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TCP-NWRO**

**PRELIMINARY SITE EXPLORATION**

**Mac's One Hour Cleaners  
10825 SE 176<sup>th</sup> Street  
Renton, Washington**

**TRI WESTERN SYNDICATED  
INVESTMENTS, INC.**

# ENVIRONMENTAL ASSOCIATES, INC.

1380 - 112<sup>th</sup> Avenue Northeast, Suite 300  
Bellevue, Washington 98004  
(425) 455-9025 Office  
(888) 453-5394 Toll Free  
(425) 455-2316 Fax

February 5, 2010

JN-20209-X

Mr. Colin Radford  
Tri Western Syndicated Investments, Inc.  
10423 Main Street, Suite #4  
Bellevue, Washington 98004

**RE:           PRELIMINARY SITE EXPLORATION**  
**Summary of Findings**  
**Mac's One Hour Cleaners**  
**10825 SE 176<sup>th</sup> Street**  
**Renton, Washington**

Dear Mr. Radford:

Environmental Associates, Inc. (EAI) has completed the installation of four (4) groundwater monitoring wells on the subject property and the initial sampling and laboratory testing of soil and groundwater samples associated with the newly installed wells. The work was performed in accordance with our proposal, dated December 14, 2009.

## **Project Background**

Environmental Associates, Inc. (EAI) understands that the subject property has been identified by attorneys for the south and west-adjacent parcel ownership as a potential source of dry-cleaning solvents reportedly discovered on their client's parcel. On November 9, 2009, EAI presented the Client (Tri Western Syndicated) with our review of two (2) environmental reports provided by the adjacent property owner's attorney. EAI's November review letter provided further discussion as to potential explorations that could be performed on the subject parcel (and elsewhere) to evaluate current environmental conditions in the context of the findings reported to date by the adjacent parcel ownership.



## **Scope of Work**

During a brief teleconference on December 2, 2009 between the Client and EAI, it was mutually agreed to first attempt to assess the veracity of the allegation made by the adjacent parcel owner by completing the following scope of work as outlined in EAI's December 14, 2009 proposal:

- Drill / install four (4) permanent groundwater monitoring wells (MW-1 through MW-4) at areas juxtaposed to those locations explored by others on the adjacent parcel with at least one additional monitoring well installed along the suspected up-gradient side of the property to monitor the environmental quality of groundwater entering the site.
- Collect and field screen soil samples recovered during monitoring well installation.
- Survey the relative elevations of the well casing tops and corresponding depths to groundwater in an effort to deduce localized groundwater flow directions.
- Collect representative groundwater samples from each monitoring well.
- Submit select soil samples and all recovered groundwater samples to the project laboratory to be analyzed for chlorinated volatile organic compounds (CVOCs) by EPA test method 8260.
- Prepare a written summary report documenting field methods, observations, findings, and conclusions.

## **Utility Location and Limited Geophysical Survey**

On January 11, 2010 EAI, contacted the "one-call" public utility location service to mark public utilities approaching and/or crossing the subject parcel. Additionally, on January 14, 2010, prior to the commencement of drilling activities, EAI had a private utility location contractor further survey the proposed boring locations in an effort to locate and avoid utilities and/or underground appurtenances in the work areas.

Power: Electrical power for the subject property building is supplied overhead via a power pole off the east side of the property. Although not serving the subject property, an underground electrical vault is present on the north side of the power pole and underground 3-phase power lines were marked by the public locator leading north and then splitting east and west underlying the sidewalk on the south side of SE 176<sup>th</sup> Street.

Telecom: Phone lines serving the subject property are also overhead utilizing the same electric power pole. An underground telephone line also travels away from the power pole heading east under 109<sup>th</sup> Avenue SE.

Water: Two water meters were noted along the grass strip off the east side of the subject building. The northern meter appeared to serve the dry-cleaners, while the southern meter appears to serve the south-adjointing on-site building, occupied by a tax preparer and ethnic grocery. The water lines appear to travel eastward to a main line that runs north-south along the east side of 109<sup>th</sup> Avenue SE.

Nat. Gas: As with the water lines, two natural gas meters were located along the east side of the subject building, with one serving the dry-cleaner and the other serving the south-adjointing building. The underground natural gas lines lead east to a main line that runs north-south under the western margins of 109<sup>th</sup> Avenue SE.

San. Sewer: The sanitary sewer line appears to exit the north side of the dry-cleaners space approximately in line with the bathroom and boiler room. Attempts to trace the line through a "clean-out" were of limited effectiveness. A second sanitary sewer line that appears to be serving the south adjointing on-site building runs along the east exterior side of the building. Both sewer lines appear to converge at an underground vault located just east of the eastern canopy support pillar. The locations of the vault and exterior sewer lines were deduced with the assistance of ground penetrating radar. According to property management, at one time a lift pump was needed to pump the sewer to the off-site municipal system. It is conceivable that the suspected underground vault may have been associated with that older system. The Client informed EAI that during a past "widening" of SE 176<sup>th</sup> Street and associated utility work, the lift pump was no longer needed and the property sewer could simply gravity drain to the municipal main line underlying SE 176<sup>th</sup> Street. The Client opined to EAI that the location of the pump vault was further north, under land currently part of the widened SE 176<sup>th</sup> Street.

None of the located utilities interfered with and/or required changes in proposed monitoring well locations for this particular phase of site exploration. The approximate location and layout of underground utilities serving the subject property are depicted by standard utility color codes on the attached site maps (Plates 2 and 3).

### **Monitoring Well Installation**

Between January 14 and 15, 2010, EAI observed the installation of four (4) monitoring wells (MW-1 through MW-4) at the approximate locations depicted on Plates 2 and 3, attached. MW-1 was positioned adjacent to former boring B1 made by Terracon (TC) on the adjacent property. Similarly monitoring wells MW-2 and MW-3 were installed at locations on the subject site adjacent to TC's borings B3 and B4 respectively. Well MW-4 was positioned in the northeast corner of the property as a means to evaluate the environmental quality of groundwater entering the property. All four (4) monitoring wells were completed with the use of an AMS hollow-stem auger drill rig operated by ESN of Lacey, Washington.

### **Soil Sampling During Drilling**

During drilling of each well, a continuous soil sample was collected in 3 to 4 foot sections beginning at the ground surface and extending to the maximum depths explored, which was approximately 15 feet for all four (4) borings made as part of this current study. Upon retrieval of each sample core, representative soil samples were promptly collected in accordance with EPA recommend sampling methodology 5035A (Washington State Department of Ecology - Memorandum #5) for volatile organic compound analysis. Additionally EAI collected representative sample "splits" to be utilized for field screening.

Field screening consisted of placing a small quantity of sample soil into a sealable baggy. Upon allowing the sealed samples to equilibrate for approximately 15 to 20 minutes, a photo-ionization detector (PID) was used to measure the concentration of volatile organic compounds in the sample baggy's "head space."

