# SITE HAZARD ASSESSMENT
# Worksheet 1
# Summary Score Sheet

## SITE INFORMATION:

Cleanup Site ID: 9418

Darigold Seattle Rainier

Facility/Site ID: 48839443

4058 Rainier Ave S

Seattle, King County, WA 98118

| | | | |
|---|---|---|---|
| Section: | 15 | Latitude: | 47.56651 |
| Township: | 24N | Longitude: | -122.28824 |
| Range: | 4E | Tax/Parcel ID: | 7950301240 |

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

## SITE DESCRIPTION:

The Darigold Seattle Rainier site (Site) is a former milk processing plant located in Seattle, King County, Washington. The 6.8-acre property is located approximately 2,075 feet from Lake Washington, and zoned for commercial (C2-65) use.

Adjacent properties include a Safeway food store to the north, across South Andover Street, and additional parcels owned by Darigold across South Dakota Street to the south of the Site (Darigold maintenance facility). Single family residences are located to the east and west of the property, across Rainier Avenue South and Courtland Place South, respectively.

The Site is currently operated as a milk processing facility by Darigold Inc.

Current activities at the Site include the processing and production of milk, ice cream, juice, and other milk products for sale and consumption. The Site has an industrial general stormwater permit (permit number WAR000500).

The Site is located on one full city block, bordered on the west by Rainier Avenue South, on the east by Courtland Place South, on the north by South Andover Street, and on the south by South Dakota Street.

Nearby suspected or contaminated state cleanup sites include Longs Drug Store 445 (Cleanup Site ID (CSID) 2699) and Rainier Plaza Seattle (CSID 2905), both located to the north of the Darigold Seattle Rainier Site. Longs Drug Store is listed as "cleanup complete," with ongoing monitoring for petroleum products. A release at Rainier Plaza Seattle was reported to Ecology in 1993, and petroleum products, halogenated organics, non-halogenated solvents, and priority pollutant metals are listed as suspected in soil and groundwater at the site.

## SITE BACKGROUND:

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

| From | To | Operator/Tenant | Activity |
|---|---|---|---|
| 1952 | | Consolidated Dairy Products Company | |
| | 2001 | George C. and Venetia Pallis | Darigold Rainier Plant |
| 2001 | 2014 | Darigold Inc | Darigold Rainier Plant |

## SITE CONTAMINATION:

In 1991 the Darigold Seattle Rainier site was reported to Washington State Department of Ecology (Ecology) and placed on the Leaking Underground Storage Tank (LUST) list.

In 1989 and 1990, an 8,000-gallon gasoline underground storage tank (UST) and a 300-gallon oil UST were cleaned, excavated, and removed from the Site. The 8,000-gallon UST was replaced with a 10,000-gallon tank. The gasoline tank excavation was reportedly excavated until no further contamination was suspected, and a total of 450 cubic yards of soil were stockpiled and then disposed of offsite. Confirmation soil samples were reportedly collected, but results were not available for review. During removal of the 300-gallon oil tank, olfactory evidence of

petroleum impacts to soil were reported in the south wall of the excavation. The excavation reportedly did not extend further to the south due to the presence of a concrete loading ramp. The Site owner reported hydrocarbon odors in the basement of the building, leading the owner to believe that gasoline may have migrated underneath the building's loading dock.

A total of six soil samples were reportedly collected during excavation though the location of the samples are unknown. Soil sample results from September 1990 reported concentrations of undifferentiated total petroleum hydrocarbons (TPH) in four out of six samples, with detected concentrations ranging from 51.4 milligrams per kilogram (mg/kg) to 183.6 mg/kg. Concentrations of benzene were detected in all six soil samples above the Model Toxics Control Act (MTCA) Method A cleanup level, and ranged from 0.10 mg/kg to 0.27 mg/kg. Concentrations of xylenes were detected in two out of six samples, with one detection (12.5 mg/kg) above the MTCA Method A cleanup level.

