SITE HAZARD ASSESSMENT
Worksheet 1
Summary Score Sheet

SITE INFORMATION:

Cleanup Site ID: 12406

Facility/Site ID: 8101

Morningside Acres Tracts North

5001 Rainier Ave S

Seattle, King County, WA 98118

Section:	22	Latitude:	47.55680
Township:	24N	Longitude:	-122.28481
Range:	4E	Tax/Parcel ID:	5649600135

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

SITE DESCRIPTION:

The Morningside Acres Tracts North site (Site) is a former gasoline service station located in Seattle, King County, Washington. The 0.17-acre property is located approximately 4,750 feet from Lake Washington, and zoned for commercial (C2-65) use.

Adjacent properties include a restaurant to the northeast, a youth and family services center to the north, an office building to the west, a Busy Bee mini mart to the south, and a restaurant and lounge to the east.

The Site is currently operated as a parking lot by Washin Murakami.

Previous investigation at this Site have also included the two properties south of this tax parcel (tax parcels 5649600130 and 5649600135). These properties are currently operated as a mini mart and a bookstore. The two southern properties are listed together on the Confirmed and Suspected Contamined Sites List (CSCSL), under Cleanup Site ID (CSID) 12408, Morningside Acres Tracts South. The two sites were listed individually as they are suspected to be two separate releases.

The Site is located in the Columbia City neighborhood of Seattle, at the southwest corner of South Hudson Street and Rainier Avenue South.

SITE BACKGROUND:

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

From	To	Operator/Tenant	Activity
1929	1950		Former service station
1954	1970		Former service station and automotive repair
	2015	Washin Murakami	Parking lot

SITE CONTAMINATION:

In 2013 the Morningside Acres Tracts North site was reported to Washington State Department of Ecology (Ecology) and placed on the Leaking Underground Storage Tank (LUST) list.

Underground storage tanks (USTs; exact number and contents unknown) associated with a former automobile service station located at the Site were reportedly closed-in-place in the 1970's.

In 2005, a Phase I Environmental Site Assessment (ESA) was conducted at this and the southern-adjacent Morningside Acres Tracts South site by Wolfe Environmental Consulting, Inc. This report was not available for review in Ecology's files, but a summary was available in a subsequent report. In 2005, the businesses operating on these three tax parcels were reported to be a fitness center, automotive repair shop, grocery store, and several small parking lots; however, it is unclear which business operated on which parcel.

In 2006, a Limited Phase II ESA and a Supplemental Phase II were completed at this and the southern-adjacent site by Kleinfelder, Inc., and a Phase II ESA was completed at the Site in 2007 by G-Logics, Inc. According to a

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summary of these investigations in a subsequent report, four soil borings (SB-1 through SB-4) and 23 test probes (GP-1 through GP-5 and GLI-01 through GLI-18) were advanced at the Site in 2006 and 2007. The locations of the soil borings and test probes were not available, and the summary provided in a subsequent report did not include analytical results of soil samples that may have been collected from these locations. It is unclear from the documentation provided whether these boring locations were on this property, or the southern-adjacent site. Some soil samples collected from the GLI-series borings reportedly contained oil- and gasoline-range hydrocarbons (identified as mineral spirits or kerosene) as well as benzene and/or VOCs (vinyl chloride, trichloroethene, styrene, and/or 1,4-dichlorobenzene) at concentrations greater than MTCA Method A cleanup levels. The VOCs are suspected to be from borings located on the southern-adjacent site.

During 2006 and 2007, eighteen monitoring wells (MW-1 through MW-18) were installed on this Site and on the Morningside Acres Tracts South site. Wells MW-1, MW-2, MW-6, MW-9, MW-10, and MW-18 are located on the Morningside Acres Tracts North site (shown on the attached figure).

During the most recent groundwater monitoring event in February 2013, gasoline-, diesel-, and heavy oil-range hydrocarbons were detected in the groundwater sample collected from well MW-10 at concentrations above MTCA Method A cleanup levels. Mineral spirits were detected in groundwater collected from MW-10 in January 2007; however, subsequent samples have not been analyzed for mineral spirits. Other groundwater samples collected at the Site did not contain concentrations of VOCs, BTEX constituents, or petroleum hydrocarbons above MTCA Method A cleanup levels.

PAST REMEDIATION ACTIVITIES:

No reports regarding remedial actions conducted at the Site were available for review in Ecology's files.

CURRENT SITE CONDITIONS:

As of 2013, groundwater in the vicinity of MW-10 contained gasoline-, diesel-, and heavy oil-range hydrocarbons at concentrations greater than MTCA Method A cleanup levels.

The approximate depth to groundwater is 2 to 10 feet below ground surface, with groundwater flowing to the north (based on groundwater elevations). Subsurface soils are expected to be silt and sand.

