SITE HAZARD ASSESSMENT
Worksheet 1
Summary Score Sheet

SITE INFORMATION:

Cleanup Site ID: 5542

Four Seasons Car Wash

Facility/Site ID: 12627628

12900 Bel Red Road

Bellevue, King County, WA 98005

Section:	28	Latitude:	47.62183
Township:	25N	Longitude:	-122.16809
Range:	05E	Tax/Parcel ID:	2825059219

Site Scored/ranked for the August 2013 Hazardous Sites List Publication

SITE DESCRIPTION:

The Four Seasons Car Wash site is a former car wash and gas station located in Bellevue, King County, Washington. The 0.67-acre property is located approximately 380 feet from an unnamed drainage, and zoned for commercial/residential (BR-CR) use.

The surrounding properties are all developed and used commercially. A Discount Tire store is located east of the site, Eastside Tent & Awning is located to the west, and a Hertz rental facility is located to the north of the site. To the south across Bel Red Road is a commercial office park.

The site is currently operated as a Elephant Car Wash and Chevron gas station by ECW Holdings, LLC.

The site has been operated as a gas station and car wash since 1970, and is currently operated as such.

The site is located near the northwest corner of Bel Red Road and 130th Avene NE, on the north side of Bel Red Road, approximately 200 feet west of the intersection.

SITE BACKGROUND:

A summary of prior operations/tenants at the subject property is presented below.

From	To	Operator/Tenant	Activity
1970	2013	various	car wash with gas station

SITE CONTAMINATION:

In 1997 the Four Seasons Car Wash site was reported to Washington Department of Ecology and placed on the LUST list with ID number 4524.

During a 1997 Phase II site investigation concentrations of gasoline, diesel, heavy oil and/or BTEX constituents were detected in soil and groundwater samples collected in and around the UST basin. A gasoline leak occurred in 1999 near the southwest corner of the pump island canopy.

In May 1997 Riley Environmental, LLC sampled existing tank nest observation wells. Concentrations of gasoline, BTEX constituents, and/or diesel were dectected in both groundwater samples at concentrations exceeding the MTCA Method A cleanup levels. A Phase II investigation was subsequently conducted in June 1997, and 17 soil borings were drilled around the USTs and fuel dispensers. Soil was sampled and analyzed for total petroleum hydrocarbons, and subsequently for gasoline and/or diesel range hydrocarbons based on initial findings. Five groundwater samples were analyzed for gasoline and BTEX constituencies, and three of the five groundwater samples were also analyzed for diesel and heavy oil range hydrocarbons.

Gasoline-range hydrocarbons were detected in soil from boring SB1 (10' below ground surface) at a concentration of 3,900 ppm, which exceeds the MTCA Method A cleanup level. Ethylbenzene and xylenes were

detected in the same sample at concentrations of 28 ppm and 214 ppm, respectively,which exceeded the MTCA Method A cleanup level.

Oil-range hydrocarbons were detected in soil sampled at location SB-8 (9.5' below ground surface) at a concentration of 380 ppm, which exceeded the MTCA Method A cleanup level at the time. 380 ppm is below the current (2013) MTCA Method A cleanup level.

PAST REMEDIATION ACTIVITIES:

In January 1999 a leak was identified in a gasoline product line adjacent to one of the pump island dispensers. The release was approximately 230 gallons of gasoline into soil. Following the release, three inches of free-phase hydrocarbon product was identified in an observation well located in the UST basin. Approximately 50 gallons of gasoline were recovered from a tank turbine manhole using a vacuum truck.

In July 1999, AGI Technologists installed two SVE and two AS wells in support of a groundwater and soil remedial treatment system. The treatment system was started in October 1999, but only ran for 11 minutes before concentrations of petroleum hydrocarbons overloaded the carbon vessel system. Between April 2000 and September 2000 the AS/SVE system treated soil vapors using a catalytic oxidizer, and from September 2000 through January 2002 using carbon vessels. Groundwater monitoring has been reportedly conducted quarterly since October 1999.

In January 2003, a soil boring was advanced at the southern end of the west pump island to a depth of 7 feet and a soil sample was collected and analyzed for gasoline and BTEX. The results indicated analytes were not detected above practical quantitation limits in the area of the January 1999 gasoline release.