In October 1990, Enviros Applied Technologies reportedly conducted a soil vapor survey at the Site, collecting nine soil gas samples. Soil gas samples were collected at depths ranging from 3.13 to 3.25 feet below ground surface (bgs). The highest concentration of petroleum hydrocarbons was detected at SG-7, with a concentration of 290.2 parts per million by volume (ppmv); other soil gas concentrations were 2.9 ppmv at SG-1, 4.8 ppmv at SG-2, 1.2 ppmv at SG-3, 13.5 ppmv at SG-4, 89.2 ppmv at SG-5, 2.5 ppmv at SG-6, 28.9 ppmv at SG-8, and 35.9 ppmv at SG-9. A blank air sample was also collected, and contained 1.4 ppmv TPH. It is unclear from the documentation whether this blank air sample is a field or a laboratory blank.

In October 1990, four soil samples were reportedly analyzed for undifferentiated TPH and benzene, toluene, ethylbenzene, and xylenes (BTEX), however the collection locations of the samples are not known. TPH was detected in two samples, at concentrations of 129.9 mg/kg (Sample 3) and 206.1 mg/kg (Sample 1). Benzene was also detected in the same two samples, at concentrations of 0.17 mg/kg (Sample 1) and 0.12 mg/kg (Sample 3), both of which are above the MTCA Method A cleanup level. Xylenes were also detected in Sample 1 (12.5 mg/kg) at concentrations above the MTCA Method A cleanup level.

In November 1990, additional soil samples were collected at the Site from within one of the excavations, though which excavation and the exact collection location of samples is unknown. Composite soil samples were reportedly collected from the sidewalls of the excavation, and a water/mud sample was reportedly collected from the base of the excavation. One sample, from the south wall, contained 18 mg/kg gasoline and 38 mg/kg diesel. The remaining samples contained gasoline below 1 mg/kg and diesel below 25 mg/kg.

Darigold sent a letter to Ecology in 1991 requesting that they be allowed to discontinue cleanup, but no further information regarding this request was available for review. A handwritten note on the letter suggests that authorization to discontinue cleanup was not agreed to by both parties.

## PAST REMEDIATION ACTIVITIES:

In August 1998, two USTs were removed from the Site, including one 10,000-gallon diesel UST and one 8,000-gallon diesel UST which were removed from the same excavation. Petroleum-impacted soil surrounding the USTs was also excavated. One 10,000-gallon UST was still in operation at the production facility at the time. Stockpiled soils reportedly contained diesel at concentrations above MTCA Method A cleanup levels, and approximately 900 tons of soil was disposed of offsite. The excavation was expanded in all directions, and confirmation soil samples were collected. The expansion to the west was limited due to the active UST and dispenser pumps. Perched groundwater (approximately 8 feet bgs) was reported to have collected in the excavation, and a sample was collected for analysis. Twelve soil borings were also advanced at the Site to investigate the extent of petroleum-impacted soils.

Confirmation soil samples were analyzed for BTEX constituents, gasoline, heavy oil, and diesel. Soil samples collected from the north, northeast, and west sidewalls contained concentrations of diesel, oil, gasoline, and BTEX constituents below MTCA Method A cleanup levels. Soil sample EW-W, from the west sidewall, contained concentrations of gasoline (2,200 mg/kg), diesel (38,000 mg/kg), toluene (19 mg/kg), ethylbenzene (17 mg/kg) and xylenes (97 mg/kg) above MTCA Method A cleanup levels. A groundwater grab sample collected from the excavation did not contain gasoline, diesel, or oil at concentrations above their respective laboratory reporting limits, though the laboratory reporting limits used for diesel and oil were above the current MTCA Method A cleanup levels for diesel and oil. Soil collected from borings B-9 (at 8 feet and 11 feet bgs) and B-10 (at 7 feet bgs) contained gasoline above the MTCA Method A cleanup level, with concentrations ranging from 100 mg/kg to

500 mg/kg. Soil samples from the remaining soil borings did not contain gasoline, diesel, or oil at concentrations above the corresponding MTCA Method A cleanup levels.

In 2003, a site investigation was reportedly conducted by Integral Consulting, but the full report was not available for review. Soil borings were advanced to depths between 5 and 30 feet bgs at 18 locations around the Site, and gasoline-range hydrocarbons were reportedly detected at concentrations above the MTCA Method A cleanup level in soils sampled from 10 boring locations. Diesel was detected at concentrations above the MTCA Method A cleanup level in soil samples from two borings. Benzene was also reportedly detected in soil and groundwater at concentrations above the MTCA Method A cleanup level. Lead was also reportedly detected in soil at concentrations up to 825 mg/kg, and in groundwater at concentrations up to 242 micrograms per liter (ug/L), both of which are above MTCA Method A cleanup levels for unrestricted land use.

