

SITE HAZARD ASSESSMENT
WORKSHEET 1
Summary Score Sheet

SITE INFORMATION:

TC Systems Inc.
1032 W Marine View Dr
Everett, WA 98201

Section/Township/Range: 18/29/5E
Latitude: 48.003856
Longitude: -122.215486
Facility Site ID: 10587741
Cleanup Site ID: 628

Site scored/ranked for the February 2015 Hazardous Sites List Publication

November 14, 2014

SITE DESCRIPTION:

Other Addresses:

1028 W Marine View Dr., Everett, WA 98201
Generally between 10th and 11th Streets off of West Marine View Dr, Everett, WA 98201

Other Names:

Cruise-A-Home, Marpac Products, and Tri-Coatings, Inc.

Parcel Numbers:

29051800200700 (1104 10th St, Everett, WA 98201) - Building B
29051800201300 (1032 10th St, Everett, WA 98201) - Building C

Location:

The address for TC Systems was identified as 1028 W Marine View Drive, Everett, WA from the 1980s until 2002. The property is in an industrial area in northwest Everett near Port Gardner Bay. Currently, Building C houses two businesses: Fisherman's Market & Grill and Harbor Marine. Harbor Marine provides maintenance and repair services for boats. Building B is used by Harbor Marine for workshops and special events.

- North of the site is 10th Street, Performance Marine (boat repair, sales and storage) and beyond that is Port Gardner Bay.
- The property south of this site is commercial, which includes the Everett Marina and the Port of Everett.
- Directly east of the site are Dunlap Industrial Hardware (Building A), West Marine View Drive, Burlington Northern Santa Fe railroad, and residential homes.
- West of the site are a warehouse building (currently vacant), 12th Street Marina, Marine Park, parking lot, and a boat launch, and beyond that is Jetty Island and Port Gardner Bay.



Figure 1: Map from Google Earth 2014

Background

The property was operated by Jamison Shingle Mill from about 1910 until 1960. In the mid-1970s, Cruise-A-Home purchased the property and constructed Buildings B & C. Cruise-A-Home designed and built fiberglass houseboats. In 1980, Buildings B & C were occupied by Marpac Products and Tri-Coatings, Inc. Marpac made windows and railings for boats while Tri-Coatings painted metals.¹

In 1983 Norton Properties purchased the property and made additions to Buildings B & C. Six years later, Hehr International purchased Marpac Products and Tri-Coatings and began operating as TC Systems in the early 1990s.¹

TC Systems specialized in metal finishing (SIC #3471), where chemicals and coatings are applied to metal parts used in aviation and marine industries. It conducted non-destructive testing of metal parts, using a penetrating oil. Numerous chemicals including solvents, acids, bases, oils, and coatings were used and stored onsite. The plant also conducted sandblasting activities to prepare metal surfaces prior to coating.

The plant consisted of two industrial warehouse buildings with about 80 employees. Building B housed the process plating tankline (with 17 process tanks), penetrant test area, paint booth area, and the wastewater treatment area. Building C housed the office, paint booth area, and hazardous waste storage.^{2,4} Buildings B & C have different addresses and are on two separate parcels, with a combined total area of approximately 2.57 acres. The site is mostly covered with buildings and asphalt pavement. No underground storage tanks (USTs) were observed at the property.¹

TC Systems had a wastewater pretreatment system at their facility since the manufacturing processes generated wastewater. Wastewater is treated before discharge into the City of Everett sewer system (Industrial Waste Discharge Permit No. 7708). The facility had an Ecology Industrial Stormwater Discharge Permit (#WAR000762) and a permit with Puget Sound Clean Air Agency for their spray coating operations.

