

SITE HAZARD ASSESSMENT

Worksheet 1

Summary Score Sheet

SITE INFORMATION:

WA DOT Signals Maintenance
3700 9th Ave S
Seattle, King County, WA 98134

Cleanup Site ID: 9862
Facility/Site ID: 60549963

Section:	17	Latitude:	47.57033
Township:	24N	Longitude:	-122.32076
Range:	4E	Tax/Parcel ID:	5679500270

Site scored/ranked for the Hazardous Sites List Publication: August 2015

SITE DESCRIPTION:

The WA DOT Signals Maintenance site (Site) is a former (and current) maintenance facility located in Seattle, King County, Washington. The 1.9-acre property is located approximately 5,600 feet from the Lower Duwamish Waterway (LDW), and zoned for industrial (IG2 U/85) use.

The Site is located along the east side of 9th Avenue South, just south of the West Seattle Bridge. Interstate 5 is located to the east of the Site. Adjacent properties include another parcel owned and operated by the Washington Department of Transportation (WA DOT) to the south, a plumbing company to the west, and a warehouse to the southwest.

The Site is currently operated as a Signals Maintenance facility by State of Washington DOT, NWR Facilities.

Current activities at the Site include the operation of the Regional Signals Office for the Washington DOT.

Washington DOT, WA DOT, and WSDOT are all acronyms used to indicate the Washington State Department of Transportation.

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>
	2014	State of Washington Department of Transportation	Signals Maintenance facility

SITE CONTAMINATION:

In 1991 the WA DOT Signals Maintenance site was reported to Washington State Department of Ecology (Ecology) and placed on the Leaking Underground Storage Tank (LUST) list.

In January 1991, petroleum-impacted soil was encountered during upgrading of the diesel and gasoline underground storage tanks (USTs) and fuel island at the Signals Maintenance facility. The release was suspected to have been due to leaking gaskets, overfills, and a piping leak near the dispenser. The Ecology UST database lists the tanks at the Site as two unleaded gasoline tanks of 5,000 to 9,999 gallon capacity, and one 5,000 to 9,999-gallon diesel tank. No map of the Site was available for review in Ecology's files, so the exact location of the USTs and associated soil samples is unknown.

In February 1991, approximately 250 cubic yards of soil were excavated and stockpiled at the Site. Five soil samples were collected from around the tanks and from under the fuel pump, and were analyzed for oil and grease. Concentrations of oil were detected up to 770 milligrams per kilogram (mg/kg), below the current Model Toxics Control Act (MTCA) Method A cleanup level. Soil samples were not analyzed for gasoline, benzene, toluene, ethylbenzene, xylenes (BTEX), or lead. Groundwater was reportedly encountered in the excavation, but was not sampled. The tanks were upgraded and left in-place at the Site, and the petroleum-impacted soil was moved to another Department of Transportation (DOT) facility and stockpiled on visqueen. Notes indicate that DOT planned to remediate this soil by landfarming.

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PAST REMEDIATION ACTIVITIES:

In June 2015, three USTs at the Site were decommissioned and removed, along with the associated piping and pump island. The tanks included one 5,000-gallon diesel UST, and two 5,000-gallon gasoline USTs. During decommissioning, petroleum-impacted soil was observed in the excavation. The release was expected to have been from the tank piping. Visual evidence of petroleum impacted soil was observed at depths between 2.5 and 8.5 feet bgs beneath the pump island, and approximately 11.5 to 12.5 feet bgs below the former USTs. This soil was overexcavated.

Approximately 562 tons of impacted soil was excavated and removed from the Site, and five confirmation soil samples were collected from the excavation limits. Samples were analyzed for gasoline- and diesel-range hydrocarbons, BTEX constituents, and semivolatile organics. Diesel-range hydrocarbons were detected in two of the soil samples at a concentration less than the MTCA Method A cleanup level.

The Environmental Report Tracking System (ERTS) report for the 2015 release notes that there are utilities in the area, and not all of the soil along the south side of the excavation would be able to be removed. However, the subsequent UST removal report does not mention residual impacted soil at the Site, and the confirmation soil sample collected along the south side of the excavation contained concentrations of diesel below the MTCA Method A cleanup level.

Groundwater was observed seeping into the excavation at approximately 8.5 feet below ground surface (bgs); however, groundwater was not sampled at the Site.

CURRENT SITE CONDITIONS:

Petroleum-impacted soil is expected to have been removed from the Site. Groundwater at the Site has not been characterized, but is suspected to be impacted as groundwater was observed in the UST excavation at 8.5 feet bgs, above the bottom depth of the observed petroleum-impacted soil. Soil samples collected in 1991 were not analyzed for gasoline and/or BTEX constituents, though 2015 samples were.

