CSID 2205

WORKSHEET 1
SUMMARY SCORE SHEET

Site Name/Location (Street, City, County, Section/Township/Range, TCP ID Number):

Westman Marine
218 McMillan Ave
Blaine, WA 98230

T40/R01E/Section 31
Facility Site I.D 66519819

Site assessed/ranked for February 24, 2004 Update.

Site Description (Include management areas, substances of concern, and quantities):
Westman Marine: A Brief Summary of Events

Westman Marine is located in Blaine Harbor, 218 McMillan Ave, at latitude 48°59'32", and longitude 122°45'45". Blaine Harbor is at the northern end of Drayton Harbor along Marine Drive in Blaine, WA.

Westman Marine is a tenant of the Port of Bellingham (the Port) and has been a tenant at this location since November 1989. Prior to this business, the site was used as a boatyard (existing building and area usage evident in 1961 aerial photo). A dock was constructed between 1961 and 1969 and the current railway lift area was dredged. There are now a marine railway and strap lift in the area, as well as an extended dock. Previous tenants have included Berg Shipbuilding Company, George Olsen, Wrang Shipyard, Carl Berg, Boundary Fish Company, Jack Davis, and Westman Industrial (Landau Associates, 2002).

Facility operations at Westman Marine include maintenance and repair of boats (sand blasting and painting included), boat haul out and customer repair on site, and metal machining and fabrication. The business does not conduct any engine repair. Used oil does not accumulate on site as a contractor services any machine needing oil changes and takes the used oil for disposal. The facility manages a solvent recycling shack and storm and wash water treatment system. Housed in the solvent shack is a distillation apparatus used to distill reusable paint thinner. Hazardous and other wastes generated include spent antifreeze, spent zinc, spent lead-acid batteries, spent solvents, methyl ethyl ketone (MEK), sludge from the distillation apparatus, and solids from the storm/wash water treatment system.

The Westman Marine property was listed on the WA Department of Ecology's (Ecology) Confirmed and Suspected Contaminated Sites List by Ecology's Northwest Regional Office on August 26, 2003. It was listed for suspected contamination of soil by base neutral organics, priority pollutant and other metals, petroleum products, non-halogenated solvents and poly-nuclear aromatic hydrocarbons (PAHs). The site was also listed for confirmed contamination of sediments (in Drayton Harbor) by base/neutral organics, other metals and PAHs (documented contamination in Landau Associates report, 2002).

A site visit and sampling were conducted on October 20, 2003, as part of a site hazard assessment (SHA). Mindy Miller of Whatcom County Health Department (WCHD), Michael Spencer of Ecology, Mike Stoner, Environmental Manager of the

Port, and Bob Gudmundson, Site Manager and co-owner, Westman Marine, were present for this event.

Observations

The SHA of this site focused on the boat yard and marine railway area of the property (east side) as these areas were the areas observed to be either unpaved, or directly upstream of with drainage to Drayton Harbor. Areas of concern included a three-sided metal container overflowing with spent sand blast grit, the dirt/graveled boat maintenance yard, soils surrounding the solvent shed (which had been impacted by sand blasting and potential solvent drainage from the shed) and the marine railway. The marine railway area was of concern because though it has a wooden platform with a sump to catch wash water and channel it to the treatment system, there are gaps on three sides between the edge of the dirt and paved lots and the platform, and some in the wooden platform itself where runoff can enter the harbor. Storm water at the site, with the exception of the railway and travel lift areas which have drains that divert water to the water treatment system (installed between 1993 and 1996), either infiltrates or discharges directly to Blaine Harbor(Landau 2002).

Sampling

Soil samples were collected on October 20, 2004 in three locations at the Westman Marine site. All samples were collected using clean stainless steel spoons and bowls, and were composites of several spoonfuls of soil mixed together in the bowl to create one homogenous sample per location. Sample 1, "WSTM1", was collected in the dirt boatyard, at a depth of 0-6 inches. Mr. Gudmunsdon stated that he had brought in new gravel to level that area of the site when he began working at Westman Marine 1.5 years ago. An effort was made to scoop some soil from beneath the layer of newer gravel/soil as well as some closer to the surface. Sample 2, "WSTM2", was collected of soils on the slope above the marine railway, a few feet south of the solvent shed. This sample was collected at the 0-3 inch depth, and the location was selected due to its proximity to the solvent shed and the harbor. Sample 3, "WSTM3", was collected of soil adjacent to the south side of the sand blast grit storage container, at a depth of 0-3". No surface or ground water samples were collected as part of this SHA.

