

SITE HAZARD ASSESSMENT

Worksheet 1

Summary Score Sheet

SITE INFORMATION:

Unified Grocers Norfolk
3301 South Norfolk St
Seattle, King County, WA 98118

Cleanup Site ID: 6584
Facility/Site ID: 73338176

Section:	4	Latitude:	47.51234
Township:	23N	Longitude:	-122.29170
Range:	4E	Tax/Parcel ID:	0323049062, 0323049024, 0003400049, 0003400024,

Site scored/ranked for the Hazardous Sites List Publication: February 2018

SITE DESCRIPTION:

The Unified Grocers Norfolk site (Site) is a former fueling site located in Seattle, King County, Washington. The 30-acre property is located approximately 950 feet from the Duwamish River, and zoned for light industrial (LI) or industrial (IG2 U/85) use.

The Site is not located adjacent to any roads. The properties that make up the Site are generally bordered on the north by South Norfolk Street, on the east by Airport Way South, on the west by East Marginal Way South, and on the South by South Boeing Access Road.

Adjacent properties include Boeing facilities to the north and west and the King County International Airport to the north. Across Airport Way South to the east of the site are Union Pacific and BNSF Railroad lines with Interstate 5 beyond. Various warehouses are located to the south of the Site. These warehouses are also owned by Prologis. Northwest Auto Wrecking is adjacent to the Site to the west.

The Site is currently operated as a Unified Grocers office building and distribution center warehouse by Prologis.

The Site contains several warehouses, commercial and maintenance buildings, and is primarily covered with paved parking and roadways. The Northwest Auto Wrecking (NWA) property is located immediately west of the site, and is also listed on Washington State Department of Ecology's (Ecology) Confirmed and Suspected Contaminated Sites List (CSCSL; CSID 1877). Suspected or confirmed contaminants at the NWA site include halogenated organics, metals, priority pollutant metals, non-halogenated solvents, petroleum products (unspecified), and polychlorinated biphenyls (PCBs). The NWA site is located at 10230 East Marginal Way.

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>
2016		Prologis-Exchange 3301 South Norfolk LLC	Warehouses (Unified Grocers)
2001	2001	Associated Grocers	Warehouses
2001	2001	Sea-Tuk Real Estate Inc	Warehouses
2001	2007	Sea-Tuk Warehouse LLC	Warehouses
2007	2016	3301 South Norfolk LLC	Warehouses

SITE CONTAMINATION:

In 1998 the Unified Grocers Norfolk site was reported to Washington State Department of Ecology (Ecology)

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and placed on the Confirmed and Suspected Contaminated Sites List (CSCSL).

In 1951, Associated Grocers (AG) constructed four buildings in the northern portion of the property: a warehouse, a truck repair shop with pump island, a small shop building, and an office building adjacent to South Norfolk Street. Four underground storage tanks (USTs) were installed in the vicinity of the truck shop and pump island. The USTs at the Site included one 10,000-gallon diesel tank, one 10,000-gallon gasoline tank, one 1,000-gallon gasoline tank, and one 500-gallon waste oil tank. Although there are many areas that contained USTs across the property, this CSID is associated with releases that occurred in the area around the original four USTs, pump island, and truck repair shop. The constituents of concern (COCs) present at the Site include diesel-range hydrocarbons (DRO), oil-range hydrocarbons (ORO), gasoline-range hydrocarbons (GRO), benzene, toluene, ethylbenzene, and total xylenes (BTEX). COCs at the site are based on past site investigations.

