory practical quantitation limit
MTCA = Model Toxics Control Act
CULs = Cleanup Levels

Notes:

[a] = the TPH-G CUL is reduced from 1,000 µg/L to 800 µg/L if benzene is present in the sample
Bold = analytical result exceeds the specified MTCA Method A CUL

APPENDIX A

Stantec Consulting Services Inc.

SOIL VAPOR, CRAWLSPACE AND AMBIENT AIR SAMPLING DATA

Sample Type	Sample ID	Date	Elapsed Time (min)	Sample Flow Rate (L/min) [(1)]	Cumulative Volume Purged (L)	Parameters			Helium Tracer Gas			VOC (ppm_v)	Summa Canister ID	Flow Controller #	Vacuum Gauge #	Initial Vacuum (in. Hg)	Final Vacuum (in. Hg)
						CH_4 (%)	CO_2 (%)	O_2 (%)	Shroud (%)		Sample (%)						
									Minimum	Maximum							
Soil Vapor Probes																	
Crawlspace and Ambient Air Samples																	

Notes:

min - minutes
L/min - liters per minute
[(1)] - flow controller calibrated to 0.2 L/min by laboratory
L - liters
% - percent
ppm_v - parts per million by volume
VOC - volatile organic compounds
CH_4 - methane
CO_2 - carbon dioxide
O_2 - oxygen
** - insufficient volume for measurement

APPENDIX B

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

CERTIFIED MAIL
7006 3450 0001 6735 2461

June 3, 2008

Mr. Ken Hilliard
7-Eleven, Inc.
PO Box 711
Dallas, TX 75221-0711

Re: Further Action Determination under WAC 173-340-515(5) for the following Hazardous Waste Site:

- Name: 7 Eleven Food Store #230214479M
- Address: 5310 Capitol Blvd., Tumwater
- Facility/Site No.: 97196866
- VCP No.: SW0956

Dear Mr. Hilliard:

Thank you for submitting your independent remedial action report for the 7 Eleven Food Store #230214479M facility (Site) for review by the State of Washington Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding whether further remedial action is necessary at the Site to meet the substantive requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC. Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.

Ecology's Toxics Cleanup Program has reviewed the following information regarding the Site:

1. Subsurface Investigation Report for 7-Eleven, Former 7-Eleven Store No. 14479, 5310 Capitol Boulevard, Tumwater, Washington, dated October 16, 2007 by SECOR International, Inc. (SECOR).

2. Groundwater Monitoring Report (Fourth Quarter 2005), 7-Eleven Store No. 14479, 5310 Capitol Boulevard, Tumwater, WA, dated May 17, 2005 (likely 2006, received by Ecology on 5/19/06) by SECOR.

3. Groundwater Monitoring Report (Fourth Quarter 2004), 7-Eleven Store No. 14479, 5310 Capitol Boulevard, Tumwater, WA, dated January 25, 2005 by SECOR.

4. Supplemental Site Assessment, Former 7-Eleven Store #2303-14479, 5310 Capitol Boulevard, Tumwater, Thurston County, WA, dated June 24, 2004 by SECOR.

5. Site Assessment Report for 7-Eleven, Former 7-Eleven Store No. 14479, 5310 Capitol Boulevard, Tumwater, Washington, dated May 3, 2004 by SECOR.

6. Groundwater Monitoring Report (Third Quarter 2003), 7-Eleven Store No. 14479, 5310 Capitol Boulevard, Tumwater, WA, dated November 20, 2003 by SECOR.

7. Groundwater Monitoring Report (Second Quarter 2003), 7-Eleven Store No. 14479, 5310 Capitol Boulevard, Tumwater, WA, dated July 30, 2003 by SECOR.

8. Groundwater Monitoring Report (First Quarter 2003), 7-Eleven Store No. 14479, 5310 Capitol Boulevard, Tumwater, WA, dated April 8, 2003 by SECOR.

9. Fourth Quarter 2002 Groundwater Sampling Results, 7-Eleven Store #14479, 5310 Capitol Boulevard, Tumwater, Washington, dated January 9, 2003 by Shaw Environmental, Inc.

10. Site Investigation Report, 7-Eleven Store #14479, 5310 Capitol Boulevard, Tumwater, Washington, dated October 1, 2002 by Shaw Environmental, Inc.

11. Underground Storage Tank Closure, 7-Eleven Facility #14479, 5310 Capitol Boulevard, Tumwater, Washington, dated June 13, 2002 by Shaw Environmental, Inc.

The documents listed above will be kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Appointments can be made by calling the SWRO resource contact at (360) 407-6365.

The Site is defined by the extent of contamination caused by the following release(s):

- Petroleum hydrocarbons and related constituents in soil.
- Petroleum hydrocarbons and related constituents in groundwater.

The Site is more particularly described in Enclosure A to this letter, which includes a detailed Site diagram. The description of the Site is based solely on the information contained in the documents listed above.

Based on a review of the independent remedial action report and supporting documentation listed above, **Ecology has determined that the independent remedial action(s) performed at the Site are not sufficient to meet the substantive requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing any of the contamination at the Site.** Therefore, pursuant to WAC 173-340-515(5), Ecology is issuing this opinion that **further remedial action is necessary** at the Site under MTCA.

Based on a review of the above-listed documents, Ecology has the following comments:

1. Soil data collected to date has documented the areal and vertical extent of residual petroleum-contaminated soil (PCS) beneath the site. PCS exists between about 14 to 32 feet below ground surface (bgs) in the vicinity of the former dispenser island and the northern portion of the former underground storage tank (UST) excavation. Concentrations of gasoline-range petroleum hydrocarbons (TPH-G) and benzene, toluene, ethylbenzene, and xylene (BTEX) compounds have been detected in soil above MTCA Method A cleanup levels. Based on Method B calculations by SECOR, the concentrations of contaminants beneath the site are not considered protective of groundwater. The depth to groundwater beneath the site is between 40 and 45 feet bgs.

   Groundwater data collected from MW-1 and MW-2 in August 2002 documented concentrations of benzene above MTCA Method A cleanup levels. However, groundwater data collected since then from all five monitoring wells on site through 2005 have not documented any additional impacts to groundwater above MTCA cleanup levels. Regardless, since impacts to soil exist that are not considered protective of groundwater, impacts to groundwater may occur in the future as long as the PCS source remains in place. As a result, long-term groundwater monitoring as part of an Environmental Covenant for the property would be required if the PCS cannot be excavated or remediated in situ.

2. If it is determined to not be feasible to excavate the PCS for off-site disposal, then a deed restriction (Environmental Covenant) may be appropriate for the site, which would require a long-term groundwater monitoring plan. However, before Ecology

could consider approving a deed restriction for the site, a Feasibility Study [refer to WAC 173-340-350(8)] and Disproportionate Cost Analysis [refer to WAC 173-340-360(3)(e) and (f)] should be generated to identify all of the potential cleanup alternatives for the site, including in-situ treatment and/or containment of the contamination, and the estimated costs of those alternatives.

Permanent solutions should be implemented to the maximum extent practicable. Permanent solutions (cleanup actions) are actions in which cleanup standards can be met without further action being required, such as monitoring or institutional controls. To select the most practicable permanent solution from among those cleanup action alternatives that are protective of human health and the environment requires conducting a disproportionate cost analysis. This analysis compares costs and benefits of alternatives and selecting the alternative whose incremental costs are not disproportionate to the incremental benefits. The comparison is quantitative, but is often qualitative and requires best professional judgment. Should it be determined that a permanent cleanup action cannot be implemented, a disproportionate cost analysis shall be applied. The analysis shall compare costs and benefits of the cleanup action alternatives evaluated in the feasibility study.

3. Groundwater data collected to date appears to only have included analyses for TPH-G and BTEX compounds. According to MTCA Table 830-1 (Required Testing for Petroleum Releases), additional contaminants should have been analyzed to document whether they are present in groundwater. Some of these contaminants, including methyl tert-butyl ether, 1,2-dichloroethane, ethylene dibromide (EDB), and lead, were analyzed for in soil; however, according to the table footnotes, it is required that groundwater be analyzed for these contaminants and, if detected, then the soil should be analyzed also. Not the other way around. Please include analyses for these contaminants during the next round of groundwater sampling, and ensure that laboratory detection limits are below MTCA cleanup levels. For example, the cleanup level for EDB is 0.01 micrograms per liter. Ecology recommends using EPA Method 8011 to achieve this low detection limit for EDB. Also, please be sure to analyze for total lead, not dissolved lead.

4. In accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840 (Data Submittal Requirements), data generated for Independent Remedial Actions shall be submitted simultaneously in both a written and electronic format. For additional information regarding electronic format requirements, see the website http://www.ecy.wa.gov/eim. Be advised that according to the policy, any reports containing sampling data that are submitted for Ecology review are considered incomplete until the electronic data has been entered. Please ensure that data generated during on-site activities is submitted pursuant to this policy. **Data must be submitted to Ecology in this format for**

Ecology to issue a No Further Action determination. Please be sure to submit all soil and groundwater data collected since August 2005 (Policy 840 effective date), as well as any future data, in this format. Be advised that Ecology requires up to two weeks to process the data once it is received.

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or performed at the Site meet those requirements.

If you have any questions regarding this opinion, please contact me at (360) 407-6347.

Sincerely,

Scott Rose, L.G.
Acting Unit Manager
SWRO Toxics Cleanup Program

SR/ksc:7 Eleven Store Further Action

Enclosures: Site Summary
Figure 1 – Site Location Map
Figure 2 – Soil Sample Locations
Figure 3 – Soil Analytical Results, December 2005 and June 2007

Cc: Steve Nelson – Nelson Tumwater, LLC
Amanda Magee – SECOR International, Inc
Mark Koster – Thurston Co. Health Dept
Carol Johnston – Ecology

Enclosure A
Site Summary

The 7 Eleven Food Store site is located at 5310 Capitol Boulevard in Tumwater, Thurston County, Washington. The site is located in a residential and commercial area, and lies about 120 feet above mean sea level. The site formerly operated as a 7 Eleven convenience store and retail gasoline distributor. The former fuel system consisted of two 10,000-gallon and one 12,000-gallon underground storage tanks (USTs) containing three grades of gasoline, with associated piping and a single dispenser island. The USTs were removed from the site in 2002.

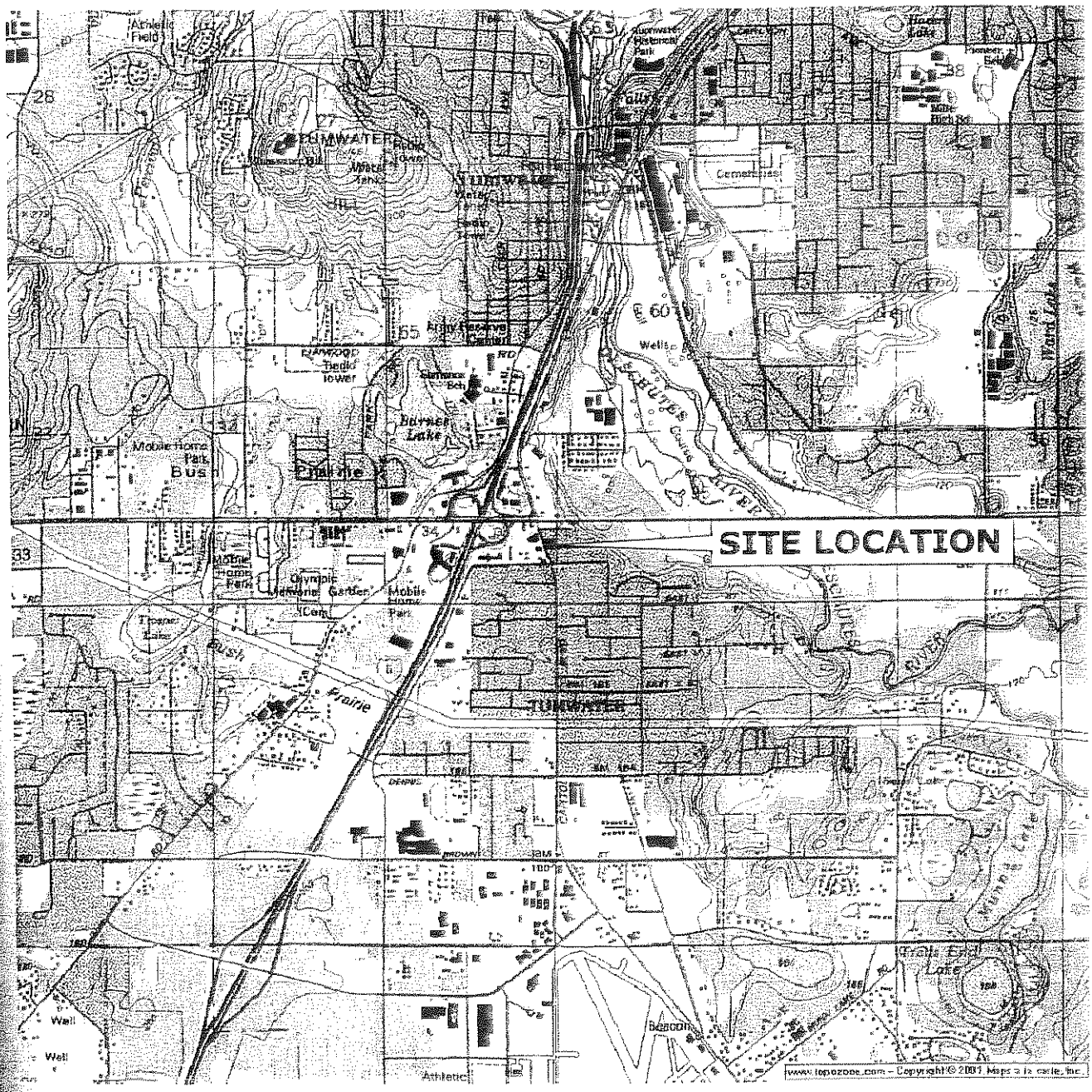
Soil beneath the site generally consists of poorly graded sands with traces of silt. Groundwater was encountered beneath the site at about 40 feet below ground surface (bgs). The direction of groundwater flow beneath the site was determined to be predominantly to the northeast. The site is located within the wellhead protection area for the City of Tumwater.

