



SITE HAZARD ASSESSMENT

Worksheet 1: Summary Score Sheet

SITE NAME: Block 37

Rank: 1

Cleanup Site ID: 6134

Completed on 2/7/2022 for inclusion

Facility/Site ID: 46445373

on the February 2022 Hazardous Sites List.

LOCATION OF SITE

600-630 Westlake Ave N

Township 25N, Range 4E, Section 30

Seattle, King County, WA 98109

Latitude, Longitude: 47.62524, -122.33786

Tax Parcel ID: 198720-0015, 408880-3235, 408880-3236, 408880-3240, 408880-3345, 408880-3355

SITE DESCRIPTION

Within Currently Defined Site Boundaries

The Block 37 site includes the parcels listed above (Property) and the city rights of way for Valley Street to the north, Terry Avenue to the east, Mercer Street to the south, and Westlake Avenue North to the west. The Property (not including the rights of way) is 1.59 acres and comprises the entire city block at the northwest corner of Mercer Street and Terry Avenue North. It is zoned as Seattle Mixed - South Lake Union Urban Center (SM-SLU 85/65-160), which allows a combination of light industrial, commercial, and residential uses and requires commercial uses at street level. The north half of the Property is paved with asphalt, the south half has a gravel surface, and the perimeter is fenced. Temporary trailers are present on the south half. The City of Seattle provides water, sewer, and stormwater services.

Potential contaminants associated with historical operations at the property include petroleum in the gasoline (TPH-G), diesel (TPH-D), and oil (TPH-O) ranges; polycyclic aromatic hydrocarbons (PAHs); volatile organic chemicals associated with petroleum, including benzene, toluene, ethylbenzene, and xylenes (BTEX), ethylene dichloride, ethylene dibromide, and methyl-tert-butyl ether; degreasing solvents; metals; and polychlorinated biphenyls (PCBs).

Petroleum releases have occurred in two separate areas of the Property. The Westlake 76 Station operated in the southwest corner of the Property. That site has also been known as ConocoPhillips Station 255353 and TOSCO 25535330857. The Union 76 Service Station operated on the northwest corner of the Property. That site has also been known as Auto Service Company and it was the subject of a site hazard assessment in 2004, which ranked the site as 5 (lowest priority). These two individual sites were combined into the Block 37 Site to facilitate a final cleanup action. The current site hazard assessment covers the entire Block 37 Site.

The Property has most recently been used for temporary construction offices, parking, materials and equipment staging for nearby construction projects, and temporary groundwater treatment facilities for construction dewatering. Ecology understands that the Property is currently planned for redevelopment beginning in approximately 2024.

Historical Owners and Operators

<u>From</u>	<u>To</u>	<u>Owner/Operator</u>	<u>Site Uses</u>
1882	1988	Brace / Brace & Hergert Lumber Mill	Lumber mill (parcels 408880-3235, -3236, -3240, -3345, -3355 & 198720-0015)

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1917	1969	Burlington Northern/Santa Fe	Railroad spur (parcel 408880-3236)
1930	~1964	Union 76	Service station (parcels 408880-3235, - 3240)
1944	~1969	Horluck's Brewing / Sick's Century Brewery	Brewery (parcel 198720-0015)
1950	~1965	Horluck Creameries	Dairy (parcel 408880-3355)
1960	2005	Denny's Restaurant	Restaurant (parcel 198720-0015)
1960s	2002	Auto Service Company	Auto service (parcels 408880-3235, - 3240)
1965	2008	Westlake 76	Service station (parcel 408880-3355)

Area Surrounding the Site

The Property was reclaimed from Lake Union using undocumented fill materials including dirt, concrete, bricks, wood, and sand in the late 1800s. Commercial and industrial operations include a lumber mill, two automotive service stations, an automotive service and detailing operation, a restaurant, a creamery, and a brewery. Fires occurred on different portions of the Property in 1909 and 1935.

The Property is bounded to the north by Valley Street and across that Lake Union Park. It is bounded to the east by Terry Avenue North and across that an office building. It is bounded to the south by Mercer Street and across that an existing office building and an office building under construction. It is bounded to the west by Westlake Avenue North and across that an office building.