Samples collected at the Westman Marine site were analyzed for the following:

Sample	Matrix	Analysis	Method
WSTM1	Soil	Petroleum products	NWTPH-HCID
		Polyaromatic hydrocarbons/Semi volatiles	8270C
		Volatile Organic compounds	8260B
		Priority Pollutant & Other Metals	8260
WSTM2	Soil	Petroleum products	NWTPH-HCID
		Polyaromatic hydrocarbons/Semi volatiles	8270C
		Volatile Organic compounds	8260B
		Priority Pollutant & Other Metals	8260
WSTM3	Soil	Petroleum products	NWTPH-HCID
		Polyaromatic hydrocarbons/Semi volatiles	8270C
		Volatile Organic compounds	8260B
		Priority Pollutant & Other Metals	8260

Selected results are summarized in the following table:

Sample	Location (depth)	NWTPH-HCID (mg/Kg)	Priority Pollutant Metals (mg/Kg)	Volatile Organics (mg/Kg)	Polynuclear aromatic hydrocarbons-total carcinogenic (cPAH) (mg/Kg)
WSTM1	Boatyard (0-6")	>C24≈210	Al-13000 Cd-7.21 Cu 3400 Hg- 3.5	<MTCA cleanup levels	Total cPAH = 0.39
WSTM2	Near solvent shed/slope to railway/Drayton Harbor (0-3")	>C24≈490	Al-15000 Cd-11.3 Cu-6700 Hg-0.40 TBT*-3.68	<MTCA cleanup levels	Total cPAH = 1.54
WSTM3	Adjacent to sandblast storage (south side, 0-3")	>C24≈180	Al-30000 Cd-13.8 Cu-2800 Hg-0.10	<MTCA cleanup levels	Total cPAH = 0.46
BH-02 **BH-03** **BH-04** **BH-12** **BH-13** **BH-14**	Landau Associates, June 2002 -***sediment*** samples	N/A	TBT-0.370 TBT-0.140 TBT-0.048 TBT-0.140 TBT-0.100 TBT-0.130	N/A	N/A

TBT = tributyltin

The above noted sediment samples were collected as part of a sediment quality investigation by Landau Associates, conducted at the Port of Bellingham's Blaine Harbor Commercial Area site, for the Port. The purpose of this investigation was to evaluate compliance with the Washington State Sediment Management Standards (SMS; Chapter 173-204 WAC; Ecology 1995) for surface sediments within the Blaine Harbor that may have been affected by harbor activities. The report states that "Available information indicates that historic releases may have migrated off the tide grid and upland properties, potentially impacting Blaine Harbor sediments. Blaine Marina and Westman Marine appear to be the primary potential upland sources to the sediment as a result of leaking storage tanks, spills, and poor housekeeping practices." The samples listed above were those in closest proximity to the Westman Marine property.

WORKSHEET 1 (CONTINUED)
SUMMARY SCORE SHEET

Special Considerations (Include limitations in site file data or data which cannot be accommodated in the model, but which are important in evaluating the risk associated with the site, or any other factor(s) over-riding a decision of no further action for the site): **None**

ROUTE SCORES:

Surface Water/Human Health: 30.1

Surface Water/Environ.: 72.9

Air/Human Health: 8.8

Air/Environmental: 29.5

Ground Water/Human Health: 36.0

OVERALL RANK: 1

WORKSHEET 2
ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE

List those substances to be considered for scoring: Source: 1,2
Elevated levels of cadmium, copper, mercury, aluminum, iron, organotins, cPAHs, found in soil.

Explain basis for choice of substance(s) to be used in scoring. Source: 1,2

Soil samples contained levels of substances above the MTCA Method A soil cleanup levels.

List those management units to be considered for scoring: Source: 1,2
Soil

Explain basis for choice of unit to be used in scoring. Source: 1,2
Contamination confirmed by sampling. Results summarized in report.

2. AIR ROUTE

List those substances to be considered for scoring: Source: 1,2
Elevated levels of cadmium, copper, mercury, aluminum, iron, organotins, cPAHs, found in soil.

Explain basis for choice of substance(s) to be used in scoring. Source: 1,2

Soil samples contained levels of substances above the MTCA Method A soil cleanup levels.

List those management units to be considered for scoring: Source: 1,2
Soil

Explain basis for choice of unit to be used in scoring. Source: 1,2
Contamination confirmed by sampling. Results summarized in report.

