SITE HAZARD ASSESSMENT
Worksheet 1
Summary Score Sheet

SITE INFORMATION:

Cleanup Site ID: 10655

North Bend Texaco

Facility/Site ID: 82682276

225 E North Bend Way

North Bend, King County, WA 98045

Section:	9	Latitude:	47.49398
Township:	23N	Longitude:	-121.78454
Range:	8E	Tax/Parcel ID:	8571900005

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

SITE DESCRIPTION:

The North Bend Texaco site is a former gasoline station with convenience store located in North Bend, King County, Washington. The 0.51-acre property is located approximately 1,450 feet from South Fork Snoqualmie River, and zoned for downtown commercial (DC) use.

Adjacent properties are predominantly zoned and used for commercial purposes. William Henry Taylor Park is located to the south, across E McClellan Street. To the north is an automotive dealership and retail stores, and to the east is a small fast food restaurant. Ballarat Ave S is located immediately west of the site, beyond which is the North Bend Bar and Grill and other retail establishments.

The site is currently operated as a North Bend Shell by George Wyrsch.

The site is still operating as a gasoline and convenience store, with the current station building located at the far western end of the site. The current convenience store was constructed in 1997. The fueling canopy is located near the center of the site, with parking areas located to the east and west of the canopy structure.

The site is located at the southeast corner of E North Bend Way and Ballarat Ave S in North Bend, Washington. E McClellan Street bounds the south side of the property.

SITE BACKGROUND:

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

From	To	Operator/Tenant	Activity
1945	2013	various	automotive service station

SITE CONTAMINATION:

In 1996 the North Bend Texaco site was reported to Washington Department of Ecology and placed on the LUST list with ID number 4379.

During 1996 UST decommissioning and tank replacement activities, petroleum impacts to soil and groundwater were identified by field observation, and Ecology was notified of the release.

Between June and September 1996, a total of fourteen USTs were removed from the property. The tanks were generally observed to be in good condition, however hydrocarbon odors and product sheen on groundwater suggested a petroleum release had occurred. Soil samples were collected from the excavation sidewalls and excavation floor, as well as several other discrete locations to characterize the extent of soil contamination. The analytical results indicated gasoline contamination above MTCA Method A cleanup levels, up to a concentration of 11,000 ppm, was present in 26 of 40 soil samples. One or more BTEX constituents were detected in 20 soil samples at concentrations above cleanup levels. Diesel and heavy oil range hydrocarbons were present above MTCA Method A cleanup levels at location NBS-31 at concentrations of 2,800 ppm and 3,500 ppm, respectively.

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A petroleum sheen, and evidence of free-phase hydrocarbons was observed on the surface of groundwater accumulated in the UST excavation during soil removal and the installation of replacement USTs.

Some soils were reportedly disposed offsite at REMEDCO for thermal treatment, however most soils, including those exceeding MTCA Method A cleanup levels, were returned to the tank excavation as backfill.

PAST REMEDIATION ACTIVITIES:

In early 1998, three groundwater monitoring wells were reportedly installed at the site, monitored and sampled. Groundwater flow was reportedly to the west-southwest. Gasoline was present at all three monitoring wells at concentrations above MTCA Method A cleanup levels, ranging from 6.7 ppm to 31.0 ppm. Concentrations of one or more BTEX constituents, diesel and oil range hydrocarbons were present above MTCA Method A cleanup levels in all three wells.

There is no information in Ecology's site file indicating additional remediation or investigative activities have occurred at the site.

CURRENT SITE CONDITIONS:

Hydrocarbon contaminated soil and groundwater was identified at the site between 1996 and 1998, however there is no documentation that remedial activities have been conducted at the site.

Gasoline, diesel, oil and BTEX concentrations exceeding MTCA Method A cleanup levels are present in soil and groundwater at the site.

The approximate depth to groundwater is 6-8 feet below ground surface, with groundwater flowing to the west-southwest. Subsurface soils are silty clay and coarse grained sand.

SPECIAL CONSIDERATIONS:

Checked boxes indicate routes applicable for WARM scoring

☐ **Surface Water**

Release(s) occurred in subsurface soils.

☑ **Air**

Release of gasoline and BTEX constituents in soil may be available for vapor transport.

☑ **Groundwater**

Confirmed release of gasoline, diesel, oil, and BTEX constituents to groundwater at concentrations exceeding MTCA Method A cleanup levels.

