

**WORKSHEET 1
SUMMARY SCORE SHEET**

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

NW Pipeline St Phillips
GameFarm Rd.
Kennewick, WA 99337

Sec 24/T8N/R30E
Facility Site ID# 323
Ecology I.D. No. C-03-2007000

Longitude: 119° 00' 29.67"

Latitude: 46° 09' 16.71"

Site scored/ranked for 02/04 update

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

Williams Gas Pipeline is now the owner/name of Northwest Pipeline (NWP). The name of the NWP Phillips Meter Station has been changed to the Unocal Meter Station. The site is located inside the old Chevron Chemical Company facility at the east end of Game Farm Road, near Finley, WA 99337. This natural gas metering station is in a rural area. The site is approximately 9400 square feet that is enclosed by a locked-gated chain link fence that surrounds the plant facility. The specific areas of concern are located inside a building that has no floor. (Note: The longitude and latitude numbers listed above differ from those listed on the site data summary sheet - all other information indicates we were at the correct site to be scored)

Mercury meters, which contain elemental mercury, were used by the natural gas industry since the 1920's to monitor gas pressure fluctuations and calculate volumes of gas delivery, along with mercury manometers used for calibration purposes. Mercury meters had been in use by NWP facilities since the early 1960's until the early 1990's, when the company decided to end their use due to worker health and safety concerns, as well as the banning by the U.S. Environmental Protection Agency (EPA) of the disposal of mercury wastes in landfills, effective May 8, 1992. The meters and manometers were housed in a building that had a gravel floor at this site, and were routinely maintained and serviced. Accidental releases/spillage apparently had occurred over a period of years. The mercury meters in service at the time were targeted for replacement with dri-flow meters that don't utilize mercury.

NWP initiated the replacement process during the early 1990's by determining every location where mercury meters had been installed, and/or where mercury manometers had been used. They completed site assessments and remediations at 123 mainline natural gas metering facilities in Washington, Oregon, Idaho, Wyoming, Colorado, and Utah. Two separate assessment programs were implemented for determining the presence of mercury contamination resulting from the operation of mercury displacement meters at each of the meter stations, as well as the use of mercury-containing measuring instruments such as manometers. The first program was initiated in July 1990, and was followed by a remediation program that same year. The second assessment program was conducted in March 1992, and also led to a remedial action program for those sites identified as contaminated. The mercury contamination, found visually and with vapor detection equipment (a Bacharach MV-2 or Jerome mercury analyzer), was typically located in the area around and directly under the meter positions.

The results of the pre-cleanup sampling were evaluated using the following criteria to select contaminated sites requiring soil cleanup. The site was considered for cleanup if:

- Mercury vapor levels detected at ground level exceeded 0.05 mg per cubic meter;
- There was visible mercury present; or
- The X-ray fluorescence instrument (X-MET 880) detected mercury contaminated soil in the medium range or above (with no interference noted) and either mercury vapor or visible mercury was also detected. In addition, if a site was know to have a concrete floor, it was eliminated from the site cleanup list, as any mercury previously spilled onto floors was routinely cleanup up, whereas the cleanup project was aimed at removing any contaminated soils.

Ecology's Central Regional Office (CRO) visited the site August 27, 1991 as an initial investigation response follow-up to the reception of the June 7, 1991 Report to Washington Department of Ecology Central Washington Region by NWP, detailing specific instances of releases of mercury to the environment in counties under the jurisdiction of Ecology CRO. NWP reportedly removed eight drums of contaminated soil.

The site was listed on Ecology's Confirmed and Suspected Contaminated Sites List on April 10, 1992, as confirmed contamination of soil by priority pollutant metals, specifically mercury. NWP reported that screening with field instruments detected significant amounts of mercury and two soil samples documented a concentration of mercury in soil of 2.9 mg/kg and 0.4 mg/kg. The contamination level remaining is greater than its Ecology Model Toxics Control Act (MTCA) Method A Cleanup Level of 1 mg/kg. The MTCA Method B Cleanup Level of 24 mg/kg can not be considered in this case as groundwater levels are relatively shallow in this area and there is at least public drinking water well that is less than 600 feet away.

Another site visit was performed on August 15, 2003 by Michael Spencer from the Washington State Department of Ecology, Clifford Bates from the Benton-Franklin Health District, and Russ Amato from Williams Gas Pipeline. Although the site is inside a fence of a closed industrial plant, it appeared to be clean and well maintained. Areas around the meters are inside a metal building concealing any indications of historical remedial activities. There are no homes in the immediate area, but the facility is served by its own public water well.

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):

The site file is unclear regarding the extent of the remedial activities and the time at which soil testing was performed. Eight drums of soil were noted to have been removed, but there is no post cleanup statement as to the extent of remaining contamination. In addition, it is not clear how deep the reported levels of mercury in the soil are (no depths were reported); before or after remedial activities. However, CRO did place it on their Confirmed and Suspected Contaminated Sites List awaiting site hazard assessment, thus eluding that the contamination of 2.9 mg/kg and 0.4 mg/kg remained on that site at that time.

Due to the significant contamination documented on-site being primarily inside a building with a gravel floor, the surface water route is not applicable for WARM scoring for this site. The air route is scored as an uncontaminated soil cover that is greater than two feet and all contamination is within a building that has a dirt floor. In addition the ground water route will be scored.

