

CSID 4766

**WORKSHEET 1
SUMMARY SCORE SHEET**

Note: This document currently has no provision for sediment route scoring.

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

Northwest Pipeline Mount Vernon, 15498 Lange Road, Mount Vernon, WA 98273
Skagit County, SE ¼, NW ¼, 19/34N/5E, TCP ID: N-29-5018-000 2684
LAT 48 25 30 N DSM LON 122 13 W DSM

Site scored/ranked

Site assessed/ranked for August 2000 Site Register by Polly Dubbel, Skagit County Health Department

Owner: Northwest Pipeline Corp.
P.O. Box 8900
Salt Lake City, UT 84108-0899

Site Description (Include management, substances of concern, and quantities):

The Mount Vernon Natural Gas Compressor Station operated by Northwest Pipeline Corporation was placed on the Suspected and Contaminated Sites List in 1991 due to potential mercury contamination in the vicinity of a meter building. In addition to the suspected mercury contamination there have been two documented glycol spills, a lube oil spill, and a remediation of an historic oil pit reported to Ecology. There had been no soil sampling for mercury contamination at the site. Soil had been sampled for different parameters related to the glycol and oil spills.

Northwest Pipeline Corporation began evaluating mercury contamination at all of its sites in 1990 to ensure compliance with Occupational Safety and Health Regulations. One meter at the Mount Vernon Compressor Station contained approximately 4 pounds of elemental mercury. Mercury containing devices were also used to calibrate this meter. All use of mercury in meters and manometers was discontinued as a part of the evaluation and clean up process. The Mount Vernon Compressor Station meter is located in a small metal building with a concrete floor. The walls are not sealed around the concrete, however concrete extends beyond the area of the building on 3 sides. In July of 1990 MH Services, under contract to Northwest Pipeline, performed air sampling for mercury vapor near the floor just behind the meter using an MV 2 instrument. Only trace amounts of vapor were detected and no further action was taken regarding mercury at the site. Norm Peck of Ecology performed an Initial Investigation of the site on October 29, 1991. He reported a suspicion of soil contamination with mercury outside of the building based on sample results taken from similar sites. No soil sampling is documented from this site visit. On March 1, 2000 two grab samples of soil (2-4" depth under the gravel) were taken from the south and east exterior sides of the meter shed as part of a Site Hazard Assessment. These samples were analyzed for mercury using EPA method 7471A at Anatek Labs, Inc. The results, 0.179 mg/kg mercury and 0.167 mg/kg mercury were below the MTCA method A clean up level for soil.

The first of two reported glycol spills occurred at the compressor station on November 18, 1991. There is no clean up report on file for this spill. Belinda Hovde of Ecology responded and performed a site visit. One thousand gallons of glycol (50/50 ethylene glycol and propylene glycol) were reportedly spilled on the east side of the compressor building. Belinda Hovde reported that approximately 75 gallons of liquid remained standing on the ground outside of the compressor building. Contaminated soil in the path of the flow had been removed and containment was to be dug to catch run off and direct it into a containment pond. There is no documentation of soil samples although the investigation report notes soil samples had glycol levels below MTCA clean up levels. Water samples, listed from South Sump and East Sump, as of 12/9/91 contained 1000 ppm and 1100 ppm ethylene glycol and 100 ppm and 150 ppm propylene glycol. Ecology requested a TCLP metals analysis of soil at the site. Three samples were taken on 1/23/92 from the spill area around the fin fans and french drain. No parameters exceeded the MCL. The soils were never tested for total metals. On March 1, 2000 3 soil samples were taken from the area of the 1991 glycol spill as a part of Site Hazard Assessment. The Sample Plan was modified during the event due to difficulties penetrating the native soil. Refer to the attached sample map for locations. The samples were taken at depths between 6" and 1' and tested for total metals using EPA method 6020 at Anatek Labs, Inc. One sample from between the fin fans

had arsenic above MTCA method A clean up level for soil, at 52.2 mg/kg. All other samples and parameters were below MTCA method A for soil.