The Property is surrounded by seven sites listed on Ecology's Confirmed and Suspected Contaminated Sites List. The Seattle City DOT ROW 710 9th Ave N site (cleanup site identification [CSID] 12379) is across the street northwest; it is awaiting cleanup. The Seattle City Parks NW Seaport site (CSID 596) and the Seattle S Lake Union Park site (CSID 8641) are across the street northeast; cleanup has been started at both sites as independent actions. The Shell 23714 site (CSID 11355) is on the block to the east; cleanup has been started under oversight by the Pollution Liability Insurance Agency. The Block 38 West site (CSID 15008) is on the block to the south; it is being cleaned up under an agreed order. The Amazon VI site (CSID 12471) is across the intersection southwest; no further action was granted following an independent action. The AIBS Building Block 43 site (CSID 12637) is across the street west; cleanup has been started as an independent action.

Releases of chlorinated solvents (tetrachloroethene and degradation products) at the Maryatt Industries/American Linen site to the northwest have traveled in deep groundwater under the Site in a plume that is distinct from, and unrelated to, the releases at the Site. The chlorinated solvents are being evaluated in relation to the Maryatt Industries/American Linen site (CSID 12004) and are not evaluated in this SHA.

The nearest surface water body is Lake Union, located 200 feet north and bordered by a park. The park offers landscaped lawns, paved walking paths, a small beach, a pier, and a museum. The portion of the park directly across Valley Street from the Property is paved, but unpaved lawns are present 250 feet to the north and 125 feet to the northwest.

SITE CHARACTERIZATION AND/OR REMEDIATION

At least ten technical reports have reported on investigations at the Block 37 Site over the years. The draft work plan in process at the time of this SHA provides a comprehensive summary of the investigations and remedial activities. The summary in this section relies upon the draft work plan.

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Soil and/or groundwater samples were collected on various parts of the Site, including the Property and the surrounding rights of way, in 1980-1982, 1988-2011, 2013-2019, and 2021. Most of the environmental investigations have been associated with the Westlake 76 Service Station in the southwestern portion. During the course of these investigations, more than 1,000 soil samples and more than 1,500 groundwater samples were collected. Most samples were analyzed for TPH-G, TPH-D, TPH-O, kerosene, BTEX, and lead. Some samples were also analyzed for ethylene dibromide, ethylene dichloride, PAHs, PCBs, and metals.

Between 1980 and 2019, at least seven separate remedial actions were conducted involving removal of underground storage tanks, soil excavation, recovery of separate phase petroleum product, air sparging (AS), soil vapor extraction (SVE), and/or enhanced fluid recovery. An approximate total of 72,832 tons of contaminated soil; 38,111 gallons of product; and 4,262 pounds of gasoline vapor were removed from the site. In 2008, a soil cement/bentonite gravity wall was installed along the north, east, and south boundaries of the Property to prevent free product from migrating off the Property.

The AS/SVE system was modified and enlarged over the years. In its final configuration, the AS/SVE system included remediation wells surrounding the Property in the rights of way connected to an aboveground treatment system. The AS system supplied compressed air to 62 air sparge wells (27 in Mercer Street, 14 in Valley Street, and 21 in Westlake Avenue North). The blowers extracted soil vapors from 36 vertical wells (19 in Mercer Street and 17 in Terry Avenue North) and 16 horizontal wells (7 in Valley Street and 9 in Westlake Avenue North). The AS/SVE system was decommissioned in 2019 due to diminishing returns.

Soil confirmation samples collected after the last excavation contained TPH-G, TPH-D, benzene, toluene, ethylbenzene, naphthalene, carcinogenic PAHs, arsenic, barium, and lead above cleanup levels. Groundwater samples collected between 2019 and 2021 contained TPH-G, TPH-D, TPH-O, benzene, ethylbenzene, xylenes, naphthalene, arsenic, and lead above cleanup levels.

ADDITIONAL INFORMATION COLLECTED BY THE SITE HAZARD ASSESSOR

A site visit was conducted on January 21, 2022. Conditions at the site and in the surrounding area were consistent with those described above.

SPECIAL CONSIDERATIONS

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

Surface Water

No confirmed transport pathway to surface water.

Air

Volatile chemicals were detected in groundwater above vapor intrusion screening levels.

Groundwater

Petroleum hydrocarbons and metals were detected in soil and groundwater above cleanup levels.

TPH-G (represented by benzene), TPH-D (represented by naphthalene), arsenic, and lead were chosen for scoring. Additional chemicals exceed cleanup levels in soil and groundwater but would not alter the scoring.