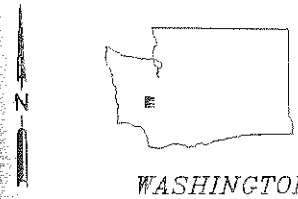
In April 2002, the three USTs and associated piping and dispenser island were excavated and removed from the site. A total of nine confirmation soil samples were collected from the sidewalls (at about 9 feet bgs) and floor (at about 12 feet bgs) of the excavation, and two composite soil samples were collected from two soil stockpiles labeled as "suspect" and "clean". The samples were analyzed for gasoline-range petroleum hydrocarbons (TPH-G) and benzene, toluene, ethylbenzene, and xylene (BTEX) compounds. The analytical results indicated the presence of TPH-G and BTEX compounds above MTCA Method A cleanup levels in the vicinity of the dispenser island and 12,000-gallon UST turbine pump, as well as in the "suspect" stockpile sample. Contaminant concentrations were below MTCA cleanup levels in the remaining samples. Subsequently, the "suspect" soil stockpile was used as backfill in the vicinity of the dispenser island and 12,000-gallon UST turbine pump, while the "clean" stockpile and imported fill were used to backfill the remainder of the excavation. No impacted soil was transported off site for disposal. Groundwater was not encountered.

In May 2002, benzene and TPH-G were detected in soil and grab groundwater samples collected from soil borings (GP-1 through GP-4) advanced on site in the vicinity of the former dispenser island and USTs. Subsequently, in August 2002, five permanent monitoring wells (MW-1 through MW-5) were installed on site. Benzene was detected in MW-1 and MW-2 at 9.7 micrograms per liter (µg/L) and 11.1 µg/L, respectively.

These five monitoring wells were sampled quarterly through August 2003, then again in November 2004 and November 2005. Analyses conducted included TPH-G and BTEX compounds. None of the contaminants analyzed for were detected above MTCA Method A cleanup levels during any of these sampling events.

Between 2003 and 2007, several soil borings were advanced on site to further define the extent of contamination in soil. Petroleum-impacted soil exists from about 14 to 24 feet bgs in the vicinity of the former dispenser island and the northern portion of the former UST excavation ***(see attached Figure 3 – Soil Analytical Results, December 2005 and June 2007)***. One of the soil samples (SB-17 at 21 feet bgs) collected in 2007 was analyzed for volatile and extractable petroleum hydrocarbons (VPH and EPH) so that Method B cleanup levels could be derived for the site. Based on the Method B worksheet calculations, the concentration of TPH-G (2,400 milligrams per kilogram [mg/kg]) in this sample is considered to be below the Method B cleanup level for protection of the direct contact soil exposure pathway; however, it is not considered to be protective of groundwater. In addition, based on the same calculations, the highest concentration of TPH-G detected at the site (4,800 mg/kg in SB-10 at 20 feet bgs) exceeds the Method B cleanup level for soil direct contact.





1 1/2 0 1

SCALE (MILES)

1000 0 1000 2000 3000 4000 5000 6000 7000

SCALE (FEET)

REFERENCE: USGS 7.5 MINUTE QUADRANGLE: MAYTOWN, WASHINGTON; 1990

SECOR
2404 134th COURT NORTHEAST, SUITE 102
REDMOND, WASHINGTON 98052
PHONE:(425) 372-1600 FAX:(425) 372-1650

FOR: 7-ELEVEN

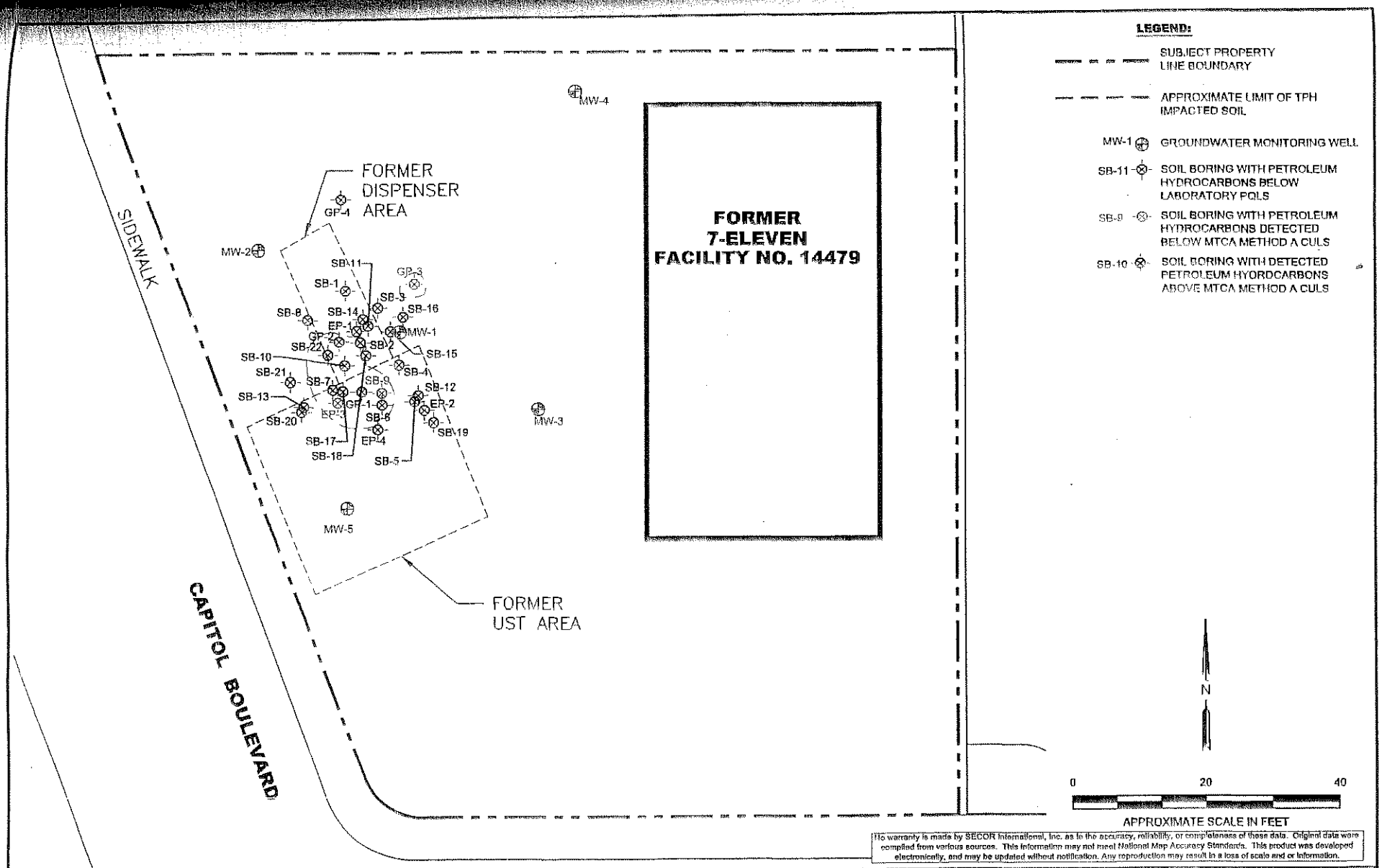
FORMER 7-ELEVEN FACILITY NO. 14479
5310 CAPITOL BOULEVARD
TUMWATER, WASHINGTON

SITE LOCATION MAP

FIGURE: 1

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
01EL.144779.06	KAM			04/14/06

PATH:O:\CADD-01\Cad_Files\Projects\7 ELEVEN\14479\14479(M).dwg kmanyrath Apr 14, 2006 at 8:57 Layout: Model



SECOR
12034 134th COURT NE, SUITE 102
REDMOND, WASHINGTON
PHONE: (425) 372-1600/(425) 372-1650 (FAX)

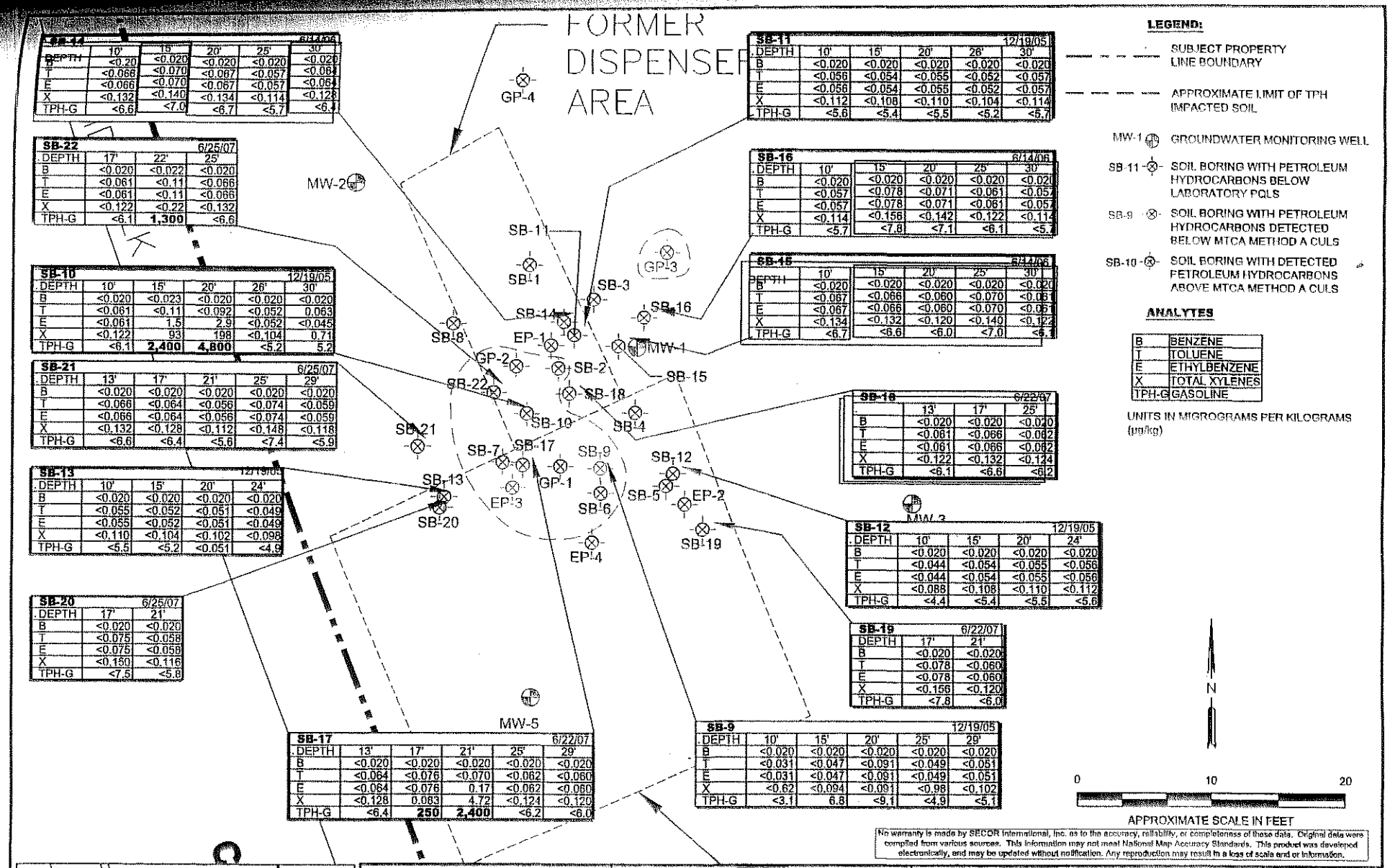
FOR: 7-ELEVEN
FORMER FACILITY NO. 14479
5310 CAPITOL BOULEVARD
TUMWATER, WASHINGTON

SOIL SAMPLE LOCATIONS

FIGURE: **2**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
01EL.14479.07	JCR			07/26/07

Q:\CADD-26\OTHER OFFICE CAD\001-Redmond\7-Eleven\14479\DWG\14479-2007_.dwg modified by jresendiz on Oct 08, 2007 - 10:55



SB-11 12/19/05

DEPTH	10'	15'	20'	26'	30'
B	<0.020	<0.020	<0.020	<0.020	<0.020
T	<0.056	<0.054	<0.055	<0.052	<0.057
E	<0.056	<0.054	<0.055	<0.052	<0.057
X	<0.112	<0.108	<0.110	<0.104	<0.114
TPH-G	<5.6	<5.4	<5.5	<5.2	<5.7

SB-16 6/14/06

DEPTH	10'	15'	20'	25'	30'
B	<0.020	<0.020	<0.020	<0.020	<0.020
T	<0.057	<0.078	<0.071	<0.061	<0.057
E	<0.057	<0.078	<0.071	<0.061	<0.057
X	<0.114	<0.156	<0.142	<0.122	<0.114
TPH-G	<5.7	<7.8	<7.1	<6.1	<5.7