The second reported glycol spill occurred in the area of the glycol storage tanks, to the north of the compressor building on September 17, 1992. Fifty gallons of the 50/50 propylene/ethylene glycol mixture were released to the ground. An independent remedial action report was submitted to Ecology in 1993. Soil was excavated from the area after the spill was contained. A composite soil sample from the excavation area contained 310 mg/kg ethylene glycol, 58 mg/kg propylene glycol, 39 mg/kg arsenic. A sample from the near by fuel skid area contained 70 mg/kg arsenic. The presence of the arsenic at this level is presumed to be due to the addition of sodium arsenate as a corrosion inhibitor in the glycol mix until 1971. There has not been sufficient sampling in this area to document that no further action is necessary. Arsenic contamination may still exist above MTCA. Since this is already evident, sampling for arsenic in this area was not part of the Site Hazard Assessment.

The area around the glycol storage tanks was also the site of a lube oil spill on January 30, 1993. Approximately 1200 gallons of Pegasus 490 lube oil was released to the ground over an area of 6,000 square feet. An independent remedial action report was submitted to Ecology in July of 1993. During the excavation of soil to clean up the lube oil, historic soil contamination was discovered at levels ranging from 286 to 49,900 ppm TPH. The water table was very high during the remediation and ground water was present in the base of the excavation. Due to constraints of weather the historic contamination was not fully remediated at the time. This area has documented heavy oil contamination and did not require sampling for Site Hazard Assessment.

In 1999 another area of oil contamination was discovered, the site of a historic lube oil burn pit for waste compressor engine oil. Northwest Pipeline performed independent remediation of this area and is in the process of submitting the final report on this clean up to Ecology. An area of approximately 125 square feet was excavated down to approximately 5 feet depth. Three containers of soil from the obviously impacted area were tested for BTEX (method 8021), PCB (8082), NTPH Gasoline and Diesel, Semi Volatile Organics (8270), TCLP Metals and Total Metals, and PAHs. Soils showed contamination from heavy petroleum oil above MTCA. No other parameters tested exceeded MTCA. Approximately 850 cubic yards of soil were removed from the site and taken to Rabanco Landfill for disposal. Eight locations from the floor and five from the walls of the excavation were sampled for WTPH-D extended. The excavation was advanced deeper in one area and extended further out in two areas in order to achieve levels below MTCA Method A for heavy oil. The final samples were all below 65 mg/kg for WTPH heavy oil range and 95 mg/kg for diesel range. This area does not require further sampling or remediation at this time.

Two site visits were conducted as part of a Site Hazard Assessment performed by the Skagit County Health Department. The first visit occurred on October 29, 1999. Britt Pfaff and Polly Dubbel were present from the Health Department. We reviewed the entire site. There was no evidence of current spills other than small oil leaks from pipe junctions. These were being soaked up with absorbent cloths. The plant is now using vegetable based lube oil instead of petroleum oil. The site has a french drain system in place leading to two lined water collection ponds which can be isolated and pumped in the event of a future spill. Above ground storage tanks have secondary containment.

The Skagit County Health Department also conducted sampling at the site on March 1, 2000. Results from this event have been discussed previously and are attached.

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) overriding a decision of no further action for the site):

Air route is not scored due to historical nature and location of remaining contamination and minimal likelihood of significant air borne transmission.

Route Scores

Surface Water/Human Health: 7.5

Surface Water/Environment: 14.0

Air/Human Health: NS

Air/Environmental: NS

Ground Water/Human Health 27.7

Overall Rank: 5

WORKSHEET 2
ROUTE DOCUMENTATION

1. Surface Water Route

List those substances to considered for scoring: Source: 2,3,4,6, 9,11
Arsenic

Explain the basis for choice of substance(s) to used in scoring.

Arsenic found in surface soil above MTCA Method A cleanup levels in the area of the 1991 glycol spill

2. Air Route

List those substances to considered for scoring: Source: _____
Not scored

3. Ground Water Route

List those substances to be considered for scoring: Source: 1,8,9
Arsenic
Heavy oil

Explain the basis for choice of substance(s) to used in scoring.

Arsenic and heavy oil concentration in soil measured above MTCA Method A Clean-up

List those management units to be considered for scoring:

Contaminated subsurface soil

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

Documented soil contamination

WORKSHEET 4 SURFACE WATER ROUTE

1. SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Standard		Acute Toxicity		Chronic Toxicity		Carcinogenicity		
	(ug/L)	Val.	(mg/kg-bw)	Val.	(mg/kg/day)	Val	WOE	PF	Val
1. arsenic	50	6	763	5	0.001	5	A	1.75	7
2.									
3.									
4.									
5.									
6.									