The most recent groundwater monitoring report in Ecology's file is from First Quarter 2003. Monitoring wells MW-1, MW-2 and MW-3 were sampled and groundwater was analyzed for gasoline and BTEX. Concentrations were below detection limits or below the MTCA Method A cleanup levels in all three sampled locations. Furthermore, each of the three wells has a record of at least four consecutive quarters of groundwater sampling with results below MTCA Method A cleanup levels.

In May 2003, Ecology issued a "No Further Action" determination with respect to the gasoline release which occurred in January 1999. The NFA letter indicates the gasoline release near boring SB1 (identified in the 1997 Phase II investigation) is not included in the NFA determination.

No remedial activities or additional site investigation have occurred in the vicinity of the gasoline release identified at boring SB1.

CURRENT SITE CONDITIONS:

Gasoline was detected in a soil sample at boring location SB1 at a depth of 10' below ground surface during a Phase II investigation conducted in 1997. Further characterization and/or remediation of the release has not occurred since 1997. Other remedial activities have taken place downgradient, in association with 1999 gasoline spill near southern dispenser island. Actual soil conditions near former boring location SB1 are unknown, and contamination may have degraded to below MTCA Method A cleanup levels, however is not documented.

Gasoline and BTEX constituent contamination has been identified in soil and groundwater at the site.

The approximate depth to groundwater is 6 feet below ground surface, with groundwater flowing to the southwest. Subsurface soils are fine and medium grained silty sand.

SPECIAL CONSIDERATIONS:

Checked boxes indicate routes applicable for WARM scoring

☐ **Surface Water**

☑ **Air**

SITE HAZARD ASSESSMENT
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Summary Score Sheet

Gasoline release identified in shallow subsurface soils.

☑ **Groundwater**

Gasoline release identified in shallow subusurface soil.

A gasoline release was identified in soil at boring location SB1 in 1997. Prior to the NFA determination issued for 1999 release, Ecology recommended collecting a soil sample in the vicinity of former boring SB1, however, sampling was not conducted, thus the NFA issued does not encompass the gasoline release associated with boring location SB1.

ROUTE SCORES:

Surface Water/ Human Health:		Surface Water/ Environment:	
Air/ Human Health:	24.7	Air/ Environment:	1.3
Groundwater/ Human Health:	37.4		

Overall Rank: 4

REFERENCES:

WARM Toxicological Database

WARM Scoring Manual

Washington Department of Transportation 24-hour Isopluvial Maps, January 2006 update. http://www.wsdot.wa.gov/publications/fulltext/Hydraulics/Wa24hrIspoluvials.pdf

King County GIS Center iMAP application, Property Information, Groundwater Program, and Sensitive Areas mapsets. Accessed January 2013. http://www.kingcounty.gov/operations/GIS/Maps/iMAP.aspx

National Climatic Data Center 2011 Local Climatological Data for Seattle, Seattle Tacoma Airport. http://www1.ncdc.noaa.gov/pub/orders/IPS-90B1F39F-6CFA-4A6B-AA82-5ED1FF897CCC.pdf

Washington State Department of Health Source Water Assessment Maps. March 2011 update. https://fortress.wa.gov/doh/eh/dw/swap/maps/

Ecology Water Resources Explorer, accessed January 2013. https://fortress.wa.gov/ecy/waterresources/map/WaterResourcesExplorer.aspx

FEMA Map Service Center, accessed January 2013. https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1

Missouri Census Data Center, Circular Area Profiles - 2010 census data around a point location. Http://mcdc.missouri.edu/websas/caps10c.html. Accessed February 2013

KHM Environmental Management, Inc, 2002, Letter to Ecology Re: Site Summary for Closure Former Four Seasons Wash & Wax, 12900 Bel-Red Road, Bellevue, Washington. April 24.

Riley Environmental, LLC., 1997, Phase II Investigation Four Seasons Car Wash – Chevron 12900 Bel-Red Road Bellevue, Washington 98005. September 23.