In a 2003 letter, Ecology asserted that according to Site records, not all gasoline, diesel, and xylenes had been cleaned up at the Site, and remained in soil to the south, east, and west of the former fueling island.

In January 2004, one 10,000-gallon diesel UST was decommissioned and removed from the Site, along with the product lines, canopy, pump island, and concrete pad. Pea gravel surrounding the piping system was reported as containing petroleum hydrocarbons. Soil samples collected from the west, south, southeast, and northwest sidewalls and excavation base contained gasoline and benzene at concentrations above MTCA Method A cleanup levels, with the highest concentrations reported near the former tank location (up to 520 mg/kg gasoline, and up to 2.9 mg/kg benzene). Samples from the west sidewall and northwest corner of the excavation contained diesel at concentrations above the MTCA Method A cleanup level. The highest detected concentration of diesel was 4,900 mg/kg, in the northwest corner of the excavation. Approximately 77 tons of soil were reportedly excavated and removed from the Site.

Groundwater was encountered in the excavation at a depth of approximately 7 feet bgs, and a 0.25-inch layer of product had reportedly accumulated on the water surface. A vactor truck was reportedly used to skim the free-phase product. Approximately 850 gallons of product and groundwater were reportedly removed over a period of three days. The UST decommissioning and site assessment report notes that the areal extent of petroleum-impacted soils were estimated to extend approximately 25 feet north, 50 feet west, and 25 feet south of the 1990 and 1998 excavation areas, and that in most locations, petroleum-impacted soil was expected to be in contact with groundwater.

In June 2004, eight monitoring wells (MW01 through MW08) were installed at the property to assess shallow groundwater. During drilling activities, field observations and photoionization detector measurements identified petroleum impacts to soil from 5 to 12 feet bgs. Groundwater samples collected from MW01, MW02, MW03, and MW07 contained gasoline above the MTCA Method A cleanup level, with concentrations ranging from 980 µg/L to 62,000 µg/L. Diesel was detected in groundwater samples collected from the eight wells, with concentrations above the MTCA Method A cleanup level in MW01, MW02, MW03, MW05, MW06, and MW07. The highest reported concentration of diesel was observed in MW07, with 8,600 µg/L diesel. Concentrations of benzene above the MTCA Method A cleanup level were detected in groundwater samples collected from MW01, MW02, MW03, MW04, and MW07. The groundwater sample collected from MW07 also contained toluene, ethylbenzene, and xylenes above MTCA Method A cleanup levels. No free-phase hydrocarbons were reported in monitoring wells sampled in 2004.

In February 2011, three subslab soil vapor samples were collected from just below the concrete slab, in the northeast corner of the onsite building. Samples were analyzed for methyl tert-butyl ether (MTBE), n-hexane, BTEX constituents, cumene, 1,3,5-Trimethylbenzene, 1,2,4-Trimethylbenzene, and naphthalene. Concentrations of analyzed constituents were below the Draft Method B soil gas screening levels.

In July and August 2011, approximately 7,900 tons of soil were excavated and removed from the Site. Several monitoring wells (MW02, MW03, MW04, MW07, MW10, MW11 and PE01) were located within the soil excavation area, and were decommissioned prior to excavation. Visual and olfactory evidence, along with PID field screening, indicated that the impacted soil was generally located at depths below 7 or 8 feet bgs. The aerial extent of the excavation was approximately 10,800 square feet, and the average excavation depth was approximately 12 feet deep. Approximately 44,000 gallons of water were pumped from the excavation, treated to remove sediments and petroleum hydrocarbons, and then discharged to the sanitary sewer.

Concentrations of benzene above the MTCA Method A cleanup level were detected in twelve confirmation soil

samples, and were generally detected in samples collected from the excavation base and the east and south sidewalls. Concentrations of gasoline above the MTCA Method A cleanup level were detected in six soil samples, from the south and east sidewalls, and the southeast corner of the excavation base. Concentrations of gasoline ranged from 39 mg/kg to 1,400 mg/kg. One sample from the east sidewall also contained diesel (7,100 mg/kg) at a concentration above the MTCA Method A cleanup level. BTEX constituents were detected in three samples at concentrations above their respective MTCA Method A cleanup levels.