Volatile organic compounds (VOCs) were detected by the PID field screening method, emanating from soil samples at relatively high concentrations at monitoring well locations MW-2 and MW-3 and to a slightly lesser degree MW-1. The VOC field screening measurements for each recovered soil sample along with a general description of the geologic materials encountered are noted on boring logs included with this report as Attachment-A.

Of the recovered soil samples, a total of eight (8) were selected for laboratory analysis. Four (4) of the selected samples represented the deepest recovered soil samples from each boring (between 14 and 15 feet below the ground surface. The remaining four (4) samples corresponded to the soil sample with the highest field screening PID recorded VOC reading as presented on the boring logs in Attachment-A.

## **Subsurface Conditions**

Subsurface soils encountered across the subject site, as presented on the attached borings logs (Attachment-A), consisted of an upper 2 to 3 feet of fill soil made up of fine to medium grain sized sand with minor amounts of gravel. As a departure from this generalization, at MW-1 approximately 4-feet of rounded cobbles, potentially representing drain rock was encountered in the upper near surface soil. Below the surface fill, soils consisting of silt, sand, and gravel, sometimes exhibiting a glacial till texture were encountered to depths of approximately 11 feet below the ground surface. This material generally had a low resistance to drilling and is interpreted to represent weathered and/or reworked glacial till. At MW-3, a gravelly-sand generally lacking finer grained silts was encountered to a depth of approximately 8 feet at which depth an additional 3-feet of weathered till was encountered. Below the weathered till, a much denser, compacted glacial till was present to the 15 foot maximum depth explored.

Groundwater was encountered “perched” on top of the denser glacial till in all borings. Apparent moisture content generally decreased with increasing penetration into the denser till, although some water-saturated sandy-stringers within the upper couple feet of the denser till were noted.

As a preliminary working hydro-geological model for the subject site, it appears that the denser glacial till at approximately 11 feet below the ground surface may be serving as a vertical aquitard resulting in the formation of a zone of perched groundwater that appears to underlie the majority of the site explored to date. Static water levels within the perched zone appear to be between 5 to 6 feet below the ground surface.

## **Monitoring Well Construction**

All four (4) monitoring well borings were drilled to depths of approximately 15 feet below the ground surface, effectively screening across the encountered zone of perched groundwater and keying into the underlying denser glacial till, suspected to be acting as an aquitard and possible basal contact for lateral migration of detected solvents.

Each monitoring well was constructed with 2-inch diameter, schedule-40 PVC, 0.01 inch slot screen spanning the zone 5 to 15 feet below the ground surface. Consistent with WDOE guidelines, blank casing was used for the upper few feet of construction. The annular space around the well screen was backfilled with Colorado silica sand. The sand pack was carried approximately 1 foot above the top of the screen section. Hydrated bentonite was used to seal the upper section of the well casing to a depth of approximately 1.5 feet below the ground surface. Concrete and traffic-grade protective monuments were used to finish the construction and protect the well head casing. The construction details for each monitoring well are presented in the boring logs in Attachment-A.

## **Water Table Survey**

After allowing the newly installed wells to equilibrate for a few days, on January 20, 2010, EAI returned to the site to survey the relative elevations of tops of each monitoring well casing and measured the depth to groundwater in each monitoring well. Table 1, presents the surveyed relative elevations for the tops of each well casing, the measured depths to groundwater, and the corresponding elevations of the shallow water table at all four monitoring well locations. Plate, 2 Water Table Survey presents a graphical representation of the shallow water table and deduced groundwater flow directions based upon the current geometry of monitoring wells.

Examining Plate 2, groundwater flow appears to be westward, potentially becoming more southwesterly further south on the subject property.

## **Groundwater Sampling**

On January 20, 2010, prior to sampling, each monitoring well was first “micro-purged” utilizing a peristaltic pump equipped with a flow-through cell instrumented to monitor a variety of parameters including pH, water temperature, conductivity, dissolved oxygen, and redox-potential. Micro-purging continued until consecutive readings of the above parameters stabilized (i.e. varied less than 10 percent). Representative groundwater samples were then transferred directly to laboratory-prepared glassware.

## **Laboratory Results**

The eight (8) selected soil samples along with the groundwater samples from all four (4) monitoring wells were analyzed by the project laboratory for chlorinated volatile organic compounds by EPA test method 8260B.

### *Soil Results*

Of the eight (8) soil samples submitted from the four borings, three (3) contained concentrations of perchloroethene (PCE - also known as “perc” or tetrachloroethene) above the detection limit. Of these, one sample (collected between 14 to 15 feet below the ground surface at MW-2) contained PCE at a concentration above the Washington State Department of Ecology’s (WDOE’s) target compliance level of 0.050 parts per million (ppm). The sample in question contained 0.430 ppm PCE. The other detected concentrations of PCE, which were less than the WDOE target compliance level, were similarly present in samples collected from a depth of 14 to 15 feet below the ground surface (at MW-1 and MW-3). The soil sampling results are presented in Table 2, attached.

### *Groundwater Results*

In regard to the initial groundwater samples recovered from the four (4) monitoring wells, PCE was detected in all four (4) samples. The samples from MW-1 and MW-4 both had trace concentrations of PCE below the WDOE target compliance level of 5 parts per billion (ppb). The groundwater samples from MW-2 and MW-3 directly west of the subject building both contained PCE at concentrations well above the WDOE's target compliance level. As presented in Table 3 and on Plate 3, the groundwater samples from MW-2 and MW-3 contained 860 ppb and 1,500 ppb PCE respectively.

The maximum solubility of PCE in groundwater typically ranges between 16,000 ppm to 19,000 ppb. When groundwater concentrations approach such levels, dense non-aqueous phase liquids (DNAPLs) may be present. The concentrations of PCE detected dissolved into the shallow groundwater to date (1.5 ppb to 1,500 ppb) do not suggest the presence of DNAPLs at or near the locations explored.

The currently known distribution of PCE concentrations along with the deduced groundwater flow directions suggest that the longitudinal axis of the groundwater plume may extend generally westward from the northern 1/3 of the subject property, with concentrations of PCE declining toward the south. Subject to refinements which may appear in future phases of investigation, this may suggest that the core of the potential groundwater plume extending under the adjacent property may primarily exist below the narrow strip of adjacent property between the subject site and the bank property located further to the west.

With the passage of time, the chlorinated solvent PCE can slowly degrade to trichloroethylene (TCE) and then to a variety of dichloro-compounds (DCE) and then to vinyl chloride (VC). Although trace concentrations of TCE were also detected in the groundwater samples from MW-2 and MW-3, the absence of other degradation products may be an indication that this particular release is not excessively old.

Chloroform was present in three (3) of the groundwater samples. Chloroform is commonly present in municipal water systems and is produced when chloride utilized as a disinfectant interacts with organic matter. The presence of chloroform in the groundwater samples may be an indication that municipal water is entering the subsurface and may conceivably point to leaking along the sanitary sewer alignment as at least one potential candidate mechanism which could account for the encountered groundwater plume. The trace detection of PCE in the groundwater at MW-4, which is relatively close to the sanitary sewer alignment and the suspected sewer vault, also point to the sanitary sewer as a possible source.