Riley Environmental, LLC., 1999, Memo regarding Lmited Subsurface Soil Investigation Four Seasons - Chevron 12900 Bel-Red Road, Bellevue, Washington. February 15.

AGI Technologies, 2000, Well and Remedial Treatment Installation Four Seasons Wash and Wax 12900 Bel-Red Road Bellevue, Washington. February 29.

SITE HAZARD ASSESSMENT
Worksheet 2
Route Documentation

Cleanup Site ID: 5542 Four Seasons Car Wash

Facility/Site ID: 12627628

1. SURFACE WATER ROUTE

List those substances to be considered for scoring:

Not Applicable

Explain the basis for choice of substances to be used in scoring:

List those management units to be considered for scoring:

Explain basis for choice of unit to be used in scoring:

2. AIR ROUTE

List those substances to be considered for scoring:

gasoline (benzene)

Explain the basis for choice of substances to be used in scoring:

release in subsurface soil

List those management units to be considered for scoring:

soil vapor

Explain basis for choice of unit to be used in scoring:

potential vapor transport of gasoline/benzene

3. GROUNDWATER ROUTE

List those substances to be considered for scoring:

gasoline (benzene)

Explain the basis for choice of substances to be used in scoring:

release in subsurface soil

List those management units to be considered for scoring:

shallow groundwater

Explain basis for choice of unit to be used in scoring:

near groundwater interface

Worksheet 5

Air Route

CSID: 5542 **Site Name:** Four Seasons Car Wash

1.0 Substance Characteristics

1.1 Introduction (WARM Scoring Manual) - Please Review before scoring

1.2 Human Toxicity

Substance	Ambient Air Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Gasoline (benzene)	10	3	X	5

Highest Value 10

Bonus Points? 0

Toxicity Value 10

1.3 Mobility

Gaseous Mobility	Max Value: 4	
Particulate Mobility	Soil Type:	Mobility Value 4
	Erodibility:	
	Climatic Factor:	

1.4 Final Human Health Toxicity/Mobility Matrix Value **HH Final Matrix Value** 20

1.5 Environmental Toxicity/Mobility

Substance	Non-human Mammalian Inhalation Toxicity (mg/m3)	Acute Value	Mobility Value	Table A-7 Matrix Value
gasoline (benzene)	31947	3	4	6

Env. Final Matrix Value 6

1.6 Substance Quantity

Amount: 100 square feet

Basis: Estimated surface area of contaminated soil

Substance Quantity Value 1

Worksheet 5

Air Route

CSID: 5542 **Site Name:** Four Seasons Car Wash

2.0 Migration Potential

2.1 Containment Containment Value: 5

Explain Basis: Assume 2' thick cover, no vapor collection system

3.0 Targets

3.1 Nearest Population Population Distance Value: 10

690 feet to nearest residences

3.2 Distance to and name of nearest sensitive environments Sensitive Environment Value: 6

1860' to Bel-Rd Mini Park

3.3 Population within 0.5 miles Population Value: 42

1793 population

4.0 Release Release to Air Value: 0

Explain basis for scoring a release to air

no confirmed release

Pathway Scoring - Air Route, Human Health Pathway

$AIR_H = (SUB_{AH}*60/329)*[REL_A+(TAR_{AH}*35/85)]/24$

Where:

SUB_{AH} =(Human toxicity + 5) * (Containment + 1) + Substance Qty	SUB_{AH}	151
REL_A = Release to Air	REL_A	0
TAR_{AH} = Nearest Population + Population within 1/2 mile	TAR_{AH}	52
	AIR_H	24.7

Pathway Scoring - Air Route, Environmental Pathway

$AIR_E = (SUB_{AE}*60/329)*[REL_A+(TAR_{AE}*35/85)]/24$

Where:

SUB_{AE} =(Environmental Toxicity Value +5)*(Containment +1) +Substance Qty	SUB_{AE}	67
REL_A = Release to Air	REL_A	0
TAR_{AE} = Nearest Sensitive Environment	TAR_{AE}	6
	AIR_E	1.3

Worksheet 6

Groundwater Route

CSID: 5542 **Site Name:** Four Seasons Car Wash

1.0 Substance Characteristics

1.1 Human Toxicity

Substance	Drinking Water Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Gasoline (benzene)	8	3	X	5