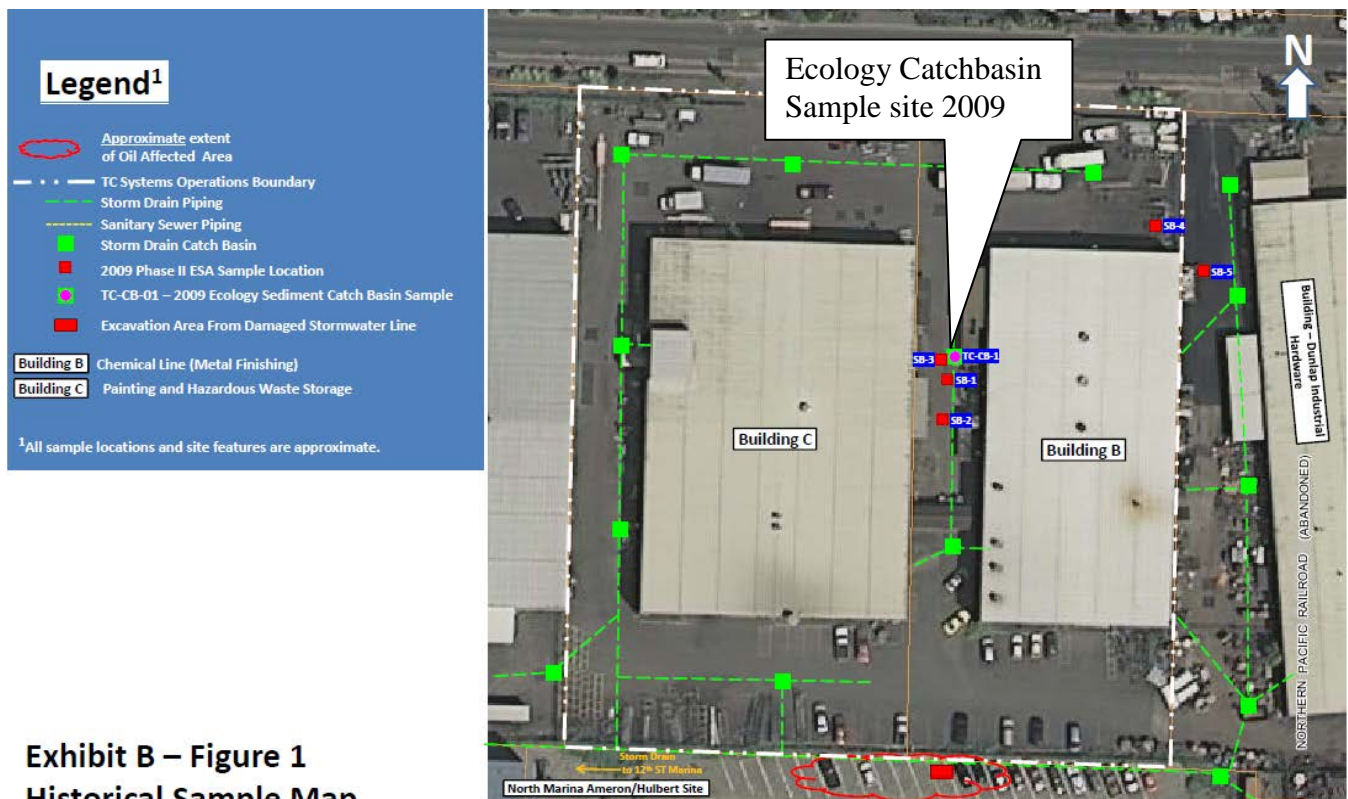
In 1999, TC Systems reported that they lost 200 gallons of diluted chromic conversion coating to their wastewater treatment plant. A power outage at the plant caused equipment to malfunction. Fortunately, the spill did not migrate beyond their treatment plant. The spill was reported to Ecology and documented in its Environmental Report Tracking System (ERTS).⁵

In November 2004, soil samples were collected from a stormwater pipeline repair work near the North Marina Ameron/Hulbert and TC Systems property line (see Exhibit B – Figure 1 Historical Sample Map). The stormwater pipeline is located south of Buildings B & C. Test results show concentration of cPAHs, PCBs, zinc & copper above the Model Toxics Control Act (MTCA) Method A soil cleanup levels for unrestricted land uses in two samples.¹ It is not clear if the catchbasin is down gradient from TC Systems.