The source for the air and groundwater pathways was considered to be contaminated groundwater. There are wells at the property boundary on each side of the property with groundwater concentrations exceeding cleanup levels. Wells in the right-of-way for Valley Street north of the property do not contain exceedances, so the contamination is contained within the property boundary to the north. Wells in the right-of-way for Mercer Street do contain exceedances, so the contamination extends off property to the south and is not bounded by clean



SITE HAZARD ASSESSMENT Worksheet 1: Summary Score Sheet

wells. There are no current wells within the rights-of-way for Terry Avenue N on the east side of the property or Westlake Avenue N on the west side, so contamination may extended off property in these directions. Some of the wells within the interior of the property contain exceedances and some do not.

For the sake of simplicity, the groundwater contamination was assumed to be located throughout the property and extending to the midline of Mercer Street. Including portions of the interior of the property that may not be contaminated offsets the fact that contamination is not bounded to the east, south, or west. The contamination was assumed to be in a rectangle 370 feet north-south by 240 feet east-west. This equates to 88,800 square feet of contaminant source material. For the purposes of the groundwater score, the contaminant source was assumed to be three feet thick, a default assumption when exact dimensions are not known.

ROUTE SCORES

Surface Water/ Human Health:

Surface Water/ Environment:

Air/ Human Health: 48.4

Air/ Environment: 1.6

Groundwater/ Human Health: 44.6

Overall Rank: 1



SITE HAZARD ASSESSMENT Worksheet 1: Summary Score Sheet

REFERENCES

- 1 Atlas. 2021. Agency Review Draft Remedial Investigation Work Plan, Block 37, Seattle, WA. October 4.
- 2 Ecology's What's in my Neighborhood? Accessed January 2022.
<https://apps.ecology.wa.gov/neighborhood/>
- 3 ESRI Global Annual Evapotranspiration. Access July 2021.
<https://www.arcgis.com/home/webmap/viewer.html?layers=ad3f8cc18fc74e6894ee220acd>
- 4 King County iMap. Accessed January 2022. <https://gismaps.kingcounty.gov/imap/>
- 5 Missouri Census Data Center. Accessed January 2022.
<https://mcdc.missouri.edu/applications/caps2010.html>
- 6 NOAA NCEI Climate Data Online. Accessed July 2021.
<https://www.ncdc.noaa.gov/cdoweb/>
- 7 Washington Ranking Method (WARM) Toxicity Database. Available from Kim Wooten, Washington State Department of Ecology, Northwest Regional Office.
- 8 Washington State Department of Ecology. 2007. Washington Ranking Method (WARM) Scoring Manual. <https://apps.ecology.wa.gov/publications/documents/90014.pdf>
- 9 WDOH Office of Drinking Water - Find Water Systems. Accessed July 2021.
<https://fortress.wa.gov/doh/eh/portal/odw/si/Disclaimer.aspx?Page=FindWaterSystem.aspx>

SITE HAZARD ASSESSMENT

Worksheet 2: Route Documentation

SITE NAME: Block 37

Cleanup Site ID: 6134

Facility/Site ID: 46445373

1. SURFACE WATER ROUTE

List those substances to be considered for scoring:

Not scored

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

No evidence of complete transport pathway

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), diesel (naphthalene)

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

Volatile chemicals on list of substances for scoring groundwater

List those management units to be considered for scoring:

Groundwater

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

Exceedances in groundwater

3. GROUNDWATER ROUTE

List those substances to be considered for scoring:

Gasoline (benzene), diesel (naphthalene), arsenic, lead

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

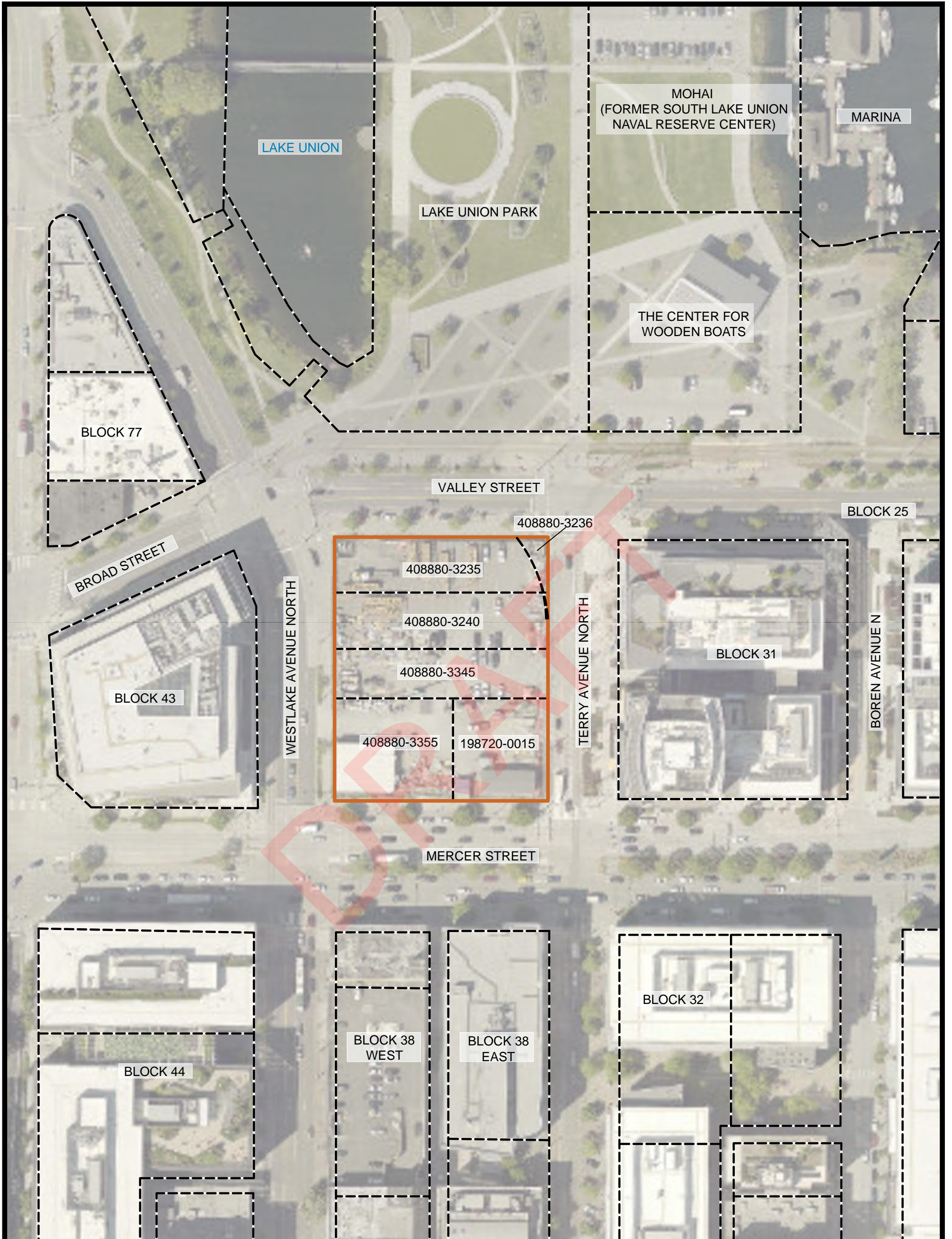
Exceedances in groundwater

List those management units to be considered for scoring:

Groundwater

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

Exceedances in groundwater

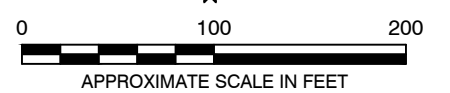


LEGEND

- Block 37 Property Boundary
- Tax Lot Parcel

NOTES

MOHAI = Museum of History & Industry



BLOCK 37 PROPERTY VICINITY

BLOCK 37 SITE
 600-630 WESTLAKE AVENUE NORTH
 SEATTLE, WASHINGTON
 REMEDIAL INVESTIGATION WORK PLAN

PROJECT NUMBER: Z076000073	DATE: 10/01/21	FIGURE
APPROVED BY: ES	DRAWN BY: MD	1-2
6347 Seaview Avenue NW Seattle, Washington 98107 Ph: (206) 781-1449 *** Fax: (206) 781-1543		

Worksheet 4

Surface Water Route

CSID: 6134

Site: Block 37

Not scored.

Worksheet 5

Air Route

CSID: 6134

Site: Block 37

1.0 SUBSTANCE CHARACTERISTICS

1.1 Introduction

No scoring in Section 1.1.