Two oxidation agents were applied to soil at the bottom of the excavation. An oxygen releasing compound (ORC) was applied evenly throughout the base of the excavation, and a secondary application of another ORC was applied specifically to areas where confirmation soil samples indicated remaining concentrations of petroleum products above MTCA Method A cleanup levels. The excavation was backfilled with clean imported gravel.

Seven monitoring wells were installed at the Site in 2011 (MW22 through MW28), to replace the seven monitoring wells abandoned prior to soil excavation. Soil samples collected from MW-23 and MW-24 (at 13 feet bgs and 13.5 feet bgs) contained concentrations of benzene above the MTCA Method A cleanup level, and MW-23 also contained gasoline at a concentration above the MTCA Method A cleanup level.

The most recent groundwater monitoring report on file at Ecology documents the fifth post-excavation sampling event (May 2013). During this sampling event, concentrations of MTBE above the MTCA Method A cleanup level were detected in groundwater samples collected from MW01, MW02, MW12, MW24, MW25, MW26, and MW27. The groundwater sample collected from MW12 contained gasoline, diesel, and benzene at concentrations above the MTCA Method A cleanup levels. The previous sampling event in November 2012 also detected concentrations of MTBE above the MTCA Method A cleanup level in MW13.

## CURRENT SITE CONDITIONS:

Residual petroleum-impacted soil was present in the east and south sidewalls and base of the 2011 soil excavation, however an ORC was applied to these areas in order to promote hydrocarbon breakdown. A vapor intrusion study conducted in the onsite building basement indicates that subslab concentrations of soil vapors are below Draft Method B cleanup levels. Groundwater has previously contained gasoline, diesel, lead, MTBE, and BTEX constituents, however the most recent sampling event in May 2013 only detected gasoline, benzene, MTBE, and diesel at concentrations above MTCA Method A cleanup levels. Lead was detected in Site soil and groundwater in 2003 at concentrations above the MTCA Method A cleanup levels, however soil and groundwater have not been tested for lead in subsequent sampling events.

The approximate depth to groundwater is 7 feet below ground surface, with groundwater flowing to the southwest (based on groundwater elevations). Subsurface soils are fill material, including bricks, wood blocks, and concrete to a depth of approximately 11 feet bgs, then silt (based on soil borings and soils encountered in the UST excavations).

## SPECIAL CONSIDERATIONS:

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

☐ **Surface Water**

A surface spill of milk occurred at the Site in 2008, but is expected to impact only the pH of stormwater, which is a parameter covered under the Site's industrial general stormwater permit.

☐ **Air**

Release of volatile compounds occurred to subsurface soils. While residual petroleum-impacted soil may be present at the Site, a vapor intrusion study indicates that subslab concentrations of volatile compounds are below Method B Draft Cleanup levels.

☑ **Groundwater**

Gasoline, diesel, lead, and BTEX have been detected in Site groundwater at concentrations above MTCA Method A cleanup levels.

The Site is located in a highly populated area. Over 6,700 people are estimated to live within 0.5 miles of the Site.

# SITE HAZARD ASSESSMENT
# Worksheet 1
# Summary Score Sheet

## ROUTE SCORES:

| | | | |
|---|---|---|---|
| Surface Water/ Human Health: | | Surface Water/ Environment: | |
| Air/ Human Health: | | Air/ Environment: | |
| Groundwater/ Human Health: | 41.9 | | |

**Overall Rank: 3**

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21 Sound Environmental Strategies Corporation, 2004, UST Decommisssioning and Site Assessment, WestFarm Food Rainier Avenue Facility 4058 Rainier Avenue South Seattle, Washington. March 3, 2004.

22 WARM Scoring Manual

23 WARM Toxicological Database

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

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26 Washington State Department of Ecology, 2007, Warning Non-Compliance -- with Industrial Stormwater General Permit at Darigold Rainier Avenue Plant, Permit# SO3-000500D, on February 6, 2007. March 12, 2007.