## **Conclusions**

Relying upon the on-site findings to date, which includes the significantly elevated concentrations of PCE in groundwater at MW-2 and MW-3 combined with the deduced westerly to southwesterly groundwater flow directions, it appears that the subject property dry-cleaning operation is currently the probable source for the chlorinated solvents encountered by others on the west-adjacent property. The specific source areas and release mechanisms on the subject property remain to be determined as does the down and cross-gradient extent of the resulting groundwater plume.

Responding to the Client's request, EAI will prepare a written proposal outlining our recommendations for expanded on-site explorations focused on identifying release mechanisms and potential source areas. A separate proposal will also be prepared to perform off-site explorations to begin to delineate the extent of impact on the adjacent parcel once access agreements are negotiated.

## **Limitations**

This letter report has been prepared at your request for specific application to this project in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. This document is for the exclusive of Tri Western Syndicated Investments, Inc., and its members, and appointed representatives. Information with respect to subsurface environmental conditions relies solely upon sampling and testing conducted at separated sampling localities and environmental conditions may vary between those localities or at other locations, depths, and/or media. No other warranty, expressed or implied, is made here. If new information is acquired or developed in future site work Environmental Associates, Inc., must be retained to reevaluate the conclusions of this letter report and to provide amendments as required.

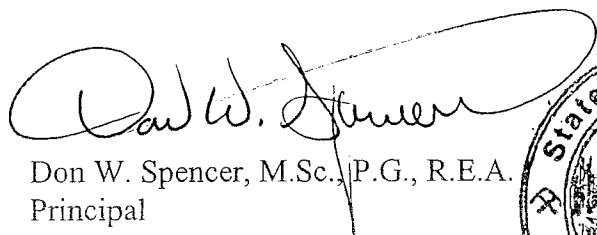
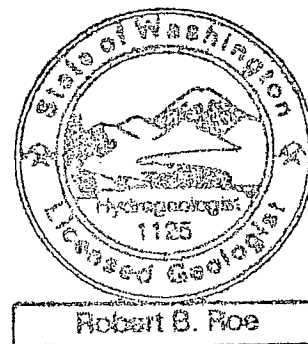
We appreciate the opportunity to be of service on this project and trust that the information provided here is fully responsive to your needs. If you have any questions or we may be of additional service, please do not hesitate to contact us.

Respectfully submitted,  
ENVIRONMENTAL ASSOCIATES, INC.



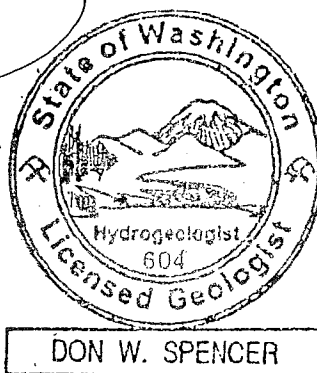
Robert B. Roe, M.Sc., P.G.  
Project Manager/Hydrogeologist

License: 1125 (Washington)



Don W. Spencer, M.Sc., P.G., R.E.A.  
Principal

License: 604 (Washington)  
License: 11464 (Oregon)  
License: 876 (California)  
License: 5195 (Illinois)  
License: 0327 (Mississippi)



**Attachments:**

Table 1 - Water Table Survey  
Table 2 - Chlorinated VOCs - Soil Sampling Results  
Table 3 - Chlorinated VOCs - Groundwater Sampling Results

Plate 1 - Vicinity / Topographic Map  
Plate 2 - Water Table Survey  
Plate 3 - PCE In Groundwater

Attachment-A: Boring Logs  
Attachment-B: Laboratory Reports

<b>TABLE 1</b> <b>Water Table Survey</b> <b>(feet)</b>					
<b>Monitoring Well Number</b>	<b>Ground Surface Elevation</b>	<b>TOC Elevation</b>	<b>Depth to Water Below TOC</b>	<b>Net Change</b>	<b>Elevation of Water Table</b>
<b>MW-1</b> 1/20/2010	408.09	407.69	5.11		402.58
<b>MW-2</b> 1/20/2010	408.68	408.44	5.36		403.08
<b>MW-3</b> 1/20/2010	409.16	408.84	5.55		403.29
<b>MW-4</b> 1/20/2010	413.11	412.74	5.65		407.09
<b>Notes:</b> (1) TOC. Top of well casing elevation. (2) Elevations based upon assigning the concrete walkway surface at the northeast corner of the subject property building an approximate elevation of 412.00 feet above sea-level.					

**TABLE 2 - Chlorinated VOCs - Soil Sampling Results**  
**All results and limits in parts per million (ppm)**

Boring / Sample Name	Sample Depth	Tetrachloroethene (PCE)	Trichloroethene (TCE)	(cis) 1,2 Dichloroethene	(trans) 1,2 Dichloroethene	Vinyl Chloride
MW1-7-8	7 to 8 ft	<0.02	<0.02	<0.05	<0.05	<0.05
MW1-14-15	14 to 15 ft	0.023	<0.02	<0.05	<0.05	<0.05
MW2-3-4	3 to 4 ft	<0.02	<0.02	<0.05	<0.05	<0.05
MW2-14-15	14 to 15 ft	<b><i>0.430</i></b>	<0.02	<0.05	<0.05	<0.05
MW3-3-4	3 to 4 ft	<0.02	<0.02	<0.05	<0.05	<0.05
MW3-14-15	14 to 15 ft	0.039	<0.02	<0.05	<0.05	<0.05
MW4-7-8	7 to 8 ft	<0.02	<0.02	<0.05	<0.05	<0.05
MW4-14-15	14 to 15 ft	<0.02	<0.02	<0.05	<0.05	<0.05
Reporting Limit <sup>3</sup>		0.02	0.02	0.05	0.05	0.05
Cleanup Level for Unrestricted Land Use (Method-A) <sup>4</sup>		0.05	0.03	---	---	---
Cleanup Level - Direct Contact (Method-B) <sup>5</sup>		1.9	2.5	800	1,600	0.67

## Notes:

- 1 - "ND" denotes analyte not detected at or above listed Reporting Limit.
- 2 - "NA" denotes sample not analyzed for specific analyte.
- 3 - "Reporting Limit" represents the laboratory lower quantitation limit.
- 4 - Method A soil cleanup levels for unrestricted land use as published in the Model Toxics Control Act (MTCA) 173-340-WAC, Table 740-1. Amended February 12, 2001.
- 5 - Method-B soil cleanup levels for the "direct contact (ingestion) pathway", as published in Ecology's CLARC database.

Bold and Italics denotes concentrations above existing MTCA Method A or B soil cleanup levels.

