SITE HAZARD ASSESSMENT
Worksheet 1: Summary Score Sheet

SITE NAME: Dawn Food Products **Rank: 1**

Cleanup Site ID: 16678

Facility/Site ID: 3505

Completed on 8/3/2023 for inclusion on the August 2023 Hazardous Sites List.

LOCATION OF SITE

6901 Fox Ave S

Seattle, King County, WA 98108

Tax Parcel ID: 0001800113

Township 24N, Range 4E , Section 29

Latitude, Longitude: 47.54053 , -122.32892

SITE DESCRIPTION

Within Currently Defined Site Boundaries

Based on currently available information, the Dawn Food Products site (Site; Figure 1) includes the tax parcel listed above. The Site includes 5.4 acres of property zoned for industrial (IG1 U/85) use. The property currently houses one large warehouse building leased to Dawn Food Products, who produce dry baking mixes in the building, and accessory structures and parking related to business operations. Tenants of the building since 1978 have been food companies, and prior to that the parcel housed various industrial operations including ship building, painting, metal fabrication, and generator manufacturing. The exact source and date of contamination are unknown.

The site is adjacent to the Lower Duwamish Waterway at approximately river mile 2.3. Stormwater discharge to the Lower Duwamish Waterway from the Site is covered by an active Industrial Stormwater General Permit (WAR011560). The location of the shoreline on the Site has changed over the years, and historical shorelines are shown in Figure 2.

A portion of the property is within the documented cleanup action area for the Fox Avenue Building cleanup site (Cleanup Site ID 5082). The source of contamination for this site is located east of the Site, across Fox Avenue, at 6900 Fox Avenue. In some Site reports, this is also referred to as the Great Western Chemical property. The Fox Avenue Building site is undergoing cleanup with Ecology oversight under an Agreed Order.

Cleanup of the Site will proceed under an Agreed Order with Ecology. A public comment period on the draft Agreed Order and Public Participation Plan was held from May 22nd through July 5th, 2023.

Historical Owners and Operators

From	To	Owner/Operator	Site Uses
1917	1966	multiple: McAteer Ship Building Company, National Steel Corporation, Anderson Ship Building Company	ship building
1966	mid 1970s	Emerson GM Diesel	sheet metal fabrication and generator manufacturing
1977			main warehouse building currently on property built

1978	2003	multiple companies - Bunge Foods, Oroweat Foods, Ener-G Foods, Sam Wylde Flour Company	food processing
2004	present	Dawn Foods (lessee and operator)	mixing and packaging commercial baking mixes
	1996	Fox Avenue Warehouse Corporation (owner)	
1996	2021	William Guimont or Guimont Fox Avenue LLC (owner)	
2021	present	Bridge Point Seattle LLC (owner)	

Area Surrounding the Site

The Site is generally located in the Georgetown neighborhood of Seattle in an industrial area. There are 8 additional Ecology cleanup sites located within one-quarter mile of the Site.

The portion of the Lower Duwamish Waterway adjacent to the property is part of the Lower Duwamish Waterway Superfund site that is managed by the United States Environmental Protection Agency (EPA). This SHA does not include a discussion of sediment sampling completed as part of site characterization for the Superfund site. Additional information on characterization and selected remedial actions for the Superfund site can be found in documents available on the EPA site webpage, specifically in the Remedial Investigation, Feasibility Study, and Record of Decision (see References).

A detailed discussion of surface water quality in the portion of the Lower Duwamish Waterway adjacent to the property is also not included in this SHA. Sufficient surface water sampling has been done to determine that this section of the Lower Duwamish Waterway is a Catefory 5 waterway. Category 5 waters, also known as the 303(d) List, are waterways with pollution that require a water improvement project. The section of the Lower Duwamish Waterway adjacent to the Site is on the list specifically for elevated concentrations of polycyclic aromatic hydrocarbons (PAHs) and arsenic in tissues of animals living in the water.

SITE CHARACTERIZATION AND/OR REMEDIATION

Hart Crowser collected samples as part of a limited subsurface investigation on the property in 1996. Results of these samples are referenced in newer reports available in the Ecology site file. These samples indicated areas of contamination with metals, volatile organic compounds, and total petroleum hydrocarbons (TPH). Crete Consulting collected additional samples on the property beginning in 2020 to confirm the Hart Crowser data and to better understand the nature and extent of contamination. Sampling to date has included soil, groundwater, soil vapor, and indoor air.