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# SITE HAZARD ASSESSMENT
# Worksheet 2
# Route Documentation

Cleanup Site ID: 9418 Darigold Seattle Rainier

Facility/Site ID: 48839443

## 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:**

Site is covered by a stormwater permit, there is no evidence of surface impacts, and no data is available for parameters not covered by the permit, as the surface spill of milk is expected to impact pH, a covered parameter.

## 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:**

Release of volatile compounds occurred to subsurface soils, however a vapor intrusion study conducted at the Site indicated that subslab concentrations are below Method B Draft Cleanup levels.

## 3. GROUNDWATER ROUTE

**List those substances to be considered for scoring:**

Gasoline (benzene), diesel, lead, toluene, ethylbenzene, xylenes

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

Presence in groundwater at concentrations above 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 detections in groundwater at concentrations above MTCA Method A cleanup levels

**Worksheet 6**

**Groundwater Route**

**CSID:** 9418 **Site Name:** Darigold Seattle Rainier

**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 |
| Toluene | 2 | 3 | 1 | X |
| Ethylbenzene | 4 | 3 | 1 | X |
| Xylenes | 2 | 10 | 1 | X |
| Diesel | 4 | 5 | 3 | X |
| Lead | 6 | X | 10 | X |

Highest Value 10

Bonus Points? 2

Toxicity Value 12

**1.2 Mobility**

Cations/Anions Max Value: 2

Solubility Max Value: 3 Mobility Value 3

**1.3 Substance Quantity**

Amount: 40 cubic yards

Basis: Estimated volume of remaining petroleum-impacted soil

Substance Quantity Value 2

**2.0 Migration Potential**

**2.1 Containment** Containment Value 10

Explain Basis: Contaminated soil

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

**2.3 Subsurface Hydraulic Conductivity** Conductivity Value 4

Mixed fill including bricks and wood blocks

**2.4 Vertical Depth to Groundwater** 7 feet

Confirmed release: Yes Depth to Aquifer Value 8

**3.0 Targets**

**3.1 Groundwater Usage** Aquifer Use Value 3

Irrigation only

**3.2 Distance to Nearest Drinking Water Well** >10,000 feet feet

Well Distance Value 0

**3.3 Population Served within 2 Miles** Population Served Value 0

0 people

**Worksheet 6**

**Groundwater Route**

**CSID:** 9418 **Site Name:** Darigold Seattle Rainier

**3.4 Area Irrigated by GW Wells within 2 miles** Area Irrigated Value 0

0 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 | $SUB_{GH}$ | 200 |
| $MIG_G$=Depth to Aquifer+Net Precip + Hydraulic Conductivity | $MIG_G$ | 14 |
| $REL_G$ = Release to Groundwater | $REL_G$ | 5 |
| $TAR_{GH}$ = Aquifer Use + Well Distance + Population Served + Area Irrigated | $TAR_{GH}$ | 3.0 |
| | $GW_H$ | 41.9 |

## Washington Ranking Method

## Route Scores Summary and Ranking Calculation Sheet

**Site Name:** Darigold Seattle Rainier **CSID:** 9418

**Site Address:** 4058 Rainier Avenue South **FSID:** 48839443

**HUMAN HEALTH ROUTE SCORES**

Enter Human Health Route Scores for all Applicable Routes:

| Pathway | Route Score | Quintile Group |
|---|---|---|
| Surface Water | ns | 0 |
| Air | ns | 0 |
| Groundwater | 41.9 | 4 |

| | |
|---|---|
| H= | 4 |
| M= | 0 |
| L= | 0 |

$$\frac{H^2 + 2M + L}{8} = \frac{16 + 0 + 0}{8}$$

**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 | ns | 0 |
| Air | ns | 0 |

| | |
|---|---|
| H= | 0 |
| L= | 0 |

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

**Environment Priority Bin Score:** **N/A**

rounded up to next whole number

**Comments/Notes:**

The site is located in a densely populated area. Over 6,700 people are estimated to live within 0.5 miles of the site.