**TABLE 3 - Chlorinated VOCs - Groundwater Sampling Results**  
**All results and limits in parts per billion (ppb)**

Monitoring Well	Tetrachloroethene (PCE)	Trichloroethene (TCE)	(cis) 1,2 Dichloroethene	(trans) 1,2 Dichloroethene	Vinyl Chloride	Chloroform
MW-1 1/20/2010	1.5	<1	<1	<1	<0.2	<1
MW-2 1/20/2010	<b>860</b>	1.7	<1	<1	<0.2	<b>8.5</b>
MW-3 1/20/2010	<b>1,500</b>	1.4	<1	<1	<0.2	1.4
MW-4 1/20/2010	2.6	<1	<1	<1	<1	5.0
Reporting Limit <sup>3</sup>	1	1	1	1	0.2	1
Existing Cleanup Level <sup>4</sup>	5 (A)	5 (A)	80 (B)	160 (B)	0.2 (A)	7.2 (B)

## Notes:

1 - "ND" denotes analyte not detected at or above listed Reporting Limit.

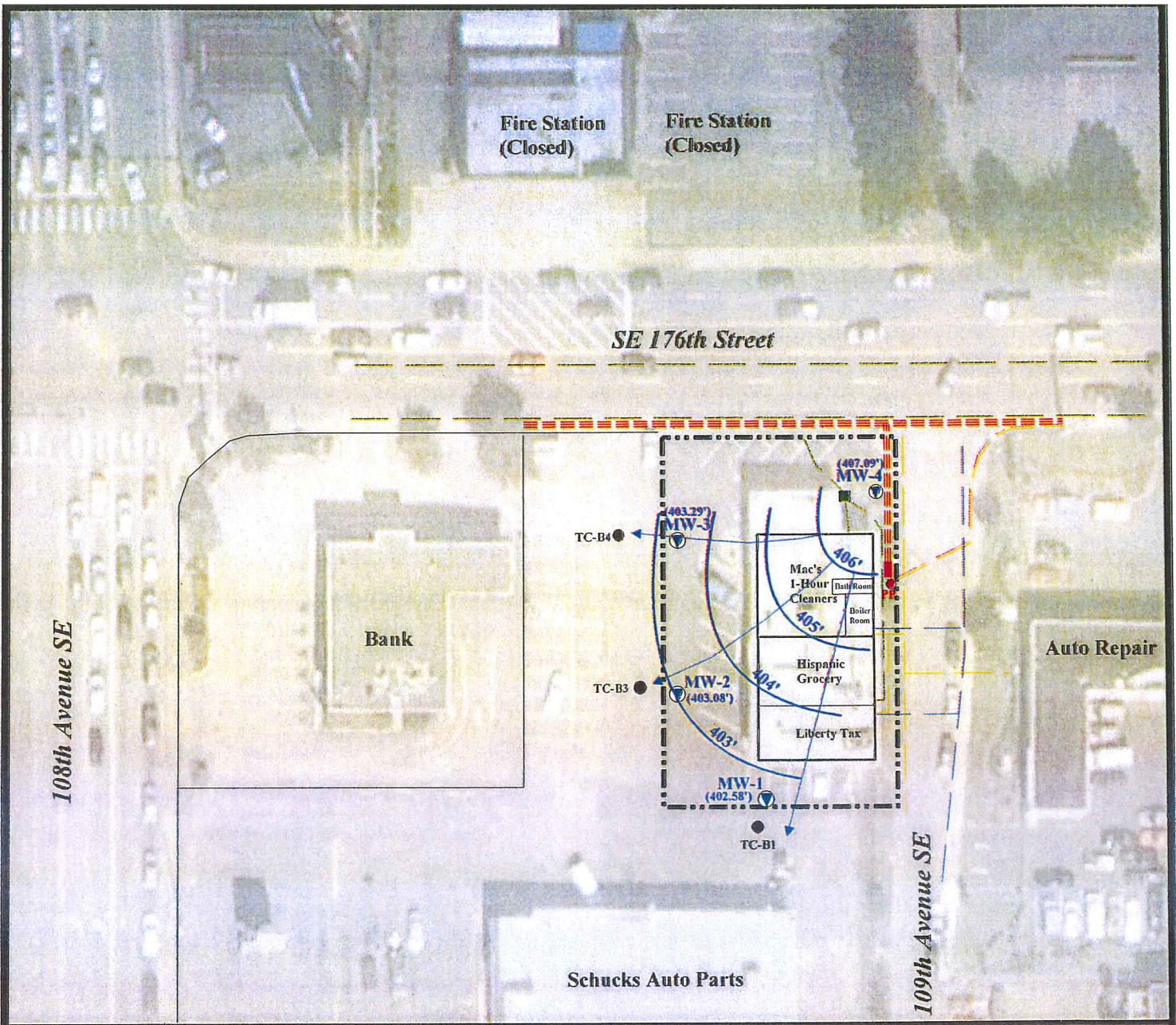
2- "NA" denotes sample not analyzed for specific analyte.

3- "Reporting Limit" represents the laboratory lower quantitation limit.

4- Method A or B groundwater cleanup levels as published in the Model Toxics Control Act (MTCA) 173-340-WAC, amended 2/12/01.

Bold and Italics denotes concentrations above existing MTCA Method A groundwater cleanup levels.





Approximate border of Subject Property



Monitoring well locations



Water table elevation contour lines.



Approximate locations of borings made by Terracon (TC) on the adjacent property.



Approximate locations of underground utilities: Power (red), water (blue), natural gas (yellow), phone (orange), and sanitary sewer / storm drain (green).