In May 2009, E3RA, Inc. conducted a Phase I Environmental Site Assessment (ESA) of the property. The Phase I ESA documented three recognized environmental conditions at the property. These include: multiple above-ground storage tanks on the property, compressor oil leaked between Buildings B & C, and dye penetrant in contact with the concrete slab in Building B. In addition, the North Marina Ameron/Hulbert site located directly to the south is considered a potential recognized environmental condition due to confirmed sediment, soil, and groundwater contamination.³

In August 2009, Phase II site investigations of soil and groundwater were conducted. Soil samples were collected and analyzed for total petroleum hydrocarbons (TPH) diesel, oil, total chromium, and chromium VI. The soil samples were all below MTCA Method A soil cleanup levels. Groundwater sample collected near the NE corner of Building B had concentration of TPH diesel & oil that exceeded MTCA Method A groundwater cleanup level for diesel & oil. Concentrations of TPH-diesel and TPH-oil were reported at 1,200 ug/l and 860 ug/l, respectively.⁴

During a stormwater inspection in September 2009, Department of Ecology took a soil sample from a stormwater catch basin near the compressor shed between Buildings B & C. Sample results show that the concentrations of cadmium, chromium, copper, lead, zinc, PCBs (Arochlor-1248 and 1254), benzoic acid, bis(2-ethylhexyl)phthalate exceeded the Sediment Quality Standards (SQS) and in some cases also exceeded MTCA (see Table 2). In addition, the sample result for TPH, as lube oil, was reported at 3,800 mg/kg.¹



**Exhibit B – Figure 1
Historical Sample Map**

Sources for Site Features – 1996 North Marina Utility Map; TC Systems 1998 O&M Manual; Information from Ecology Inspection Reports; Landau's 6-2-05 report on the "Oil Affect Area" at Ameron.

The City of Everett responded to an ERTS (615854) in October 2009. It was found that TC Systems had a spill in one of their process tanks. The facility hosed the spill materials into a drain which was connected to the wastewater treatment system.⁶

TC Systems ceased operations at the site in May 2010. As part of Ecology's closure requirements, the business designated and disposed of all its dangerous wastes. It decontaminated and removed all equipment associated with the metal finishing operations and decontaminated all floors and structures associated with the facility.³

On August 5, 2010 an Agreed Order (No. DE 7818) was signed between DOE and both Potentially Liable Parties (PLPs): Norton Industries and TC Systems. Under the Agreed Order, the PLPs are to conduct a Remedial Investigation and Feasibility Study (RI/FS) and develop a draft Cleanup Action Plan, addressing both potential upland and in-water contamination for the site.

On January 31, 2011 Stantec Consulting Corporation submitted a final Remedial Investigation and Feasibility Study Work Plan - Final to TC Systems and Norton Industries.

On July 30, 2014 Stantec completed a report entitled Data Gaps Amendment – Draft for Norton Industries. The purpose of the assessment work was to characterize and delineate site contaminants to complete the remedial investigation/feasibility study (RI/FS) report.¹⁵

The project was done in two phases; the site was assessed for soil and groundwater quality. Analytical results indicate copper, arsenic, lead, carcinogenic polycyclic aromatic hydrocarbons (cPAHs) exceeded the Preliminary Screening Levels (PSLs) in soil. The following volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) had concentrations greater than the PSLs: 1-methylnaphthalene, 2-nitrophenol, 4-nitrophenol, n-propylbenzene, carbazole, and 4-isopropyltoluene. One or more individual non-carcinogenic polycyclic aromatic hydrocarbons exceeded the PSLs; these include acenaphthene, acenaphthylene, benzo(g,h,i)perylene, fluoranthene, naphthalene, and phenanthrene.¹⁵

