

SITE HAZARD ASSESSMENT

Worksheet 1

Summary Score Sheet

SITE INFORMATION:

Totem Equipment Seattle
5000 E Marginal Way S
Seattle, King County, WA 98134

Cleanup Site ID: 6763
Facility/Site ID: 84969261

Section:	19	Latitude:	47.55724
Township:	24N	Longitude:	-122.33856
Range:	4E	Tax/Parcel ID:	3573200955

Site Scored/ranked for the August 2015 Hazardous Sites List Publication

SITE DESCRIPTION:

The Totem Equipment Seattle site (Site) is a former construction machinery and machine tool repair company located in Seattle, King County, Washington. The 0.81-acre property is located approximately 350 feet from the Lower Duwamish Waterway (LDW), and zoned for industrial (IG2 U/85) use.

Adjacent properties include a SnoPac Products warehouse and Federal Center South to the west, a vacant lot to the north, and several manufacturing warehouses to the east. Beyond SnoPac Products to the west is the Lower Duwamish Waterway.

The Site is currently operated as a restaurant, event space, and warehouse by East Marginal Way Bldg LLC.

While in operation as Totem Equipment, site activities included steam cleaning, fueling of vehicles, and painting and cleaning of parts, including use of xylenes and tetrachloroethylene (PCE). Reportedly, use of chlorinated solvents ended by the early 1990's. Prior to operation as Totem Equipment, the Site had reportedly been operated as a fueling station.

The Site is located on a triangular property along the east side of East Marginal Way South. The Site is bordered on the east by Ohio Avenue South and on the north by South Hudson Street.

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>
1944			Gasoline station
1960		Signal Oil Company	Gasoline station
1962	2000	Robert E and Margaret C Vadnais	Totem Equipment
2000	2008	Suzanne Droppert	Totem Equipment (to 2004)
2008	2014	East Marginal Way Building LLC	Restaurant, event space, and warehouse

SITE CONTAMINATION:

In 2006 the Totem Equipment Seattle site was reported to Washington State Department of Ecology (Ecology) and placed on the Leaking Underground Storage Tank (LUST) list.

A Phase I Environmental Site Assessment (ESA) was conducted at the Site in 2004. At least five underground storage tanks (USTs) were formerly located at the Site, however all had reportedly been closed-in-place prior to 2004. Reports of the tank sizes and contents varies. The Riley Group (2004) identified the five tanks as a 15,000-gallon gasoline or diesel UST (tank A), a 500-gallon gasoline or diesel UST (tank B), a 2,000-gallon gasoline or diesel UST (tank C), a 2,000-gallon fuel and and/or used oil UST (tank D), and a 7,000-gallon heating oil UST (tank E). Tanks A, B, and C were reportedly closed-in-place. Additional unidentified USTs were suspected to be present at the Site. Other potential issues identified at the Site included historic vehicle repair, fill materials, issues

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associated with the two former gasoline service stations located at the Site, and steam cleaning activities.

In February 2005, eight test probes (B1 through B8) were advanced at the Site to a maximum depth of 16 feet below ground surface (bgs). Soil samples were screened with a photoionization detector but were not sent to a laboratory for analysis. Groundwater grab samples were collected from each boring, and analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX constituents), gasoline, diesel, oil, and volatile organic compounds (VOCs). Diesel/oil-range petroleum hydrocarbons were detected in groundwater collected from borings B1, B4, and B5 at concentrations above the MTCA Method A cleanup levels, and benzene was detected in boring B7 at concentrations above the MTCA Method A cleanup level. VOCs were detected in groundwater from two borings but at concentrations below the MTCA Method A cleanup level (B6: acetone; B7: 1,1,1-trichloroethane, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, 1,2-dichlorobenzene, 1,2-dibromo-3-chloropropane, naphthalene). PCE was not detected in any of the groundwater samples at concentrations above the laboratory reporting limit. Soil samples were not collected from the borings.

