



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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August 8, 2013

Northwest United Prop LLC
28727 Pacific Hwy S
Federal Way, WA 98003

Re: SITE HAZARD ASSESSMENT: Facility Site ID # 2332756
Ernie's BP Enumclaw
420 Griffin Ave
Enumclaw, WA 98022
Property Tax # 2420069341
Cleanup Site ID 7471

Dear Sir or Madam:

The Washington State Department of Ecology (Ecology) is writing to inform you that the above referenced property was subject to a site hazard assessment (SHA) as required under the Model Toxics Control Act, on 6/28/2013. The site was determined to be contaminated with gasoline. The site's hazard ranking, an estimation of the potential threat to human health and/or the environment relative to all other Washington state sites assessed at this time, has been determined by Ecology to be a 3, where a 1 represents the highest relative risk and 5 the lowest.

For your information, Ecology will be publishing ranking of this, and other recently assessed sites, in the August 2013 Special Issue of the Site Register. The hazard ranking will be used in conjunction with other considerations in determining Ecology's priority for future action at this site.

For inquiries regarding what may occur with your site now that it is on Ecology's Hazardous Sites List please contact Donna Musa at (425) 649-7136 or donna.musa@ecy.wa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Donna Musa".

Donna Musa
Site Hazard Assessments
Toxics Cleanup Program

cc: Ted Benson, Ecology (ted.benson@ecy.wa.gov)



SITE HAZARD ASSESSMENT

Worksheet 1

Summary Score Sheet

SITE INFORMATION:

Ernies BP Enumclaw

420 Griffin Ave

Enumclaw, King County, WA 98022

Cleanup Site ID: 7471

Facility/Site ID: 2332756

Section: 20

Latitude: 47.19964

Township: 24N

Longitude: -121.98211

Range: 6E

Tax/Parcel ID: 2420069341

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

SITE DESCRIPTION:

The Ernies BP Enumclaw site is a former gas station and convenience store located in Enumclaw, King County, Washington. The 0.3-acre property is located approximately 3,500 feet from Boise Creek, and zoned for highway and community business district (HCB) use.

Adjacent properties include an Arco gas station and store to the south across Roosevelt Avenue, a Rite Aid store to the southeast, and various businesses and restaurants to the west, north, and east.

The site is currently operated as a gas station with convenience store by Northwest United Prop LLC.

The site has several active USTs onsite located north of the convenience store building, with two dispenser islands and an overhead canopy. Five USTs were originally installed in the 1960s, and were replaced in 1994.

The site is located on the northwest corner of the intersection of Roosevelt Avenue and Griffin Avenue in Enumclaw.

SITE BACKGROUND:

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

<u>From</u>	<u>To</u>	<u>Operator/Tenant</u>	<u>Activity</u>
	2013	Ernie's Fuel Stop	Convenience store and gas station

SITE CONTAMINATION:

In 1991 the Ernies BP Enumclaw site was reported to Washington Department of Ecology and placed on the LUST list with ID number 996.

Four gasoline USTs; two 4,000-gallon, one 1,000-gallon, and one 12,000-gallon; one 4,000-gallon diesel UST, and the associated dispensers were removed from the site in November 1993. One of the 4,000-gallon USTs (gasoline) had been closed in-place previously. Petroleum contamination was observed in the soil, and the excavation was extended from a depth of 12 feet bgs to 15 feet bgs. Petroleum contaminated soil was placed in a remediation cell located one block north of the site at 256 Rainier Avenue. The final disposition of stockpiled soil was not specified in the report on file at Ecology.

Soil samples were collected from the excavation floor and sidewalls, as well as beneath the piping and dispensers, and analyzed for gasoline, BTEX, diesel and lead. Concentrations of gasoline, diesel, and BTEX constituents were reported above current (2013) MTCA Method A cleanup levels in soils at the east and north ends of the UST excavation and the pump islands. Benzene was the only substance reported at concentrations above cleanup levels in the UST excavation areas. Gasoline, diesel, benzene, toluene, ethylbenzene, and xylenes were reported at concentrations above cleanup levels in the soils at the pump islands.

