

SITE HAZARD ASSESSMENT

Worksheet 1

Summary Score Sheet

SITE INFORMATION:

Kmart Store 4225

7345 Delridge Way SW

Seattle, King County, WA 98106

Cleanup Site ID: 11345

Facility/Site ID: 99157494

Section: 25

Latitude: 47.53648

Township: 24N

Longitude: -122.36353

Range: 3E

Tax/Parcel ID: 7985400295

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

SITE DESCRIPTION:

The Kmart Store 4225 site is a former Kmart retail and service center located in Seattle, King County, Washington. The 8.04-acre property is located approximately 350 feet from an unnamed pond, and zoned for commercial (C1-40) use.

Adjacent properties include an Arco gas station to the northeast, a Seattle Police Department station to the east, several small businesses and residences to the north, a wooded area to the northwest, residences to the west and south, and a park and pond with residences beyond to the southeast.

The site is currently operated as a Home Depot by First Berkshire Properties.

The site is a retail store for lumber, garden, and home improvement supplies/ equipment. The store building is located on the western half of the property with parking on the eastern half. Topographic maps show Longfellow Creek runs through the property from north to south, immediately east of the Home Depot building. The creek is likely contained within a culvert beneath the site, as it is not visible at the surface.

The site is located in the Delridge neighborhood of Seattle, and is bounded by Sylvan Way SW to the north, Delridge Way SW to the east, and SW Webster Street to the south and southwest.

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>
	2003	Kmart	Retail
2003	2013	Home Depot	Retail

SITE CONTAMINATION:

In 1990 the Kmart Store 4225 site was reported to Washington Department of Ecology and placed on the LUST list with ID number 780.

A release from the Kmart Service Center waste oil UST was reported to Ecology on November 21, 1990 after heavy oil contamination was observed in the surrounding soil during UST removal activities.

PAST REMEDIATION ACTIVITIES:

On October 18, 1990, a waste oil tank, of undocumented size, and associated piping was removed from the Kmart site. Prior to tank removal, the associated piping was drained and flushed, and the waste oil tank contents were removed. Soil discoloration was observed around the fill pipe during excavation. The tank was inspected and was reportedly found in good condition. The excavation was backfilled with pea gravel and covered by reinforced concrete pavement.

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Two excavation floor soil samples were collected and analyzed for TPH. Sample 1A contained heavy oil concentrations of 39 ppm and sample 2B contained heavy oil concentration of 1,344 ppm, which was above the MTCA Method A cleanup level at the time, but is currently below MTCA standards.

In 1991, the clean pea gravel backfill from the tank removal was excavated along with the remaining petroleum contaminated soil. The final excavation was 16.7 feet long, 13 feet wide and 11 feet deep. One soil sample was collected from the excavation floor at 11 feet bgs and analyzed for TPH, metals, and PCBs. The sample contained a concentration of 9 ppm for diesel/oil-range petroleum hydrocarbons; while metals and PCB concentrations were below laboratory detection limits. The excavation was lined with filter fabric, filled with pea gravel, and capped by a six-inch reinforced concrete pad. Groundwater was not encountered during excavation.

CURRENT SITE CONDITIONS:

The site was reportedly constructed on a natural spring, and the former UST was located within an old creek bed.

Diesel contaminated soils above MTCA Method A cleanup levels were removed from the site; however, sidewall samples were not collected and the lateral extent of contamination was not assessed beyond visual inspection. There is no indication that groundwater samples were collected from the former waste oil tank area.

The approximate depth to groundwater is 15 feet below ground surface, with groundwater flowing to the south (inferred from topography). Subsurface soils are brown silty sand with intermixed cobbles.

SPECIAL CONSIDERATIONS:

Checked boxes indicate routes applicable for WARM scoring

☒ **Surface Water**

Release occurred in subsurface soil adjacent to Longfellow Creek (assumed to be contained within a culvert)

☐ **Air**

Release of heavy oil of low volatility and not likely to affect air route.

☒ **Groundwater**

Diesel/ heavy oil range hydrocarbon concentrations in soil samples from the base of the tank excavation were below current MTCA Method A cleanup levels; however, groundwater was not characterized during sampling, and the lateral extent of soil impacts was not characterized by laboratory analysis.