Overall, soil sampling results have identified areas of contamination with metals above screening levels. Samples with screening level exceedances have, so far, been collected on the western half of the property. Specific metals present above screening levels include arsenic, copper, nickel, and zinc.

Groundwater sampling has also identified concentrations of arsenic, copper, nickel, and zinc above screening levels. The extent of metals contamination is greater in groundwater than in soil (see Figure 2). An area of elevated gasoline range petroleum hydrocarbons (TPH-G) has been identified on the southeastern part of the property. Chlorinated solvents, specifically tetrachloroethene (PCE) and vinyl chloride, are present in groundwater above screening levels over most of the eastern half of the property. Additional investigation is needed to confirm if all of the chlorinated solvents are related to the Fox Avenue Building cleanup site, or if there

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may be additional on-Site sources contributing to the contamination.

Two rounds of air sampling have been conducted. In 2020, sub-slab soil vapor, indoor, and ambient samples were collected. In 2021, additional indoor and ambient air samples were collected. Soil vapor samples had concentrations of PCE, trichloroethene (TCE), and petroleum hydrocarbons above the Method B screening level. PCE, TCE, 1,2-dichloroethane, benzene, naphthalene, and petroleum hydrocarbons were all present above the Method B cleanup level protective of unrestricted land use in at least one indoor air sample. No sample had TCE present above the short-term action level.

ADDITIONAL INFORMATION COLLECTED BY THE SITE HAZARD ASSESSOR

Ecology staff, including the Assessor, visited the Site on May 15, 2023. The owner's environmental consultant and a staff member from Dawn Foods were present during the site walk and provided additional information. Dawn Foods will cease operating on the property no later than the end of 2023. Additional sampling has been done since the submission of the 2021 Remedial Investigation Work Plan. Results will be included in a future report submitted to Ecology. The Assessor's understanding is that these results may change the extent of contamination shown on the figures below, but that overall the general areas of contamination and contaminants present remain the same.

SPECIAL CONSIDERATIONS

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

☑ **Surface Water**

Contaminated groundwater in close proximity to and likely connected to surface water.

☑ **Air**

Chlorinated solvents present above screening levels in both soil vapor and indoor air, indicating possible vapor intrusion.

☑ **Groundwater**

Groundwater is confirmed to be contaminated on Site. A short list of chemicals present in groundwater was used for scoring.

Since groundwater contamination was shallow and in very close proximity to the Lower Duwamish Waterway, the river was considered a hydraulic discontinuity and drinking water wells within 2 miles of the Site but on the west side of the river were not considered in groundwater scoring.

The site is located in an area where workers are likely to be present every day, but with limited residents. The population within one-half mile used for air scoring may therefore underestimate the number of people consistently in the area. As a comparison, the OnTheMap tool estimates 5775 workers within one-half mile of the Site.

ROUTE SCORES

Surface Water/ Human Health:	45.5	Surface Water/ Environment:	63.1
Air/ Human Health:	27.3	Air/ Environment:	5.2
Groundwater/ Human Health:	37.6		

Overall Rank: 1

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REFERENCES

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2 Clear Water Services and Landau Associates. May 2021. Stormwater Treatment Engineering Design Report, Dawn Food Products Inc.

3 Crete Consulting. February 2021. Summary of Soil and Groundwater Conditions.

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SITE HAZARD ASSESSMENT
Worksheet 2: Route Documentation

SITE NAME: Dawn Food Products

Cleanup Site ID: 16678

Facility/Site ID: 3505

1. SURFACE WATER ROUTE

List those substances to be considered for scoring:

arsenic, copper, nickel, zinc

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

substances present in groundwater above cleanup levels on the western portion of the Site, closest to surface water

List those management units to be considered for scoring:

groundwater

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

stormwater covered by active NPDES; goundwater to surface water considered for scoring

2. AIR ROUTE

List those substances to be considered for scoring:

PCE, TCE, TPH

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

present in soil vapor above screening levels

List those management units to be considered for scoring:

groundwater, soil vapor

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

volatile contaminants present in these media

3. GROUNDWATER ROUTE

List those substances to be considered for scoring:

arsenic, copper, nickel, zinc, PCE

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

present in groundwater on Site above screening levels

List those management units to be considered for scoring:

groundwater

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

documented areas of contaminated groundwater on Site

Figure 1. Location of Site indicated by red star. Base figure from King County iMap.