3. GROUND WATER ROUTE

List those substances to be considered for scoring: Source: 1,2
Elevated levels of cadmium, copper, mercury, aluminum, iron, organotins, cPAHs, found in soil.

Explain basis for choice of substance(s) to be used in scoring. Source: 1,2
Soil samples contained levels of substances above the MTCA Method A soil cleanup levels.

List those management units to be considered for scoring: Source: 1,2
Soil

Explain basis for choice of unit to be used in scoring. Source: 1,2
Contamination confirmed by sampling. Results summarized in report.

WORKSHEET 4
SURFACE WATER ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Standard (ug/l)	Val.	Acute Toxicity (mg/kg-bw)	Val.	Chronic Toxicity (mg/kg/day)	Val.	Carcino-Genicity WOE	PF*	Val.
1. Benzo(a)pyrene	0.2	10	50(rat)	10	ND	ND	0.8	9	7
2. Chrysene	0.2	10	ND	ND	ND	ND	0.8	9	7
3. Benzo(b)fluoranthene	0.2	10	ND	ND	ND	ND	0.8	9	7
4. Benzo(k)fluoranthene	0.2	10	ND	ND	ND	ND	0.8	9	7
5. Benzo(g,h,i)perylene	0.2	10	ND	ND	ND	ND	ND	-	ND
6. Indeno(1,2,3cd)pyrene	0.2	10	ND	ND	ND	ND	ND	-	ND
7. Benzo(a)anthracene	0.2	10	ND	ND	ND	ND	0.8	9	7
8. Dibenz(a,h)anthracene	0.2	10	ND	ND	ND	ND	0.8	-	7
9. Cadmium	5	8	225 (rat)	5	0.0005	5	ND	-	ND
10. Copper	1300	2	ND	ND	0.037	1	ND	-	ND
11. Mercury	2	8	ND	ND	0.0003	5	ND	-	ND
14. Tributyltin	ND	ND	46 (rat)	10	ND	ND	ND	-	ND

*Potency Factor

Source: 1,2,3,4

Highest Value: 10 (Max.=10)

+2 Bonus Points? 2

Final Toxicity Value: 12 (Max.=12)

WORKSHEET 4 (CONTINUED)
SURFACE WATER ROUTE

1.2 Environmental Toxicity

() Freshwater
(x) Marine

Source: 1,2,3,4 **Value: 10**

Substance	Acute Water Quality Criteria (ug/l)	Value	Non-human Mammalian Acute Toxicity (mg/kg)	Value
1. Benzo(a)pyrene	300	4		
2. Chrysene	300	4		
3. Benzo(b)fluoranthene	300	4		
4. Benzo(k)fluoranthene	300	4		
5. Benzo(g,h,i)perylene	300	4		
6. Indeno(1,2,3cd)pyrene	300	4		
7. Benzo(a)anthracene	300	4		
8. Dibenz(a,h)anthracene	3	6		
9. Cadmium	2.9	8		
10. Copper	2.1	8		
11. Mercury	ND	ND	46	10
12. Tributyltin				

1.3 Substance Quantity: unknown, use default = 1 Source: 3 **Value: 1** (Max.=10)
Explain basis:

2.0 MIGRATION POTENTIAL

2.1 Containment: no runon/runoff control or cover in areas sampled Source: 1 **Value: 10** (Max.=10)

2.2 Surface Soil Permeability: gravel/pit run Source: 1 **Value: 1** (Max.=7)

2.3 Total Annual Precipitation: 41.7 Source: 5 **Value: 3** (Max.=5)

2.4 Max. 2-Yr/24-hour Precipitation: 2 Source: 3 **Value: 2** (Max.=5)

2.5 Flood Plain: not in 100 year flood plain Source: 11 **Value: 0** (Max.=2)

2.6 Terrain Slope: imm. adj. to surface water >8% Source: 1 **Value: 5** (Max.=5)

3.0 TARGETS

3.1 Distance to Surface Water: <1000 feet to bay Source: 1 **Value: 10** (Max.=10)

3.2 Population Served within 2 miles (See WARM Scoring Manual Regarding Direction): √0 = 0 Source: 8 **Value: 0** (Max.=75)