Highest Value 8

Bonus Points? 0

Toxicity Value 8

1.2 Mobility

Cations/Anions Max Value:

Solubility Max Value: 3 Mobility Value 3

1.3 Substance Quantity

Amount: 20-30 cubic yards of soil

Basis: Estimated volume of impacted soil remaining in-place

Substance Quantity Value 2

2.0 Migration Potential

2.1 Containment Containment Value 10

Explain Basis: Contaminated soil

2.2 Net Precipitation 10-20 inches Net Precipitation Value 2

2.3 Subsurface Hydraulic Conductivity Conductivity Value 3

silt/sand

2.4 Vertical Depth to Groundwater Depth to Aquifer Value 8

confirmed release to groundwater

3.0 Targets

3.1 Groundwater Usage Aquifer Use Value 4

domestic, commercial/industrial, irrigation

3.2 Distance to Nearest Drinking Water Well Well Distance Value 4

less than 1/4 mile

3.3 Population Served within 2 Miles Population Served Value 15.30

234 population (estimated)

Worksheet 6

Groundwater Route

CSID: 5542 **Site Name:** Four Seasons Car Wash

3.4 Area Irrigated by GW Wells within 2 miles Area Irrigated Value 8.49

32

4.0 Release Release to Groundwater Value 5

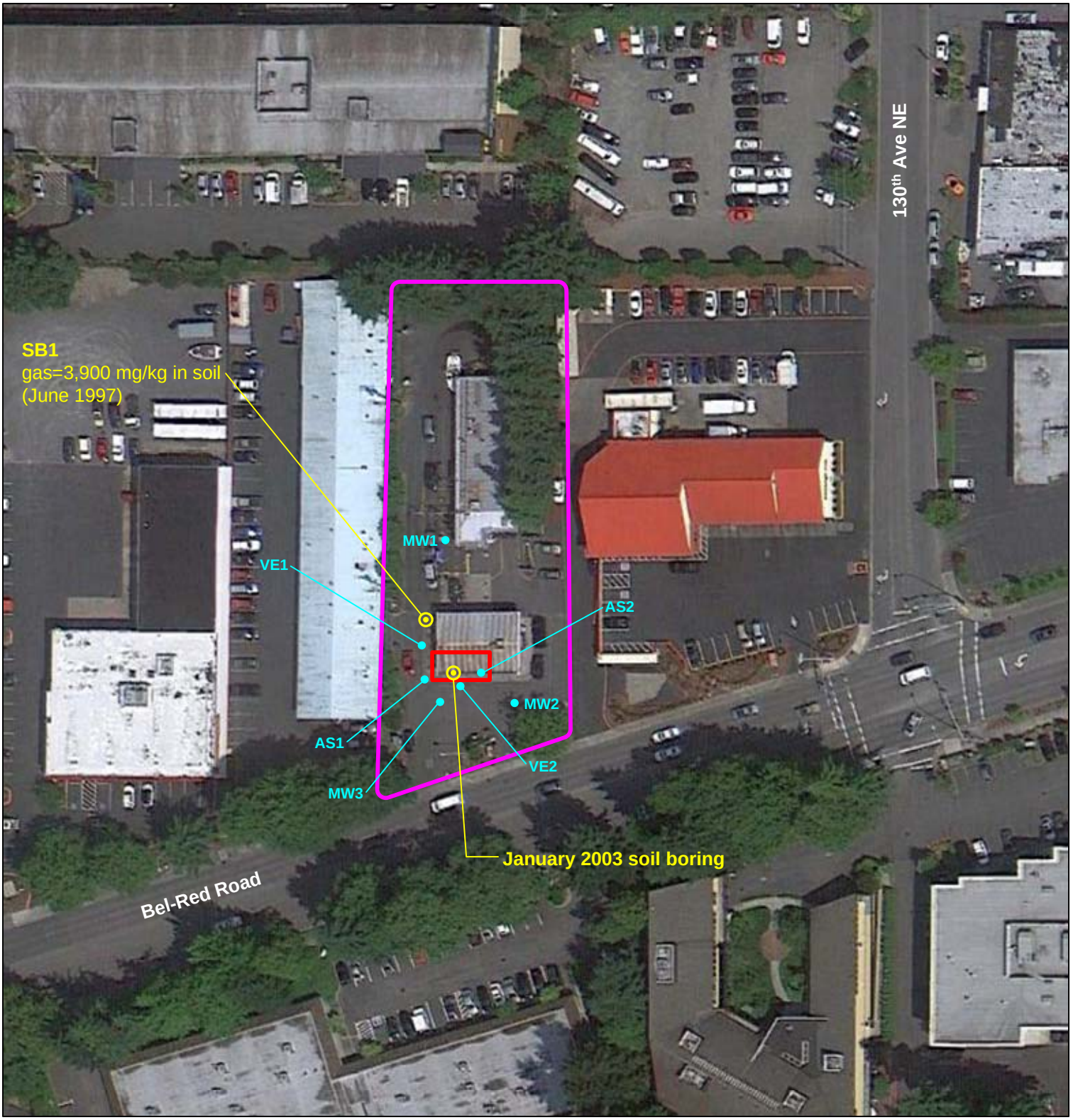
Explain basis for scoring a release to groundwater:
release is not confirmed