Analytical results indicate arsenic and copper were detected above PSLs in the groundwater. The concentration of two polycyclic aromatic hydrocarbons (benzo[a]anthracene, benzo perylene) were found greater than the PSLs. TPH diesel and oil were detected in the groundwater but not above the PSLs; and PCBs did not exceed the PSL. Three SVOCs were above the PSLs: 1-Methylnaphthalene, bis (2-Ethylhexyl) phthalate, and 4-Methylphenol.¹⁵

Table 1: Summary of Maximum Level Groundwater Data

Chemical of Concern	Max Result	Screen Level	Max Sample Site	Max Sample Date
Phase II sampling				
Petroleum Hydrocarbons	ug/l	ug/l		
Diesel Range Hydrocarbons	1,200	500	TC-SB-4	8/3/09
Oil Range Hydrocarbons	860	500	TC-SB-4	8/3/09
Data Gaps Amendment sampling				
Metals	ug/l	ug/l		
Arsenic	425	5	TC-MW-19	July 2012
Copper	27	2.40	TC-MW-9A	July 2012

*Bold items indicate exceedance above MTCA clean up levels.

Table 2: Summary of Maximum Level Soil Contamination Data

Chemical of Concern	Max Result	Screen Level	Max Sample Site	Max Sample Date
Stormwater Catchbasin sampling				
Petroleum Hydrocarbons	mg/kg	mg/kg		
Heavy Oils Hydrocarbons	3800	2000	TC-CB-01	September 2009
Metals	mg/kg	mg/kg		
Cadmium	8.72	2	TC-CB-01	September 2009
Chromium	3,270	2,000	TC-CB-01	September 2009
Copper	1360	36	TC-CB-01	September 2009
Lead	693	250	TC-CB-01	September 2009
Zinc	2,270	n/a	TC-CB-01	September 2009
PCB	mg/kg	mg/kg		
PCB (Arochlor-1248)	0.12	1	TC-CB-01	September 2009
PCB (Arochlor-1254)	0.42	1	TC-CB-01	September 2009
	mg/kg	mg/kg		
Benzoic acid	22	320,000**	TC-CB-01	September 2009
Bis(2-ethylhexyl)phthalate	96	71.4***	TC-CB-01	September 2009
Data Gaps Amendment sampling				
Metals	mg/kg	mg/kg		
Copper	248	36	TC-SB-12	10/16/12
Arsenic	155	20	TC-MW-9R	03/14/14
Lead	410	250	TC-SB-6	10/17/12
PAHs	mg/kg	mg/kg		
Benzo(a)pyrene (cPAHs)	6.6	0.1	TC-SB-6	10/17/12
Acenaphthene	152	65.5	TC-SB-6	10/17/12
Acenaphthylene	2.24	0.1	TC-SB-6	10/17/12
Benzo(g,h,i)perylene	46.3	0.08	TC-SB-19	10/18/12
Fluoranthene	168	88.9	TC-SB-6	10/17/12
Naphthalene	492	5	TC-SB-6	10/17/12
Phenanthrene	383	0.1	TC-SB-6	10/17/12
Volatiles & Semi-Volatiles	mg/kg	mg/kg		
1-Methylnaphthalene	90.7	0.5	TC-SB-6	10/17/12
2-Nitrophenol	1.410	0.2	TC-SB-23	03/12/14
4-Nitrophenol	0.973	0.5	TC-SB-15	10/17/12
n-Propylbenzene	0.0289	0.02	TC-MW-19	10/16/12
Carbazole	3.01	0.5	TC-SB-6	10/17/12
4-Isopropyltoluene	2.28	0.02	TC-SB-23	03/12/14

*Bold items indicate exceedance above MTCA Method A clean up levels.

**CLARC Data Table - Method B Soil Non cancer

***CLARC Data Table - Method B Soil Cancer

SPECIAL CONSIDERATIONS:

The site is completely covered with impervious surface and asphalt-paved parking areas. The drains in this part of Everett are not in the combined-sewer system. Runoff from the buildings goes directly to the west towards the 12th Street Marina.