1.2 Human Toxicity

Substance	Amb. Air Stnd.		Acute Toxicity		Chronic Toxicity		Carcinogenicity	
	Value (ug/m ³)	Score	Value (mg/m ³)	Score	Value (mg/kg/day)	Score	Adj. CPFI (risk/mg/kg- day)	Score
Gasoline	0.0345	10	31947	3	8.57E-03	8	2.73E-02	5
Diesel	0.0294	10	--	X	8.57E-04	10	5.95E-02	5

Maximum score:	10		
Bonus points:	2		Human Toxicity Score: 12
Source:	WARM Toxicity Database		Range: 1-12

1.3 Mobility

Gaseous Mobility

Substance	Vapor Pressure		Henry's Law	
	Value (mm Hg)	Score	Value (atm- m ³ /mol)	Score
Gasoline	9.50E+01	4	5.56E-03	4
Diesel	8.20E-02	3	4.83E-04	3

Maximum score:	4
Source:	WARM Toxicity Database

Particulate Mobility

Soil type: Not scored; chemicals are volatile

Erodibility factor:

Climatic factor:

Mobility value:

Source:

Mobility Score: 4
Range: 0-4

1.4 Human Toxicity/Mobility

Source: WARM Scoring Manual

Human Tox/Mobil Score: 24
Range: 1-24

1.5 Environmental Toxicity/Mobility

Substance	Acute	
	Value (mg/m ³)	Score
Gasoline	3.19E+04	3
Diesel	--	X

Maximum score 3
Source: WARM Toxicity Database

Environmental Toxicity Score: 3
Range: 1-10

Environmental Tox/Mobil Score: 6
Range: 1-24

1.6 Substance Quantity

Quantity: 88,800 square feet
Basis: Entire property plus to midline of Mercer Street
Source: Atlas (2021) Figure 4-11

Substance Quantity Score: 8
Range: 1-10

2.1 Containment

Description: Soil cover 2 feet thick, no vapor collection system
Basis: Atlas (2021)

Containment Score: 5
Range: 0-10

SUBSTANCE PARAMETER CALCULATIONS

Human Health Pathway

SUBh (Human Tox/Mobil + 5) x (Containment +1) + Substance Quantity

182.0

Environmental Pathway

SUBe (Environ. Tox/Mobil + 5) x (Containment +1) + Substance Quantity

74.0

3.0 TARGETS

3.1 Nearest Population

Description: Office building to west
Distance (ft): < 1,000 feet
Source: iMap

Nearest Population Score: 10
Range: 0-10

3.2 Nearest Sensitive Environment

Description: Lake Union
Distance (ft): < 1,000 feet
Source: iMap

Nearest Sensitive Environment Score: 7
Range: 0-7

3.3 Population within One-Half Mile

Number: 10,171
Source: MO CDC

Population within Half Mile Score: 75.0
Range: 0-75

TARGET PARAMETER CALCULATIONS

Human Health Pathway

TARh=Nearest Population + Population within Half Mile

85.0

Environmental Pathway

TARe Nearest Sensitive Environment

7.0

4.0 RELEASE

Evid. of release? No
Source: No soil vapor or air data

Release Score (REL): 0.0
Range: 0 or 5

AIR ROUTE CALCULATIONS

Human Health Pathway

AIRh =(SUBh x 60/329) x {REL + (TARh x 35/85)} / 24

48.4

Environmental Pathway

AIRe =(SUBe x 60/329) x {REL + (TARe x 35/85)} / 24

1.6

Range: 0-100

Worksheet 6 Groundwater Route

CSID: 6134

Site: Block 37

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human toxicity

Substance	Drink. Wat. Stnd		Acute Toxicity		Chronic Toxicity		Carcinogenicity	
	Value (ug/L)	Score	Value (mg/kg)	Score	Value (mg/kg/day)	Score	Adj. CPFo (risk/mg/kg-day)	Score
Gasoline	5	8	3,306	3	4.00E-03	3	5.50E-02	5
Diesel	--	X	490	5	2.00E-02	1	--	X
Lead	15	6	<0.001	10	--	X	--	X
Arsenic	10	8	763	5	3.00E-04	5	1.50E+00	7
Maximum score:	10							
Bonus points:	2						Human Toxicity Score:	12
Source:	WARM Toxicity Database						Range:	1-12

