

# SITE HAZARD ASSESSMENT

## Worksheet 1

### Summary Score Sheet

#### SITE INFORMATION:

Coldeen Property Old Gas Station

15631 Westside Hwy SW

Vashon Island, King County, WA 98070

Cleanup Site ID: 11082

Facility/Site ID: 92728218

Section: 24

Latitude: 47.46449

Township: 23N

Longitude: -122.49254

Range: 2E

Tax/Parcel ID: 2423029114

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

#### SITE DESCRIPTION:

The Coldeen Property Old Gas Station site is a former general store and gas station located in Vashon Island, King County, Washington. The 3.22-acre property is located approximately 2500 feet from Puget Sound, and zoned for residential use.

Adjacent properties are residential homes.

The site is currently operated as a residential property by Silvija Paza.

The building is a King County Historic Landmark and has a storefront façade with 'Colvos Store' on the sign and an old gas pump in front of the building.

The Puget Sound Initiative was established by the Governor's office in 2007 with the goal of restoring the health of Puget Sound by 2020. A leading source of pollution to Puget Sound is contaminated sites around its shorelines. Ecology's Toxics Cleanup Program has identified contaminated sites within one-half mile of the Sound. This site is a Puget Sound Initiative site.

#### 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>
1923	1940	Colvos Store	General store with fueling station
1940	2013	Residential	private residence

#### SITE CONTAMINATION:

In 1994 the Coldeen Property Old Gas Station site was reported to Washington Department of Ecology and placed on the LUST list with ID number 3817.

A release of gasoline, benzene and xylenes was identified in 1994 during tank closure activities. The UST had not been operated for approximately 50 years prior.

The site is a former general store with a 1930s gas pump. During real estate due diligence activities in 1994, the 700 gallon tank was discovered to still be present in front of the building. The tank was removed and soils in the excavation were sampled and analyzed, identifying gasoline, benzene and xylene concentrations exceeding MTCA cleanup levels.

#### PAST REMEDIATION ACTIVITIES:

Following the 1994 tank removal, additional excavation was conducted to remove more soil exceeding MTCA cleanup levels, and a second round of sampling was completed. Results from all three samples exceeded MTCA cleanup levels for gasoline and benzene, and results from two sample locations exceeded MTCA cleanup levels

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for xylenes.

There is no indication in the available files whether additional excavation was completed or how the 12 yards of petroleum contaminated soil removed during the tank closure and subsequent excavation were treated or disposed of. The available records do not suggest groundwater was encountered during tank removal or excavation, and there is no indication that investigation of groundwater conditions occurred.

#### CURRENT SITE CONDITIONS:

The site is currently a residential property and is not being used as a general store or a gas station. No additional information is available in Ecology's files since initial notification regarding further characterization or remediation of soils at the former tank location, or any subsequent investigation of groundwater at the site. The depth to groundwater is estimated based on available records for nearby well depths. Several domestic wells are located south of the property within 1/4 mile.

No surface contamination is expected at the site, however residual petroleum contamination in subsurface soils is assumed.

The approximate depth to groundwater is 60 feet below ground surface, with groundwater flowing to the west. Subsurface soils are clay.

#### SPECIAL CONSIDERATIONS:

Checked boxes indicate routes applicable for WARM scoring

☐ **Surface Water**

Release was to subsurface.

☒ **Air**

gasoline, benzene and xylenes were present in soil near a residential structure

☒ **Groundwater**

gasoline, benzene and xylenes were present in soil following tank removal

A limited cleanup was conducted and it is unknown how contaminated soils were disposed of or if they remain on site. A formal site characterization report is not present in the site file. There is no information or analytical data indicating whether the release was leaded or unleaded gasoline.

#### ROUTE SCORES:

Surface Water/ Human Health:

Surface Water/ Environment:

Air/ Human Health: 11.3

Air/ Environment: 1.0

Groundwater/ Human Health: 38.2

**Overall Rank: 5**

#### REFERENCES:

History Link.org, 2013, "Colvos Store"

[http://www.historylink.org/index.cfm?DisplayPage=output.cfm&file\\_id=2344](http://www.historylink.org/index.cfm?DisplayPage=output.cfm&file_id=2344) Accessed February 6.

WA Dept of Ecology, 1994, Northwest Regional Office Underground Storage Tank Notice of Confirmed Release, UST number 102471, ERTS # 19053 for Coldeen Property Old Gas Station. December 20 notification.