SB-15 6/14/06

DEPTH	10'	15'	20'	25'	30'
B	<0.020	<0.020	<0.020	<0.020	<0.020
T	<0.067	<0.066	<0.060	<0.070	<0.061
E	<0.067	<0.066	<0.060	<0.070	<0.061
X	<0.134	<0.132	<0.120	<0.140	<0.122
TPH-G	<6.7	<6.6	<6.0	<7.0	<6.1

SB-18 6/22/07

	13'	17'	25'
B	<0.020	<0.020	<0.020
T	<0.061	<0.066	<0.062
E	<0.061	<0.066	<0.062
X	<0.122	<0.132	<0.124
TPH-G	<6.1	<6.6	<6.2

SB-12 12/19/05

DEPTH	10'	15'	20'	24'
B	<0.020	<0.020	<0.020	<0.020
T	<0.044	<0.054	<0.055	<0.056
E	<0.044	<0.054	<0.055	<0.056
X	<0.088	<0.108	<0.110	<0.112
TPH-G	<4.4	<5.4	<5.5	<5.6

SB-19 6/22/07

DEPTH	17'	21'
B	<0.020	<0.020
T	<0.078	<0.060
E	<0.078	<0.060
X	<0.156	<0.120
TPH-G	<7.8	<6.0

SB-9 12/19/05

DEPTH	10'	15'	20'	25'	29'
B	<0.020	<0.020	<0.020	<0.020	<0.020
T	<0.031	<0.047	<0.091	<0.049	<0.051
E	<0.031	<0.047	<0.091	<0.049	<0.051
X	<0.62	<0.094	<0.091	<0.98	<0.102
TPH-G	<3.1	6.8	<9.1	<4.9	<5.1

SB-17 6/22/07

DEPTH	13'	17'	21'	25'	29'
B	<0.020	<0.020	<0.020	<0.020	<0.020
T	<0.064	<0.076	<0.070	<0.062	<0.060
E	<0.064	<0.076	0.17	<0.062	<0.060
X	<0.128	0.083	4.72	<0.124	<0.120
TPH-G	<6.4	**250**	**2,400**	<6.2	<6.0

SB-22 6/25/07

DEPTH	17'	22'	25'
B	<0.020	<0.022	<0.020
T	<0.061	<0.11	<0.066
E	<0.061	<0.11	<0.066
X	<0.122	<0.22	<0.132
TPH-G	<6.1	**1,300**	<6.6

SB-10 12/19/05

DEPTH	10'	15'	20'	26'	30'
B	<0.020	<0.023	<0.020	<0.020	<0.020
T	<0.061	<0.11	<0.092	<0.052	0.063
E	<0.061	1.5	2.9	<0.052	<0.045
X	<0.122	93	198	<0.104	0.71
TPH-G	<6.1	**2,400**	**4,800**	<5.2	5.2

SB-21 6/25/07

DEPTH	13'	17'	21'	25'	29'
B	<0.020	<0.020	<0.020	<0.020	<0.020
T	<0.066	<0.064	<0.056	<0.074	<0.059
E	<0.066	<0.064	<0.056	<0.074	<0.059
X	<0.132	<0.128	<0.112	<0.148	<0.118
TPH-G	<6.6	<6.4	<5.6	<7.4	<5.9

SB-13 12/19/05

DEPTH	10'	15'	20'	24'
B	<0.020	<0.020	<0.020	<0.020
T	<0.055	<0.052	<0.051	<0.049
E	<0.055	<0.052	<0.051	<0.049
X	<0.110	<0.104	<0.102	<0.098
TPH-G	<5.5	<5.2	<0.051	<4.9

SB-20 6/25/07

DEPTH	17'	21'
B	<0.020	<0.020
T	<0.075	<0.058
E	<0.075	<0.058
X	<0.150	<0.116
TPH-G	<7.5	<5.8

LEGEND:

- SUBJECT PROPERTY LINE BOUNDARY
- APPROXIMATE LIMIT OF TPH IMPACTED SOIL
- MW-1 GROUNDWATER MONITORING WELL
- SB-11 SOIL BORING WITH PETROLEUM HYDROCARBONS BELOW LABORATORY PQLS
- SB-9 SOIL BORING WITH PETROLEUM HYDROCARBONS DETECTED BELOW MTCA METHOD A CULS
- SB-10 SOIL BORING WITH DETECTED PETROLEUM HYDROCARBONS ABOVE MTCA METHOD A CULS

ANALYTES

B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
TPH-G	GASOLINE

UNITS IN MICROGRAMS PER KILOGRAMS (µg/kg)

SECOR
12034 134th COURT NE, SUITE 102
REDMOND, WASHINGTON
PHONE: (425) 372-1600/(425) 372-1650 (FAX)

FOR: 7-ELEVEN

FORMER FACILITY NO. 14479
5310 CAPITOL BOULEVARD
TUMWATER, WASHINGTON

SOIL ANALYTICAL RESULTS DECEMBER 2005 AND JUNE 2007

FIGURE: **3**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
01EL.14479.07	JCR			07/26/07

1997

JAN 13 1997 EC

FORM 2
NOTIFICATION OF DANGEROUS WASTE ACTIVITIES

Washington State Department of Ecology
Attn: DW Notifications
P.O. Box 47658
Olympia, WA 98504–7658
(360) 407-6737

Note: Failure to properly and completely fill out your form may delay processing and/or cause your form to be returned for completion. Associated page numbers with detailed instructions are listed for each section.

1. **Notification.** Please select one of the following choices. (p. 5)

1.a. ☐ New notification **OR** **1.b** ☐ Existing RCRA Site ID# WA D988488307

If **1.a.**, complete entire form.

If **1.b.**, choose desired action below and fill in effective date.

DEPARTMENTAL USE ONLY
WA

☐ Revise Notification (complete entire form)

☒ Withdraw Site ID # (skip sections 11 and 12)

☐ Cancel Site ID# (skip sections 11 and 12)

Effective date: 12/31/94 (mm/dd/yy)

2.a. SIC Code: (p.7) 7538 (Primary) _____ _____ _____

2.b. Type of business conducted at this site: (p.7) Automotive Repair

3. Name of site (p. 7) Ponces Automotive and Towing

4. Location of site (p. 7)

Street 5403 Capitol Blvd So.

City or Town Tumwater

County Thurston State WA Zip 98501

5. Site mailing address (p. 7)

Street or P.O. Box 5403 Capitol Blvd. So

City Tumwater State WA Zip 98501

6. Site contact (person Ecology should contact for clarification on this form, p. 7)

Name WARREN BERGH

Job Title OWNER Phone Number 360-943-1537

Mailing Address 5403 Capitol Blvd. So.

City Tumwater State WA Zip 98501

Notification of Dangerous Waste Activities Forms

WAC 173-303-210, Generator recordkeeping, paragraph (2), states in part "... The generator shall keep a copy of his most recent notification (Form 2) until he is no longer defined as a generator under this chapter."

The Use of Terms "Hazardous" and "Dangerous" Waste

The terms "hazardous" and "dangerous" will be used interchangeably throughout these instructions. Both refer to the full universe of wastes regulated by the state of Washington under Chapter 173-303 Washington Administrative Code (WAC) and the United States Environmental Protection Agency (USEPA) under Title 40 in the Code of Federal Regulations (CFR) Part 261. The state regulations include all wastes regulated by the Federal government. Fully regulated wastes are limited to those quantities generated or accumulated in excess of the quantity exclusion limit (QEL). The QEL for many common waste streams is 220 pounds generated per month or 2,200 pounds maximum accumulation. Other terms used throughout these instructions may be found in the glossary beginning on page 12.

The Use of Terms "RCRA Site Identification Number" and "EPA/State Identification Number"

The term "RCRA Site Identification Number" replaces "EPA/State Identification Number" throughout these instructions. Both refer to Notification and Identification Numbers as referenced in the Washington Administrative Code (WAC), 173-303-060.

NOTIFICATION OF DANGEROUS WASTE ACTIVITIES

RCRA Site ID# (p. 5) WA D988488307
Name of site (same as section 3, p. 7) Pongos Automotive and Towing Inc

7. Department of Revenue # (p. 8): 600-222-258

8. Site operator (person responsible for dangerous waste activity, p. 8)

Name WARREN BERGH Phone Number 943-1531
Mailing Address 5403 Capitol Blvd. So
City TUMWATER State WA Zip 98501

9.a. Site ownership (legal owner of business, p. 8)

Has ownership changed since you last notified or reported? ☐ Yes ☒ No
If Yes, effective date of ownership change: __/__/__ (mm/dd/yy)

Name _____ Phone Number _____
Mailing Address _____
City _____ State _____ Zip _____

9.b. Site ownership type (p. 8)

Please circle the appropriate letter at right which best describes the legal status of the current **owner of the business.**

F = Federal S = State
I = Tribal Trust (P) = Private
C = County M = Municipal
D = District O = Other

10.a. Property ownership (legal owner of this property, p. 8)

Name WARREN BERGH Phone Number 943 1531
Mailing Address 5403 Capitol Blvd. So.
City TUMWATER State WA. Zip 98501

10.b. Property type (p. 8)

Please circle the appropriate letter at right which best describes the legal status of the **land on which the business is located.**

F = Federal S = State
I = Tribal Trust (P) = Private
C = County M = Municipal
D = District O = Other

NOTIFICATION OF DANGEROUS WASTE ACTIVITIES

RCRA Site ID# (p. 5) **WA** _____

Name of site (same as section 3, p. 7) _____

11. Type of regulated waste activity (Mark "X" in the appropriate boxes, p. 9)

11.a. Dangerous waste activity

1. **Generator**
   - ☐ a. Greater than 1000 kg/mo (2,200 lbs.)
   - ☐ b. 100 to 1000 kg/mo (220–2,200 lbs.)
   - ☐ c. Less than 100 kg/mo (220 lbs.)
2. **Frequency**
   - ☐ a. Monthly
   - ☐ b. Batch
   - ☐ c. One-time only
3. **Transporter** (indicate mode in boxes 1–5 below).
   - ☐ a. Transport own waste
   - ☐ b. Transport for commercial purposes

   Mode of Transportation
   - ☐ 1. Air
   - ☐ 2. Rail
   - ☐ 3. Highway
   - ☐ 4. Water
   - ☐ 5. Other–specify: _____
4. **Treater, Storer, Disposer** (at installation). Note: A RCRA Permit is required for this activity.
   - ☐ a. For waste generated at this facility
   - ☐ b. For waste generated by other facilities

4. (Continued) Which of the following RCRA permitted activities occur at this facility?
   - ☐ 1. Treatment
   - ☐ 2. Disposal
   - ☐ 3. Storage
5. **Dangerous waste fuel**
   - ☐ a. Generator marketing to burner
   - ☐ b. Other marketers
   - ☐ c. Boiler and/or industrial furnace
     - ☐ 1. Smelter deferral
     - ☐ 2. Small quantity exemption

   Indicate type of combustion device(s):
   - ☐ 1. Utility boiler
   - ☐ 2. Industrial boiler
   - ☐ 3. Industrial furnace

☐ 6. **Underground injection control**

☐ 7. **Immediate recycler**

☐ 8. **Permit-by-rule facility**

☐ 9. **Treatment by generator**

11.b. Used oil fuel activities

1. **Used oil fuel marketer**
   - ☐ a. Marketer directs shipment of used oil to off-specification burner
   - ☐ b. Marketer who first claims the used oil meets the specifications
2. **Used oil burner**—indicate type(s) of combustion device(s).
   - ☐ a. Utility boiler
   - ☐ b. Industrial boiler
   - ☐ c. Industrial furnace
3. **Used oil transporter**—indicate type(s) of activity(ies).
   - ☐ a. Transporter
   - ☐ b. Transfer facility
4. **Used oil processor/re-refiner**—indicate type(s) of activity(ies).
   - ☐ a. Process
   - ☐ b. Re-refine

12.a. Waste descriptions (p. 12)

NOTIFICATION OF DANGEROUS WASTE ACTIVITIES

RCRA Site ID# (p. 5) WA D988488307
Name of site (same as section 3, p. 7) Bacps Automotive and Towing Inc.

12.b. Waste Codes: (p.12)

1. **Characteristics** (WAC 173-303-090): Identify (circle or fill in) those codes that best describe your waste(s).

D001 Ignitable	D002 Corrosive	D003 Reactive	TCLP _____

2. **Listed** (WAC 173-303-9903): Fill in those codes that best describe your waste(s).

_____

3. **State-only** (WAC 173-303-100, -180, and 9904): Circle those codes that best describe your waste(s).

WT01 WT02 Toxic	WP01 WP02 WP03 Persistent	WL01 WL02 Labpack	W001 PCB	WSC2 Solid Corrosive	

13. Comments (p. 13)

14. Notification checklist (p. 13)

- ❑ Did you **sign** and **date** notification form?
- ❑ Did you keep a copy for your files?
- ❑ Did you **complete the correct sections** of this notification form to fit your situation? (See section 1—Notification).
- ❑ If you are canceling or withdrawing your RCRA Site ID number, you are responsible for annual reports up to the date your regulated dangerous waste activities ended. Did you **submit your completed annual report** with this request for cancellation or withdraw?

15. Certification (p. 13) This form cannot be processed without a signature

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Signature: William N. Bergh Pres. **Name and official title** (type or print): WARREN H. BERGH PRES **Date signed:**

NOTIFICATION OF DANGEROUS WASTE ACTIVITIES
INTRODUCTION

Who must file?