Subsurface investigations were conducted at the site during June, August, and December 2001. Soil samples were collected from 24 locations. Eight locations contained soil samples with DRO at concentrations above the Model Toxics Control Act (MTCA) Method A soil cleanup level (CUL); two samples contained DRO equal to, but not above, the current MTCA Method A CUL. The maximum detected concentration of DRO [12,000 milligrams per kilogram (mg/kg)] was in a soil sample collected from MW-1 at 7.5 to 9 feet bgs. Soil samples were collected between 5 feet and 11.5 feet below ground surface (bgs). Two soil samples contained concentrations of ORO below the MTCA Method A soil CUL, and soil samples from seven locations contained GRO at a concentration above the MTCA Method A CUL. The highest detected concentration of GRO was at location MW-7 (7.5 to 9 feet bgs) with a concentration of 4,000 mg/kg. Eleven samples contained at least one BTEX constituent equal to or above their respective soil CUL. The highest detected concentrations of benzene (53 mg/kg) and toluene (82 mg/kg) were both from location MW-8 (5 to 6.5 feet bgs). Highest detected concentrations of ethylbenzene (66 mg/kg) and total xylenes (354 mg/kg) were from a sample collected from MW-7 (7.5 to 9 feet bgs).

Groundwater was monitored prior to conducting remedial activities at the Site. DRO, GRO, benzene, ethylbenzene, and vinyl chloride were detected in Site groundwater at concentrations above their respective MTCA Method A CULs. The highest detected concentrations were 1,600,000 µg/L DRO in Probe 6-3; GRO at a concentration of 24,000 µg/L in well MW-1; benzene at a concentration of 24,000 µg/L in Probe 6-3; ethylbenzene at a concentration of 2,800 µg/L in well MW-1, and vinyl chloride at a concentration of 0.64 µg/L.

Free-phase petroleum product was measured in monitoring wells MW-1, MW-2, MW-3, and MW-201. Twenty-one (21) inches of free product was measured in MW-3 in 2001.

REMEDIATION ACTIVITIES:

Free product monitoring and recovery began at the Site in 2002. Passive skimmers were installed in MW-1, MW-2, MW-3, and MW-201 to remove free product from the wells. A product sample collected from probe location 6-3 indicated that the product was a mix of gasoline and diesel-range hydrocarbons.

In July and August 2007, soil was excavated in the vicinity of the original USTs and pump island at the Site. Reportedly, approximately 12,000 tons of petroleum-impacted soil and 17,500 gallons of groundwater that accumulated in the excavation pit were removed. The excavation reached depths between 9 and 15 feet bgs. Reportedly, a soil sample (CS-B18) from the bottom of the excavation in the northern wall of the excavation contained benzene at a concentration of 1.4 mg/kg, above the MTCA Method A cleanup level of 0.30 mg/kg. Three samples collected from the north edge of the excavation contained concentrations of GRO and benzene above MTCA Method A cleanup levels (30 mg/kg for gasoline with benzene). This area of petroleum-impacted soil was left in place due to proximity of the adjacent office building. Prior to backfilling the excavation with clean fill material, 1,500 pounds of Oxygen Release Compound (ORC) was applied across the bottom of the excavation.

The site was entered into the Voluntary Cleanup Program (VCP) in 2009 with ID number NW1807. Ecology reportedly issued an opinion letter in 2009 indicating that further actions were needed at the Site prior to issuing a No Further Action (NFA) determination. The outstanding issues were reportedly to (1) address the soil remaining near the property line with the NAW site, as the source may be from the United Grocers site and (2) complete four rounds of groundwater monitoring at the Site.

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Post-excavation groundwater monitoring was conducted at the Site beginning in November 2009. The most recent groundwater monitoring results available in Ecology's files (March 2011) indicate that the five monitoring wells sampled during the previous four events (MW-AG1, MW-AG2, MW-203, MW-207, MW-4; November 2009 through March 2011) did not contain concentrations of COCs above MTCA Method A CULs.

In 2010, an additional investigation was conducted at the Site to address the issue of potentially commingled plumes along the property boundary with NWA. Results from this investigation reportedly indicated that soil in this area did not contain COCs above MTCA Method A CULs, and the areas should be considered separate releases.

CURRENT SITE CONDITIONS:

Petroleum-impacted soil reportedly remains at the site in the northern portion of the excavation area (below the office building). Three soil samples collected from this area contained concentrations of GRO and benzene above MTCA Method A CULs. This impacted soil was left in place to ensure the stability of overhead structures. An opinion letter issued by Ecology in January 2011 noted that either the remaining impacted soil should be excavated and removed from the site, or that an environmental covenant and RI/FS with disproportionate cost analysis would be required to obtain an NFA for the Site.