WARM Toxicological Database

WARM Scoring Manual

# **SITE HAZARD ASSESSMENT**

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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>. Accessed February 2013

**SITE HAZARD ASSESSMENT**  
**Worksheet 2**  
**Route Documentation**

Cleanup Site ID: 11082

Coldeen Property Old Gas Station

Facility/Site ID: 92728218

**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, xylenes

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

Present in shallow soil

**List those management units to be considered for scoring:**

Soil vapor

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

Proximity to residential structure; potential for vapor phase transport

**3. GROUNDWATER ROUTE**

**List those substances to be considered for scoring:**

Gasoline, benzene, xylenes

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

Present in shallow soil

**List those management units to be considered for scoring:**

Groundwater

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

Groundwater may have been impacted

**Worksheet 5****Air Route**

CSID: 11082

Site Name: Coldeen Property Old Gas Station

**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
benzene	10	3	X	5
xylenes	1	3	1	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
benzene	31947	3	4	6
xylenes	21714	3	3	5

Env. Final Matrix Value 6

**1.6 Substance Quantity**

Amount: 100 square feet

Basis: Estimated surface area of residual contaminated soils

Substance Quantity Value 1

**Worksheet 5****Air Route**

CSID: 11082

Site Name: Coldeen Property Old Gas Station

**2.0 Migration Potential****2.1 Containment**Containment Value 

Explain Basis: Assumes subsurface release with at least 2' thick cover uncontaminated soil, and  
no vapor collection system based on available information

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

adjacent residence is occupied

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

Approx 2500 feet to Puget Sound/Ober Beach

**3.3 Population within 0.5 miles**Population Value 

192 population

**4.0 Release**Release 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:

 $SUB_{AH} = (\text{Human toxicity} + 5) * (\text{Containment} + 1) + \text{Substance Qty}$  $REL_A = \text{Release to Air}$  $TAR_{AH} = \text{Nearest Population} + \text{Population within 1/2 mile}$ 

$SUB_{AH}$	151
$REL_A$	0
$TAR_{AH}$	24
$AIR_H$	11.3

**Pathway Scoring - Air Route, Environmental Pathway**

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

Where:

 $SUB_{AE} = (\text{Environmental Toxicity Value} + 5) * (\text{Containment} + 1) + \text{Substance Qty}$  $REL_A = \text{Release to Air}$  $TAR_{AE} = \text{Nearest Sensitive Environment}$ 

$SUB_{AE}$	67
$REL_A$	0
$TAR_{AE}$	5
$AIR_E$	1.0

**Worksheet 6**  
**Groundwater Route**

**CSID:** 11082

**Site Name:** Coldeen Property Old Gas Station

**1.0 Substance Characteristics**

**1.1 Human Toxicity**

Substance	Drinking Water Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
benzene	8	3	X	5
xylenes	2	10	1	X

Highest Value 10

Bonus Points? +2

Toxicity Value

**1.2 Mobility**

Cations/Anions

Max Value:

Solubility

Max Value:

3

Mobility Value

**1.3 Substance Quantity**

Amount: 10 cubic yards of soil

Basis: Expected remaining volume of impacted soil

Substance Quantity Value

**2.0 Migration Potential**

**2.1 Containment**

Containment Value

Explain Basis: LUST with residual contaminated soil

**2.2 Net Precipitation**

10-20 inches

Net Precipitation Value

**2.3 Subsurface Hydraulic Conductivity**

silt/sand

Conductivity Value

**2.4 Vertical Depth to Groundwater**

Estimated 20 feet to groundwater; actual depth to water unknown

Depth to Aquifer Value

**3.0 Targets**

**3.1 Groundwater Usage**

Domestic wells with alternate sources available, also nearby public supply

Aquifer Use Value

**3.2 Distance to Nearest Drinking Water Well**

885' to drinking water well

Well Distance Value

**3.3 Population Served within 2 Miles**

120 population

Population Served Value

Worksheet 6

Groundwater Route

CSID: 11082

Site Name: Coldeen Property Old Gas Station

3.4 Area Irrigated by GW Wells within 2 miles

Area Irrigated Value

103.5 acres

4.0 Release

Release to Groundwater Value

Explain basis for scoring a release to groundwater:  
no 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

$SUB_{GH}$	199
$MIG_G$	13
$REL_G$	0
$TAR_{GH}$	27
$GW_H$	38.2





Legend:

-  Property location (approximate)
-  Former UST location (approximate)

Notes:

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



**Coldeen Property Old Gas Station**  
**15631 Westside Hwy SW**  
**Vashon, WA 98070**



**Site Overview Map**

**CSID 11082**  
CSID11082.vsd

Washington Ranking Method  
Route Scores Summary and Ranking Calculation Sheet

Site Name:

Coldeen Property Old Gas Station

CSID:

11082

Site Address:

15631 Westside Hwy SW, Vashon Island 98070

FSID:

92728218

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	11.3	2
Groundwater	38.2	3

H=3  
M=2  
L=0

H<sup>2</sup>

9

+

2M

4

+

L

0

=

8

Human Health  
Priority Bin Score:

2

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	1.0	1

H=1  
L=0

H<sup>2</sup>

1

+

2L

0

=

7

Environment  
Priority Bin Score:

1

rounded up to  
next whole  
number

Comments/Notes:

FINAL  
MATRIX  
RANKING

5

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