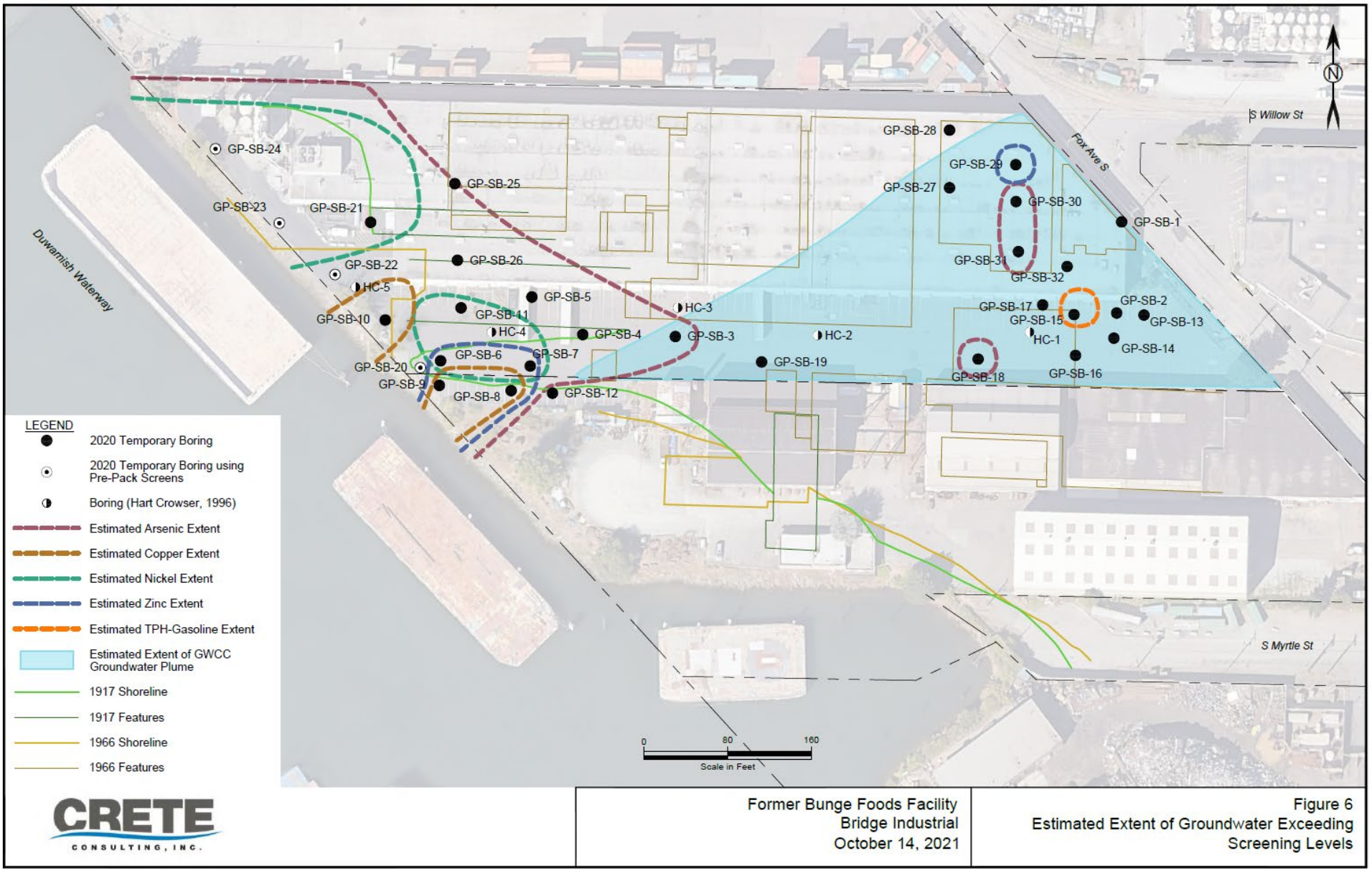

Figure 2. Areas of identified groundwater contamination on Site. The light blue area is contaminated with chlorinated solvents (PCE, vinyl chloride). Soil with elevated concentrations of metals are generally located on the west side of the Site, in areas also indicated as having contaminated groundwater.