1.2 Mobility

Substance	Solubility Value			
	(mg/L)	Score		
Gasoline	1.75E+03	3		
Diesel	3.10E+01	1		
Lead	0.1 < K < 1	2		
Arsenic	K >1	3		
Maximum value:	3			
Source:	WARM Toxicity Database			
			Mobility Score:	3
			Range:	1-3

1.3 Substance quantity

Quantity:	9,900 cu yd	
Basis:	Entire property plus to midline of Mercer Street, 3 feet in depth	
Source:	Atlas (2021) Figure 4-11	Substance Quantity Score: 5
		Range: 1-10

2.1 Containment

Description:	Contaminated soil and groundwater	
Source:	Atlas (2021)	Containment Score: 10
		Range: 0-10

SUBSTANCE PARAMETER CALCULATION

SUB = (Human Toxicity + Mobility + 3) x (Containment + 1) + Substance Quantity

203.0

2.0 MIGRATION POTENTIAL

2.2 Net precipitation

Amount (in.):	22	Net Precipitation Score:	3
Source:	NOAA NCEI Climate Data Online ESRI Global Annual Evapotranspiration	Range:	0-5

2.3 Subsurface Hydraulic Conductivity

Description:	Fill with cobbles, boulders, slag, construction debris		
Source:	Atlas (2021) Section 3.2.3.1	Hydraulic Conductivity Score:	4
		Range:	1-4

2.4 Vertical Depth to Aquifer

Depth (ft):	0 (groundwater is contaminated)	Depth to Aquifer Score:	8
Source:	Atlas (2021)	Range:	1-8

MIGRATION PARAMETER CALCULATION

MIG = Depth to Aquifer + Net Precipitation + Hydraulic Conductivity

15.0

3.0 TARGETS

3.1 Aquifer Usage

Description:	Groundwater not used but useable		
Source:	iMap, WDOH Water System Database	Aquifer Use Score:	2
		Range:	1-10

3.2 Distance to Nearest Drinking Water Well

Distance (ft):	> 10,000	Well Distance Score:	0
Source:	iMap, WDOH Water System Database	Range:	0-5

3.3 Population Served by Drinking Water Wells within Two Miles

No. of people:	0	Population Served Score:	0.0
Source:	WDOH Water System Database, Well Log Viewer	Range:	0-100

3.4 Area Irrigated by Wells within Two Miles

Area (acres):	0	Area Irrigated Score:	0.0
Source:	Water Resources Explorer	Range:	0-50

TARGET PARAMETER CALCULATION

2.0

TAR = Aquifer Use + Well Distance + Population Served + Area Irrigated

4.0 RELEASE

Evid. of release? Yes

Release Score (REL): 5.0

Source: Phase II

Range: 0 or 5

GROUND WATER ROUTE CALCULATION

44.6

GW = (SUB x 40/208) x {(MIG x 25/17) + REL + (TAR x 30/165)} / 24

Range: 0-100

Washington Ranking Method

Route Scoring Summary and Ranking Calculation

CSID: 6134
Site: Block 37

Human Health Route Scores		
Pathway	Score	Quintile
Surface water	0.0	
Air	48.4	5
Groundwater	44.6	4

Quintile	Value
High (H)	5
Middle (M)	4
Low (L)	

Human Health Pathway Quintiles - based off August 2021 HSL							
Quintile	Surface Water		Air		Groundwater		
1	<=	7.3	<=	8.6	<=	24.1	
2		7.4		14.9		8.7	
3		15.0		21.2		16.4	
4		21.3		29.8		25.7	
5	>=	29.9	>=	40.4	>=	49.8	

$$(H^2 + 2M + L) / 8$$

Human Health Priority Bin Score: 4.1

Environmental Route Scores		
Pathway	Score	Quintile
Surface water	0.0	
Air	1.6	3

Quintile	Value
High (H)	3
Low (L)	

Environmental Pathway Quintiles - based off August 2021 HSL				
Quintile	Surface Water		Air	
1	<=	11.3	<=	1.2
2		11.4		24.1
3		24.2		32.5
4		32.6		49.6
5	>=	49.7	>=	26.6

$$(H^2 + 2L) / 7$$

Environmental Priority Bin Score: 1.3

FINAL MATRIX RANKING

Human Health Priority	Environmental 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

n/a - not applicable

NFA - no further action

Site Rank: 1