The Resource Conservation and Recovery Act of 1976 (RCRA), federal hazardous waste regulations, and Chapter 173-303 WAC, Washington State's *Dangerous Waste Regulations*, require anyone who generates or transports regulated quantities of hazardous waste, or who owns or operates a facility for transferring, recycling, treating, storing, or disposing of hazardous waste to notify the USEPA and the Washington Department of Ecology (Ecology) of their activity.

If you generate, transport, offer for transport, transfer, recycle, treat, store, or dispose of regulated quantities of hazardous waste without filing a notification and obtaining a RCRA Site ID#, you may be subject to civil and criminal penalties.

What is a RCRA Site ID#?

The required RCRA Site ID# you are applying for is not a permit or license. It is an identifying number used for tracking wastes from their point of generation to final disposal. The Uniform Hazardous Waste Manifest system (EPA Form 8700-22) is the primary mechanism to ensure that wastes reach their intended destination. The transporter and the receiving facility signatures on the manifest you have prepared and sent with the shipment provide some assurance that the waste has been properly handled.

A RCRA Site ID# is assigned to every site that is regulated by Chapter 173-303 WAC. The RCRA Site ID# for generators and TSDFs are site specific. Identification numbers designate the locations where wastes are generated and managed. If you change your business location and will be conducting regulated waste activity, you must obtain a RCRA Site ID# for your new location. The RCRA Site ID# originally assigned to your site may not be used for waste generated at any other site.

How many forms should be filed?

You are required to submit one notification form per site. If you conduct hazardous waste activities at more than one site, you must submit a separate form for each location. Filing a notification with Ecology will satisfy the filing requirement for USEPA. The RCRA Site ID# assigned will be used for both State and Federal purposes.

- If the site ownership information provided on this form changes, a revised notification must be completed and submitted to Ecology.

- If you add or drop any of the following dangerous waste activities, a revised notification must be completed and submitted to Ecology: permitted treating, storing and/or disposing, immediate recycling, transporting, permit-by-rule and/or treatment-by-generator.

- If your facility location changes, you must submit two of the enclosed forms, marking one a "new notification" to apply for a RCRA Site ID# for your new site and marking the other as a "withdrawal," "cancellation," or "revision" for your existing site (whichever applies). Additional copies of the form may be made from the originals in this booklet. Additional booklets may be requested by calling (360) 407-6737 or by contacting any of Ecology's regional offices. (See map on page iv for further information.)

- If you are no longer in business or no longer occupy this site, a cancel notification must be completed and submitted to Ecology.

1996

THURSTON COUNTY
WASHINGTON
SINCE 1852

COUNTY COMMISSIONERS
Judy Wilson
District One
Diane Oberquell
District Two
Dick Nichols
District Three

PUBLIC HEALTH AND
SOCIAL SERVICES DEPARTMENT

Patrick M. Libbey, Director
Diana T. Yu, MD, MSPH
Health Officer

Mr. Dick Heggen
Washington State Department of Ecology
SWRO - TCP
P.O. Box 47775
Olympia, WA 98504-7775

August 5, 1996

Dear Dick,

Enclosed are the files for two Site Hazard Assessments and three Initial Investigations that were conducted by the Thurston County Health Department in the first half of this year. Thanks for offering to forward these files to the appropriate people and places within Ecology.

I am sending you the complete files for all of these sites, except for Poage's Automotive & Towing. The Health Department would prefer to keep the Poage's II file here in the Business Pollution Prevention office because we are focusing on the automotive industry this year for our technical assistance and compliance effort, and would like to keep Poage's in that group. I have written a memo to the file (for Ecology's records) indicating that additional information is being stored here at the county. If anyone needs to see the county's file, they can call the BPP office at 754-4111.

Please give me a call at 754-4111 ext. 6509 if you have any questions or comments. Thanks!

Sincerely,

Donna

Donna S. Freier
Hazardous Waste Specialist

File Name _____
County Thurston
File Type TCP
Your Name R Heggen

THURSTON COUNTY
WASHINGTON
SINCE 1852

COUNTY COMMISSIONERS
Judy Wilson
District One
Diane Oberquell
District Two
Dick Nichols
District Three

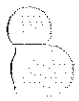
PUBLIC HEALTH AND SOCIAL SERVICES DEPARTMENT

Patrick M. Libbey, Director
Diana T. Yu, MD, MSPH
Health Officer

Memo To: The file for Poage's Automotive & Towing Initial Investigation
From: Donna S. Freier, Thurston County Health Department
Business Pollution Prevention Program
Date: August 5, 1996

The complete file of information used by the Thurston County Health Department to determine that Poage's Automotive (5401 Capitol Blvd, Tumwater, WA) requires no further action is being stored at the Environmental Health Division's Business Pollution Prevention Program office. Please call (360) 754-4111 to view the files at any time.

##




June 21, 1996

Donna Freier
Thurston County Environmental Health

INITIAL INVESTIGATION SUMMARY REPORT

Recommendation: No Further Action

Site Name/Location: Poage's Automotive & Towing
Address: 5403 Capitol Blvd SE, Tumwater, WA 98501
Property Owner: Warren Bergh Phone: (360) 943-1531
T/R/S: 18N/2W/34/SE¼ NE¼
Tax Parcel #: 12834440700 (and -0601 and -0800)

A dry well was discovered during a voluntary, non-regulatory technical assistance visit solicited by the Thurston County Health Department Business Pollution Prevention Program. The visit was initiated in September 1995 as part of the City of Tumwater Wellhead Protection Area hazardous materials inventory effort. The dry well was located in an enclosed service bay inside of Poage's shop and was approximately 2 feet in diameter and 3 feet deep. It was perforated with many small holes along the concrete-lined sides, had a concrete-lined bottom, and was covered at the top with a steel slotted grate. Mr. Bergh said the dry well had been there since he has worked in the shop (at least since 1979) and that it was not intentionally used for disposal. He also said that materials were not necessarily prevented from entering it.

During the technical assistance visit conducted on October 19, 1995, a vehicle was parked over the dry well grate in the service bay and a small stream of greenish fluid (that looked like antifreeze) was observed draining into it. Because this was a potential violation of the Nonpoint Source Pollution Ordinance (Thurston County Sanitary Code, Article VI, Section 4.1) that addresses uncontrolled discharge to the ground, I asked Mr. Bergh for permission to have a closer look below the grate to see where it may discharge to. Mr. Bergh agreed and, in preparation for my visit on January 12, 1996, pulled the grate off and pumped about 20 gallons of slurry into a labeled and dated 55-gallon bung drum.

On February 1, 1996, Tracy Forsberg and I sampled the sludge in the drum using a coliwasa. The sample was sent to Sound Analytical Services (Tacoma) and was analyzed for petroleum products using WTPH-HCID, for VOCs using Method 8260, and for Total Metals (plus nickel and zinc). A summarized tabulation of the results is provided below. Note that the sludge sample was very wet (only 14.4% solids); thus, the analytical results, reported for a solid, are probably overestimated.

On February 20, Sally Toteff, Jane Hedges, Tracy Forsberg and I agreed that this situation warranted enforcing Sections 4.1(c) and 9 of Article VI that provide the county with the means to require additional information in the case of suspected contamination, namely subsurface soil testing. On February 21, Mr. Bergh verbally chose to conduct an independent investigation, with the county providing guidance, to see whether the subsurface soils in the vicinity of the dry well are contaminated. The county provided Mr. Bergh with a thick rubber

mat to put over the top of the dry well to help prevent any more fluids from going down it.

On March 21, Mr. Mark Robinson of Northwest Testing Company collected three soil samples using a hand auger, and a sample of water that had collected in the dry well. On March 27, I received a copy of Mark's report. A summary of the soil and water results is provided below. Note that the PCE results of the water sample are three orders of magnitude lower than that of the sludge sample. None of the soil or water results exceeds MTCA cleanup levels for the constituents tested.

On May 24, 1996, I confirmed that Mr. Bergh had permanently sealed the dry well by backfilling it with a mix of bentonite and concrete, and covering it with an 8-inch thick layer of concrete.

The county has determined that the site requires no further action based on the results of the soil and water samples, and the observation that the soil in the vicinity of the dry well is uniformly very fine and dry. The county's overall perception is that risk to human health and the environment is low and additional expense and effort to further the investigation or to pursue remediation is not warranted at this time.

SUMMARY OF SLUDGE ANALYSES

Analyte	Result (mg/kg)	PQL (mg/kg)	Industrial Method A Cleanup Levels - Soils (mg/kg)
WTPH-HCID Gasoline	> 200		100.0
WTPH-HCID Diesel	> 500		200.0
WTPH-HCID Heavy Oil	> 1,000		200.0
WTPH-G Gasoline	1,500	69	100.0
WTPH-D Diesel	59,000	1,700	200.0
WTPH-418.1 Modified Heavy Petroleum Oils	350,000		200.0
Cadmium	29	3.6	10.0
Lead	1,500	3.6	1000.0
Zinc	1,300	1.4	
Tetrachloroethene	9.4	1.3	0.5
Naphthalene	11.0	1.3	

SUMMARY OF SOIL AND WATER ANALYSES

Analyte	Soil Samples (mg/kg) (PQL)			Water Sample (ug/L) (PQL)
	A2 (8'bgs)	B1 (8' bgs)	B2 (12' bgs)	
Diesel	ND (20)	ND (20)	ND (20)	ND (200)
Heavy Oil	ND (40)	ND (40)	ND (40)	51,800
Zinc	25/25 (20)	25 (20)	25 (20)	-
Lead	12/15 (5)	ND (5)	ND (5)	-
Cadmium	ND/ND (1)	ND (1)	ND (1)	-
Halogenated Hydrocarbons & BTEX	-	-	ND (0.05)	(listed below)
Toluene	-	-	-	4.7/4.5 (1)
Tetrachloroethene	-	-	-	4.9/4.8 (1)
Total Xylenes	-	-	-	4.4/5.9 (1)

THURSTON COUNTY
Since 1852

Thurston County Public Health and Social Services Department
Environmental Health Division

Nonpoint Source Pollution Ordinance Inspection Checklist

Business Name POAGE'S AUTOMOTIVE & TOWING Phone 943-1531

Business Owner WARREN BERGH Birthdate _____

Address 5401 Capitol Blvd. City Tumwater Zip 98501

Compliance Officer Donna Freier Issue Date _____ Time _____

MODERATE RISK WASTE: fuel, antifreeze, oil & filters **Avg. Qty/Mo** _____

NOTICE OF COMPLIANCE

☐ NO MODERATE RISK WASTE GENERATED.
Explain: _____

☐ RECYCLED Type of system: _____
ON-SITE Qty/Mo: _____ Date of installation: _____

☒ SENT Vendor: ① Clean Care 1/24/96 1 DM off-spec fuel 12/20/95 1 DM antifreeze - 11/8/95 Phone: _____ (21 gal.)
OFF-SITE Qty/Mo: 21 gal Date of last shipment: 5/15/96

☑ Documentation ~~attached~~ reviewed on-site. ② Safety Kleen 1 DM petroleum naphtha 5/15/96 4/9/96 (21 gal)

☐ Send documentation to Health Dept. by _____ (date)

NOTICE OF VIOLATION

☐ I find you in violation of Thurston County Sanitary Code, Article VI, Section 4.1(a) for dumping or depositing the moderate risk waste specified above as indicated below:

- ☐ To sanitary sewer Qty/Mo: _____
- ☐ To septic system Qty/Mo: _____
- ☐ To garbage/landfill Qty/Mo: _____
- ☐ Directly to ground or water Qty/Mo: _____
- ☐ Other Qty/Mo: _____

Facts supporting this finding include: _____

Corrective action to be taken by _____ (date) is as follows: _____

See reverse for important information on your right to appeal this notice of violation.

Compliance officer: Donna L. Freier Date: 5/24/96

Received by: William D. Bergh Date: 5/24/96

Business Copy


THURSTON COUNTY
WASHINGTON
SINCE 1852

COUNTY COMMISSIONERS
Judy Wilson
District One
Diane Oberquell
District Two
Dick Nichols
District Three

PUBLIC HEALTH AND
SOCIAL SERVICES DEPARTMENT

Patrick M. Libbey, Director
Diana T. Yu, MD, MSPH
Health Officer

Mr. Warren Bergh
Poage's Automotive & Towing
5403 Capitol Blvd. SE
Tumwater, WA 98501

April 12, 1996

Dear Mr. Bergh,

The Thurston County Health Department appreciates your expediency in responding to our need for more information on possible contamination associated with the dry well located in one of your service bays. As a result of the dry well investigation that was conducted by you on March 21, 1996, **the county requires no further action with regards to soil sampling or analysis**. As described below, however, **the county does require three non-investigative follow-up activities**. The first activity, which involves permanently sealing the dry well, must be completed by Monday, May 13, 1996. All three follow-up activities are described in more detail further below.

The requirement for more information on the extent and degree of possible contamination was put forth by the county with authority granted by the Washington State Department of Ecology. In conducting this initial investigation, the county was acting on behalf of Ecology under the Model Toxics Control Act. The purpose of an initial investigation under MTCA is to determine whether a release of a hazardous substance may have occurred and whether further action is warranted. The results of the sludge sample that was collected by the county from the dry well on February 1 indicated that release was possible and thus further action was deemed necessary. This "further action" took the form of your soil sampling effort, conducted as an independent investigation.