The lateral extent of soil and groundwater impacts has not been investigated.

ROUTE SCORES:

Surface Water/ Human Health:		Surface Water/ Environment:	
Air/ Human Health:	25.2	Air/ Environment:	1.6
Groundwater/ Human Health:	66.9		

Overall Rank: 1

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REFERENCES:

Galloway Environmental, 1996, UST Decommissioning and Environmental Site Assessment at the Norht Bend Texaco Station, North Bend, Washington. October 31.

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

SITE HAZARD ASSESSMENT
Worksheet 2
Route Documentation

Cleanup Site ID: 10655 North Bend Texaco

Facility/Site ID: 82682276

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 and BTEX

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

Present in soil at concentrations above MTCA Method A cleanup levels.

List those management units to be considered for scoring:

Soil vapor

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

Potential for vapor transport to air

3. GROUNDWATER ROUTE

List those substances to be considered for scoring:

Gasoline, diesel, oil and BTEX

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

Confirmed release to groundwater above MTCA Method A cleanup levels.

List those management units to be considered for scoring:

Groundwater

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

Confirmed release to groundwater above MTCA Method A cleanup levels.

Worksheet 5

Air Route

CSID: 10655 **Site Name:** North Bend Texaco

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
Xylenes	1	3	1	X
Toluene	1	X	1	X
Ethylbenzene	1	X	X	X

Highest Value 10

Bonus Points? 0

Toxicity Value 10

1.3 Mobility

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

Mobility Value 4

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
Xylenes	21714	3	3	5

Env. Final Matrix Value 6

1.6 Substance Quantity

Amount: 10,000 square feet

Basis: Estimated surface area of contaminated soil

Substance Quantity Value 5

Worksheet 5

Air Route

CSID: 10655 **Site Name:** North Bend Texaco

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

Approximately 400' to nearest residences

3.2 Distance to and name of nearest sensitive environments Sensitive Environment Value: 7

Approximately 150' to North Bend Rail Trail

3.3 Population within 0.5 miles Population Value: 42

1759 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}	155
REL_A = Release to Air	REL_A	0
TAR_{AH} = Nearest Population + Population within 1/2 mile	TAR_{AH}	52
	AIR_H	25.2

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}	71
REL_A = Release to Air	REL_A	0
TAR_{AE} = Nearest Sensitive Environment	TAR_{AE}	7
	AIR_E	1.6

Worksheet 6

Groundwater Route

CSID: 10655 **Site Name:** North Bend Texaco

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
Diesel	6	5	3	X
Xylenes	2	10	1	X
Toluene	2	3	1	X
Ethylbenzene	4	3	1	X

Highest Value 10

Bonus Points? +2

Toxicity Value 12

1.2 Mobility

Cations/Anions Max Value:

Solubility Max Value: 3 Mobility Value 3

1.3 Substance Quantity

Amount: 1000 cubic yards of soil

Basis: Estimated volume of impacted soil remaining in-place

Substance Quantity Value 3

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

silty clay and coarse 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 9

Drinking water, irrigation, stock water

3.2 Distance to Nearest Drinking Water Well Well Distance Value 4

Approximately 1/4 mile

3.3 Population Served within 2 Miles Population Served Value 72.15

5205 population (estimated)

Worksheet 6

Groundwater Route

CSID: 10655 **Site Name:** North Bend Texaco

3.4 Area Irrigated by GW Wells within 2 miles Area Irrigated Value 10.63

201 acres

4.0 Release Release to Groundwater Value 5

Explain basis for scoring a release to groundwater:

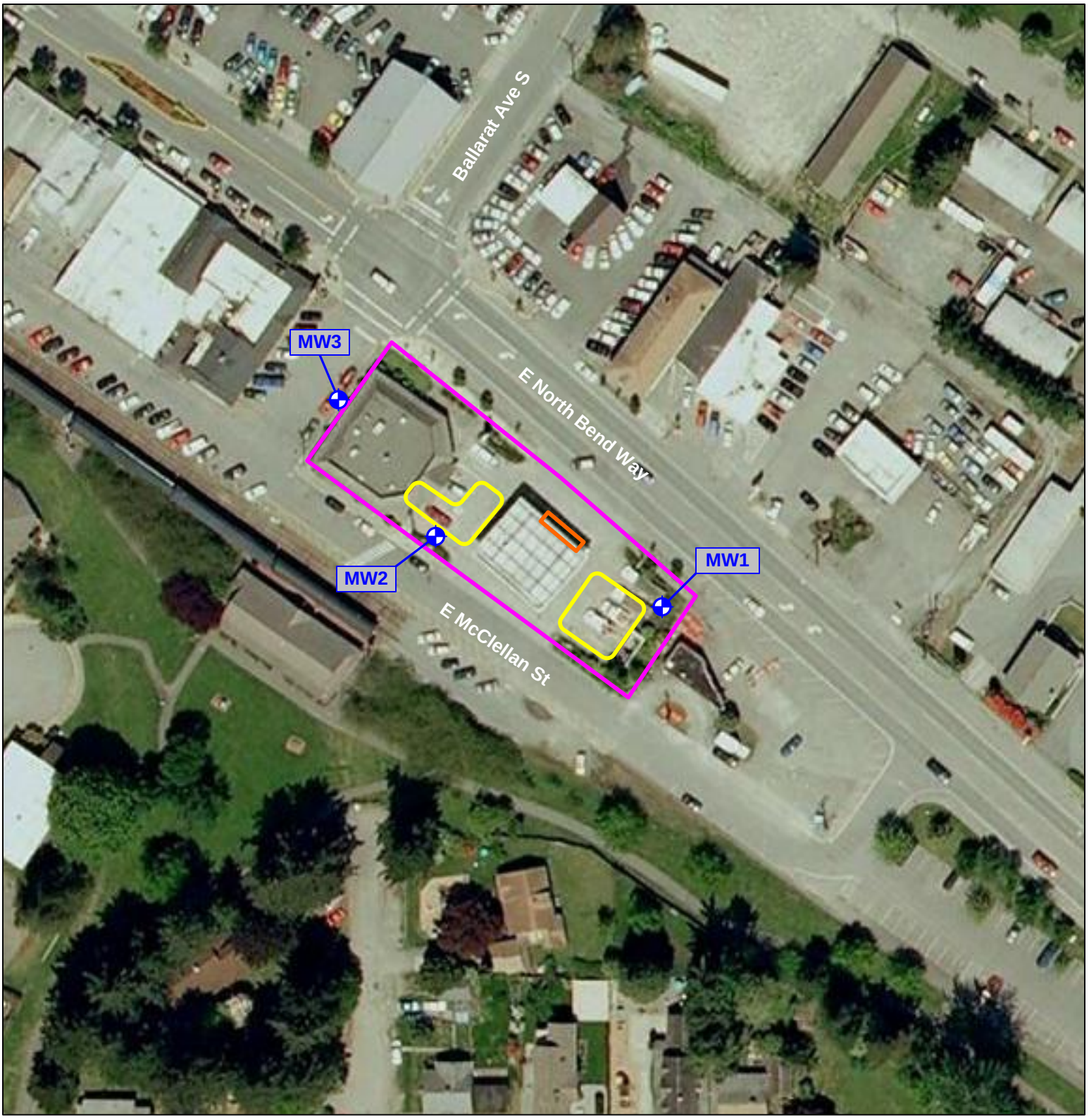
Confirmed release to groundwater

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}	201
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}	95.7787711
	GW_H	66.9



Legend:

- Property location (approximate)
- UST excavation area (approximate)
- Pump island excavation area (approximate)
- Monitoring well (approximate)

Notes:

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

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North Bend Texaco
225 E North Bend Way
North Bend, WA 98045

DEPARTMENT OF ECOLOGY
State of Washington

Site Overview Map

CSID 10655
CSID10655.vsd

Washington Ranking Method
Route Scores Summary and Ranking Calculation Sheet

Site Name: North Bend Texaco **CSID:** 10655

Site Address: 225 E North Bend Way **FSID:** 82682276

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	25.2	4
Groundwater	66.9	5

H=	5
M=	4
L=	0

H^2 + 2M + L

25 + **8** + **0** = 8

Human Health Priority Bin Score: **5**

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	1.6	1

H=	1
L=	0

H^2 + 2L

1 + **0** = 7

Environment Priority Bin Score: **1**

rounded up to next whole number

Comments/Notes:

FINAL MATRIX RANKING **1**

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