The affected area was redeveloped between 2004 and 2005 as the Home Depot garden center. There are no reports in the Ecology file indicating additional investigation or remedial action was conducted during redevelopment activities.

ROUTE SCORES:

Surface Water/ Human Health: 26.4

Surface Water/ Environment: 1.1

Air/ Human Health:

Air/ Environment:

Groundwater/ Human Health: 17.8

Overall Rank: 4

REFERENCES:

ATEC Associates, Inc. February 20, 1991. Underground Storage Tank Closure Report.

ATEC Associates, Inc. September 3, 1991. Contaminated Soil Removal Closure Report.

WARM Toxicological Database

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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>

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

<http://www.wsdot.wa.gov/publications/fulltext/Hydraulics/Wa24hrIspluvials.pdf>

WARM Scoring Manual

Ecology Water Resources Explorer, accessed January 2013.

<https://fortress.wa.gov/ecy/waterresources/map/WaterResourcesExplorer.aspx>

Washington State Department of Health Source Water Assessment Maps. March 2011 update.

<https://fortress.wa.gov/doh/eh/dw/swap/maps/>

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>

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: 11345

Kmart Store 4225

Facility/Site ID: 99157494

1. SURFACE WATER ROUTE

List those substances to be considered for scoring:

Diesel

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

UST release area located in former Longfellow creek stream bed.

List those management units to be considered for scoring:

Surface water

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

Potential for impact to surface water route

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:

Diesel

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

Presence in subsurface soil

List those management units to be considered for scoring:

Groundwater

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

Potential for transport to groundwater

Worksheet 4
Surface Water Route

CSID: 11345

Site Name: Kmart Store 4225

1.0 Substance Characteristics

1.1 Human Toxicity

Substance	Drinking Water Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Diesel	6	5	3	X

Highest Value 6

Bonus Points? 0

Human Health Toxicity Value

1.2 Environmental Toxicity

Substance	Acute Water Quality Criteria		Non-human Mammalian Acute Toxicity	
	ug/L	Value	mg/kg	Value
Diesel			2300	2

Environmental Toxicity Value

1.3 Substance Quantity

Amount: <200 gallons

Basis: Estimated volume of substance remaining at site

Substance Quantity Value

2.0 Migration Potential

2.1 Containment

Containment Value

Explain Basis: Release occurred in subsurface soil

2.2 Surface Soil Permeability

Soil Permeability Value

Silty sand with cobbles

2.3 Total Annual Precipitation

Total Precipitation Value

37 inches

2.4 Max 2-yr/24-hour Precipitation

2YR/24HR Precipitation Value

2.4 inches

2.5 Floodplain

Floodplain Value

Not in floodplain

2.6 Terrain Slope

Slope Value

2-5% slope

Worksheet 4
Surface Water Route

CSID: 11345

Site Name: Kmart Store 4225

3.0 Targets

3.1 Distance to Surface Water

300 ft from Longfellow Creek

Surface Water Distance Value

3.2 Population Served within 2 miles

0 people

Population Value

3.3 Area Irrigated within 2 miles

0 acres

Irrigation Value

3.4 Distance to Nearest Fishery Resource

>10,000 ft

Fishery Value

3.5 Distance to and Name of Nearest Sensitive Environment

1,200 ft to E.C. Hughes Playground

Sensitive Environment Value

4.0 Release

Release to Surface Water Value

Explain basis for scoring a release to surface water

Former UST situated in former Longfellow creek streambed, no confirmed release to surface water.