I observed part of the soil sampling activities that took place at your shop on March 21 by Northwest Testing Company. The sample screening and collection practices that Mr. Mark Robinson employed were acceptable and standard for such an investigation. On March 27, I received a copy of the sampling report prepared by Mr. Robinson and, on March 28, I received a copy of the QA/QC analytical laboratory results submitted by TEG Northwest, Inc. Both the sampling and the analytical QA/QC reports appear to have accurately and acceptably represented the study that was conducted.

At this point, the county believes that the results of the soil sampling effort are not conclusive in ruling out the presence of contamination associated with the dry well. The sampling effort that was conducted was appropriate; difficulties commonly encountered in dry well investigations, however, were unfortunately encountered during this study. The soil samples that were able to be collected do not conclusively determine whether contamination (if any) from the dry well has impacted underlying soil.

Environmental Health Division: 2000 Lakeridge Drive SW, Olympia, Washington 98502-6045 (360) 754-4111

(2) The Department of Ecology requires notification when information indicates that a hazardous substance may have been released to the environment. I will report to Ecology on your behalf that an Independent Investigation was initiated by you under the county's direction and that it has been completed with the decision that no further action is required.

(3) As explained in the Ecology report entitled "Hazardous Waste Considerations in Real Estate Transactions" that I sent you in March, you must disclose your knowledge of the possibility of contamination on your property to a prospective buyer or financial lending institution. Another copy of this "Real Estate" report is enclosed for your convenience.

To complete the technical assistance visit I conducted in October of 1995, I will be visiting your shop in mid-May to conduct a compliance audit. At that time, I will be looking to see that the dry well has been sealed and that your containers of hazardous waste (used oil) and products (for example, antifreeze) are properly closed.

Again, thank you for your attention to this matter and for your expediency in resolving it. Please do not hesitate to call me if you have any questions or need any additional information. I can be reached at 754-4111 ext. 6509.

Sincerely,

Donna S. Freier

Donna S. Freier
Hazardous Waste Specialist

enc.

1991

copy to region

UNDERGROUND STORAGE TANK
Permanent Closure/Change-In-Service Checklist

The purpose of this form is to certify the proper closure/change-in-service of underground storage tank (UST) systems. These activities must be conducted in accordance with Chapter 173.360 WAC. Washington State UST rules require the tank owner or operator to notify Ecology in writing 30 days prior to closure or change-in-service of tanks. This must be done by completing the 30 Day Notice form (ECY 010-155).

This Permanent Closure Checklist shall be completed and signed by a **Licensed Decommissioning Supervisor.** The supervisor shall be on site when all tank permanent closure/change-in-service activities are being conducted. The firm which employs the licensed supervisor shall also be licensed by the Washington State Department of Ecology as a **Service Provider.** If any of the activities listed below have been supervised by a different licensed supervisor, a separate checklist must be filled out and signed by the licensed supervisor performing those activities.

For further information about completing this form, please contact the Department of Ecology UST Program.

A separate checklist must be completed for each UST system (tank and associated piping), except that UST systems at one site may be reported together by completing page 2 of this form separately for each system. The completed checklist should be mailed to the following address within 30 days of the completion of the closure or change-in-service.

DEPARTMENT OF ECOLOGY
UNDERGROUND STORAGE TANKS

MAR 14 1991

DEPARTMENT OF ECOLOGY
UNDERGROUND STORAGE TANKS

MAR 21 1991

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

Site Owner/Operator: WARREN H. BERGH

Owners Address: 434 100th Ave. S.E. (Street) - P.O. Box

Olympia, (City) Wa (State) 98501 (ZIP-Code)

Telephone: (206) 943-1974

Site ID Number (on invoice or available from Ecology if tank is registered): #001190

Site/Business Name: POAGE's AUTOMOTIVE & TOWING, INC.

Site Address: 5403 CAPITOL BLVD. (Street) THURSTON (County)

TUMWATER (City) WA (State) 98501 (ZIP-Code)

2. TANK PERMANENT CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Firm: Hyak Const Co License Number: W000084

Address: 4301 Burlington Dr. SW (Street) P.O. Box

Tumwater (City) WA (State) 98502 (ZIP-Code)

Telephone: (206) 943 9889

Licensed Supervisor: Ron Sheriche Decommissioning License Number: 5000107

This page must be completed separately for each tank permanently closed (decommissioned) or change-in-service at the site. For additional tanks you may photocopy this form prior to completing.

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 500 gal #1
2. Year installed: 6/1/75
3. Tank capacity in gallons: 500 gal
4. Date of last use: 3/1/90
5. Last substance stored: Waste Oil
6. Date of closure/change-in-service:
7. Type of closure: Closure with Tank Removal [X] In-place Closure [ ] Change-in-Service [ ]
8. If in-place closure is used, the tank has been filled with the following substance:
9. If change-in-service, indicate new substance stored in tank:
10. Local permit(s) (if any) obtained from: CITY OF TUMWATER

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes [X] No [ ]

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

4. CHECKLIST

Each item of the following checklist shall be initialed by the **licensed supervisor** whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?	X		
2. Has all product piping been capped or removed?	X		
3. Have all non-product lines been capped or removed?	X		
4. Have all liquid and accumulated sludges been removed from the tank?	X		
5. Has the tank been properly purged or inerted?	X		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?	X		
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.	X		
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?	X		
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?	X		

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

3 20 91
Date

Ron Shenich
Signature of Licensed Supervisor

5. ADDITIONAL REQUIRED SIGNATURES

Date

Signature of Licensed Service Provider (firm) Owner or Authorized Representative

2/28/91
Date

William M. Brough Pres.
Signature of Tank Owner or Authorized Representative

copy to region 9/15A

UNDERGROUND STORAGE TANK
Permanent Closure/Change-In-Service Checklist

The purpose of this form is to certify the proper closure/change-in-service of underground storage tank (UST) systems. These activities must be conducted in accordance with Chapter 173.360 WAC. Washington State UST rules require the tank owner or operator to notify Ecology in writing 30 days prior to closure or change-in-service of tanks. This must be done by completing the 30 Day Notice form (ECY 010-155).

This Permanent Closure Checklist shall be completed and signed by a **Licensed Decommissioning Supervisor**. The supervisor shall be on site when all tank permanent closure/change-in-service activities are being conducted. **The firm** which employs the licensed supervisor shall also be licensed by the Washington State Department of Ecology as a **Service Provider.** If any of the activities listed below have been supervised by a different licensed supervisor, a separate checklist must be filled out and signed by the licensed supervisor performing those activities.

For further information about completing this form, please contact the Department of Ecology UST Program.

A separate checklist must be completed for each UST system (tank and associated piping), except that UST systems at one site may be reported together by completing page 2 of this form separately for each system. The completed checklist should be mailed to the following address within 30 days of the completion of the closure or change-in-service.

DEPARTMENT OF ECOLOGY
UNDERGROUND STORAGE TANKS
RECEIVED
MAR 14 1991

DEPARTMENT OF ECOLOGY
UNDERGROUND STORAGE TANKS
MAR 21 1991

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

Site Owner/Operator: WARREN H. BERGH

Owners Address: 434 100th Ave. S.E. (Street) (P.O. Box)

OLYMPIA, WA (City) 98501 (State) (ZIP-Code)

Telephone: (206) 943-1974

Site ID Number (on invoice or available from Ecology if tank is registered): #001190

Site/Business Name: POAGE's AUTOMOTIVE & TOWING, INC.

Site Address: 5403 CAPITOL BLVD. (Street) THURSTON (County)

TUMWATER (City) wa (State) 98501 (ZIP-Code)

2. TANK PERMANENT CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Firm: Hyak Const. Co License Number: W0000849

Address: 4201 Bush Mtn. Dr. S.W. (Street) (P.O. Box)

Tumwater (City) WA. (State) 98502 (ZIP-Code)

Telephone: (206) 943-8889

Licensed Supervisor: Ron Shercke Decommissioning License Number: S000107

This page must be completed separately for each tank permanently closed (decommissioned) or change-in-service at the site. For additional tanks you may photocopy this form prior to completing.

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 1000 gal #2
2. Year installed: 6/1/75
3. Tank capacity in gallons: 1000 gal
4. Date of last use: 3/1/90
5. Last substance stored: GASOLINE
6. Date of closure/change-in-service:
7. Type of closure: Closure with Tank Removal [X] In-place Closure [ ] Change-in-Service [ ]
8. If in-place closure is used, the tank has been filled with the following substance:
9. If change-in-service, indicate new substance stored in tank:
10. Local permit(s) (if any) obtained from: CITY OF TUMWATER

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes [X] No [ ]

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

4. CHECKLIST

Each item of the following checklist shall be initialed by the **licensed supervisor** whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?	X		
2. Has all product piping been capped or removed?	X		
3. Have all non-product lines been capped or removed?	X		
4. Have all liquid and accumulated sludges been removed from the tank?	X		
5. Has the tank been properly purged or inerted?	X		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?	X		
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.	X		
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?	X		
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?	X		

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

2/28/91
Date

Ron Shenche
Signature of Licensed Supervisor

5. ADDITIONAL REQUIRED SIGNATURES

Date

Signature of Licensed Service Provider (firm) Owner or Authorized Representative

2/28/91
Date

William H. Keough Pres.
Signature of Tank Owner or Authorized Representative

Copy to Olson 9/15/91

UNDERGROUND STORAGE TANK
Permanent Closure/Change-In-Service Checklist

The purpose of this form is to certify the proper closure/change-in-service of underground storage tank (UST) systems. These activities must be conducted in accordance with Chapter 173.360 WAC. Washington State UST rules require the tank owner or operator to notify Ecology in writing 30 days prior to closure or change-in-service of tanks. This must be done by completing the 30 Day Notice form (ECY 010-155).

This Permanent Closure Checklist shall be completed and signed by a **Licensed Decommissioning Supervisor.** The supervisor shall be on site when all tank permanent closure/change-in-service activities are being conducted. The **firm** which employs the licensed supervisor shall also be licensed by the Washington State Department of Ecology as a **Service Provider.** If any of the activities listed below have been supervised by a different licensed supervisor, a separate checklist must be filled out and signed by the licensed supervisor performing those activities.

For further information about completing this form, please contact the Department of Ecology UST Program.

A separate checklist must be completed for each UST system (tank and associated piping), except that UST systems at one site may be reported together by completing page 2 of this form separately for each system. The completed checklist should be mailed to the following address within 30 days of the completion of the closure or change-in-service.

DEPARTMENT OF ECOLOGY
UNDERGROUND STORAGE TANKS
RECEIVED
MAR 14 1991

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

Site Owner/Operator: WARREN H. BERGH

Owners Address: 434 100th Ave. S.E. (Street) P.O. Box

OLYMPIA, WA (City) 98501 (State) (ZIP-Code)

Telephone: (206) 943-1974

Site ID Number (on invoice or available from Ecology if tank is registered): #001190

Site/Business Name: POAGE's AUTOMOTIVE & TOWING, INC.

Site Address: 5403 CAPITOL BLVD. (Street) THURSTON (County)

TUMWATER (City) wa (State) 98501 (ZIP-Code)

2. TANK PERMANENT CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Firm: Hyak Const. Co License Number: W000084

Address: 4201 Bush Mtn. Dr. S.W. (Street) P.O. Box

Tumwater (City) WA. (State) 98502 (ZIP-Code)

Telephone: (206) 943-9889

Licensed Supervisor: Ron Shenck Decommissioning License Number: S000107

ECY 010-162 (12/90)

This page must be completed se[illegible]ately for each tank permanently close[illegible]ecommissioned) or change-in-service at the site. For additio[illegible] tanks you may photocopy this form p[illegible]to completing.

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 1000 gal #2
2. Year installed: 6/1/75
3. Tank capacity in gallons: 1000 gal
4. Date of last use: 3/1/90
5. Last substance stored: GASOLINE
6. Date of closure/change-in-service: _____
7. Type of closure: Closure with Tank Removal [X] In-place Closure [ ] Change-in-Service [ ]
8. If in-place closure is used, the tank has been filled with the following substance: _____
9. If change-in-service, indicate new substance stored in tank: _____
10. Local permit(s) (if any) obtained from: CITY OF TUMWATER

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes [ ] No [ ]

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

4. CHECKLIST

Each item of the following checklist shall be initialed by the **licensed supervisor** whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?			
2. Has all product piping been capped or removed?			
3. Have all non-product lines been capped or removed?			
4. Have all liquid and accumulated sludges been removed from the tank?			
5. Has the tank been properly purged or inerted?			
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?			
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.			
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?			
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?			

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

2/28/91 — Date

Ron Shreche — Signature of Licensed Supervisor

5. ADDITIONAL REQUIRED SIGNATURES

_____ — Date

_____ — Signature of Licensed Service Provider (firm) Owner or Authorized Representative

2/28/91 — Date

William W. Keogh Pres. — Signature of Tank Owner or Authorized Representative

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
7272 Cleanwater Lane, LU-11 • Olympia, Washington 98504-6811 • (206) 753-2353

November 27, 1991

Warren Bergh
Poages Automotive and Towing Inc.
WAD988488367
5403 Capitol Blvd.
Tumwater, WA 98501-4488

Re: Compliance With Washington State Dangerous Waste Laws and Regulations (Chapter 70.105 RCW and Chapter 173-303 WAC)

Dear Mr. Bergh:

According to Department of Ecology records your site recently applied for, and was assigned, an EPA/State Hazardous Waste Site Identification Number (ID#) for activities regulated pursuant to the State Dangerous Waste Regulations at Chapter 173-303 WAC. The purpose of this letter is to inform you that I am scheduling site technical assistance/dangerous waste audits in the next several months for sites that have recently notified as hazardous waste generators, transporters, or management facilities. Although I may be scheduling this visit with you in advance, you should be aware that it is not the policy of this Department to announce compliance inspection dates. Pursuant to both state and federal law, an agency inspector has authority to "...enter at reasonable times, establishments... for the purpose of inspection, monitoring, and sampling..." (WAC 173-303-960(2)), (RCW 70.105.130(2)(d)).