SITE HAZARD ASSESSMENT

Worksheet 1

Summary Score Sheet

Water was encountered during the excavation at 8-10 feet bgs, but was suspected to be perched water from a utility trench north of the USTs and from rainfall. No water samples were collected.

PAST REMEDIATION ACTIVITIES:

Three monitoring wells were reportedly removed in 1994, but there are no records of when the wells were installed, and there is no information regarding monitoring results from the wells at Ecology.

In July 2002, three soil borings were advanced and completed as monitoring wells. Soil samples were collected and analyzed for gasoline and BTEX. Samples were above MTCA Method A cleanup levels for gasoline and benzene. Benzene was reported above cleanup levels at MW-4 and MW-5, and gasoline was reported above cleanup levels at MW-4, MW-5, and MW-6. Groundwater samples were analyzed for gasoline, diesel, and BTEX. Gasoline and benzene were reported at concentrations above MTCA Method A cleanup levels at MW-4 and MW-5. One soil boring was advanced in April 2003 and completed as a monitoring well, AS-1, and gasoline and BTEX were below MTCA Method A cleanup levels.

CURRENT SITE CONDITIONS:

The five USTs removed in 1993 were replaced in 1994 by new gasoline and diesel USTs, which are in operation today.

Gasoline and benzene concentrations above MTCA Method A cleanup levels are present in soil and groundwater onsite. Xylenes may also be present at concentrations above MTCA Method A.

The approximate depth to groundwater is 10 feet below ground surface, with groundwater flowing to the south. Subsurface soils are sand and silty sand.

SPECIAL CONSIDERATIONS:

Checked boxes indicate routes applicable for WARM scoring

☐ **Surface Water**

Release occurred in subsurface soils.

☒ **Air**

Release of occurred in shallow subsurface soils.

☒ **Groundwater**

Confirmed release of gasoline and benzene to subsurface soils and groundwater.

Confirmation soil samples were not collected from the excavation floor because the replacement USTs had been installed, and sidewall samples were taken from the corners at a depth below the highest observed soil contamination in previous sampling. The SHA has been prepared under the assumption that petroleum contaminated soil remains onsite.

ROUTE SCORES:

Surface Water/ Human Health:

Surface Water/ Environment:

Air/ Human Health: 7.8

Air/ Environment: 1.3

Groundwater/ Human Health: 68.0

Overall Rank: 3

SITE HAZARD ASSESSMENT

Worksheet 1

Summary Score Sheet

REFERENCES:

Summary of Historic Soil and Groundwater Data, Ernie's Fuel Stop, Enumclaw, Washington, Underground Storage Tank #6338. Aspect Consulting. April 13, 2005.

WARM Toxicological Database

WARM Scoring Manual

Washington Department of Transportation 24-hour Isopleth Maps, January 2006 update.

<http://www.wsdot.wa.gov/publications/fulltext/Hydraulics/Wa24hrIsopleths.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](http://mcdc.missouri.edu/websas/caps10c.html). Accessed February 2013

Underground Storage Tank Site Characterization Report, Ernie's Fuel Stop, Enumclaw, Washington. Sound Environmental & Safety. June 10, 1994.

SITE HAZARD ASSESSMENT

Worksheet 2

Route Documentation

Cleanup Site ID: 7471

Ernies BP Enumclaw

Facility/Site ID: 2332756

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:

Presence in subsurface soil 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.

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:

Presence in soil and 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.