In 2007, a supplemental Phase II ESA was conducted at the Site, including a geophysical survey to identify former USTs, and collecting and analyzing groundwater and soil samples from 36 soil borings located across the Site. Gasoline, diesel, oil, and BTEX constituents were detected in soil at concentrations above the MTCA Method A cleanup levels. Impacted soil was present in three general areas within the Site: diesel-impacted soil was present in the vicinity of tank E (7,000-gallon heating oil UST); gasoline, diesel, oil, and xylene-impacted soil was present below the former transmission shop; and gasoline, diesel, and BTEX constituents were present near former tank A (15,000-gallon gasoline or diesel UST).

PAST REMEDIATION ACTIVITIES:

In 2007, the five USTs located at the Site were excavated and removed, and eleven groundwater monitoring wells (MW1 through MW11) and two dewatering wells (DW-N and DW-S) were installed at the Site. Soil was overexcavated from three areas of the tank excavations until confirmation soil samples indicated that concentrations of gasoline, diesel, oil, and BTEX constituents were below the MTCA Method A cleanup levels for soil. Approximately 87,000 gallons of water were pumped from the two dewatering wells. Concentrations of BTEX and gasoline, diesel, and oil were below MTCA Method A cleanup levels for groundwater in samples collected from the dewatering wells.

In March 2008, diesel and oil were detected in groundwater at the Site at concentrations above the MTCA Method A cleanup level (MW1 (oil), MW2 (diesel and oil), MW8 (diesel), MW11 (diesel)). In May 2008, three injection wells were installed at the Site in the vicinity of the former heating oil UST (tank E). In early June 2008, hydrogen peroxide and ferrous sulfate were reportedly injected into Site wells, however this report was not available for review in Ecology's files. Subsequent groundwater monitoring (June 2008; most recent report available for review in Ecology's files) indicates that diesel (INJ2, INJ3, MW9) and gasoline and benzene (MW11) were still present in Site groundwater at concentrations above the MTCA Method A cleanup levels.

CURRENT SITE CONDITIONS:

Diesel, gasoline, benzene, and oil are still present in Site groundwater at concentrations above the MTCA Method A cleanup levels. Based on the location of the soil borings and UST excavations, it is suspected that petroleum-impacted soil is also still present at the Site to the west of tank E, beneath the former transmission shop, and to the west of tank A. It is unknown if the tanks may have contained gasoline with lead or other additives not analyzed for during Site investigation activities.

The approximate depth to groundwater is 11 feet below ground surface, with groundwater flowing to the northeast (estimated based on groundwater elevations). Subsurface soils are sand and silt.

SPECIAL CONSIDERATIONS:

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

Surface Water

Release occurred in the subsurface, however due to the close proximity of the Site to the LDW, groundwater is suspected to discharge to the LDW.

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Air

Release of volatile compounds occurred to subsurface soils.

Groundwater

Gasoline, diesel, benzene, and oil were present in Site groundwater at concentrations above the MTCA Method A cleanup levels.

ROUTE SCORES:

Surface Water/ Human Health:	15.5	Surface Water/ Environment:	26.0
Air/ Human Health:	7.6	Air/ Environment:	1.5
Groundwater/ Human Health:	30.6		

Overall Rank: 4

REFERENCES:

- 1 Ecology Water Resources Explorer, accessed October 2014.
<https://fortress.wa.gov/ecy/waterresources/map/WaterResourcesExplorer.aspx>
- 2 Graham & Dunn, 2006, Letter Re: Notification of Site and Independent Remedial Action. September 21, 2006.
- 3 King County GIS Center iMAP application, Property Information, Groundwater Program, and Sensitive Areas mapsets. Accessed October 2014.
<http://www.kingcounty.gov/operations/GIS/Maps/iMAP.aspx>
- 4 Missouri Census Data Center, Circular Area Profiles - 2010 census data around a point location. <http://mcdc.missouri.edu/websas/caps10c.html>. Accessed October 2014.
- 5 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>
- 6 The Riley Group, Inc., 2004, Phase I Environmental Site Assessment Former Totem Equipment Company 5000 East Marginal Way South Seattle, Washington 98134. Prepared for Suzanne Droppert. November 4, 2004.
- 7 The Riley Group, Inc., 2005, Preliminary Phase II Groundwater Investigation Letter Report Former Totem Equipment Company 5000 East Marginal Way South Seattle, Washington. April 22, 2005.
- 8 The Riley Group, Inc., 2007, Supplemental Phase II Investigation Letter Report Former Totem Equipment Company 5000 East Marginal Way South Seattle, Washington. May 30, 2007.
- 9 The Riley Group, Inc., 2008, 2nd Quarter 2008 Groundwater Sampling Event Letter Report Former Totem Equipment Property 5000 East Marginal Way South Seattle, Washington. July 31, 2008.
- 10 The Riley Group, Inc., 2008, Groundwater Well Installation and 4th Quarter 2007 Groundwater Sampling Event Letter Report Former Totem Equipment Property 5000 East Marginal Way South Seattle, Washington 98134. January 25, 2008.
- 11 The Riley Group, Inc., 2008, UST Closure and Site Assessment Report Former Totem Equipment Property 5000 East Marginal Way South, Seattle, Washington. March 25, 2008.
- 12 WARM Scoring Manual
- 13 WARM Toxicological Database
- 14 Washington Department of Transportation 24-hour Isopluvial Maps, January 2006 update.
<http://www.wsdot.wa.gov/publications/fulltext/Hydraulics/Wa24hrIsopluvials.pdf>

SITE HAZARD ASSESSMENT

Worksheet 2

Route Documentation

Cleanup Site ID: 6763

Totem Equipment Seattle

Facility/Site ID: 84969261

1. SURFACE WATER ROUTE

List those substances to be considered for scoring:

Gasoline (benzene), diesel

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

Prior detection in Site groundwater at concentrations above the MTCA Method A cleanup levels

List those management units to be considered for scoring:

Surface water (LDW)

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

Potential for transport to surface water from groundwater

2. AIR ROUTE

List those substances to be considered for scoring:

Gasoline (benzene)

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

Prior detection in Site soil at concentrations above the MTCA Method A cleanup level

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 (benzene), diesel (oil)

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

Prior detection in Site groundwater at concentrations above the 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

Worksheet 4
Surface Water Route

CSID: 6763

Site Name: Totem Equipment Seattle

1.0 Substance Characteristics

1.1 Human Toxicity

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

Highest Value
 Bonus Points?
 Human Health Toxicity Value

1.2 Environmental Toxicity

Substance	Acute Water Quality Criteria		Non-human Mammalian Acute Toxicity	
	ug/L	Value	mg/kg	Value
Gasoline (benzene)	5100	2	3306	3
Diesel	2350	2	490	5

Environmental Toxicity Value

1.3 Substance Quantity

Amount: Approximately 300 square feet
 Basis: Estimated extent of impacted soil

Substance Quantity Value

2.0 Migration Potential

2.1 Containment

Explain Basis: Groundwater is suspected to discharge to surface water

Containment Value

2.2 Surface Soil Permeability

Expected to be sand and silt

Soil Permeability Value

2.3 Total Annual Precipitation

37 inches

Total Precipitation Value

2.4 Max 2-yr/24-hour Precipitation

2.4 inches

2YR/24HR Precipitation Value

2.5 Floodplain

Not in the floodplain

Floodplain Value

2.6 Terrain Slope

<2% slope

Slope Value

Worksheet 4
Surface Water Route

CSID: 6763

Site Name: Totem Equipment Seattle

3.0 Targets

3.1 Distance to Surface Water

Approximately 350 feet to the LDW

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

Approximately 350 feet to the LDW

Fishery Value

3.5 Distance to and Name of Nearest Sensitive Environment

Approximately 350 feet to the LDW

Sensitive Environment Value

4.0 Release

Explain basis for scoring a release to surface water

No confirmed release to surface water

Release to Surface Water Value

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}	125
MIG_S	10
REL_S	0
TAR_{SH}	10.0
SW_H	15.5