Due to the complexity of State and Federal laws concerning hazardous waste management, the Department of Ecology has initiated a program of conducting technical assistance audits for new generators, transporters, and management facilities to evaluate compliance and assist with understanding the requirements of the program. This visit will be conducted by myself and possibly other staff from the Department of Ecology and/or local government. During the visit, I will conduct a walk-through inspection of your site and will complete an abbreviated site inspection checklist. I will also be reviewing records and discussing waste handling procedures, training, and other issues with your employees. From this information, I will conduct a thorough out-briefing with your management. I would encourage managers and anyone involved with hazardous waste issues to be involved with this walk-through inspection and debriefing. Please have a private office or meeting room available for our meeting and debriefing sessions. The process should take from two to four hours depending on the size and complexity of your site.

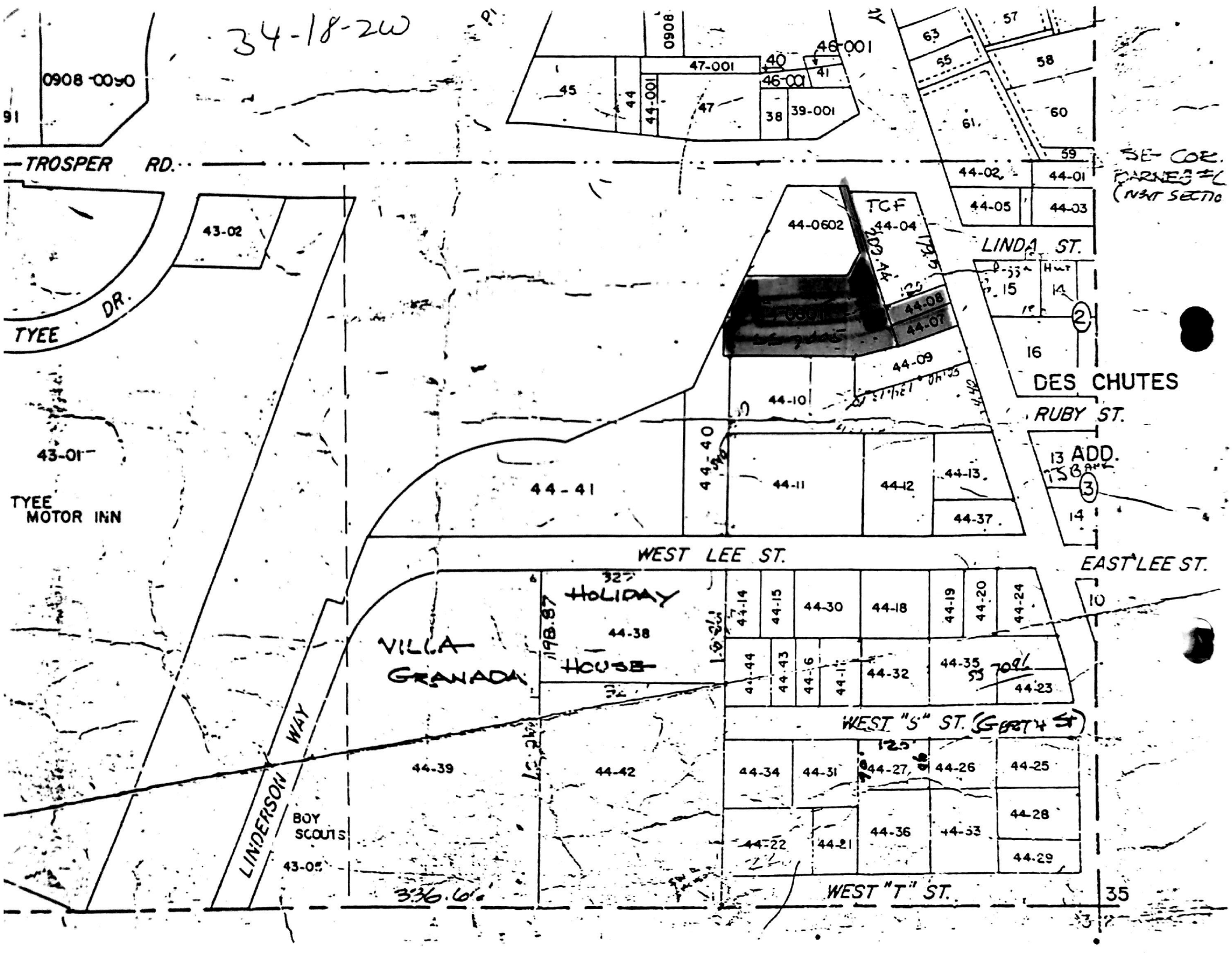
To make this session most useful, I would advise you to review your operation as it relates to the requirements of Chapter 173-303 WAC. A copy of the regulation was mailed to you when you applied for your site ID#. Another document supplied, when you received your ID#, is the **Guide for Hazardous Waste Generators**. The "Guide" summarizes the requirements of Chapter 173-303 WAC and provides other useful information concerning completion of shipping manifests, determining small quantity generator status, record-keeping requirements, annual reporting, etc. You should review and become familiar with the contents of this document **before** my site visit. Even though you only recently entered the hazardous waste system, you are still accountable for meeting the requirements of the law. Compliance with the dangerous waste regulations is taken very seriously by the Department. Our interest is in protection of human health and the environment. The emphasis of the "New Notifier Audit" program is education, not penalties. If non-compliance items are discovered during the audit you will be informed during the debrief and will receive a follow-up letter describing the problems.

I have enclosed a "Request for Documents" sheet. If you need any of these documents, please follow the instructions on the form. I may be contacting you shortly to set up an appointment to conduct this technical assistance audit. Due to the large number of new notifiers like yourself, I may not have a chance to provide this service to all businesses. This is your opportunity to gain first-hand information about the requirements of these complex laws and regulations as they apply to your site, from the agency that is mandated to enforce them. If you do not hear from me within the next month and would like to take advantage of this valuable service, please call me at (206) 586-2713 in Tumwater.

Sincerely,

David E. Saunders, Inspector
New Notifier Assistance
Solid & Hazardous Waste Section

DS:dc
Enclosure



WASHINGTON STATE
DEPARTMENT OF ECOLOGY

Attn: DW Notifications
M/S PV-11
Olympia, WA 98504-8711
(206) 459-6287

DEPARTMENTAL USE ONLY

	INT	DATE
REVIEW		
LOG		MAY 16 1991
G. WAC		JUL 16 1991

MAY 16 1991

FORM 2

WAD988488367

NOTIFICATION OF DANGEROUS WASTE ACTIVITIES

1. [X] A. FIRST NOTIFICATION
[ ] B. REVISED NOTIFICATION DATE
[ ] C. WITHDRAW SITE I.D. NO. DATE
[ ] D. REACTIVATE SITE I.D. NO.
[ ] E. CANCEL SITE I.D. NO. DATE
[ ] F. EXISTING I.D. NO. WA

2.A. WASHINGTON STATE DEPARTMENT OF REVENUE REGISTRATION (TAX) NUMBER: 600-222-25P

2.B. SIC CODE(S): PRIMARY 7538 / SECONDARY / OTHER

2.C. TYPE OF BUSINESS CONDUCTED AT THIS SITE: General Automotive Repair

3. NAME OF INSTALLATION: POAGES AUTOMOTIVE & TOWING INC

4. LOCATION OF INSTALLATION

Street: 5403 CAPITOL BLVD.

County Name: THURSTON

City or Town: TUMWATER — State: WA — ZIP Code: 98501-4488

5. INSTALLATION MAILING ADDRESS

Street or P.O. Box: SAME AS ABOVE

City or Town: — State: — ZIP Code: -

6.A. INSTALLATION CONTACT

Name (last): BERGH — (first): WARREN

Job Title: OWNER — Phone Number: 206-943-1531

6.B. INSTALLATION CONTACT MAILING ADDRESS (see instructions) BOX 1 [ ] BOX 2 [ ]

Street or P.O. Box: 5403 Capitol Blvd

City or Town: — State: — ZIP Code: -

7.A. NAME OF INSTALLATION'S LEGAL OWNER: BERGH, WARREN

Street, P.O. Box, or Route Number: 5403 CAPITOL BLVD

City or Town: TUMWATER — State: WA — ZIP Code: 98501-4488

7.B. PROPERTY OWNERSHIP (If ownership is different than 7.A. provide address in section 11): BERGH, WARREN

7.C. OWNER TYPE: P

7.D. PROPERTY TYPE: P

ECL 11/89 1518

NAME OF INSTALLATION (Same as Item No. 3) Poage Automotive & Towing, Inc. EPA I.D. NO. _____

8. TYPES OF REGULATED DANGEROUS WASTE ACTIVITIES YOUR BUSINESS IS CONDUCTING (Read & follow instructions for this section carefully—Enter an "X" in any sections of 8.A., 8.B., or 8.C. below that may apply)

8.A. HAZARDOUS WASTE ACTIVITIES (See instructions for definitions of these activities).

[X] 1. GENERATOR ☐ 1a. Conduct on-site recycling

☐ 2. TRANSPORTER 2a. ☐ Transport Wastes Commercially (for hire).
2b. Modes of Transport: (1) ☐ Highway (2) ☐ Air (3) ☐ Rail (4) ☐ Water (5) ☐ Other (Specify in comments)

☐ 3. MANAGEMENT FACILITY (TSD) 3a. ☐ Facility accepts wastes from OFF-SITE Generators.
3b. Process conducted or available at this facility;
(1) ☐ Treatment (2) ☐ Storage (>90 days) (3) ☐ Disposal
(4) ☐ Other (specify in comments).
3c. Current Part A ___/___/___
Part B Process ☐ Yes ☐ No

☐ 4. IMMEDIATE RECYCLER

☐ 5. PERMIT-BY-RULE FACILITY

☐ 6. MARKET OR BURN DANGEROUS WASTE FUELS— 6a. ☐ Generator Marketing to Burner 6b. ☐ Other Marketer
6c. ☐ Burner. (COMPLETE 8c.—TYPE OF COMBUSTION DEVICE)

8.B. USED-OIL FUEL ACTIVITIES.

[X] 1. OFF-SPECIFICATION USED-OIL FUELS-1a. ☐ Generator Marketing to Burner 1b. ☐ Other Marketer 1c. [X] Burner (Complete 8c.)

☐ 2. SPECIFICATION USED-OIL FUEL MARKETER (or ON-SITE BURNER) WHO FIRST CLAIMS THE OIL MEETS THE SPECIFICATION.

8.C. DANGEROUS WASTE OR OFF-SPECIFICATION USED-OIL FUEL BURNING: TYPE OF COMBUSTION DEVICE.

(see instructions for definitions of combustion devices) 1. ☐ Utility Boiler 2. ☐ Industrial Boiler 3. [X] Industrial Furnace.

9. WASTE IDENTIFICATION (Copy this page if you have more than 5 waste streams—other information (sections 8 and 10-12) not needed on continuation sheets)

A. LINE NUMBER	B. DESCRIPTION OF WASTE(S)	C. DANGEROUS WASTE NUMBER (Refer to WAC 173-303)	D. ESTIMATED OR ACTUAL ANNUAL WASTE QUANTITY		E. CODE
				WEIGHT	
1	Ethylene Glycol Solution 50%	WT02	Est. 32000 400	P	SP
2	Waste Petroleum Naphtha	D001 D018 D039	Est 17.11	P	

10. ESTIMATED MAXIMUM QUANTITY of all wastes, listed above, to be produced in any given month or per processing batch. In 10.D. indicate maximum to be accumulated on-site prior to shipment.

10.A. [✓] (Batch Frequency 3) QUANTITY 1667 WEIGHT P CODE 10.B. ☐ PER MONTH QUANTITY WEIGHT CODE

10.C. ☐ ONE-TIME-ONLY QUANTITY WEIGHT CODE 10.D. AMOUNT TO BE ACCUMULATED ON-SITE PRIOR TO SHIPMENT QUANTITY 1667 WEIGHT P CODE

11. COMMENTS

12. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

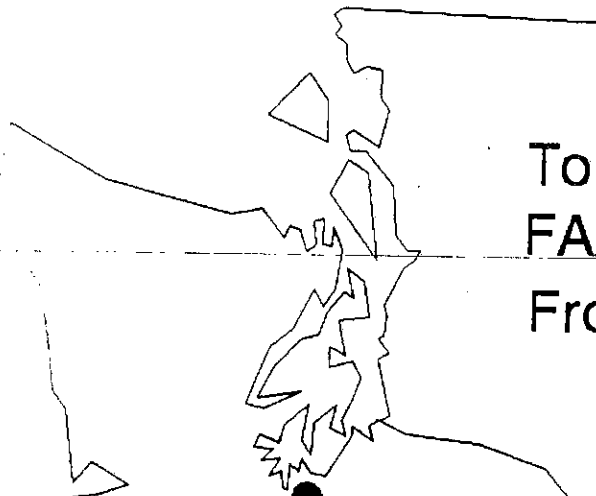
SIGNATURE	NAME AND OFFICIAL TITLE (type or print)	DATE SIGNED

ECL 2B — 1518-

FAX Cover Sheet

Date: 2/28/92
Time: 10:00
Pages: 19

Washington State
Department of Ecology



To: Dan Fishman
FAX No.: (619) 558-0600
From: Lynn Gooding

Southwest Regional Office
7272 Cleanwater Ln
Mail Stop LU-11
Olympia, Washington 98504

Phone (206) 753-2353
FAX (206) 753-8531

This machine is a Harris/3M Facsimile
This Machine receives Group I, II, and III

Comments: Dan: This is the bulk of the report, I left out the sample results which were "clean".