WORKSHEET 4 (CONTINUED)
SURFACE WATER ROUTE

3.3 Area Irrigated within 2 miles 0.75√no. acres=
(Refer to note in 3.2.): 0.75 √0 = 0 Source: 8 **Value: 0** (Max.=30)

3.4 Distance to Nearest Fishery Resource: <1000 feet Source: 13 **Value: 12** (Max.=12)

3.5 Distance to, and Name(s) of, Nearest Sensitive Environment(s) Drayton Harbor <1000 feet Source: 13 **Value: 12** (Max.=12)

4.0 RELEASE

Explain basis for scoring a release to surface water: confirmed contamination of sediments Source: 2 **Value: 5**

WORKSHEET 5
AIR ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Introduction (WARM Scoring Manual) - Please review before scoring

1.2 Human Toxicity

Substance	Air Standard (ug/m^3)	Val.	Acute Toxicity (mg/m^3)	Val.	Chronic Toxicity (mg/kg/day)	Val.	Carcino-Genicity WOE	PF*	Val.
1. Benzo(a)pyrene	.0006	10	ND	ND	ND	ND			ND
2. Chrysene	ND	-	ND	ND	ND	ND			ND
3. Benzo(b)fluoranthene	ND	-	ND	ND	ND	ND			ND
4. Benzo(k)fluoranthene	ND	-	ND	ND	ND	ND			ND
5. Benzo(g,h,i)perylene	ND	-	ND	ND	ND	ND			ND
6. Indeno(1,2,3cd)pyrene	ND	-	ND	ND	ND	ND			ND
7. Benzo(a)anthracene	ND	-	ND	ND	ND	ND			ND
8. Dibenz(a,h)anthracene	ND	-	ND	ND	ND	ND			ND
9. Cadmium	.00056	10	25(rat)	10	ND	ND			ND
10. Copper	3.3	9	ND	ND	ND	ND			ND
11. Mercury	0.3	10	ND	ND	0.0003	8			ND
12. Tributyltin	ND	ND	ND	ND	ND	ND			ND

*Potency Factor

Source: 1,2,3,4
Highest Value: 10 (Max.=10)

+2 Bonus Points? 2
Final Toxicity Value: 12 (Max.=12)

1.3 Mobility (Use numbers to refer to above listed substances)

1.3.1 Gaseous Mobility
Vapor Pressure(s) (mmHg): _____ Source: ____ Value: 0 (Max.=4)

1.3.2 Particulate Mobility -
Soil type: silt clay loam
Erodibility: 38
Climatic Factor: 1-10
Source: 3,4 Value: 1 (Max.=4)

1.4 Highest Human Health Toxicity/Mobility Matrix Value (from Table A-7) equals **Final Matrix Value: 6** (Max.=24)

WORKSHEET 5 (CONTINUED)
AIR ROUTE

1.5 Environmental Toxicity/Mobility — Source: 3,4

(Table A-7)

Substance	Non-human Mammalian Acute Inhal. Toxicity (mg/m^3)	Value	Mobility (mmHg)	Value	Matrix Value
1. Cadmium	25(rat)	10	particulate	1	5

Highest Environmental Toxicity/Mobility Matrix Value (From Table A-7) equals **Final Matrix Value: 5** (Max.=24)

1.6 Substance Quantity: unknown, use default = 1 — Source: 3 — **Value: 1** (Max.=10)
Explain basis:

2.0 MIGRATION POTENTIAL

2.1 Containment: no cover — Source: 1 — **Value: 10** (Max.=10)

3.0 TARGETS

3.1 Nearest Population: ≤1000 feet — Source: 1 — **Value: 10** (Max.=10)

3.2 Distance to, and Name(s) of, Nearest Sensitive Environment(s) Drayton Harbor - estuarine wetland — Source: 1 — **Value: 7** (Max.=7)

3.3 Population within 0.5 miles: □pop.=√635(.25)= 12.6 — Source: 6 — **Value: 13** (Max.=75)
(Note: am using one-quarter of the 0-1 mile population determined from the U.S. EPA SITEINFO database)

4.0 RELEASE

Explain basis for scoring a release to air: None documented. — Source: 3 — **Value: 0** (Max.=5)