Pathway Scoring - Surface Water Route, Human Health Pathway

$$SW_H = (SUB_{SH} * 40 / 175) * [(MIG_S * 25 / 24) + REL_S + (TAR_{SH} * 30 / 115)] / 24$$

Where:

SUB_{SH} = (Human Toxicity Value + 3) * (Containment + 1) + Substance Quantity

MIG_S = Soil Permeability + Annual Precip + Rainfall Frequency + Floodplain + Slope

REL_S = Release to Surface Water

TAR_{SH} = Distance to Surface Water + Population Served by Surface Water + Area Irrigated

SUB_{SH}	10
MIG_S	11
REL_S	0
TAR_{SH}	10
SW_H	
	26.4

Pathway Scoring -Surface Water Route, Environmental Pathway

$$SW_E = (SUB_{SE} * 40 / 153) * [(MIG_S * 25 / 24) + REL_S + (TAR_{SE} * 30 / 34)] / 24$$

Where:

SUB_{SE} = (Env Tox Value + 3) * (Containment + 1) + Substance Qty

MIG_S = Soil Permeability + Annual Precip + Rainfall Frequency + Floodplain + Slope

REL_S = Release to Surface Water

TAR_{SE} = Distance to Surface Water + Distance to Fishery + Distance to Sensitive Environment

SUB_{SE}	6
MIG_S	0
REL_S	0
TAR_{SE}	19
SW_E	
	1.1

Worksheet 6
Groundwater Route

CSID: 11345

Site Name: Kmart Store 4225

1.0 Substance Characteristics

1.1 Human Toxicity

Substance	Drinking Water Standard Value	Acute Toxicity Value	Chronic Toxicity Value	Carcinogenicity Value
Diesel	6	5	3	ND

Highest Value 6

Bonus Points? 0

Toxicity Value

1.2 Mobility

Cations/Anions

Max Value:

Solubility

Max Value: 1

Mobility Value

1.3 Substance Quantity

Amount: <10 cubic yards of soil

Basis: Estimated volume of impacted soil remaining in-place

Substance Quantity Value

2.0 Migration Potential

2.1 Containment

Containment Value

Explain Basis: Soil contamination

2.2 Net Precipitation

10-20 inches

Net Precipitation Value

2.3 Subsurface Hydraulic Conductivity

Silty sand with cobbles

Conductivity Value

2.4 Vertical Depth to Groundwater

0-25 feet

Depth to Aquifer Value

3.0 Targets

3.1 Groundwater Usage

Domestic/private supply

Aquifer Use Value

3.2 Distance to Nearest Drinking Water Well

Between 1 and 2 miles

Well Distance Value

3.3 Population Served within 2 Miles

3 population (estimated)

Population Served Value

Worksheet 6
Groundwater Route

CSID: 11345

Site Name: Kmart Store 4225

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

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:

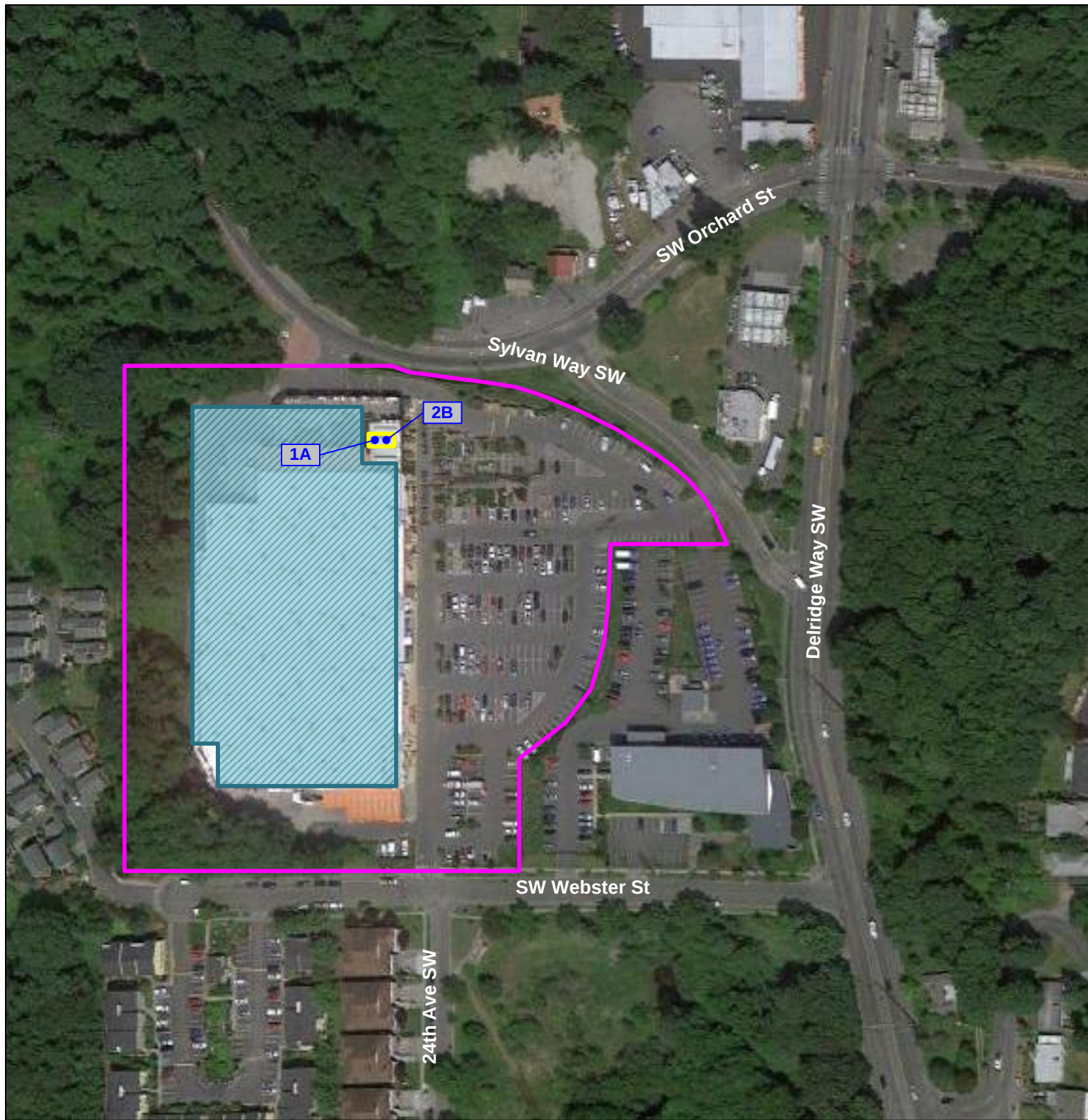
SUB_{GH} = (Human toxicity + mobility + 3) * (Containment + 1) + Substance Qty

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}	111
MIG_G	13
REL_G	0
TAR_{GH}	4.73
GW_H	17.8



Legend:

- Property location (approximate)
- Excavation area (approximate)
- Former building location (approximate)
- Soil sample (approximate)

Notes:

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



Kmart Store 4225
7345 Delridge Way SW
Seattle, WA 98106

Site Overview Map

CSID 11345
 CSID11345.vsd

Washington Ranking Method Route Scores Summary and Ranking Calculation Sheet

Site Name: Kmart Store 4225

CSID: 11345

Site Address: 7345 Delridge Way SW Seattle, WA 98106

FSID: 99157494

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	26.4	4
Air	ns	0
Groundwater	17.8	1

H=	4
M=	1
L=	0

$$\begin{array}{c} H^2 \\ 16 \end{array} + \begin{array}{c} 2M \\ 2 \end{array} + \begin{array}{c} L \\ 0 \end{array} = \frac{\quad}{8}$$

Human Health
Priority Bin Score:
3
rounded up to
next whole
number

ENVIRONMENT ROUTE SCORES

Enter Environment Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	1.1	1
Air	ns	0

H=	1
L=	0

$$\begin{array}{c} H^2 \\ 1 \end{array} + \begin{array}{c} 2L \\ 0 \end{array} = \frac{\quad}{7}$$

Environment
Priority Bin Score:
1
rounded up to
next whole
number

Comments/Notes:

FINAL
MATRIX
RANKING

4

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

Quintile	Human Health			Environment	
	Surface Water	Air	Ground Water	Surface Water	Air
5	>= 27.0	>= 32.0	>= 50.6	>= 47.1	>= 30.3
4	>= 17.3	>= 21.1	>= 40.4	>= 30.2	>= 25.3
3	>= 11.0	>= 13.4	>= 31.4	>= 22.2	>= 17.0
2	>= 5.0	>= 7.2	>= 22.4	>= 10.6	>= 6.2
1	< 5.0	< 7.2	< 22.4	< 10.6	< 6.2

Quintile value associated with each route score entered above