The approximate depth to groundwater is 8.5 feet below ground surface, with groundwater flowing to the west (estimated based on surface topography). Subsurface soils are expected to be sand and silt.

SPECIAL CONSIDERATIONS:

Checked boxes indicate routes applicable for Washington Ranking Method (WARM) scoring

Surface Water

Release occurred to subsurface soils.

Air

Diesel is not expected to impact the air route due to low volatility.

Groundwater

Groundwater was encountered, but not sampled, at the Site. Petroleum-impacted soil that may still be present at the Site has the potential to impact Site groundwater.

ROUTE SCORES:

Surface Water/ Human Health:

Surface Water/ Environment:

Air/ Human Health:

Air/ Environment:

Groundwater/ Human Health: 31.4

Overall Rank: 5

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Summary Score Sheet

REFERENCES:

- 1 King County GIS Center iMAP application, Property Information, Groundwater Program, and Sensitive Areas mapsets. Accessed December 2014.
<http://www.kingcounty.gov/operations/GIS/Maps/iMAP.aspx>
 - 2 Missouri Census Data Center, Circular Area Profiles - 2010 census data around a point location. <http://mcdc.missouri.edu/websas/caps10c.html>. Accessed December 2014.
 - 3 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>
 - 4 WARM Scoring Manual
 - 5 WARM Toxicological Database
 - 6 Washington Department of Transportation 24-hour Isopluvial Maps, January 2006 update. <http://www.wsdot.wa.gov/publications/fulltext/Hydraulics/Wa24hrIspluvials.pdf>
 - 7 Washington State Department of Ecology, 1991, Telephone Record Re: WDOT Signals Maintenance. March 12, 1991.
 - 8 Washington State Department of Ecology, 1991, Underground Storage Tank Notice of Confirmed Release. February 7, 1991.
 - 9 Washington State Department of Ecology, 2011, Initial Investigation Field Report. August 8, 2011.
 - 10 Washington State Department of Ecology, 2015, Environmental Report Tracking System ERTS # 657540. June 18.
 - 11 Washington State Department of Ecology, UST Site/Tank Data Summary, Facility Name: Signals Branch 7HDQ Site. Accessed December 17, 2014.
 - 12 Washington State Department of Transportation Hazardous Materials and Solid Waste Program Environmental Services Office, 2015, Underground Storage Tank Removal and Site Characterization Report. Prepared for Washington State Department of Transportation HQ Transportation Equipment Fund. August 7.
 - 13 Washington State Department of Transportation, 1991, Cleanup Action for the WSDOT Property at Signals 3700 9th Avenue, S. Seattle Washington 98134. June 24, 1991.
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SITE HAZARD ASSESSMENT
Worksheet 2
Route Documentation

Cleanup Site ID: 9862

WA DOT Signals Maintenance

Facility/Site ID: 60549963

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:

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:

3. GROUNDWATER ROUTE

List those substances to be considered for scoring:

Gasoline (benzene), ethylbenzene, toluene, xylenes, diesel

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

Suspected presence in Site groundwater

List those management units to be considered for scoring:

Groundwater

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

Potential for impacts to groundwater

Worksheet 6
Groundwater Route

CSID: 9862

Site Name: WA DOT Signals Maintenance

3.4 Area Irrigated by GW Wells within 2 miles

Area Irrigated Value

0 acres

4.0 Release

Release to Groundwater Value

Explain basis for scoring a release to groundwater:

No 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:

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

$$MIG_G = \text{Depth to Aquifer} + \text{Net Precip} + \text{Hydraulic Conductivity}$$

$$REL_G = \text{Release to Groundwater}$$

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

SUB _{GH}	201
MIG _G	13
REL _G	0
TAR _{GH}	2.0
GW_H	31.4

Washington Ranking Method

Route Scores Summary and Ranking Calculation Sheet

Site Name: WA DOT Signals Maintenance

CSID: 9862

Site Address: 3700 9th Avenue South

FSID: 60549963

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	ns	0
Groundwater	31.4	2

H=	2
M=	0
L=	0

$$\begin{matrix} H^2 & + & 2M & + & L \\ \hline 4 & + & 0 & + & 0 \\ \hline & & 8 & & \end{matrix}$$

**Human Health
Priority Bin Score:**
1
 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	ns	0

H=	0
L=	0

$$\begin{matrix} H^2 & + & 2L \\ \hline 0 & + & 0 \\ \hline & & 7 \end{matrix}$$

**Environment
Priority Bin Score:**
N/A
 rounded up to next whole number

Comments/Notes:

**FINAL MATRIX
RANKING**

5

FOR REFERENCE:

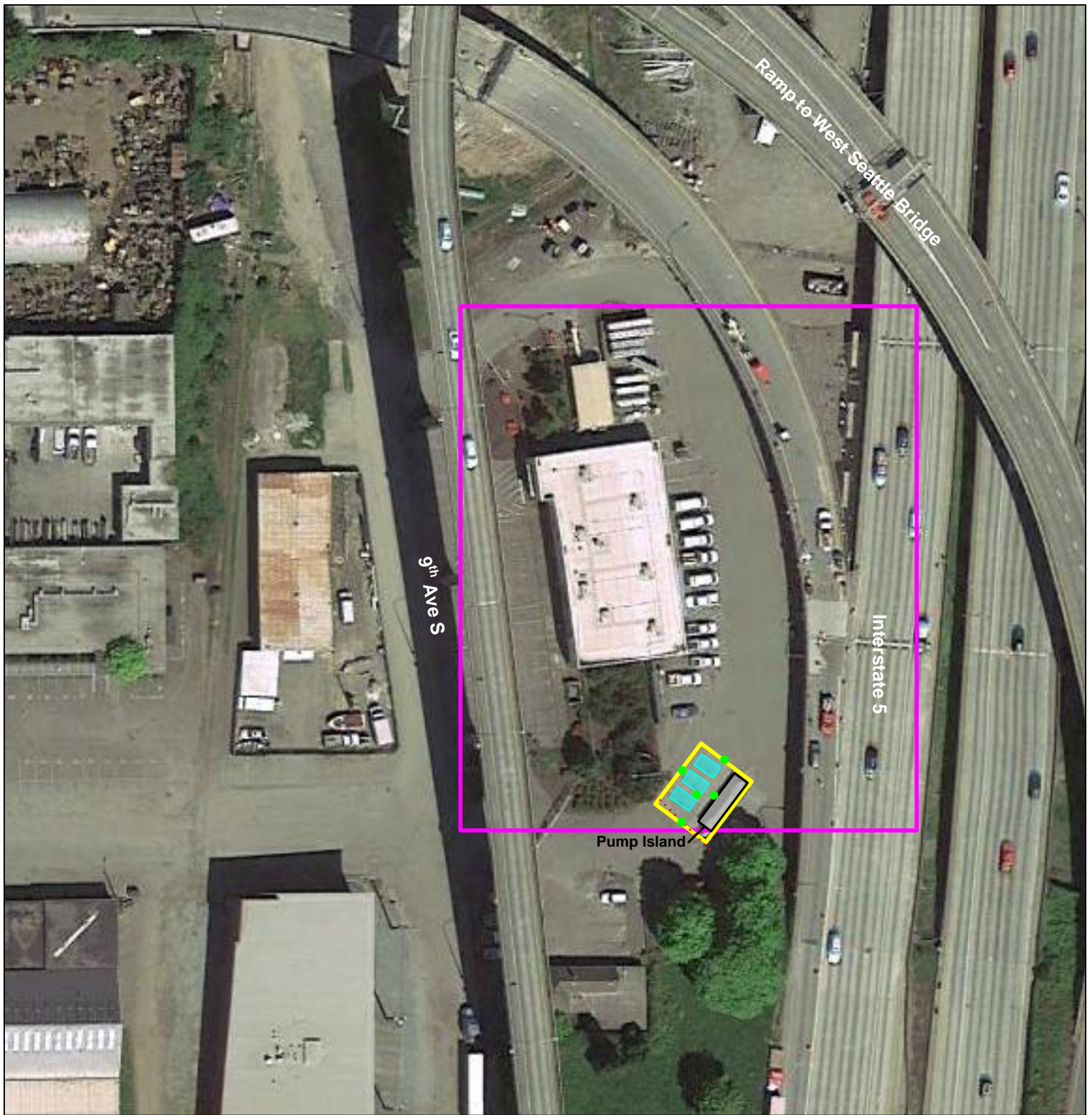
Final WARM Bin Ranking Matrix

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 2015 Values

Quintile	Human Health			Environment	
	Surface Water	Air	Ground Water	Surface Water	Air
5	>= 30.7	>= 37.6	>= 51.6	>= 50.9	>= 29.9
4	>= 23.1	>= 23.8	>= 40.9	>= 31.2	>= 22.5
3	>= 14.1	>= 15.5	>= 33.2	>= 23.6	>= 14.0
2	>= 7.0	>= 8.5	>= 23.5	>= 11.0	>= 1.6
1	<= 6.9	<= 8.4	<= 23.4	<= 10.9	<= 1.5

Quintile value associated with each route score entered above



Legend:

- Property location (approximate)
- Excavation area (approximate)
- Former UST location (approximate)
- Utility location (approximate)
- Soil sample (approximate)

Notes:

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



WDOT Signals Maintenance
3700 9th Avenue South
Seattle, WA 98134



Site Overview Map

CSID 9862
 CSID9862.vsd