Source: 2,3,6,7,10,11
Highest Value: 7
(Max=10)
+2 bonus points? -
Final Toxicity Value: 7
(Max=12)

1.2 Environmental Toxicity

(X) Freshwater									
() Marine									
Substance	Acute Water Quality Criteria		Non-human Mammalian Acute Toxicity		Source:	2,3,6,7,10,11 Value: 4			
	ug/L	Value	(mg/kg)	Value					
1. arsenic	360	4							
2.									
3.									
4.									
5.									
6.									

1.3 Substance Quantity: Unknown Source: 2,3,6,7,10 Value: 1
Explain Quantity unknown, using default of 1 (Max=10)

WORKSHEET 4 (CONTINUED)
SURFACE WATER ROUTE

2.0 MIGRATION POTENTIAL

2.1	Containment Explain basis: <u>currently have collection pond and drain system in place</u>	Source:18	Value: 2 (Max=10)
2.2	Surface soil permeability: gravel clay	Source: 14	Value: 5
2.3	Total Annual Precipitation: 45.2 Inches	Source:12	Value: 3
2.4	Max. 2-Yr/24-hour Precipitation: 2 inches	Source: 12	Value: 2
2.5	Flood Plain: Not in flood plain	Source: 17	Value: 0
2.6	Terrain Slope: $120/1500 \times 100 = 8\%$	Source: 15	Value: 3

3.0 TARGETS

3.1	Distance to Surface Water: 1500 feet	Source: 14,16	Value: 7
3.2	Population Served within 2 miles (See WARM Scoring Manual Regarding Direction): $\sqrt{\text{pop}} = \sqrt{0}$	Source: 14,16	Value: 0
3.3	Area Irrigated within 2 miles: 0	Source: 13	Value: 0
3.4	Distance to Nearest Fishery Resource: Nookachamps Creek, 1500 feet	Source: 15	Value: 9
3.5	Distance to and Name(s) of, Nearest Sensitive Environment: Nookachamps Creek, 1500 feet	Source: 15	Value: 9

4.0 RELEASE

Explain basis for scoring a release to surface water: No confirmed release to surface water	Source:	Value: 0
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WORKSHEET 6 GROUND WATER ROUTE

1. SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Standard		Acute Toxicity		Chronic Toxicity		Carcinogenicity		
	(ug/L)	Val.	(mg/kg-bw)	Val.	(mg/kg/day)	Val	WOE	PF	Val
1. arsenic	50	6	763	5	0.001	5	A	1.75	7
2. heavy oil	X	X	X	X		1	X	X	X
3.									
4.									
5.									
6.									

Source: 1,2,3,6,7,10,11

Highest Value: 7

(Max=10)

+2 bonus points? -

Final Toxicity Value: 7

(Max=12)

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

Cations/Anions: 1= ; 2= ; 3= ; 4= ; 5= ;
6=

Source: 9,10 Value: 3

(Max=3)

OR

Solubility (mg/l): 1=3 ; 2=0 ; 3= ; 4= ; 5=
6=

1.3 Substance Quantity: Unknown

Source: 1,2,3,6,7,9,10,11 Value: 1

Explain basis: quantity unknown, default to 1

(Max=10)

2.0 MIGRATION POTENTIAL

2.1 Containment

Source: 1,2,3,6,7,9,10,11 Value: 10

Explain basis: For spills, discharges and contaminated soil

(Max=10)

WARM assigns a value of 10

2.2 Net Precipitation: 29.6-5.7 = 23.9 inches

Source: 12 Value: 3

(Max=5)

2.3 Subsurface Hydraulic Conductivity: $10^7 - 10^5$

Source: 9,14 Value: 2

(Max=4)

2.4 Vertical Depth to Ground Water: 0-25 feet

Source: 9,14 Value: 8

(Max=8)

WORKSHEET 6 (CONTINUED)