WORKSHEET 6
GROUND WATER ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Standard (ug/l)	Val.	Acute Toxicity (mg/kg-bw)	Val.	Chronic Toxicity (mg/kg/day)	Val.	Carcino-Genicity WOE	PF*	Val.
1. Benzo(a)pyrene	0.2	10	50(rat)	10	ND	ND	0.8	9	7
2. Chrysene	0.2	10	ND	ND	ND	ND	0.8	9	7
3. Benzo(b)fluoranthene	0.2	10	ND	ND	ND	ND	0.8	9	7
4. Benzo(k)fluoranthene	0.2	10	ND	ND	ND	ND	0.8	9	7
5. Benzo(g,h,i)perylene	0.2	10	ND	ND	ND	ND	ND	-	ND
6. Indeno(1,2,3cd)pyrene	0.2	10	ND	ND	ND	ND	ND	-	ND
7. Benzo(a)anthracene	0.2	10	ND	ND	ND	ND	0.8	9	7
8. Dibenz(a,h)anthracene	0.2	10	ND	ND	ND	ND	0.8	-	7
9. Cadmium	5	8	225 (rat)	5	0.0005	5	ND	-	ND
10. Copper	1300	2	ND	ND	0.037	8	ND	-	ND
11. Mercury	2	8	ND	ND	0.0003	8	ND	-	ND
12. Tributyltin	ND	ND	46 (rat)	10	ND	ND	ND	-	ND

*Potency Factor

Source: 1,2,3,4

Highest Value: 10 (Max.=10)

+2 Bonus Points? 2

Final Toxicity Value: 12 (Max.=12)

1.2 Mobility (Use numbers to refer to above listed substances)

Cations/Anions: 10)Cd=3; 11)Hg=3; 12)Sn=1; Source: 3,4 **Value: 3** (Max.=3)

OR

Solubility(mg/l): 1)1.2E-3=0; 2)1.8E-3=0; 3) 1.4E-02=0;4) 4.3E-03=0;5) 7.4E-04=0; 6)5.3E-04=0;7)5.7E-03=0;8)5.0E-04=0; 9)ND; 13)1.8E+03=3

1.3 Substance Quantity: unknown, use default = 1 Source: 3 **Value: 1** (Max.=10)

Explain basis:

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 3 **Value: 10**

Explain basis: spills/discharge to soil (Max.=10)

WORKSHEET 6 (CONTINUED)
GROUND WATER ROUTE

2.2 Net Precipitation: 28.4 - 5.2 = 23.2 inches Source: 5 **Value: 3** (Max.=5)

2.3 Subsurface Hydraulic Conductivity: silty clay loam Source: 10 **Value: 2** (Max.=4)

2.4 Vertical Depth to Ground Water: less than 25' Source: 3,7 **Value: 8** (Max.=8)

3.0 TARGETS

3.1 Ground Water Usage: private/public supply Source: 3,9 **Value: 4** (Max.=10)

3.2 Dist. to Nearest Drinking Water Well: >5000-10000 ft Source: 7 **Value: 1** (Max.=5)

3.3 Population Served within 2 Miles: $\sqrt{184}=14$ Source: 3,7 **Value: 14** (Max.=100)

3.4 Area Irrigated by (Groundwater) Wells within 2 miles: $0.75\sqrt{\text{no.acres}} = 0.75\sqrt{0} = 0$ Source: 8 **Value: 0** (Max.=50)

4.0 RELEASE

Explain basis for scoring a release to ground water: no release documented Source: 3 **Value: 0** (Max.=5)

SOURCES USED IN SCORING

1. WCHD sampling activities and analytical results, Westman Marine, 1/20/04.
2. Landau Associates. Report. Sediment Quality Investigation, Blaine Harbor, Blaine, Washington. 27 June 2002.
3. Washington State Department of Ecology. WARM Scoring Manual. April 1992.
4. Washington State Department of Ecology. Toxicology Database for Use in Washington Ranking Method Scoring. January 1992.
5. Washington State University Cooperative Extension Service, Washington Climate.
6. U.S. EPA SITEINFO GIS Query for Westman Marine location.
7. Whatcom County Health Department, well logs.
8. Water Rights Application Tracking System, NWRO Ecology. List of Wells and Water Usage in Surrounding Area.
9. Washington State Department of Health Public Water Systems (list on file at Whatcom County Health and Human Services Drinking Water Program).
10. Goldin, Alan. PhD. Soil Survey of Whatcom County Area, Washington. United States Department of Agriculture, Soil Conservation Service, 1985.
11. Whatcom County Planning & Development. CAO Articles III & IV (Geohaz. & Flooding) T40&41-R1W. Map. 6/1/98.
12. Whatcom County Planning & Development. CAO Articles V & VI (Aquifer & Wetland) T40&41 - R1W. Map. 6/1/98.
13. Whatcom County Planning & Development. Fish Habitat. Map. 3/1/99.