SPECIAL CONSIDERATIONS:

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

☐ **Surface Water**

Release likely occurred in the subsurface.

☑ **Air**

Gasoline-range hydrocarbons were present in groundwater at the Site in 2013, and may be available for transport via the air route. Gasoline-range hydrocarbons and benzene may also be present in Site soil.

☑ **Groundwater**

Petroleum hydrocarbons have been detected in Site groundwater at concentrations above MTCA Method A cleanup levels.

ROUTE SCORES:

Surface Water/ Human Health:		Surface Water/ Environment:	
Air/ Human Health:	41.0	Air/ Environment:	1.5
Groundwater/ Human Health:	31.8		

Overall Rank: 3

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Worksheet 1
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REFERENCES:

1 Ecology Water Resources Explorer, accessed July 2015. https://fortress.wa.gov/ecy/waterresources/map/WaterResourcesExplorer.aspx

2 King County GIS Center iMAP application, Property Information, Groundwater Program, and Sensitive Areas mapsets. Accessed April 2015. http://www.kingcounty.gov/operations/GIS/Maps/iMAP.aspx

3 Missouri Census Data Center, Circular Area Profiles - 2010 census data around a point location. http://mcdc.missouri.edu/websas/caps10c.html. Accessed April 2015.

4 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

5 The Riley Group, Inc., 2013, First Quarter 2013 Groundwater Sampling Report, Morningside Acres Tracts, 5001, 5015, and 5021 Rainier Avenue South, Seattle, Washington 98118. Prepared for Washin Murakami. April 19.

6 WARM Scoring Manual

7 WARM Toxicological Database

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

9 Washington State Department of Ecology, 2013, Initial Investigation Field Report, Morning Acre Tract North. October 31.

SITE HAZARD ASSESSMENT
Worksheet 2
Route Documentation

Cleanup Site ID: 12406 Morningside Acres Tracts North

Facility/Site ID: 8101

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

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

Prior detection in Site groundwater

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, diesel (other petroleum hydrocarbon ranges not scored as WARM does not contain toxicity data for those specific ranges)

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

Prior detection in Site groundwater at concentrations greater than 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:

Presence in groundwater in 2013

Worksheet 5

Air Route

CSID: 12406 **Site Name:** Morningside Acres Tracts North

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	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:	
	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	31947	3	4	6

Env. Final Matrix Value 6

1.6 Substance Quantity

Amount: Approximately 625 square feet

Basis: Estimated extent of impacted soil and groundwater

Substance Quantity Value 4

Worksheet 5

Air Route

CSID: 12406 **Site Name:** Morningside Acres Tracts North

2.0 Migration Potential

2.1 Containment Containment Value: 5

Explain Basis: At least 2 feet of soil cover but no vapor collection system present

3.0 Targets

3.1 Nearest Population Population Distance Value: 10

Approximately 350 feet to the nearest dwelling

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

Approximately 700 feet to Hitt's Hill Park

3.3 Population within 0.5 miles Population Value: 75

6,769 population

4.0 Release Release to Air Value: 0

Explain basis for scoring a release to air:

No confirmed release to air

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}	154
REL_A = Release to Air	REL_A	0
TAR_{AH} = Nearest Population + Population within 1/2 mile	TAR_{AH}	85.0
	AIR_H	41.0

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}	70
REL_A = Release to Air	REL_A	0
TAR_{AE} = Nearest Sensitive Environment	TAR_{AE}	7.0
	AIR_E	1.5

Worksheet 6

Groundwater Route

CSID: 12406 **Site Name:** Morningside Acres Tracts North

1.0 Substance Characteristics

1.1 Human Toxicity

Substance	Drinking Water Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Gasoline	8	3	X	5
Diesel	4	5	3	X

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: Approximately 70 cubic yards

Basis: Estimated volume of impacted soil/groundwater

Substance Quantity Value 2

2.0 Migration Potential

2.1 Containment Containment Value 10

Explain Basis: Release/spill and contaminated soil

2.2 Net Precipitation >10 to 20 inches Net Precipitation Value 2

2.3 Subsurface Hydraulic Conductivity Conductivity Value 3

Sand and silt

2.4 Vertical Depth to Groundwater 2 feet

Confirmed release: Yes Depth to Aquifer Value 8

3.0 Targets

3.1 Groundwater Usage Aquifer Use Value 4

Private supply but alternate sources available with minimum hookup requirements

3.2 Distance to Nearest Drinking Water Well 6,600 feet

Well Distance Value 1

3.3 Population Served within 2 Miles Population Served Value 2

3 people

Worksheet 6

Groundwater Route

CSID: 12406 **Site Name:** Morningside Acres Tracts North

3.4 Area Irrigated by GW Wells within 2 miles Area Irrigated Value 1

1 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}	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}	7.5
	GW_H	31.8