Pathway Scoring - Groundwater Route, Human Health Pathway

$GW_H = (SUB_{GH}*40/208)*[(MIG_G*25/17)+REL_G+(TAR_{GH}*30/165)]/24$

Where:

SUB_{GH} =(Human toxicity + mobility + 3) * (Containment + 1) + Substance Qty	SUB_{GH}	156
MIG_G=Depth to Aquifer+Net Precip + Hydraulic Conductivity	MIG_G	13
REL_G = Release to Groundwater	REL_G	5
TAR_{GH} = Aquifer Use + Well Distance + Population Served + Area Irrigated	TAR_{GH}	31.78233992
	GW_H	37.4



Legend:

- Property location (approximate)
- January 1999 release area (approximate)
- Monitoring wells, AS & VE points

Notes:

1. All locations are approximate, and not to scale.

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Four Seasons Car Wash
12900 Bel-Red Road
Bellevue, WA 98005

DEPARTMENT OF ECOLOGY
State of Washington

Site Overview Map

CSID 5542

CSID5542.vsd

Washington Ranking Method
Route Scores Summary and Ranking Calculation Sheet

Site Name: Four Seasons Car Wash **CSID:** 5542

Site Address: 12900 Bel Red Road **FSID:** 12627628

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	24.7	4
Groundwater	37.4	3

H=	4
M=	3
L=	0

$$\frac{H^2 + 2M + L}{8} = \frac{16 + 6 + 0}{8}$$

Human Health Priority Bin Score: **3**

rounded up to next whole number

ENVIRONMENT ROUTE SCORES

Enter Environment Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	1.3	1

H=	1
L=	0

$$\frac{H^2 + 2L}{7} = \frac{1 + 0}{7}$$

Environment Priority Bin Score: **1**

rounded up to next whole number

Comments/Notes:

FINAL MATRIX RANKING **4**

FOR REFERENCE:

Final WARM Bin Ranking Matrix

Human Health Priority	Environment Priority 5	4	3	2	1	N/A
5	1	1	1	1	1	1
4	1	2	2	2	3	2
3	1	2	3	4	4	3
2	2	3	4	4	5	3
1	2	3	4	5	5	5
N/A	3	4	5	5	5	NFA

Quintile Values for Route Scores - February 2013 Values

Quintile	Human Health: Surface Water	Human Health: Air	Human Health: Ground Water	Environment: Surface Water	Environment: Air
5	>= **27.0**	>= **32.0**	>= **50.1**	>= **47.0**	>= **32.0**
4	>= **18.5**	>= **21.1**	>= **40.4**	>= **30.3**	>= **26.1**
3	>= **12.4**	>= **13.1**	>= **31.6**	>= **21.4**	>= **21.1**
2	>= **7.5**	>= **7.1**	>= **22.4**	>= **11.0**	>= **14.6**
1	< **7.5**	< **7.1**	< **22.4**	< **11.0**	< **14.6**

Quintile value associated with each route score entered above