## ENVIRONMENTAL ASSOCIATES, INC.

1380 112th Avenue N.E., Ste. 300  
Bellevue, Washington 98004

## Water Table Survey

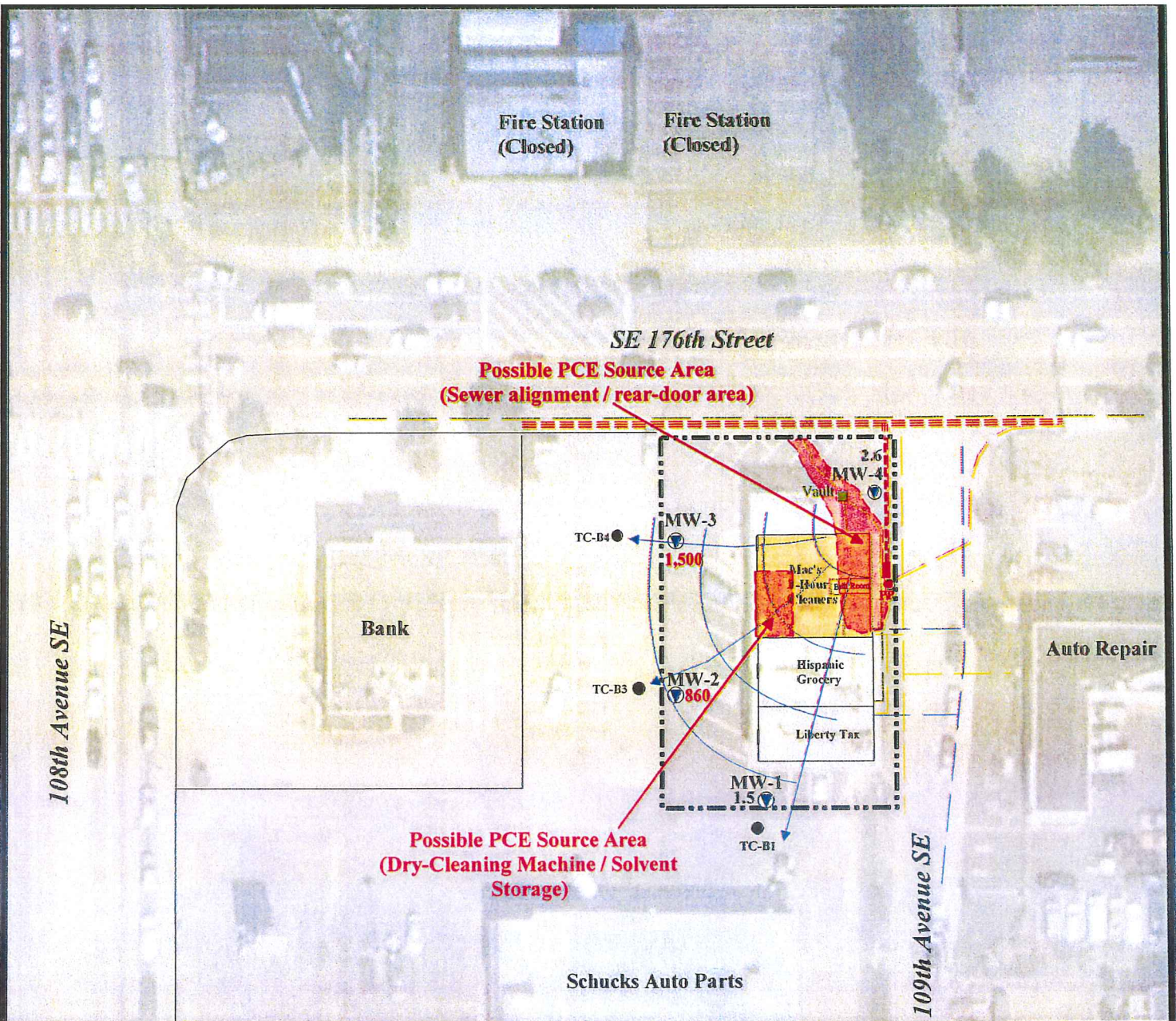
Mac's One Hour Cleaners  
10825 SE 176th Street  
Renton, Washington

Job Number:  
JN-20209-X

Date:  
January 2010

Scale:  
1"=80'

Plate:  
2



Approximate border of Subject Property



Monitoring well locations. Concentrations of PCE in groundwater in parts per billion (ppb). Red denotes concentrations above the WDOE target compliance level of 5 ppb.



Water table elevation contour lines.



Approximate locations of borings made by Terracon (TC) on the adjacent property.



Approximate locations of underground utilities: Power (red), water (blue), natural gas (yellow), phone (orange), and sanitary sewer / storm drain (green).



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1380 112th Avenue N.E., Ste. 300  
Bellevue, Washington 98004

## PCE In Groundwater

Mac's One Hour Cleaners  
10825 SE 176th Street  
Renton, Washington

Job Number:  
JN-20209-X

Date:  
January 2010

Scale:  
1"=80'

Plate:  
3

## **ATTACHMENT-A**

### **Boring Logs**

WDOE Well Tag: BCC420  
 Lat: 47.444735 N  
 Long: -122.195747 W

TOC Elevation: 407.69 ft  
 GS Elevation: 408.09 ft

# BORING MW-1

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Field Screening (PID) Observations
0	bentonite	Damp		(F)	Asphalt pavement, gravel-base. <u>Cobbles (Fill)</u> , rounded cobbles and gravel, little to no fines, possible drain rock. No recovery.	MW1-3-4	---
5	silica sand	Wet		SM	<u>Silty-Gravelly-Sand</u> , fine to medium sand, with silt, and gravel, glacial till matrix, soft, lenses of fine sand. Suspected weathered / reworked glacial till.	MW1-7-8	80
10		Moist/ Wet		SM	<u>Glacial Till</u> , silt, sand, and gravel in a glacial till matrix, medium brown, dense, significantly harder drilling. Wet sand lenses between 12 to 13 feet.	MW1-11-12	51
15		Damp				MW1-14-15	53
15					Boring terminated at 15 feet.  Depth to groundwater measured 5.11 feet below the top of the casing on 01/20/2010.		
20							
25							
30							
35							
40							

Sampler: Continuous Strataprobe Macro-Core.  
 Driller: ESN - AMS Auger Rig.

Top of casing (TOC) and ground surface (GS) elevations relative to NEC the subject buildings perimeter walkway concrete slab assigned elevation of 412.00 ft.  
 2"-PVC monitoring well installed, screened (0.01 slot) 5 feet to 15 feet, completed with flush-grade monument



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue NE, Suite 300  
 Bellevue, Washington 98004

## MONITORING WELL MW-1

Mac's One Hour Cleaners  
 10825 SE 176th Street  
 Renton, Washington

Job Number:	Date:	Logged by:	Plate:
JN-20209-X	1/14/2010	RBR	A-1

WDOE Well Tag: BCC418  
 Lat: 47.444853 N  
 Long: -122.195912 W

# BORING MW-2

TOC Elevation: 408.44 ft  
 GS Elevation: 408.68 ft

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Field Screening (PID) Observations
0	bentonite	Moist		(F)	Asphalt pavement, gravel-base. <u>Sand</u> , fine to medium sand, with minor gravel, medium brown. Probable fill.	MW2-3-4	750
5	silica sand	Wet		SM	<u>Silty-Gravelly-Sand</u> , fine to medium sand, with silt, and gravel, glacial till matrix, soft, lenses of fine sand. Suspected weathered / reworked glacial till.	MW2-7-8	207
10		Moist		SM	<u>Glacial Till</u> , silt, sand, and gravel in a glacial till matrix, medium brown, dense, significantly harder drilling. Poor recovery, mostly sluff.	MW2-11-12	166
15		Moist			Boring terminated at 15 feet.  Depth to groundwater measured 5.36 feet below the top of the casing on 01/20/2010.	MW2-14-15	132
20							
25							
30							
35							
40							

Sampler: Continuous Strataprobe Macro-Core.  
 Driller: ESN - AMS Auger Rig.