ROUTE SCORES:

Surface Water/Human Health: **44.9**
Air/Human Health: N/S
Groundwater/Human Health: **46.5**

Surface Water/Environmental.: **82.7**
Air/Environmental: N/S

OVERALL RANK: 1

WORKSHEET 2
Route Documentation

1. **SURFACE WATER ROUTE**

- a. List those substances to be considered for scoring: Source: 1,7,15

TPH as heavy oils, cadmium, lead, copper

- b. Explain basis for choice of substance(s) to be used in scoring:

TPH as heavy oils, cadmium, and lead were confirmed through sample analysis in a catchbasin between Buildings B & C at the site by Ecology stormwater inspectors in September 2009. Naphthalene and cPAH (benzo(a)pyrene) will be used as they are a petroleum component. Copper has no MTCA Method A cleanup levels but was found above the screening level.

- c. List those management units to be considered for scoring: Source 1,15

Spill, discharges, above-ground tanks, and contaminated sediment and soil in the catchbasin

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

Spill, discharges, and contaminated sediment/soil will be the management unit used for scoring due to contaminated sediment and soil, verified through sampling and analysis. It is not clear if the catchbasin has been cleaned out.

2. **AIR ROUTE**

- a. List those substances to be considered for scoring: Source: 1,15

Volatile organic compounds and semi-volatile organic compounds

- b. Explain basis for choice of substance(s) to be used in scoring:

The Site will not be scored although **volatile organic compounds and semi-volatile organic compounds were confirmed to be present at the site, the concentrations found were not above the MTCA Method A clean up levels. In addition, the site is completely paved.** List those management units to be considered for scoring: Source: 1,15

Spills, discharges, and contaminated soil

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

Spill, discharges, and contaminated soil will be the management unit used for scoring due to contaminated subsurface soil, verified through sampling and analysis.

3. **GROUNDWATER ROUTE**

- a. List those substances to be considered for scoring:

Source: 1,15

TPH as diesel, arsenic, copper

- b. Explain basis for choice of substance(s) to be used in scoring:

Diesel range hydrocarbons, arsenic, and copper were confirmed in groundwater at the site. Naphthalene and cPAH (benzo(a)pyrene) will be used as they are a petroleum component. Copper has no MTCA Method A cleanup levels, but was found in groundwater above screening levels.

- c. List those management units to be considered for scoring:

Source: 1,15

Spills, discharges, above-ground tanks, and contaminated soil

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

Spill, discharges and contaminated soil will be the management unit used for scoring due to contaminated subsurface soil, verified through sampling and analysis.

WORKSHEET 4
Surface Water Route

1.0 SUBSTANCE CHARACTERISTICS

1.2 Human Toxicity										
	Substance	Drinking Water Standard (µg/L)	Value	Acute Toxicity (mg/ kg-bw)	Value	Chronic Toxicity (mg/kg/day)	Value	Carcinogenicity		Value
								WOE	PF*	
1	Benzo(a)pyrene	0.2	10	50	10	X	ND	B12	12	9
2	Cadmium	5	8	225	5	0.0005	5	B1	X	ND
3	Copper	1300	2	X	ND	0.037	1	X	X	ND
4	Lead	5	8	X	ND	X	ND	B2	X	ND
5	Naphthalene	20	6	490	5	0.004	3	X	X	ND

**Potency Factor*

Source: 1,7,15

Highest Value: 10

(Max = 10)

Plus 2 Bonus Points? 2

Final Toxicity Value: 12

(Max = 12)

1.2 Environmental Toxicity () Freshwater (x) Marine					
	Substance	Acute Water Quality Criteria		Non-Human Mammalian Acute Toxicity	
		(µg/L)	Value	(mg/kg)	Value
		1	Benzo(a)pyrene	300	4
2	Cadmium	43	8	225	5
3	Copper	2.9	8	X	ND
4	Lead	140	4	X	ND
5	Naphthalene	2350	2	490	5

Source: 1,7,15

Highest Value: 10

(Max = 10)