Worksheet 4
Surface Water Route

CSID 16678
Site: Dawn Food Products

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

	Drinking Water Standard		Acute Toxicity		Chronic Toxicity		Carcinogenicity	
Substance	Value (µg/L)	Score	Value (mg/kg)	Score	Value (mg/kg/day)	Score	Adj. CPFo (risk/mg/kg-day)	Score
arsenic	1.0E+01	8	7.6E+02	5	3.0E-04	5	1.5E+00	7
copper	1.0E+03	4	--	X	4.0E-02	1	--	X
nickel	--	X	--	X	2.0E-02	1	--	X
zinc	5.0E+03	2	--	X	3.0E-01	1	--	X

Maximum score: 8
Bonus points:
Human Toxicity Score: 8
Source: WARM Toxicity Database
Range: 1-12

1.2 Environmental Toxicity

Freshwater:
Marine: X

	Acute Water Quality Criterion	
Substance	Value (µg/L)	Score
arsenic	6.9E+01	6
copper	4.8E+00	8
nickel	7.4E+01	6
zinc	9.0E+01	6

Maximum score: 8
Environmental Toxicity Score: 8
Source: WARM Toxicity Database
Range: 2-10

1.3 Substance Quantity

Amount: 113,400 ft^2
Basis: limited sampling has identified areas of soil contamination on the western and eastern portions of the property, but has not confirmed extent; one half the total area of the property was used as an estimate for scoring
Source: site reports, iMap
Substance Quantity Score: 9
Range: 1-10

2.1 Containment

Description: pathway of concern is groundwater discharge to surface water

Source: WARM scoring manual

Containment Score: 10

Range: 0-10

SUBSTANCE PARAMETER CALCULATIONS

Human Health Pathway

SUBh = (Human Toxicity + 3) x (Containment + 1) + Substance Quantity **130.0**

Environmental Pathway

SUBe = (Environmental Toxicity + 3) x (Containment + 1) + Substance Quantity **130.0**

2.0 MIGRATION POTENTIAL

2.2 Surface Soil Permeability

Description: sandy fill with silt and gravel

Source: site reports

Soil Permeability Score: 3

Range: 1-7

2.3 Total Annual Precipitation

Amount (inches): 34

Source: NOAA NCEI Boeing Field Station, average annual 2000

Annual Precipitation Score: 3

Range: 1-5

2.4 Maximum Two-Year/24-Hour Precipitation

Amount (inches): 2.03

Source: NOAA Atlas2

24-Hour Precipitation Score: 3

Range: 1-5

2.5 Flood Plain

Classification: upland part of site not in floodplain

Source: iMap

Floodplain Score: 0

Range: 0-2

2.6 Terrain Slope

Degree of slope: approximately 10%

Source: USGS National Map, iMap

Terrain Slope Score: 5

Range: 1-5

MIGRATION PARAMETER CALCULATION

MIG = Soil Permeability + Annual Precipitation + 24-Hour Precipitation + Floodplain + Slope **14.0**

3.0 TARGETS

3.1 Distance to Surface Water

Name:	Lower Duwamish Waterway		
Distance (feet):	adjacent	Distance to Surface Water Score:	10
Source:	iMap	Range:	0-10

3.2 Population Served within 2 Miles

Population:	0	Population Served Score:	0
Source:	DOH SWAP Map, iMap	Range:	0-75

3.3 Area Irrigated within 2 Miles

Basis:	no irrigation or domestic surface water rights identified downstream of Site		
Area (acres):	0	Area Irrigated Score:	0
Source:	Water Rights Map Search	Range:	0-30

3.4 Distance to Nearest Fishery Resource

Name:	Lower Duwamish Waterway		
Distance (feet):	adjacent	Distance to Fishery Score:	12
Source:	iMap	Range:	0-12

3.5 Distance to Nearest Sensitive Environment

Name:	Lower Duwamish Waterway		
Distance (feet):	adjacent	Distance to Sensitive Environment Score:	12
Source:	iMap	Range:	0-12

TARGET PARAMETER CALCULATIONS

Human Health Pathway

TARh= Distance to Surface Water + Population Served + Area Irrigated **10.0**

Environmental Pathway

TARe = Distance to Surface Water + Distance to Fishery + Distance to Sensitive Environment **34.0**

4.0 RELEASE

Evidence of release?	surface water sampling has not been done to confirm groundwater to surface water pathway		
Source:	site reports	Release Score (REL):	0.0
		Range:	0 or 5