GROUND WATER ROUTE

3.0 TARGETS

- | | | |
|-----|---|---|
| 3.1 | Ground Water Usage: <u>Public supply, alternate unthreatened sources available with minimal hookups</u> | Source: <u>9,14,16</u> Value: <u>4</u>
(Max=10) |
| 3.2 | Distance to Nearest Drinking Water Well: <u><600 feet</u> | Source: <u>14</u> Value: <u>5</u>
(Max=5) |
| 3.3 | Population Served within 2 Miles: <u>$\sqrt{\text{population}} = \sqrt{336} = 18.3$</u> | Source: <u>9,14,15,16</u> Value: <u>18</u>
(Max=100) |
| 3.4 | Area Irrigated by (Groundwater) Wells within 2 Miles: <u>0</u> | Source: <u>13,15</u> Value: <u>0</u>
(Max=50) |

4.0 RELEASE

Explain basis for scoring a release to ground water:

Source: Value: NS
(Max=5)

SOURCES USED IN SCORING

1. Independent Remedial Action Report on Northwest Pipeline Corporation's Lube Oil Spill Clean Up Mount Vernon Compressor Station, Northwest Pipeline Corporation, July 14, 1993.
2. Washington Department of Ecology, Initial Investigation Report #N6888, November, 1991.
3. Skagit County Emergency Management Report, Northwest Pipeline Incident, November 18, 1991.
4. Communication and sample results from David Lof of Northwest Pipeline, 1991 and January 4, 2000.
5. Soil Remediation Report, Northwest Pipeline Compressor Station Burn Pit, Golder Associates, Inc., December 12, 1999.
6. Report on 50 Gallon Glycol Spill Cleanup Mount Vernon Compressor Station, Northwest Pipeline, July 21, 1993.
7. Washington Department of Ecology Initial Investigation Report #N5398, October 1991.
8. Washington Department of Ecology, Initial Investigation Report #N1524, January, 1993.
9. Washington Department of Ecology, WARM Scoring Manual, April, 1992.
10. Washington Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January, 1992.
11. Sample results from Anatek Laboratories for Skagit County Health Department, Northwest Pipeline Mount Vernon, March 2000.
12. National Weather Service, Washington Climate Data.
13. Washington Department of Ecology, Water Rights Information System (WRIS), 1997.
14. Washington Department of Ecology, Well Logs

15. USGS 7.5 minute Topographical Quadrangle – Sedro Woolley South.
16. Washing Department of Health Public Water Supply Data.
17. Skagit County Mapping Department, 100 and 500 Year Flood Plain Map, 2000.
18. Skagit County Health Department, Site Visit, October 29, 1999.

AREA OF CONCERN FOR SHA - NORTHWEST PIPELINE
MOUNT VERNON COMPRESSOR STATION

KEY

++++ LUBE OIL PIT REMEDIATION, 1999

**** LUBE OIL SPILL + REMEDIATION, 1993

●●● CONTINUED HISTORIC HEAVY OIL CONTAMINATION

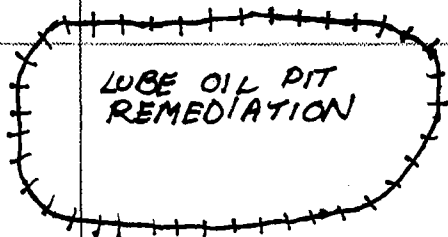
/// 50 GALLON GLYCOL SPILL, 1992

=== 1000 GALLON GLYCOL SPILL, 1991

▲ MERCURY SOIL SAMPLE, 2000 (3#)

⊕ ARSENIC SOIL SAMPLE, 2000 (5#)

4' MAN GAT



EXIST. WASTE OIL TANK

EXIST GATE

EXIST FENCE

CONCRETE SPILL CURB

BLDG. SUMP T. LUBE O

STANDBY PWR. GEN. COOLER

EXIST COOLER

EXIST COOLER

TURBOCHARGER

TURBOCHARGER

EXIST FICE
EXISTING AUXILIARY BUILDING

STANDBY PWR. GEN.

EXIST. RELOCATED STARTING AIR COMP.

EXISTING STARTING AIR TANK

EXISTING STORAGE TANKS

EXISTING STORAGE TANKS

SCRUBBER

EXIST PUMP PIT

EXISTING COMPRESSOR BUILDING

EXIST SHOP

EXIST WAREHOUSE

EXIST FENCE

NEW FENCE

EXIST ROAD