Washington Ranking Method

Route Scores Summary and Ranking Calculation Sheet

Site Name: Morningside Acres Tracts North **CSID:** 12406

Site Address: 5001 Rainier Ave South **FSID:** 8101

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	41.0	5
Groundwater	31.8	2

H=	5
M=	2
L=	0

$$\frac{H^2 + 2M + L}{8} = \frac{25 + 4 + 0}{8}$$

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	1.5	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 **3**

FOR REFERENCE:

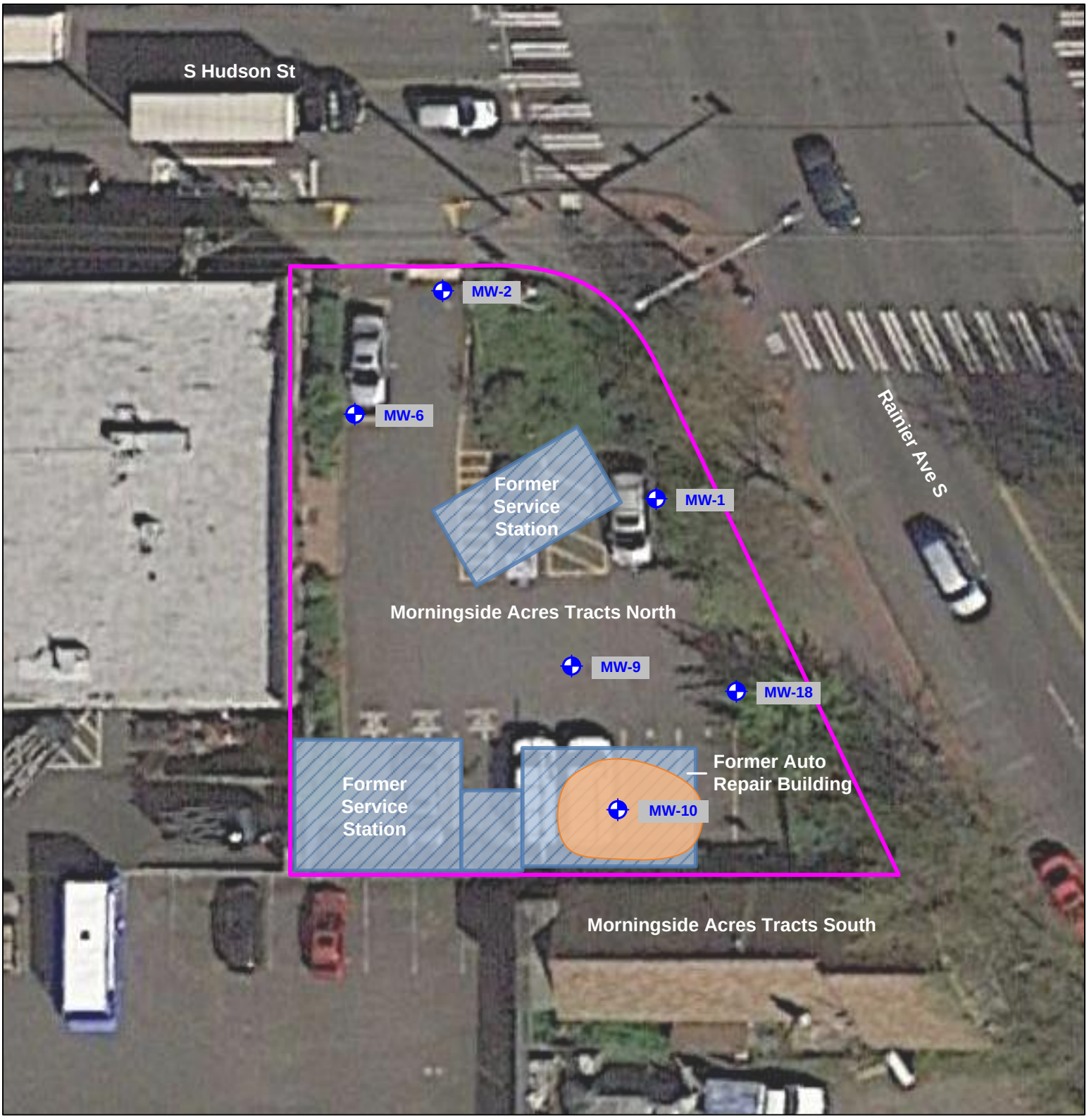
Final WARM Bin Ranking Matrix

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 2015 Values

Quintile	Human Health Surface Water	Air	Ground Water	Environment 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)
- Extent of remaining groundwater contamination (approximate)
- Former building location (approximate)
- Monitoring well (approximate)

Notes:

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

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Morningside Acres Tracts North
5001 Rainier Avenue South
Seattle, WA 98118

DEPARTMENT OF ECOLOGY
State of Washington

Site Overview Map

CSID 12406
CSID12406.vsd