SURFACE WATER ROUTE CALCULATIONS

Human Health Pathway

SWh = (SUBh x 40/175) x ((MIG x 25/24)) + REL + (TARh x 30/115)) / 24 **21.3**

Environmental Pathway

SWe = (SUBe x 40/153) x ((MIG x 25/24)) + REL + (TARe x 30/34)) / 24 **63.1**

Range: 0-100

Worksheet 5
Air Route

CSID 16678
Site: Dawn Food Products

1.0 SUBSTANCE CHARACTERISTICS

1.1 Introduction
No scoring in Section 1.1.

1.2 Human Toxicity

	Ambient Air Standard		Acute Toxicity		Chronic Toxicity		Carcinogenicity	
Substance	Value ($\mu g/m^3$)	Score	Value (mg/m^3)	Score	Value (mg/kg/day)	Score	Adj. CPFi (risk/mg/kg-day)	Score
tetrachloroethene(PCE)	1.7E-01	10	4.0E+03	5	1E-02	5	9E-04	3
trichloroethene(TCE)	5.0E-01	10	1.6E+04	3	6E-04	10	1E-02	5
benzene(for TPH-G)	3.5E-02	10	3.2E+04	3	9E-03	8	3E-02	5

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

1.3 Mobility
Gaseous Mobility

	Vapor Pressure		Henry's Law	
Substance	Value (mm Hg)	Score	Value (atm-m3/ mol)	Score
PCE			2E-02	4
TCE			1E-02	4
benzene			6E-03	4

Maximum score: 4
Source: WARM Toxicity Database

Particulate Mobility
Soil type:
Erodibility factor:
Climatic factor:
Mobility value: Mobility Score: 4
Source: 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)	Acute Score
PCE	4.0E+03	5
TCE	1.6E+04	3
benzene	3.2E+04	3

Maximum score: 5

Source: WARM Toxicity Database

Environmental Toxicity Score: 5
Range: 1-10

Environmental Tox/Mobil Score: 10
Range: 1-24

1.6 Substance Quantity

Quantity: 113,400 ft^2

Basis: volatile substances from a variety of sources cover approximately half the property area

Source: site reports, iMap

Substance Quantity Score: 7
Range: 1-10

2.1 Containment

Description: >2 feet below ground, no vapor control

Basis: site reports

Containment Score: 5
Range: 0-10

SUBSTANCE PARAMETER CALCULATIONS

Human Health Pathway

SUBh = (Human Tox/Mobil + 5) x (Containment +1) + Substance Quantity **181.0**

Environmental Pathway

SUBe = (Environmental Tox/Mobil + 5) x (Containment +1) + Substance Quantity **97.0**

3.0 TARGETS

3.1 Nearest Population

Description: workers in buildings on adjacent properties

Distance (feet): <1000

Source: iMap

Nearest Population Score: 10
Range: 0-10

3.2 Nearest Sensitive Environment

Description:	Oxbow Park		
Distance (feet):	2,200	Nearest Sensitive Environment Score:	5
Source:	iMap	Range:	0-7

3.3 Population within One-Half Mile

Number:	678	Population within Half Mile Score:	26.0
Source:	Missouri Census Data Center	Range:	0-75

TARGET PARAMETER CALCULATIONS

Human Health Pathway

TARh= Nearest Population + Population within Half Mile **36.0**

Environmental Pathway

TARe = Nearest Sensitive Environment **5.0**

4.0 RELEASE

Evidence of release?	above Method B cleanup levels in indoor air		
Source:	site reports	Release Score (REL):	5.0
		Range:	0 or 5

AIR ROUTE CALCULATIONS

Human Health Pathway

AIRh = (SUBh x 60/329) x (REL + (TARh x 35/85)) / 24 **27.3**

Environmental Pathway

AIRe = (SUBe x 60/329) x (REL + (TARe x 35/85)) / 24 **5.2**

Range: 0-100

Worksheet 6
Groundwater Route

CSID 16678
Site: Dawn Food Products

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human toxicity

	Drinking Water Standard		Acute Toxicity		Chronic Toxicity		Carcinogenicity	
Substance	Value (µg/L)	Score	Value (mg/kg)	Score	Value (mg/kg/day)	Score	Adj. CPFo (risk/mg/kg-day)	Score
arsenic	1.0E+01	8	7.6E+02	5	3.0E-04	5	1.5E+00	7
copper	1.0E+03	4	--	X	4.0E-02	1	--	X
nickel	--	X	--	X	2.0E-02	1	--	X
zinc	5.0E+03	2	--	X	3.0E-01	1	--	X
PCE	5.0E+00	8	8.0E+02	5	6.0E-03	3	2.1E-03	3