Sincerely,
Lynn Gooding

PURPOSE AND SCOPE

Our purpose on the site was to observe and document environmental conditions during the removal of excavated soils and underground storage tanks. Our specific objectives were:

1. Observe and document underground storage tank removal;
2. Observe and document the excavation of soils suspected of containing elevated concentrations of petroleum hydrocarbons;
3. Conduct on-site screening of soils utilizing a portable organic vapor meter (OVM) equipped with photoionization detector (PID), olfactory sensing and visual observations to assist in the identification of soils suspected of containing elevated concentrations of petroleum hydrocarbons;
4. Obtain discrete and composite soil samples from the various excavations for laboratory analysis of suspected petroleum hydrocarbon constituents at the lateral and vertical limits of the excavations.
5. Preparation of this report.

SITE DESCRIPTION

Tank removal procedures were initiated on 17 December 1990 and were completed on 18 December 1990 at Drew's Mobil Station, located on the northwest corner of Trosper Road and Capitol Boulevard, Tumwater, Washington (see Vicinity Map Figure 1). The site is generally flat but dips slightly to the north. Prior to initiation of excavation procedures, the site consisted of: a station building with office and attached two-bay garage; two pump islands with a single canopy; two steel underground storage tanks (USTs) containing gasoline, one steel UST containing diesel, one steel UST containing waste oil and one concrete vault containing service bay-drained sludge deposits (dry-well). In addition, the station operated a U-HAUL rental business with the truck and trailer parking area located north of the station building. During our investigation, the garage was in use along with the U-HAUL rental business. The canopy over the pump islands was removed during tank excavation procedures, as the gasoline and diesel underground storage tanks were located directly adjacent to the pump islands. Business and land-use adjacent to the subject property consist of a restaurant to the west, owned by the service station property owner, a grocery store parking lot to the north, a Texaco service station and bank to the northeast and east, and a fast-food restaurant to the south.

Historically, the site has been in operation as a service station since the mid-1950's. This information was provided by the station operator, Mr. Norm Drew. Apparently, no tank replacements have ever occurred. However, the unleaded gasoline UST was installed at an unspecified time after the introduction of unleaded fuel. No

reports of spills or leakage are known to have occurred on-site during the station's operation.

EXCAVATION AND TANK REMOVAL OBSERVATIONS

An environmental geologist representing Rittenhouse-Zeman and Associates (RZA) arrived on-site, following the request of Mr. Kip Lange of George W. Johnson Realty, to observe and document the removal of UST's present on-site. Tank removal operations were completed by Harold's Petroleum Equipment of Centralia, Washington. The three fuel UST's appeared to have maintained their structural integrity. No holes or punctures were apparent in any of these three tanks. However, the north end of the waste oil tank was observed to be missing upon removal, the details of which are described in a latter section of this report. In addition, a dry-well was discovered during overexcavation and additional soil sampling in late January. The discussion of the dry well excavation is also described in a latter section of this report.

Our understanding of the types of tanks removed, tank content and estimated capacities are summarized in Table 1. The approximate former location of these tanks with and corresponding limits of excavation are shown in Figure 2, and Figure 3. Groundwater was not encountered during tank excavations. However, an unmarked 1-inch diameter water main was damaged several times during tank removal operations on the west end of the gasoline tank excavation. The City of Tumwater Public Works Department responded promptly to repair the broken main.

During tank removals, field screening of soils for the presence of volatile organic vapors was conducted using an Organic Vapor Meter (OVM) with a 10.0 eV lamp. Although the OVM is not capable of quantifying or identifying specific organic compounds encountered in the field, this instrument is capable of measuring relative concentrations of a variety of organic vapors with ionization potentials less than the energy of the ultraviolet source, in this case, 10.0 eV. As such, the OVM is useful for providing qualitative information with respect to the presence of organic vapors. The results of these field screenings using the OVM are summarized in Table 2.

GASOLINE TANK EXCAVATION

The diesel tank/gasoline tanks excavation was located on the southern portion of the site, south of the station building. The two gasoline tanks, and one diesel tank, were constructed of uncoated steel, contained regular grade unleaded and regular grade leaded gasolines, and diesel fuel.

After the upper surface of the three underground storage tanks (USTs) were exposed, the tanks were vacuumed of remaining product, cleaned with an industrial detergent and placed in an inert state

by injecting CO2 in each of the tanks. The tanks were removed following inspection by a building safety inspector for the City of Tumwater. Upon removal, each tank was inspected by an RZA field representative for pitting, scaling and holes. Although scaling and moderate pitting were observed on approximately 90 percent of the surface of each of the three underground storage tanks, no holes were visually apparent in any of the tanks.

Because the diesel and regular leaded gasoline tanks were located adjacent to the pump islands and below the pump island canopy, the canopy was demolished prior to tank removal. The primary reason for this was safety. There was a potential for excavation sidewall slump and subsequent canopy collapse. In addition, the canopy was removed to allow maneuverability of the track-hoe to excavate petroleum hydrocarbon impacted soil from the tank excavation perimeter and below the pump islands.

During original excavation, the soils removed exhibited both discoloration and slight to moderate hydrocarbon odors. The discoloration and hydrocarbon odors generally were found at the base of the three tanks, with odors and discoloration greatest below the tank fill ports. Observations regarding petroleum hydrocarbon odor are subjective data. The presence of or ability to detect petroleum hydrocarbon odors is dependent upon climatic factors (temperature,wind,etc.) as well as the observer's olfactory sensitivity.

During excavation, an unmarked one inch diameter steel water main was broken on the west side of the excavation. The City of Tumwater Public Works Department arrived promptly to shut the main flow valve off and to repair the line. In addition, an unmarked, apparently unused 4-inch diameter ceramic drain line trending east-west at an approximate depth of 7 feet was inadvertently broken, and an incorrectly marked phone line was damaged during excavation procedures.

The finished excavation is shown on Figures 2&3. The final depth of the gasoline tank excavation was approximately 7-8 feet.

WASTE OIL TANK EXCAVATION

A 500 gallon waste oil UST was removed from the site on 18 December 1990. During excavation procedures and subsequent removal, it was observed that the north end of the waste oil tank was missing. The tank construction was not single piece but rather a steel hollow cylinder with a steel cap tack welded onto each end. It appeared that the north cap of the tank structurally failed prior to removal and an unknown volume of waste oil leaked into the soil below the tank. Because of the large hole on the north end of the tank, extremely careful efforts were made to remove the tank without spilling the contents. However, during removal, the backhoe bucket slipped off the tank and approximately 5 gallons of waste oil spilled out onto approximately one yard of stockpiled soil. The

excavation crew immediately responded to the cleanup, placing sorbent pads on the spill to soak up the oil. Approximately 20 gallons of waste oil remaining in the tank was pumped off and the tank was cleaned and disposed of by Harold's Petroleum Equipment. After removal of the tank, the excavation was squared off to approximately 6 feet wide by 15 feet long by 8 feet deep. Soil samples were collected from each sidewall, below the tank and from the stock pile to analyze for petroleum hydrocarbon constituents as shown in Figure 2 - Site and Exploration Plan.

PUMP ISLAND EXCAVATION

On December 27, 1990, the pump islands and canopy post pier blocks were removed. Soil did not appear to be impacted by petroleum hydrocarbons below the east pump island. However, soil below the west pump island at a depth of 2 feet was stained dark gray and had a strong petroleum hydrocarbon odor. After laboratory results of a soil sample indicated elevated concentrations of petroleum hydrocarbons, the excavation was deepened to a depth of 25 feet. High OVM readings and detectible odors were present to this depth. An additional three soil samples were collected and analyzed for petroleum hydrocarbons to characterize the impacted soils below the west pump island.

DRY WELL EXCAVATION

During disposal of stockpiled soils to Fife Sand and Gravel on 21 January 1991, a circular upwelling of asphalt approximately 3-4 feet in diameter was pointed out by the backhoe operator. The upwelling had not been observed previous, but during the process of loading the trucks with soil, the shovel of the backhoe had scraped over the area, thus outlining the upwelling. Mr Kip Lange of George W. Johnson Reality was on site and requested that the asphalt over the upwelling be removed to investigate the source below. Upon removal of the asphalt, a 4-inch thick, approximately 3-feet in diameter concrete lid was discovered. The lid was removed and a concrete dry-well filled with water and sludge was discovered. The water was pumped off by Coastal Environmental Services, and approximately 40 gallons of oily sludge was removed from the well and placed in a 55 gallon drum with a locking lid. Following removal of the sludge, the dry well was lifted out of the ground. It was observed to be a section of concrete culvert pipe approximately 3-feet in diameter, 5 feet long, approximately 4-inches thick, with 1-inch holes drilled along the outside, and no bottom.

The soil around and below the dry-well to a depth of approximately 8 feet was strained dark gray and had a strong oil and solvent odor (like paint thinner). A sandy layer below was stained green and had the same odor. A soil sample was collected from below the dry well in the green sand and from the dark gray-stained soil stockpile for laboratory analyses. After laboratory analyses of soil samples

indicated elevated levels of petroleum hydrocarbons, five test pits were excavated around the dry-well on 5 and 6 March 1991 to characterize the vertical and horizontal extent of impacted soils. Two soils samples were collected from each test pit, one from within a horizon stained green and one below. Field observations indicated that the thickness of impacted soil decreased away from the center of the dry well. Soil in the farthest side walls of the north south, west and east test pits exhibited a layer of discoloration approximately 1 foot in thickness. Field screening methods, including observation of soil discoloration, olfactory impressions and OVM readings indicated that the vertical extent of impacted soils appeared to be characterized. This was further evidenced by a very dense, light brown silty sand layer encountered below the loosely consolidated sand layer discolored green. The dense layer had no odor and increased in depth to the east. An additional ten discreet soils samples were collected to characterize remaining impacted soils.

HYDRAULIC HOIST REMOVAL

On 4 March 1991, the station building was demolished and the two hydraulic hoists removed. On 5 March 1991, RZA arrived on site to collect soil samples from below the hydraulic hoists. One sample was collected for each hoist from an approximate depth of 8 feet. No discoloration or odors were observed.

FLOOR DRAIN/SUMP REMOVAL

During station demolition on 4 March 1991, a floor drain/sump was discovered behind the office and restrooms. The dimensions of the drain/sump were approximately 2 feet wide by 3 feet long by 2 feet deep. According to demolition crew personnel, sludge in the sump had a strong oil and solvent odor. The sump was removed and disposed of by Harold's Petroleum Equipment. On 5 March 1991, RZA arrived on site, learned of the drain/sump discovery and collected two soil samples from the area on 6 March 1991.

SUBSURFACE CONDITIONS

The soils underlying the subject site consisted of an upper layer (surface to a depth of approximately 8 feet) of dark brown sandy silt interpreted as fill (as evidenced by the presence of broken bottles, wood debris and other foreign matter), a middle layer (depth of 8 feet to 34+ feet) of loosely consolidated light brown fine to coarse sands, and a lower layer of very dense, light brown to orange brown silty sands. The two lower units are interpreted to be glacial recessional outwash sands.

QUANTITATIVE LABORATORY ANALYSIS

Soil samples were collected from each excavation to characterize site soils with respect to petroleum hydrocarbon constituents. Soils to be submitted for laboratory analysis were collected in laboratory prepared glass sample jars. The jars were fitted with Teflon-lined lids to help reduce the loss of volatile analytes from the sample. After collection, the samples were stored in coolers until being transported to the laboratory for analysis. Rittenhouse-Zeman & Associates, Inc. chain-of-custody procedures were maintained to document sample integrity.

Soil samples collected from the gasoline tank and pump island excavations were analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8015 modified and for the volatile aromatic compounds benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020.

All soils samples collected from the waste oil tank and dry well excavations were analyzed for TPH by EPA 418.1. This method is used to identify heavy-end petroleum hydrocarbons from non-gasoline sources. In addition, one soil sample from below the waste oil tank and one sample from the waste oil tank excavation stockpile were analyzed for: BTEX and TPH by methods EPA 8020 and modified EPA method 8015; the metals Arsenic, Barium, Cadmium, Chromium, Mercury, Lead, Selenium and Silver by Toxicity characteristic containment leaching procedure (TCLP) by EPA methods 1311 and AES 0029; PCB's by EPA method 8080; and a Halogenated Solvent Scan by EPA Method 8240.

All soil samples collected from the dry well excavation were analyzed for TPH by EPA 418.1, and a stockpile soil sample was analyzed for TPH by 418.1, the previously mentioned TCLP metals, PCB's, TPH by modified EPA 8015 and total volatile organics by EPA 8240.

Soil samples collected from the hydraulic hoists and floor drain/sump were analyzed for TPH by EPA 418.1, and a soil sample from the floor drain/sump was analyzed for chlorinated compounds with an EPA 8240 Solvent Scan.

Analyte concentrations presented in Table 3 are concentrations measured in soil samples collected from excavation limits. It is believed that these concentrations are representative of petroleum hydrocarbon-impacted soil at the time they were collected.