1.3 Substance Quantity		Source	Value
	Explain Basis: There were 17 process tanks in Building B. One of the process tank is the anodizing tank, which contains copper waste. According to TC Systems' Pretreatment Engineering Report, 24,000 gallons of copper waste was generated each year. TC Systems was in operation for about 20 years, thus the substance quantity is 480,000 gallons.	2,7	7 (Max = 10)

2.0 MIGRATION POTENTIAL

2.1	Containment Explain basis: Spill, discharge or contaminated soil at the surface with no run-on/run-off control or unknown controls.	1,7	10 (Max = 10)
2.2	Surface Soil Permeability: The site is completely paved and is directly adjacent to Port Gardener Bay. Runoff from the buildings goes directly to the west towards the water.	1,7	7 (Max = 7)
2.3	Total Annual Precipitation: 35 inches/year	1,7	3 (Max = 5)
2.4	Max 2yr/24hr Precipitation: 1.52 inches	7,17	2 (Max = 5)
2.5	Flood Plain: Area determined to be outside the 0.2% annual chance floodplain.	7,18	0 (Max = 2)
2.6	Terrain Slope: Elevation is 12.668 feet; property boundary is approximately 475 feet east/northeast of Port Gardener Bay. Runoff from the buildings goes directly to the west (2.66% slope) via a pipe.	1,7, 21	3 (Max = 5)

3.0 TARGETS

		Source	Value
3.1	Distance to Surface Water: The northern property boundary is approximately 150 south of Port Gardener Bay, and the southwest property boundary is approximately 472 feet east/northeast of Port Gardener Bay.	1,7	10 (Max = 10)
3.2	Population Served within 2 miles (see WARM Scoring Manual Regarding Direction): Surface water privately or publicly down gradient of the site Water Right Tracking System does not show public water systems that use surface water within 2 miles.	7,20	0 (Max = 75)
3.3	Area Irrigated by surface water within 2 miles: $0.75 * \sqrt{\# \text{ acres}} = 0.75 * \sqrt{453} = 15.96$ Water Right Tracking System shows 453 acres are irrigated by surface water within the 2 miles.	7,20	16 (Max = 30)
3.4	Distance to Nearest Fishery Resource: Fishery resources are adjacent to the site.	7,10	12 (Max = 12)
3.5	Distance to, and Name(s) of, Nearest Sensitive Environment(s): Fishery resources are adjacent to the site.	7,10	12 (Max = 12)

4.0 RELEASE

4.0	Explain Basis: A release was confirmed through sample analysis in a catchbasin by Department of Ecology stormwater inspectors. The following substances were found greater than 3 times the screening level (copper, cadmium, naphthalene, benzo(a)pyrene).	7	5 (Max = 5)
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WORKSHEET 6
Groundwater Route

2.0 SUBSTANCE CHARACTERISTICS

1.2 Human Toxicity										
Substance		Drinking Water Standard (µg/L)	Value	Acute Toxicity (mg/ kg-bw)	Value	Chronic Toxicity (mg/kg/day)	Value	Carcinogenicity		Value
								WOE	PF*	
1	Arsenic	50	8	763	5	0.001	5	A	1.75	7
2	Benzo(a)pyrene	0.2	10	50	10	--	ND	B2	12	9
3	Copper	1300	2	--	ND	0.037	1	X	X	ND
4	Naphthalene	20	6	490	5	0.004	3	X	X	ND

* Potency Factor

Source: 7,15

Highest Value: 10

(Max = 10)

Plus 2 Bonus Points? 2

Final Toxicity Value: 12

(Max = 12)

1.2 Mobility (use numbers to refer to above listed substances)	
Cations/Anions [Coefficient of Aqueous Migration (K)]	OR Solubility (mg/L)
	The coefficient of aqueous migration (k) for arsenic is greater than 1. Therefore, the mobility value is 3.