Maximum score: 8
Bonus points: 2 — Human Toxicity Score: 10
Source: WARM Toxicity Database — Range: 1-12

1.2 Mobility

	Solubility	
Substance	Value (mg/L)	Score
arsenic	K >1	3
copper	0.1 < K < 1	2
nickel	0.1 < K < 1	2
zinc	K >1	3
PCE	2.0E+02	2

Maximum value: 3 — Mobility Score: 3
Source: WARM Toxicity Database — Range: 1-3

1.3 Substance quantity

Quantity: 12,600 yd^3
Basis: based on area of contaminated soil/groundwater: one half area of the property, depth unknown (assumed 1 yard)
Source: site reports, iMap — Substance Quantity Score: 5
Range: 1-10

2.1 Containment

Description: contaminated soil and groundwater
Source: site reports — Containment Score: 10
Range: 0-10

SUBSTANCE PARAMETER CALCULATION

SUB = (Human Toxicity + Mobility + 3) x (Containment + 1) + Substance Quantity **181.0**

2.0 MIGRATION POTENTIAL

2.2 Net precipitation

Amount (inches):	23.5	Net Precipitation Score:	3
Source:	NOAA NCEI, ESRI	Range: 0-5	

2.3 Subsurface Hydraulic Conductivity

Description:	sandy fill with silt and gravel		
Source:	site reports	Hydraulic Conductivity Score:	3
		Range: 1-4	

2.4 Vertical Depth to Aquifer

Depth (feet):	0 - contamination in groundwater	Depth to Aquifer Score:	8
Source:	site reports	Range: 1-8	

MIGRATION PARAMETER CALCULATION

MIG = Depth to Aquifer + Net Precipitation + Hydraulic Conductivity **14.0**

3.0 TARGETS

3.1 Aquifer Usage

Description:	initial results suggest connectivity with marine surface water, but a complete determination of non-potability has not been made; conservatively scored as not used but usable		
Source:	iMap, WDOH Water System Database	Aquifer Use Score:	2
		Range: 1-10	

3.2 Distance to Nearest Drinking Water Well

Distance (feet):	>2miles; see Special Considerations	Well Distance Score:	0
Source:	iMap, WDOH SWAP Map	Range: 0-5	

3.3 Population Served by Drinking Water Wells within Two Miles — Population Served Score: 0.0

Number of people:	0	Range: 0-100	
Source:	WDOH Water System Database, Well Log Viewer		

3.4 Area Irrigated by Wells within Two Miles — Area Irrigated Score: 0.0

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

TARGET PARAMETER CALCULATION

TAR = Aquifer Use + Well Distance + Population Served + Area Irrigated | 2.0 |

4.0 RELEASE

Evidence of release? contamination documented in groundwater on site

Source: site reports

Release Score (REL): 5.0

Range: 0 or 5

GROUND WATER ROUTE CALCULATION

GW = (SUB x 40/208) x ((MIG x 25/17) + REL + (TAR x 30/165)) / 24 | 37.6 |

Range: 0-100

Washington Ranking Method
Route Scoring Summary and Ranking Calculation

CSID: **16678**
Site: **Dawn Food Products**

Human Health Route Scores

Pathway	Score	Quintile
Surface water	21.3	5
Air	27.3	4
Groundwater	37.6	3

Quintile	Value
High (H)	5
Middle (M)	4
Low (L)	3

Human Health Pathway Quintiles - based off February 2023 HSL

Quintile	Surface Water		Air		Groundwater	
1	<=	7.1	<=	8.6	<=	24.1
2	7.2	14.5	8.7	16.5	24.2	33.2
3	14.6	21.2	16.6	25.8	33.3	40.4
4	21.3	29.8	25.9	40.4	40.5	49.6
5	>=	29.9	>=	40.5	>=	49.7

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

Human Health Priority Bin Score: 4.5

Environmental Route Scores

Pathway	Score	Quintile
Surface water	63.1	5
Air	5.2	3

Quintile	Value
High (H)	5
Low (L)	3

Environmental Pathway Quintiles - based off February 2023 HSL

Quintile	Surface Water		Air	
1	<=	11.2	<=	1.2
2	11.3	24.1	1.3	1.5
3	24.2	32.5	1.6	12.6
4	32.6	50.0	12.7	26.5
5	>=	50.1	>=	26.6

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

Environmental Priority Bin Score: 4.4

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