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}	59
MIG_S	10
REL_S	0
TAR_{SE}	34.0
SW_E	26.0

Worksheet 5

Air Route

CSID: 6763

Site Name: Totem Equipment Seattle

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 (benzene)	10	3	X	5

Highest Value 10

Bonus Points? 0

Toxicity Value

1.3 Mobility

Gaseous Mobility	Max Value:	4
Particulate Mobility	Soil Type:	
	Erodibility:	
	Climatic Factor:	

Mobility Value

1.4 Final Human Health Toxicity/Mobility Matrix Value

HH Final Matrix Value

1.5 Environmental Toxicity/Mobility

Substance	Non-human Mammalian Inhalation Toxicity (mg/m3)	Acute Value	Mobility Value	Table A-7 Matrix Value
Gasoline (benzene)	31947	3	4	6

Env. Final Matrix Value

1.6 Substance Quantity

Amount: Approximately 300 square feet

Basis: Estimated extent of remaining impacted soil

Substance Quantity Value

Worksheet 5

Air Route

CSID: 6763

Site Name: Totem Equipment Seattle

2.0 Migration Potential

2.1 Containment

Containment Value

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

Approximately 1,500 feet to the nearest dwelling

3.2 Distance to and name of nearest sensitive environments

Sensitive Environment Value

Less than 400 feet to the LDW

3.3 Population within 0.5 miles

Population Value

65 population

4.0 Release

Release to Air Value

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:

$$SUB_{AH} = (\text{Human toxicity} + 5) * (\text{Containment} + 1) + \text{Substance Qty}$$

REL_A = Release to Air

$$TAR_{AH} = \text{Nearest Population} + \text{Population within 1/2 mile}$$

SUB _{AH}	152
REL _A	0
TAR _{AH}	16.1
AIR_H	7.6

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 = Release to Air

$$TAR_{AE} = \text{Nearest Sensitive Environment}$$

SUB _{AE}	68
REL _A	0
TAR _{AE}	7.0
AIR_E	1.5

Worksheet 6
Groundwater Route

CSID: 6763

Site Name: Totem Equipment Seattle

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:

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}	156
MIG _G	13
REL _G	5
TAR _{GH}	2.0
GW_H	30.6

Washington Ranking Method

Route Scores Summary and Ranking Calculation Sheet

Site Name: Totem Equipment Seattle

CSID: 6763

Site Address: 5000 East Marginal Way S

FSID: 84969261

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	15.5	3
Air	7.6	1
Groundwater	30.6	2

H=	3
M=	2
L=	1

$$\begin{array}{c}
 H^2 + 2M + L \\
 \hline
 9 + 4 + 1 \\
 \hline
 8
 \end{array}$$

**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	26.0	3
Air	1.5	1

H=	3
L=	1

$$\begin{array}{c}
 H^2 + 2L \\
 \hline
 9 + 2 \\
 \hline
 7
 \end{array}$$

**Environment
Priority Bin Score:**
2
 rounded up to next whole number

Comments/Notes:

**FINAL MATRIX
RANKING**

4

FOR REFERENCE:

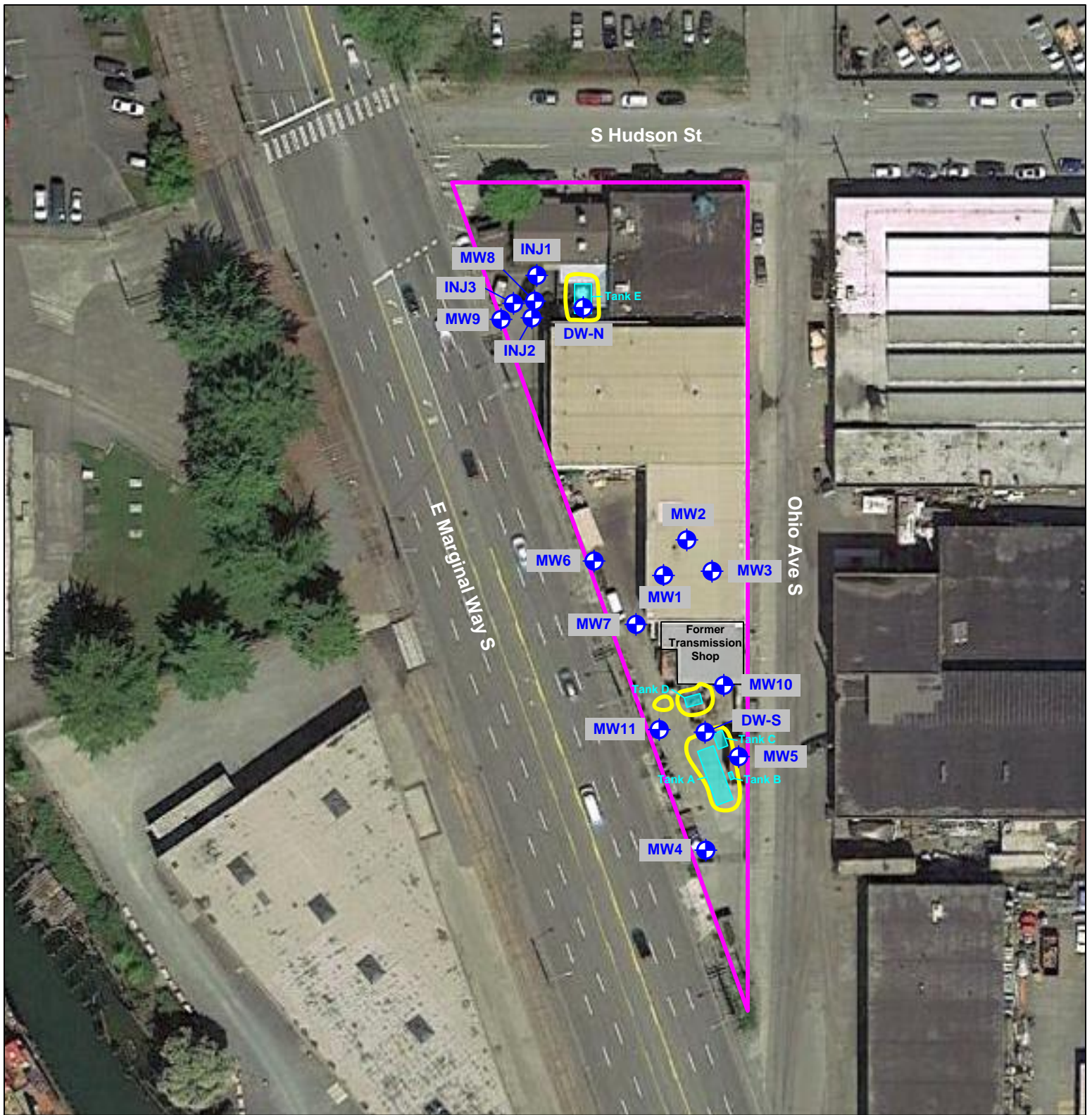
Final WARM Bin Ranking Matrix

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 - 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)
- + Monitoring well (approximate)

Notes:

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



Totem Equipment Seattle
5000 East Marginal Way South
Seattle, WA 98134



DEPARTMENT OF
ECOLOGY
 State of Washington

Site Overview Map

CSID 6763
 CSID6763.vsd