Groundwater monitoring results from 2011 indicate that concentrations of COCs in groundwater at the Site are below MTCA Method A CULs.

The approximate depth to groundwater is 7 to 12 feet below ground surface, with groundwater flowing to the southwest. Subsurface soils are fill from 4 to 10 feet, then 10 feet of silt with interbedded by clay, underlain by sand.

SPECIAL CONSIDERATIONS:

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

Surface Water

Air

Release of volatile compounds occurred to subsurface soils. Impacted subsurface soil is expected to remain near an onsite building.

Groundwater

Previous detection of petroleum hydrocarbons in groundwater at concentrations above MTCA Method A CULs; however, recent results indicate that concentrations in 2011 were below CULs. Residual impacted soil may have the potential to recontaminate groundwater in the area.

ORC was applied to the area of residual soil impacts prior to backfilling. It is possible that current concentrations are less than concentrations measured in soil in 2007.

ROUTE SCORES:

Surface Water/ Human Health:		Surface Water/ Environment:	
Air/ Human Health:	16.0	Air/ Environment:	1.5
Groundwater/ Human Health:	25.9		

Overall Rank: 5

REFERENCES:

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- 1 Dalton, Olmsted, and Fuglevand, Inc, 2007, Environmental Assessment Summary, Associated Grocers Site, Seattle/Tukwila, Washington. March 19, 2007.
 - 2 Dalton, Olmsted, and Fuglevand, Inc, 2007, Remediation Plan - AOC No. 6, Associated Grocers Site, Seattle/Tukwila, Washington. June 25, 2007.
 - 3 Dalton, Olmsted, and Fuglevand, Inc, 2009, Remedial Action Report AOC No. 6 - Unified Grocers Site (Formerly Associated Grocers) Seattle/Tukwila, Washington. June 1, 2009.
 - 4 Dalton, Olmsted, and Fuglevand, Inc, 2010, Letter Re: Unified Grocers Site. November 24, 2010.
 - 5 Dalton, Olmsted, and Fuglevand, Inc, 2010, Results of Groundwater Monitoring - Unified Grocers Site (formerly Associated Grocers), 3301 South Norfolk St., Seattle, Washington. November 19, 2010.
 - 6 Dalton, Olmsted, and Fuglevand, Inc, 2014, Status Report - Unified Grocers UST Cleanup, 3301 South Norfolk Street, Seattle, WA. August 14, 2014.
 - 7 Missouri Census Data Center, Circular Area Profiles - 2010 census data around a point location. <http://mcdc.missouri.edu/websas/caps10c.html>. Accessed May 2017.
 - 8 WARM Scoring Manual
 - 9 WARM Toxicological Database
 - 10 Washington State Department of Ecology, 2011, Letter Re: Further Action at the following Site: Unified Grocers 3301 Norfolk. January 24, 2011.
 - 11 Washington State Department of Ecology. 2016. Model Toxics Control Act CLARC Database. <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx> Accessed 22 June 2017.
 - 12 Washington State Department of Ecology's Water Resources Explorer application. <https://fortress.wa.gov/ecy/waterresources/map/WaterResourcesExplorer.aspx>. Accessed 22 June 2017.
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SITE HAZARD ASSESSMENT
Worksheet 2
Route Documentation

Cleanup Site ID: 6584

Unified Grocers Norfolk

Facility/Site ID: 73338176

1. SURFACE WATER ROUTE

List those substances to be considered for scoring:

N/A

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

N/A

List those management units to be considered for scoring:

N/A

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

N/A

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 levels

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)

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

Detection in Site soil 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:

Prior detection in groundwater

Worksheet 5

Air Route

CSID: 6584

Site Name: Unified Grocers Norfolk

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	8	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)	31,947	3	4	6