Top of casing (TOC) and ground surface (GS) elevations relative to NEC the subject buildings perimeter walkway concrete slab assigned elevation of 412.00 ft.  
 2"-PVC monitoring well installed, screened (0.01 slot) 5 feet to 15 feet, completed with flush-grade monument



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 ASSOCIATES, INC.**

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 Bellevue, Washington 98004

## MONITORING WELL MW-2

Mac's One Hour Cleaners  
 10825 SE 176th Street  
 Renton, Washington

Job Number:

JN-20209-X

Date:

1/14/2010

Logged by:

RBR

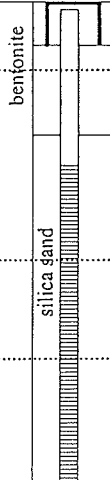
Plate:

A-2

WDOE Well Tag: BCC419  
 Lat: 47.445019 N  
 Long: -122.195905 W

TOC Elevation: 408.84 ft  
 GS Elevation: 409.16 ft

# BORING MW-3

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Field Screening (PID) Observations
0					Asphalt pavement, gravel-base. (F) Sand, fine to medium sand, with minor gravel.		
		Damp				MW3-3-4	142
5		▼ Moist/ Wet		SP	Gravelly-Sand, fine to medium sand, with gravel and silt lenses, soft.		
						MW3-7-8	72
10		Moist/Wet		SM	Silty-Gravelly-Sand, fine to medium sand, with gravel and silt, glacial till matrix, soft. Suspected weathered / reworked glacial till.		
		Damp/ Moist			Glacial Till, silt, sand, and gravel in a glacial till matrix, medium brown, dense, significantly harder drilling. Sand lense between 12 to 13 feet	MW3-11-12	50
15		Damp		SM		MW3-14-15	32
					Boring terminated at 15 feet.  Depth to groundwater measured 5.55 feet below the top of the casing on 01/20/2010.		
20							
25							
30							
35							
40							

Sampler: Continuous Strataprobe Macro-Core.

Driller: ESN - AMS Auger Rig.

Top of casing (TOC) and ground surface (GS) elevations relative to NEC the subject buildings perimeter walkway concrete slab assigned elevation of 412.00 ft.  
 2"-PVC monitoring well installed, screened (0.01 slot) 5 feet to 15 feet, completed with flush-grade monument



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue NE, Suite 300  
 Bellevue, Washington 98004

## MONITORING WELL MW-3

Mac's One Hour Cleaners  
 10825 SE 176th Street  
 Renton, Washington

Job Number:

JN-20209-X

Date:

1/14/2010

Logged by:

RBR

Plate:

A-3

WDOE Well Tag: BCC421  
 Lat: 47.445086 N  
 Long: -122.195562 W

TOC Elevation: 412.74 ft  
 GS Elevation: 413.11 ft

# BORING MW-4

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Field Screening (PID) Observations
0	bentonite   silica sand			(F)	Asphalt pavement, gravel-base. <u>Sand</u> , fine to medium sand, with minor gravel.		
		Damp				MW4-3-4	0.0
5		▼ Moist/ wet		SM	<u>Silty-Gravelly-Sand</u> , fine to medium sand, with gravel and silt, glacial till matrix, soft. Suspected weathered / reworked glacial till.	MW4-7-8	4.5
10		Moist/ wet		SM	<u>Glacial Till</u> , silt, sand, and gravel in a glacial till matrix, medium brown, dense, significantly harder drilling.	MW4-11-12	2.3
15		Damp				MW4-14-15	0.0
15					Boring terminated at 15 feet.  Depth to groundwater measured 5.55 feet below the top of the casing on 01/20/2010.		
20							
25							
30							
35							
40							

Sampler: Continuous Strataprobe Macro-Core.  
 Driller: ESN - AMS Auger Rig.

Top of casing (TOC) and ground surface (GS) elevations relative to NEC the subject buildings perimeter walkway concrete slab assigned elevation of 412.00 ft.  
 2"-PVC monitoring well installed, screened (0.01 slot) 5 feet to 15 feet, completed with flush-grade monument



**ENVIRONMENTAL  
 ASSOCIATES, INC.**

1380 - 112th Avenue NE, Suite 300  
 Bellevue, Washington 98004

## MONITORING WELL MW-4

Mac's One Hour Cleaners  
 10825 SE 176th Street  
 Renton, Washington

Job Number:	Date:	Logged by:	Plate:
JN-20209-X	1/15/2010	RBR	A-4

## **ATTACHMENT-B**

### **Laboratory Reports**

January 29, 2010

Robert Roe  
Environmental Associates  
1380 112th Avenue NE, Suite 300  
Bellevue, WA 98004

Dear Mr. Roe:

Please find enclosed the analytical data report for the Mac's 1 Hour Cleaners Project in Renton, Washington. Auger services were conducted on January 14 & 15, 2010. Soil and watersamples were analyzed for Chlorinated VOC's by Method 8260 on January 15 & 25, 2010.

The results of these analyses are summarized in the attached tables. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. A copy of the invoice for this work is also enclosed for your records.

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

Sincerely,



Michael A. Korosec  
*President*

# ESN NORTHWEST CHEMISTRY LABORATORY

Environmental Associates, Inc  
MAC'S 1 HOUR CLEANERS PROJECT  
Client Project #20209-X  
Renton, Washington

ESN Northwest  
1210 Eastside Street SE Suite 200  
Olympia, WA 98501  
(360) 459-4670 (360) 459-3432 Fax  
lab@esnnw.com

## Analysis of Chlorinated Volatile Organic Compounds in Soil by Method 8260

### Analytical Results

8260B Chlorinated, µg/kg		MTH BLK	LCS	MW2-3-4	MW2-14-15	MW3-3-4	MW3-14-15
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	01/15/10	01/15/10	01/15/10	01/15/10	01/15/10	01/15/10
Date analyzed	Limits	01/15/10	01/15/10	01/15/10	01/15/10	01/15/10	01/15/10
Dichlorodifluoromethane	50	nd		nd	nd	nd	nd
Chloromethane	50	nd		nd	nd	nd	nd
Vinyl chloride	50	nd		nd	nd	nd	nd
Chloroethane	50	nd		nd	nd	nd	nd
Trichlorofluoromethane	50	nd		nd	nd	nd	nd
1,1-Dichloroethene	50	nd	108%	nd	nd	nd	nd
Methylene chloride	20	nd		nd	nd	nd	nd
trans-1,2-Dichloroethene	50	nd		nd	nd	nd	nd
1,1-Dichloroethane	50	nd		nd	nd	nd	nd
cis-1,2-Dichloroethene	50	nd		nd	nd	nd	nd
2,2-Dichloropropane	50	nd		nd	nd	nd	nd
Chloroform	50	nd		nd	nd	nd	nd
Bromochloromethane	50	nd		nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd		nd	nd	nd	nd
1,2-Dichloroethane (EDC)	50	nd		nd	nd	nd	nd
1,1-Dichloropropene	50	nd		nd	nd	nd	nd
Carbon tetrachloride	50	nd		nd	nd	nd	nd
Trichloroethene (TCE)	20	nd	135%	nd	nd	nd	nd
1,2-Dichloropropane	50	nd		nd	nd	nd	nd
Bromodichloromethane	50	nd		nd	nd	nd	nd
cis-1,3-Dichloropropene	50	nd		nd	nd	nd	nd
trans-1,3-Dichloropropene	50	nd		nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd		nd	nd	nd	nd
1,3-Dichloropropane	50	nd		nd	nd	nd	nd
Dibromochloromethane	50	nd		nd	nd	nd	nd
Tetrachloroethene (PCE)	20	nd		nd	430	nd	39
Chlorobenzene	50	nd	122%	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	50	nd		nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	50	nd		nd	nd	nd	nd
1,2,3-Trichloropropane	50	nd		nd	nd	nd	nd
2-Chlorotoluene	50	nd		nd	nd	nd	nd
4-Chlorotoluene	50	nd		nd	nd	nd	nd
1,3-Dichlorobenzene	50	nd		nd	nd	nd	nd
1,4-Dichlorobenzene	50	nd		nd	nd	nd	nd
1,2-Dichlorobenzene	50	nd		nd	nd	nd	nd
1,2-Dibromo-3-Chloropropane	50	nd		nd	nd	nd	nd
1,2,4-Trichlorobenzene	50	nd		nd	nd	nd	nd
Hexachloro-1,3-butadiene	50	nd		nd	nd	nd	nd
1,2,3-Trichlorobenzene	50	nd		nd	nd	nd	nd
Surrogate recoveries							
Dibromofluoromethane		102%	110%	97%	101%	97%	99%
Toluene-d8		104%	96%	102%	105%	102%	103%
4-Bromofluorobenzene		112%	102%	109%	107%	108%	108%