**FINAL MATRIX RANKING** **3**

**FOR REFERENCE:**

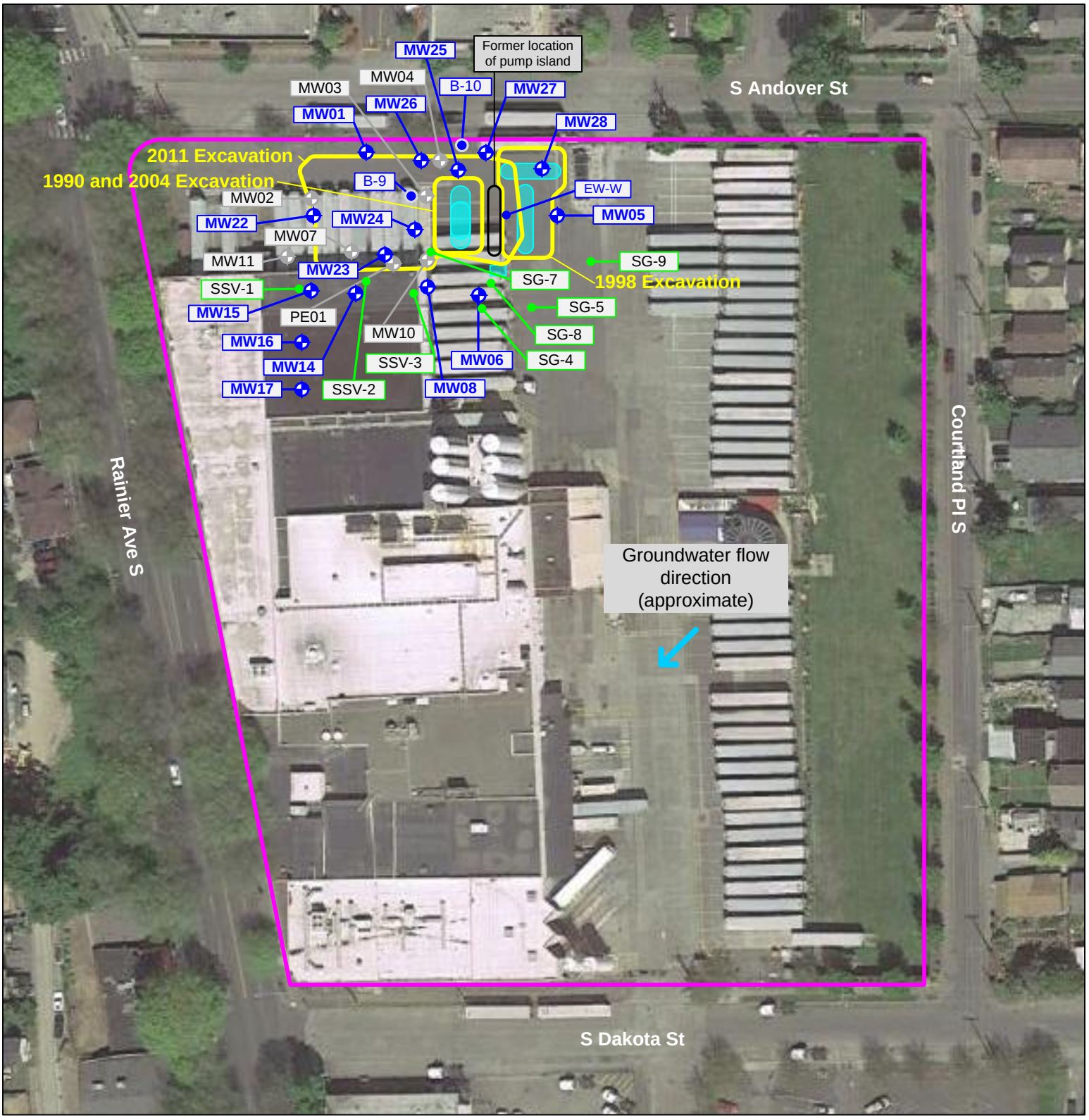
**Final WARM Bin Ranking Matrix**

| 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 | Human Health Air | Human Health Ground Water | Environment Surface Water | Environment 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)
- Soil boring (1998) (approximate)
- Soil sample (1998) (approximate)
- Soil vapor sample (approximate)
- Former monitoring well (approximate)

## Notes:

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

N

**Darigold Seattle Rainier**
**4058 Rainier Avenue South**
**Seattle, WA 98118**

DEPARTMENT OF ECOLOGY
State of Washington

# Site Overview Map

**CSID 9418**

CSID9418.vsd