Env. Final Matrix Value

1.6 Substance Quantity

Amount: Approximately 2,000 square feet

Basis: Estimated surface area of impacted soil

Substance Quantity Value

Worksheet 5

Air Route

CSID: 6584

Site Name: Unified Grocers Norfolk

2.0 Migration Potential

2.1 Containment

Containment Value

Explain Basis: Spill in subsurface, no vapor collection system

3.0 Targets

3.1 Nearest Population

Population Distance Value

Impacted soil located beneath an office building

3.2 Distance to and name of nearest sensitive environments

Sensitive Environment Value

Site is located approximately 950 feet from the LDW

3.3 Population within 0.5 miles

Population Value

540 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}	154
REL _A	0
TAR _{AH}	33.2
AIR _H	16.0

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}	70
REL _A	0
TAR _{AE}	7.0
AIR _E	1.5

Worksheet 6
Groundwater Route

CSID: 6584

Site Name: Unified Grocers Norfolk

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	3	5

Highest Value 8
 Bonus Points? 0
 Toxicity Value

1.2 Mobility

Cations/Anions Max Value:
 Solubility Max Value: 3 Mobility Value

1.3 Substance Quantity

Amount: Approximately 220 cubic yards
 Basis: Estimated extent of remaining impacted soil

Substance Quantity Value

2.0 Migration Potential

2.1 Containment

Explain Basis: Spill or release

Containment Value

2.2 Net Precipitation

10-20 inches

Net Precipitation Value

2.3 Subsurface Hydraulic Conductivity

Silt with interbedded clay

Conductivity Value

2.4 Vertical Depth to Groundwater

7 feet

Confirmed release: No

Depth to Aquifer Value

3.0 Targets

3.1 Groundwater Usage

Private supply, but other sources available with minimum hookup requirements

Aquifer Use Value

3.2 Distance to Nearest Drinking Water Well

2500 feet

Well Distance Value

3.3 Population Served within 2 Miles

51 people

Population Served Value

Worksheet 6
Groundwater Route

CSID: 6584

Site Name: Unified Grocers Norfolk

3.4 Area Irrigated by GW Wells within 2 miles

Area Irrigated Value

8 acres

4.0 Release

Release to Groundwater Value

Explain basis for scoring a release to groundwater:

No current 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}	157
MIG _G	12
REL _G	0
TAR _{GH}	16.3
GW_H	25.9

Washington Ranking Method

Route Scores Summary and Ranking Calculation Sheet

Site Name: Unified Grocers Norfolk

CSID: 6584

Site Address: 3301 S Norfolk St, Seattle, WA

FSID: 73338176

HUMAN HEALTH ROUTE SCORES

Enter Human Health Route Scores for all Applicable Routes:

Pathway	Route Score	Quintile Group
Surface Water	ns	0
Air	16.0	3
Groundwater	25.9	2

H= 3
M= 2
L= 0

$$\frac{H^2 + 2M + L}{8} = \frac{9 + 4 + 0}{8} = 2$$

**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		0
Air	1.5	2

H= 2
L= 0

$$\frac{H^2 + 2L}{7} = \frac{4 + 0}{7} = 1$$

**Environment
Priority Bin Score:**
1
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

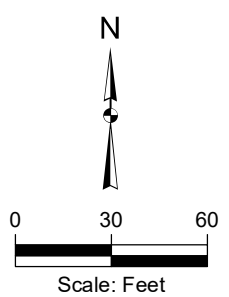
Quintile Values for Route Scores - August 2017 Values

Quintile	Human Health			Environment	
	Surface Water	Air	Ground Water	Surface Water	Air
5	>= 29.8	>= 39.1	>= 50.3	>= 49.7	>= 27.8
4	>= 21.4	>= 25.0	>= 40.3	>= 32.1	>= 15.3
3	>= 15.5	>= 15.8	>= 33.1	>= 24.2	>= 1.6
2	>= 8.0	>= 8.4	>= 24.0	>= 11.6	>= 1.3
1	<= 7.9	<= 8.3	<= 23.9	<= 11.5	<= 1.2

Quintile value associated with each route score entered above



- Legend**
- Boring
 - ⊕ Monitoring Well
 - ▲ Excavation Confirmation Sample Above MTCA Method A CUL
 - ◆ Test Pit
 - Remaining Petroleum-Impacted Soil
 - Excavation
 - Former Site Features



Unified Grocers Site
3301 South Norfolk Street
Seattle, Washington

Site Overview Map

CSID 6584