### Data Qualifiers and Analytical Comments

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

# ESN NORTHWEST CHEMISTRY LABORATORY

Environmental Associates, Inc  
MAC'S 1 HOUR CLEANERS PROJECT  
Client Project #20209-X  
Renton, Washington

ESN Northwest  
1210 Eastside Street SE Suite 200  
Olympia, WA 98501  
(360) 459-4670 (360) 459-3432 Fax  
lab@esnnw.com

## Analysis of Chlorinated Volatile Organic Compounds in Soil by Method 8260

### Analytical Results

8260B Chlorinated, µg/kg		MW1-7-8	MW1-14-15	MW4-7-8	MW4-14-15	MS	MSD	RPD
Matrix		Soil	Soil	Soil	Soil			
Date extracted	Reporting	01/15/10	01/15/10	01/15/10	01/15/10	01/15/10	01/15/10	
Date analyzed	Limits	01/15/10	01/15/10	01/15/10	01/15/10	01/15/10	01/15/10	
Dichlorodifluoromethane	50	nd	nd	nd	nd			
Chloromethane	50	nd	nd	nd	nd			
Vinyl chloride	50	nd	nd	nd	nd			
Chloroethane	50	nd	nd	nd	nd			
Trichlorofluoromethane	50	nd	nd	nd	nd			
1,1-Dichloroethene	50	nd	nd	nd	nd	87%	92%	6%
Methylene chloride	20	nd	nd	nd	nd			
trans-1,2-Dichloroethene	50	nd	nd	nd	nd			
1,1-Dichloroethane	50	nd	nd	nd	nd			
cis-1,2-Dichloroethene	50	nd	nd	nd	nd			
2,2-Dichloropropane	50	nd	nd	nd	nd			
Chloroform	50	nd	nd	nd	nd			
Bromochloromethane	50	nd	nd	nd	nd			
1,1,1-Trichloroethane	50	nd	nd	nd	nd			
1,2-Dichloroethane (EDC)	50	nd	nd	nd	nd			
1,1-Dichloropropene	50	nd	nd	nd	nd			
Carbon tetrachloride	50	nd	nd	nd	nd			
Trichloroethene (TCE)	20	nd	nd	nd	nd	118%	126%	7%
1,2-Dichloropropane	50	nd	nd	nd	nd			
Bromodichloromethane	50	nd	nd	nd	nd			
cis-1,3-Dichloropropene	50	nd	nd	nd	nd			
trans-1,3-Dichloropropene	50	nd	nd	nd	nd			
1,1,2-Trichloroethane	50	nd	nd	nd	nd			
1,3-Dichloropropane	50	nd	nd	nd	nd			
Dibromochloromethane	50	nd	nd	nd	nd			
Tetrachloroethene (PCE)	20	nd	23	nd	nd			
Chlorobenzene	50	nd	nd	nd	nd	114%	121%	6%
1,1,1,2-Tetrachloroethane	50	nd	nd	nd	nd			
1,1,2,2-Tetrachloroethane	50	nd	nd	nd	nd			
1,2,3-Trichloropropane	50	nd	nd	nd	nd			
2-Chlorotoluene	50	nd	nd	nd	nd			
4-Chlorotoluene	50	nd	nd	nd	nd			
1,3-Dichlorobenzene	50	nd	nd	nd	nd			
1,4-Dichlorobenzene	50	nd	nd	nd	nd			
1,2-Dichlorobenzene	50	nd	nd	nd	nd			
1,2-Dibromo-3-Chloropropane	50	nd	nd	nd	nd			
1,2,4-Trichlorobenzene	50	nd	nd	nd	nd			
Hexachloro-1,3-butadiene	50	nd	nd	nd	nd			
1,2,3-Trichlorobenzene	50	nd	nd	nd	nd			
Surrogate recoveries								
Dibromofluoromethane		98%	98%	103%	100%	101%	105%	
Toluene-d8		104%	103%	106%	106%	95%	94%	
4-Bromofluorobenzene		112%	110%	109%	109%	98%	100%	

### Data Qualifiers and Analytical Comments

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

# CHAIN-OF-CUSTODY RECORD

Bill to: Standard Process Co. EAT - (425) 455-2316 fax

CLIENT: 301 Western Syndicated Investments, Inc.

ADDRESS: 10122 97th St, Suite #4 Bellevue WA 98004

PHONE: (425) 454-4200 FAX: (425) 455-1258

CLIENT PROJECT #: 20209-X PROJECT MANAGER: Robert Poe

DATE: 11/1/2010 PAGE 1 OF 1

PROJECT NAME: Model 2 House Cleaned

LOCATION: Bellevue - WA

COLLECTOR: Robert Poe / EAT DATE OF COLLECTION: 11/1/2010

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES																		NOTES	Total Number of Containers	Laboratory Note Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
					TPH-HCID	TPH - DIESEL & OIL	TPH - GASOLINE	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos-PLM	GRO Suite	DRO Suite	WO Suite																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
1. MW2-2-4			Soil	INT & EXT				X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

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RECEIVED BY (Signature) [Signature] DATE/TIME 11/1/2010 4:40

## SAMPLE DISPOSAL INSTRUCTIONS

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

## SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SEALS Y/N/A

SEALS INTACT? Y/N/A

RECEIVED GOOD COND./COLD

## LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR (5 DAY)

# CHAIN-OF-CUSTODY RECORD

CLIENT: EMI

ADDRESS: (See private label for complete billing info)

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

CLIENT PROJECT #: 100 JUN-2024-X PROJECT MANAGER: Robert Kim

DATE: 1/15/2020 PAGE \_\_\_\_\_ OF \_\_\_\_\_

PROJECT NAME: Made 4 Hour Cleaner

LOCATION: London - WA

COLLECTOR: Robert Kim DATE OF COLLECTION: 1/15/2020

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES																		NOTES	Total Number of Containers	Laboratory Note Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
					TPH-HCID	TPH - DIESEL & OIL	TPH - GASOLINE	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos-PLM	GRO Suite	DRO Suite	WO Suite																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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RELINQUISHED BY (Signature) [Signature] DATE/TIME 1/15/20 RECEIVED BY (Signature) [Signature] DATE/TIME 1/15/20