Copies of the analytical laboratory certificates are presented in Appendix A. Soil sample locations and a summary of the analytical laboratory results are shown in Table 3.

The Washington Model Toxics Control Act (MTCA) compliance cleanup level for TPH and benzene in gasoline contaminated soils is 100 parts per million (ppm) and 0.5 ppm, respectively. Cleanup criteria for non-gasoline TPH is 200 ppm.
A summary of the current draft compliance cleanup levels for selected petroleum hydrocarbon contaminants is shown in Table 3.

TPH concentrations exceeding the MTCA cleanup level for TPH in the gasoline and diesel range (modified EPA method 8015) were measured in S-13 (below the west pump island) and S-20C (gasoline/diesel tank excavation stockpile composite) which contained 2,652 ppm and 1,792 ppm, respectively. Of the TPH in soil sample S-20C, 1,643 ppm was diesel and 149 ppm was gasoline. Soil samples S-21, S-23 and S-24 that were collected to characterize the gasoline-impacted soil below the west pump island showed concentrations of TPH below method detection limits.

Soil samples that contained concentrations of non-gasoline, heavy-end TPH analyzed by EPA 418.1 and exceeding MTCA cleanup levels were S-17 (collected from below waste oil), S-19c (composite collected from waste oil excavation stockpile), s-26c (composite collected from dry well excavation stockpile) and S-27 (collected from below dry well), S-29 (collected from dry well vicinity west test pit), s_31 (collected from dry well vicinity north test pit), S-33 (collected from dry well vicinity west test pit), S-35 (collected from below dry well), and S-39 (collected from below floor drain sump).

DISPOSAL OF EXCAVATED SOILS

Excavated soils determined to contain concentrations of petroleum hydrocarbons above MTCA cleanup criteria were hauled to Fife Sand and Gravel, in Fife, Washington. Soils hauled from the gasoline tanks/diesel tank excavation were separated from soils hauled from the waste oil and dry well excavations.

CONCLUSIONS

A total of approximately 750 cubic yards of soils which were affected by petroleum hydrocarbons were removed from the site, transported to and stockpiled at Fife Sand and Gravel.

Based on field screening techniques and laboratory results of representative soil samples, the remaining soil left beneath the former gasoline/diesel USTs, pump islands, waste oil tank, hydraulic hoists and floor drain/sump contain petroleum hydrocarbons concentrations below MTCA clean-up criteria.

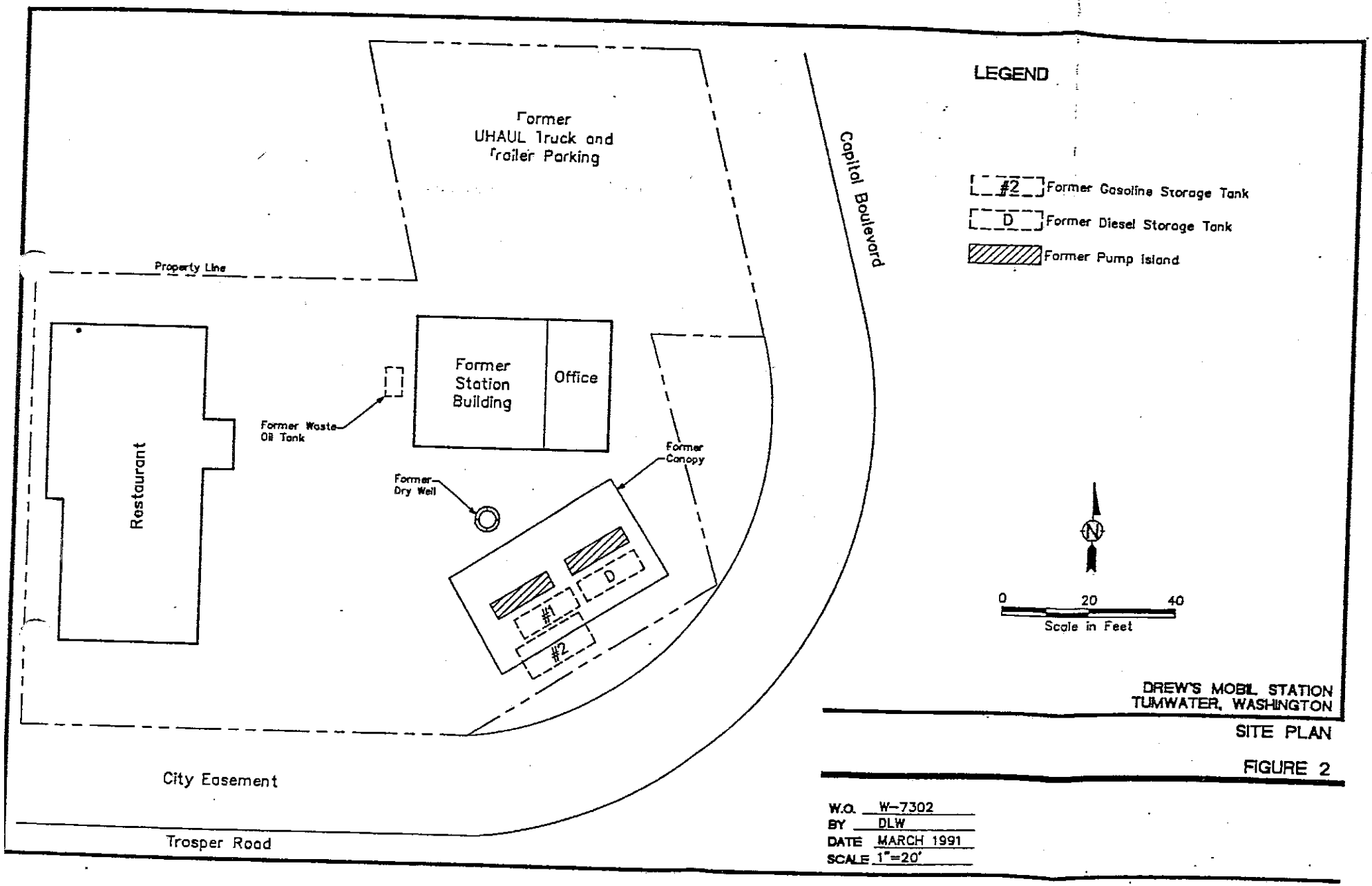
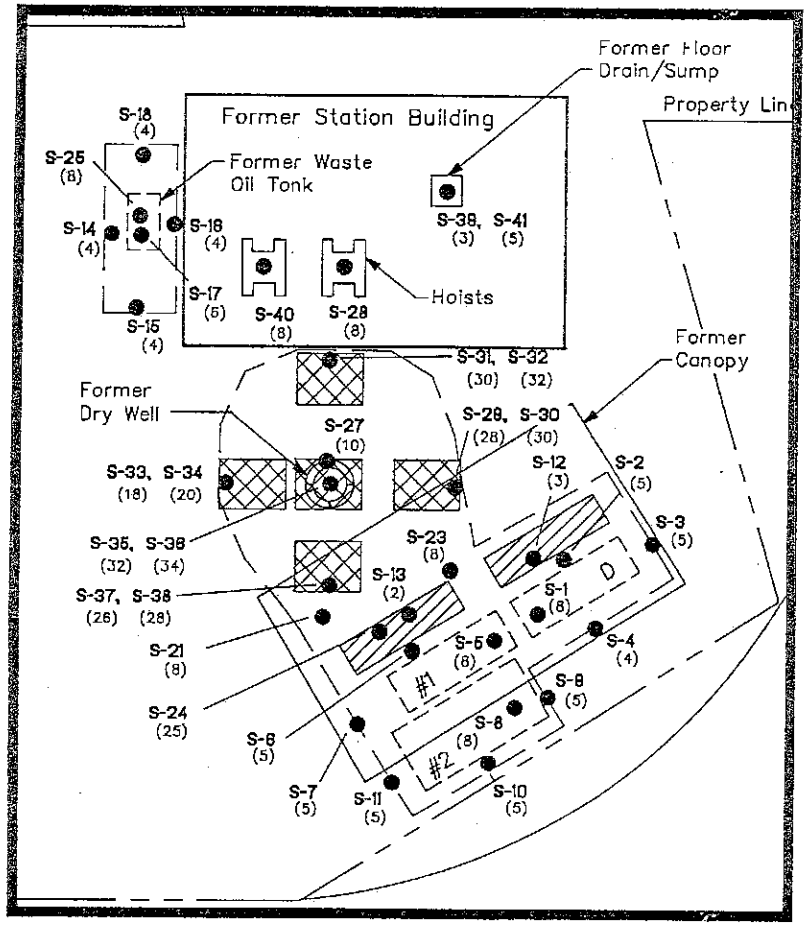

Former
UHAUL Truck and
Trailer Parking
Capital Boulevard
Property Line
Former
Station
Building
Office
Former Waste
Oil Tank
Former
Dry Well
Former
Canopy
Restaurant
#1
#2
D
City Easement
Trosper Road
LEGEND
#2 Former Gasoline Storage Tank
D Former Diesel Storage Tank
Former Pump Island
N
0
20
40
Scale in Feet
DREW'S MOBIL STATION
TUMWATER, WASHINGTON
SITE PLAN
FIGURE 2
W.O. W-7302
BY DLW
DATE MARCH 1991
SCALE 1"=20'

Table 1: Summary of Underground Storage Tank Details
Drew's Mobil Station
Tumwater, Washington
RZA Job. No. 7302

Storage Tank I.D.	Storage Tank Contents	Structural Material	Capacity (Gallons)
1	Diesel	Uncoated Steel	4,000
2	Gasoline	Unocoated Steel	6,000
3	Gasoline	Uncoated Steel	6,000
4	Waste Oil	Uncoated Steel	500



LEGEND

S-41 ● Soil Sample Number and Location

(5) Soil Sample Depth in Feet

[#2] Former Gasoline Storage Tank

[D] Former Diesel Storage Tank

Former Pump Island

Limits of Excavation

Test Pit Location

Notes:

S-19C = Composite soil sample from waste oil tank stockpile.

S-20C = Composite soil sample from gasoline/diesel tank stockpile.

S-26C = Composite soil sample from dry well stockpile.

N

0 15 30

Scale in Feet

DREW'S MOBIL STATION
TUMWATER, WASHINGTON

EXPLORATION PLAN

FIGURE 3

W.O. W-7302
BY DLW
DATE MARCH 1991
SCALE 1"=15'

APPENDIX D
Report Limitations and Guidelines for Use

APPENDIX D
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help clients manage their risks with respect to the use of this report.

Environmental Services Are Performed For Specific Purposes, Persons and Projects

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except City of Tumwater should rely on this environmental report without first conferring with GeoEngineers. We do not authorize, and will not be responsible for, the use of this report for any purposes or projects other than those identified in the report.

Within the limitations of our contract with SCJ Alliance and scope, schedule and budget for this study, our services have been executed in accordance with our Agreement with SCJ Alliance and generally accepted environmental site assessment practices in this area at the time this report was prepared.

This Environmental Report is Based on a Unique Set of Project-Specific Factors

This report has been prepared for the Capitol Boulevard/Trosper Road Intersection Improvement Project in Tumwater, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made to the project or site after the date of this report, GeoEngineers should be retained to review our interpretations and recommendations and to provide written modifications or confirmation, as appropriate.

Reliance Conditions for Third Parties

If a lending agency or other parties intend to place legal reliance on the product of our services, we require that those parties indicate in writing their acknowledgement that the scope of services provided, and the general conditions under which the services were rendered including the limitation of professional liability, are understood and accepted by them. This is to provide our firm with reasonable protection against open-

[1] Developed based on material provided by ASFE www.asfe.org.

ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

Historical Information Provided by Others

GeoEngineers makes no warranties or guarantees regarding the accuracy or completeness of information provided or compiled by others. The information presented in this report is based on the above-described research and recent site visits. GeoEngineers has relied upon information provided by others in our description of historical conditions and in our review of regulatory databases and files. The available data do not provide definitive information with regard to all past uses, operations or incidents at the site or adjacent properties.

Uncertainty Remains Even After this Environmental Practices Study is Completed

No environmental assessment study can wholly eliminate uncertainty regarding the potential for environmental conditions of concern in connection with a property, site, facility or business. Performance of an environmental assessment study is intended to reduce, but not eliminate, uncertainty regarding the potential for environmental conditions of concern in connection with a property site, facility or business. There is always a potential that areas with contamination that were not identified during this environmental study exist at the site or in the project footprint. Further evaluation of such potential would require additional research, subsurface exploration, sampling and/or testing.

Environmental Regulations are Always Evolving

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

Report Recommendations Are Not Final

The recommendations included in this report are preliminary and should not be considered final. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction.

We recommend that GeoEngineers be retained to monitor construction activities where hazardous materials are encountered to confirm that the conditions encountered are similar to those anticipated based on this environmental assessment, and to provide recommendations for design changes if the conditions revealed during the work differ from those anticipated.

Site Conditions Can Change

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time (for example, a Phase I ESA report is typically applicable for 180 days), by events such as a change in property use or occupancy, or by natural events, such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report so that GeoEngineers may evaluate reliability of the report to changed conditions.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

Geotechnical, Geologic and Environmental Reports Should not be Interchanged

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

Contractors Are Responsible for Site Safety on Their Own Construction Projects

Our recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and adjacent properties.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention, or assessment of the presence of Biological Pollutants in or around any structure. Accordingly, this report includes no interpretations, recommendations, findings, or conclusions for the purpose of detecting, preventing, assessing, or abating Biological Pollutants. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.