Source: 7,15

Value: 3

(Max = 3)

1.3 Substance Quantity (volume):	
<p>Explain basis: There were 17 process tanks in Building B. One of the process tank is the anodizing tank, which contains copper waste. According to TC Systems' Pretreatment Engineering Report, 24,000 gallons of copper waste was generated each year. TC Systems was in operation for about 20 years, thus the substance quantity was approximately 480,000 gallons.</p>	<p>Source: <u>2,7</u> Value: <u>7</u> (Max=10)</p>

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	Containment (explain basis): All spills, discharges and contaminated soil assign a containment value of 10.	1,7	10 (Max = 10)
2.2	Net precipitation: 22.8"	7,14	3 (Max = 5)
2.3	Subsurface hydraulic conductivity: The site lies within the central Puget Lowland, which is filled with glacial and non-glacial sediments consisting of interbedded gravel, sand, silt, till and peat lenses.	1,7	4 (Max = 4)
2.4	Vertical depth to groundwater: Groundwater is 7 feet below ground surface.	1	8 (Max = 8)

3.0 TARGETS

		Source	Value
3.1	Groundwater usage: Groundwater is not used but usable.	1,7	2 (Max = 10)
3.2	Distance to nearest drinking water well: The nearest drinking well is greater than 2 miles away from the site.	9,19	0 (Max = 5)
3.3	Population served within 2 miles: Water Right Tracking System and Depart of Health Sentry Internet do not show any drinking water well within the 2 miles radius.	13,19,20	0 (Max = 100)
3.4	Area irrigated by (groundwater) wells within 2 miles: $0.75 * \sqrt{\# \text{ acres}} = 0.75 * \sqrt{48} = 5.19$ The City of Everett has a well at the American Legion Golf course. The well is not currently used and is not decommissioned. If active, the well can be used to irrigate 33 acres. Water Right Tracking System shows an additional 15 acres irrigated by surface water within 2 miles of the site.	7,22	5 (Max = 50)

4.0 RELEASE

		Source	Value
	Explain basis for scoring a release to groundwater: A release was confirmed through sample analysis. Copper and arsenic were found 3 times greater than the screening level.	1,15	5 (Max = 5)

SOURCES USED IN SCORING

1. Remedial Investigation and Feasibility Study Work Plan – Final, prepared by Stantec Consulting Corporation, January 31, 2011
2. Pretreatment Engineering Report, prepared by David T. Johnson, P.E., September 30, 1998
3. Phase I Environmental Site Assessment, prepared by E3RA, Inc., May 31, 2009
4. State of Washington Department of Ecology Agreed Order to Norton Industries, Inc. and TC Systems, Inc. (No. DE 7818)
5. Department of Ecology, Environmental Report Tracking System Report, August 14, 1999
6. Department of Ecology, Environmental Report Tracking System Report, October 13, 2009
7. Department of Ecology, Washington Ranking Method, Scoring Manual, April 1990
8. TC Systems Storm Drain Sediment Sampling and Analysis Plan, September 15, 2009
9. Thomas Guide, Snohomish County, 2010
10. Snohomish County Assessors/Treasurers On-line information page
11. Snohomish County GIS mapping information
12. Washington State Department of Ecology Online Environmental Information Management mapping tool
13. Google Earth, 1994-2011 Aerial Photographs of the Site
14. Climatological Data Annual Summary, Washington 1988
15. Data Gaps Amendment – Draft, prepared by Stantec, July 30, 2014
16. NOAA, National Climatic Data Center, 1981-2010 Climate Normals
17. NOAA, Atlas 2 Precipitation Frequency Estimates
18. FEMA Flood Service Map Center, <https://msc.fema.gov/portal>
19. Washington State Department of Health, Division of Environmental Health, Office of Drinking Water, Sentry Internet
20. Department of Ecology, Water Right Tracking System, October 29, 2014
21. Daft Logic, Google Maps Find Altitude, <http://www.daftlogic.com/sandbox-google-maps-find-altitude.htm>
22. Department of Ecology, Washington State Well Log Viewer, <https://fortress.wa.gov/ecy/waterresources/map/WCLSWebMap/default.aspx>