## SAMPLE DISPOSAL INSTRUCTIONS

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

LABORATORY NOTES:

TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SEALS Y/N/A

SEALS INTACT? Y/N/A

RECEIVED GOOD COND./COLD

NOTES: Turn Around Time: 24 HR 48 HR 5 DAY

# ESN NORTHWEST CHEMISTRY LABORATORY

Environmental Associates, Inc  
MAC'S 1 HOUR CLEANERS PROJECT  
Client Project #EAI-JN-20209-X  
Renton, Washington

ESN Northwest  
1210 Eastside Street SE Suite 200  
Olympia, WA 98501  
(360) 459-4670 (360) 459-3432 Fax  
lab@esnnw.com

## Analysis of Chlorinated Volatile Organic Compounds in Water by Method 8260

### Analytical Results

8260B Chlorinated, µg/L	MTH BLK	LCS	MW-1	MW-2	MW-3	MW-4
Matrix	Reporting	Water	Water	Water	Water	Water
Date analyzed	Limits	01/25/10	01/25/10	01/28/10	01/25/10	01/25/10
Dichlorodifluoromethane	1.0	nd		nd	nd	nd
Chloromethane	1.0	nd		nd	nd	nd
Vinyl chloride	0.2	nd		nd	nd	nd
Chloroethane	1.0	nd		nd	nd	nd
Trichlorofluoromethane	1.0	nd		nd	nd	nd
1,1-Dichloroethene	1.0	nd	98%	nd	nd	nd
Methylene chloride	1.0	nd		nd	nd	nd
trans-1,2-Dichloroethene	1.0	nd		nd	nd	nd
1,1-Dichloroethane	1.0	nd		nd	nd	nd
cis-1,2-Dichloroethene	1.0	nd		nd	nd	nd
2,2-Dichloropropane	1.0	nd		nd	nd	nd
Chloroform	1.0	nd		nd	8.5	1.4
Bromochloromethane	1.0	nd		nd	nd	nd
1,1,1-Trichloroethane	1.0	nd		nd	nd	nd
1,2-Dichloroethane (EDC)	1.0	nd		nd	nd	nd
1,1-Dichloropropene	1.0	nd		nd	nd	nd
Carbon tetrachloride	1.0	nd		nd	nd	nd
Trichloroethene (TCE)	1.0	nd	99%	nd	1.7	1.4
1,2-Dichloropropane	1.0	nd		nd	nd	nd
Bromodichloromethane	1.0	nd		nd	nd	nd
cis-1,3-Dichloropropene	1.0	nd		nd	nd	nd
trans-1,3-Dichloropropene	1.0	nd		nd	nd	nd
1,1,2-Trichloroethane	1.0	nd		nd	nd	nd
1,3-Dichloropropane	1.0	nd		nd	nd	nd
Dibromochloromethane	1.0	nd		nd	nd	nd
Tetrachloroethene (PCE)	1.0	nd		1.5	860	1,500
Chlorobenzene	1.0	nd	99%	nd	nd	nd
1,1,1,2-Tetrachloroethane	1.0	nd		nd	nd	nd
1,1,2,2-Tetrachloroethane	1.0	nd		nd	nd	nd
1,2,3-Trichloropropane	1.0	nd		nd	nd	nd
2-Chlorotoluene	1.0	nd		nd	nd	nd
4-Chlorotoluene	1.0	nd		nd	nd	nd
1,3-Dichlorobenzene	1.0	nd		nd	nd	nd
1,4-Dichlorobenzene	1.0	nd		nd	nd	nd
1,2-Dichlorobenzene	1.0	nd		nd	nd	nd
1,2-Dibromo-3-Chloropropane	1.0	nd		nd	nd	nd
1,2,4-Trichlorobenzene	1.0	nd		nd	nd	nd
Hexachloro-1,3-butadiene	1.0	nd		nd	nd	nd
1,2,3-Trichlorobenzene	1.0	nd		nd	nd	nd

### Surrogate recoveries

Dibromofluoromethane	99%	95%	96%	98%	96%	97%
Toluene-d8	109%	102%	110%	114%	112%	116%
4-Bromofluorobenzene	111%	100%	110%	111%	113%	112%

### Data Qualifiers and Analytical Comments

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

# ESN NORTHWEST CHEMISTRY LABORATORY

Environmental Associates, Inc  
MAC'S 1 HOUR CLEANERS  
Client Project #EAI-JN-20209-X  
Renton, Washington

ESN Northwest  
1210 Eastside Street SE Suite 200  
Olympia, WA 98501  
(360) 459-4670 (360) 459-3432 Fax  
lab@esnnw.com

## Analysis of Chlorinated Volatile Organic Compounds in Water by Method 8260

### Analytical Results

8260B Chlorinated, µg/L		MS	MSD	RPD
Matrix	Reporting	Water	Water	
Date analyzed	Limits	01/25/10	01/25/10	
Dichlorodifluoromethane	1.0			
Chloromethane	1.0			
Vinyl chloride	0.2			
Chloroethane	1.0			
Trichlorofluoromethane	1.0			
1,1-Dichloroethene	1.0	113%	104%	8%
Methylene chloride	1.0			
trans-1,2-Dichloroethene	1.0			
1,1-Dichloroethane	1.0			
cis-1,2-Dichloroethene	1.0			
2,2-Dichloropropane	1.0			
Chloroform	1.0			
Bromochloromethane	1.0			
1,1,1-Trichloroethane	1.0			
1,2-Dichloroethane (EDC)	1.0			
1,1-Dichloropropene	1.0			
Carbon tetrachloride	1.0			
Trichloroethene (TCE)	1.0	108%	107%	1%
1,2-Dichloropropane	1.0			
Bromodichloromethane	1.0			
cis-1,3-Dichloropropene	1.0			
trans-1,3-Dichloropropene	1.0			
1,1,2-Trichloroethane	1.0			
1,3-Dichloropropane	1.0			
Dibromochloromethane	1.0			
Tetrachloroethene (PCE)	1.0			
Chlorobenzene	1.0	104%	102%	2%
1,1,1,2-Tetrachloroethane	1.0			
1,1,2,2-Tetrachloroethane	1.0			
1,2,3-Trichloropropane	1.0			
2-Chlorotoluene	1.0			
4-Chlorotoluene	1.0			
1,3-Dichlorobenzene	1.0			
1,4-Dichlorobenzene	1.0			
1,2-Dichlorobenzene	1.0			
1,2-Dibromo-3-Chloropropane	1.0			
1,2,4-Trichlorobenzene	1.0			
Hexachloro-1,3-butadiene	1.0			
1,2,3-Trichlorobenzene	1.0			
Surrogate recoveries				
Dibromofluoromethane		97%	98%	
Toluene-d8		103%	102%	
4-Bromofluorobenzene		99%	98%	

### Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