Worksheet 5**Air Route**

CSID: 7471

Site Name: Ernie's BP Enumclaw

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 **1.3 Mobility**

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

Mobility Value **1.4 Final Human Health Toxicity/Mobility Matrix Value**HH Final Matrix Value **1.5 Environmental Toxicity/Mobility**

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

Env. Final Matrix Value **1.6 Substance Quantity**

Amount: 6,000 sq feet

Basis: approximate surface area of impacted soil
remainingSubstance Quantity Value

Worksheet 5**Air Route**

CSID: 7471

Site Name: Ernie's BP Enumclaw

2.0 Migration Potential**2.1 Containment**Containment Value

Explain Basis: cover >2 ft thick and no vapor collection system in place

3.0 Targets**3.1 Nearest Population**Population Distance Value

Approximately 1200 feet to residences

3.2 Distance to and name of nearest sensitive environmentsSensitive Environment Value

1,800 feet from Rotary Centennial Park/Good Will Park

3.3 Population within 0.5 milesPopulation Value

65 population

4.0 ReleaseRelease to Air Value

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:

$$SUB_{AH} = (\text{Human toxicity} + 5) * (\text{Containment} + 1) + \text{Substance Qty}$$

$$REL_A = \text{Release to Air}$$

$$TAR_{AH} = \text{Nearest Population} + \text{Population within 1/2 mile}$$

SUB _{AH}	155
REL _A	0
TAR _{AH}	16
AIR _H	7.8

Pathway Scoring - Air Route, Environmental Pathway

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

Where:

$$SUB_{AE} = (\text{Environmental Toxicity Value} + 5) * (\text{Containment} + 1) + \text{Substance Qty}$$

$$REL_A = \text{Release to Air}$$

$$TAR_{AE} = \text{Nearest Sensitive Environment}$$

SUB _{AE}	71
REL _A	0
TAR _{AE}	6
AIR _E	1.3

Worksheet 6
Groundwater Route

CSID: 7471

Site Name: Ernie's BP Enumclaw

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

1.2 Mobility

Cations/Anions

Max Value:

Solubility

Max Value:

3

Mobility Value

1.3 Substance Quantity

Amount: 2000 cubic yards

Basis: Estimated volume of contaminated soil remaining

Substance Quantity Value

2.0 Migration Potential

2.1 Containment

Containment Value

Explain Basis: confirmed release to soil

2.2 Net Precipitation

10-20 inches

Net Precipitation Value

2.3 Subsurface Hydraulic Conductivity

sand and silty sand

Conductivity Value

2.4 Vertical Depth to Groundwater

10 feet bgs

Depth to Aquifer Value

3.0 Targets

3.1 Groundwater Usage

Domestic and irrigation

Aquifer Use Value

3.2 Distance to Nearest Drinking Water Well

>0.25 miles

Well Distance Value

3.3 Population Served within 2 Miles

15,328 people

Population Served Value

Worksheet 6
Groundwater Route

CSID: 7471

Site Name: Ernie's BP Enumclaw

3.4 Area Irrigated by GW Wells within 2 miles

Area Irrigated Value 18.67

620 acres

4.0 Release

Release to Groundwater Value 5

Explain basis for scoring a release to groundwater:

Confirmed release

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:

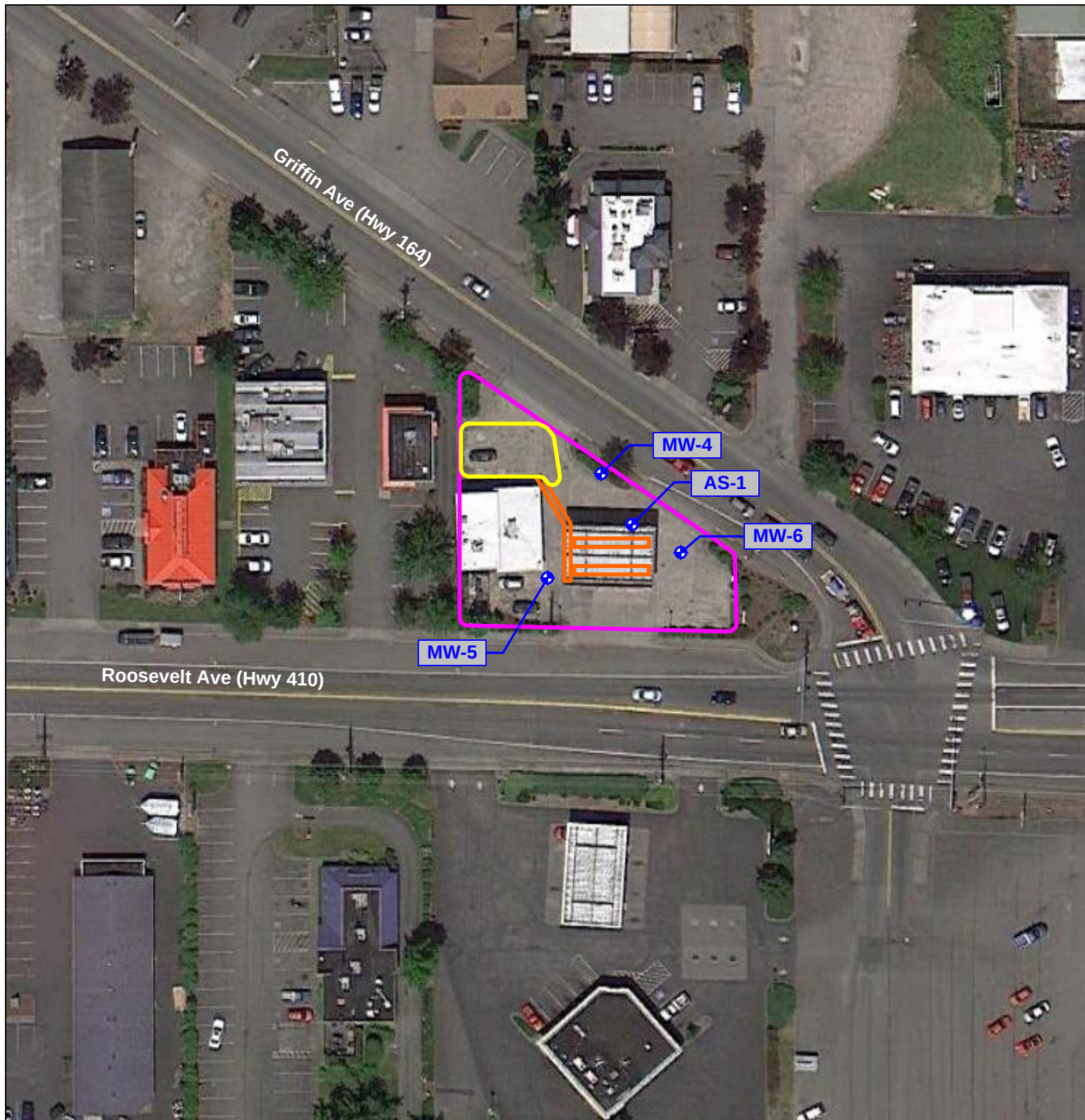
SUB_{GH} = (Human toxicity + mobility + 3) * (Containment + 1) + Substance Qty

MIG_G = Depth to Aquifer + Net Precip + Hydraulic Conductivity

REL_G = Release to Groundwater

TAR_{GH} = Aquifer Use + Well Distance + Population Served + Area Irrigated

SUB_{GH}	180
MIG_G	13
REL_G	5
TAR_{GH}	126.67
GW_H	68.0



Legend:

- Property location (approximate)
- Excavation area / current UST nest (approximate)
- Former dispenser island and piping (approximate)
- + Property location (approximate)

Notes:

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



Ernie's BP Enumclaw
420 Griffin Avenue
Enumclaw, WA 98022

Site Overview Map

CSID 7471
 CSID7471.vsd

Washington Ranking Method
Route Scores Summary and Ranking Calculation Sheet

Site Name:

Ernie's BP Enumclaw

CSID:

7471

Site Address:

420 Griffin Ave

FSID:

2332756

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	7.8	2
Groundwater	68.0	5

H=5

M=2

L=0

H²

+

2M

+

L

=

25

+

4

+

0

=

8

Human Health

Priority Bin Score:

4

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

H²

+

2L

=

1

+

0

=

7

Environment

Priority Bin Score:

1

rounded up to next whole number

Comments/Notes:

FINAL
MATRIX
RANKING

3

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			Environment	
	Surface Water	Air	Ground Water	Surface Water	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