ROUTE SCORES:

Surface Water/Human Health: Not Scored
Air/Human Health: 2.3
Ground Water/Human Health: 43.6

Surface Water/Environ.: Not Scored
Air/Environmental: Not Scored

OVERALL RANK: 3

WORKSHEET 2 - ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE Not Scored

Contamination is within a structure.

2. AIR ROUTE

List those substances to be considered for scoring: Source: 1,2

Mercury

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

Analytical results from surface soil samples showed concentrations greater than Method A MTCA cleanup levels.

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

Contaminated surface soils.

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

Chemical analyses of on-site surface soils indicated concentrations of mercury.

3. GROUND WATER ROUTE

List those substances to be considered for scoring: Source: 1,2

Mercury

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

Analytical results from surface soil samples showed concentrations greater than Method A MTCA cleanup levels.

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

Contaminated surface soils.

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

Chemical analyses of on-site surface soils indicated significant concentrations of mercury.

WORKSHEET 3 (If Required)
SUBSTANCE CHARACTERISTICS WORKSHEET
FOR MULTIPLE UNIT/SUBSTANCE SITES
Combination 1 Combination 2 Combination 3

Unit: Section Not Applicable.

1. SURFACE WATER ROUTE

Substance(s):
 Human Toxicity Value:
 Environ. Toxicity Value:
 Containment Value:
 Rationale:

Surface Water Human
 Subscore: (+3)(+1)= (+3)(+1)= (+3)(+1)=
 () () = ____ () () = ____ () () = ____

Surface Water Environ.
 Subscore: (+3)(+1)= (+3)(+1)= (+3)(+1)=
 () () = ____ () () = ____ () () = ____

2. AIR ROUTE

Substance(s):
 Human Toxicity/Mobility
 Value:
 Environ. Toxicity/
 Mobility Value:
 Containment Value:
 Rationale:

Air Human Subscore: (+3)(+1)= (+3)(+1)= (+3)(+1)=
 () () = ____ () () = ____ () () = ____

Air Environ. Subscore: (+3)(+1)= (+3)(+1)= (+3)(+1)=
 () () = ____ () () = ____ () () = ____

3. GROUND WATER ROUTE

Substance(s):
 Human Toxicity Value:
 Containment Value:
 Rationale:

Ground Water Subscore: (+3)(+1)= (+3)(+1)= (+3)(+1)=
 () () = ____ () () = ____ () () = ____

Based on their respective highest scoring toxicity/containment combinations, the following management units will be used for route scoring:

- Surface Water -
- Air -
- Ground Water -

**WORKSHEET 4
SURFACE WATER ROUTE**

1.0 SUBSTANCE CHARACTERISTICS Not Scored

1.1 Human Toxicity

Substance	Drinking Water Standard (ug/l)	Val.	Acute Toxicity (mg/kg-bw)	Val.	Chronic Toxicity (mg/kg/day)	Val.	WOE	PF*	Carcino- genicity Val.
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*Potency Factor

Source:
Highest Value:
(Max.=10)

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

1.2 Environmental Toxicity

- (X) Freshwater
- () Marine

Substance	Acute Water Quality Criteria (ug/l)	Value	Non-human Mammalian Acute Toxicity (mg/kg)	Value	Source: _____	Value: (max=100)
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1.3 Substance Quantity: _____ Source: _____ Value:
Explain basis: _____ (max.+10)

2.0 MIGRATION POTENTIAL

2.1 Containment Source: _____ Value:
Explain basis: _____ (Max.=10)

2.2 Surface Soil Permeability: _____ Source: _____ Value:
(Max.=7)

2.3 Total Annual Precipitation: _____ Source: _____ Value:
(Max.=5)

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

2.5 Flood Plain: _____ Source: _____ Value:
(Max.=2)

2.6 Terrain Slope: _____ Source: _____ Value:
(Max.=5)

3.0 TARGETS

3.1 Distance to Surface Water: _____ Source: _____ Value:
(Max.=10)

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

3.3 Area Irrigated within 2 miles _____ Source: _____ Value:
(Max.=30)

3.4 Distance to Nearest Fishery Resource: _____ Source: _____ Value:

(Max.=12)

WORKSHEET 4 (CONTINUED)
SURFACE WATER ROUTE

3.5 Distance to, and Name(s) of, Nearest Sensitive Environment(s) _____ Source: _____ Value: (Max.=12)

4.0 **RELEASE**
Explain basis for scoring a release to surface water: _____ Source: _____ Value: (Max.=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		Acute Toxicity		Chronic Toxicity		Carcinogenicity		
	(ug/m ³)	Val.	(mg/m ³)	Val.	(mg/kg/day)	Val.	WOE	PF*	Val.
1. Mercury	0.3	10	-	-	0.0003	8	-	-	-

*Potency Factor Source: 1,5,6 Highest Value: 10
(Max.=10)

+2 Bonus Points? 0
Final Toxicity Value: 10
(Max.=12)

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

1.3.1 Gaseous Mobility

Vapor Pressure(s) (mmHg): N/A Source: _____ Value: N/A
(Max.=4)

1.3.2 Particulate Mobility

Soil type: fine sand Source: 3,6 Value: 4
Erodibility: 220 tons/acre/yr (Max.=4)
Climatic Factor: 10-30

Highest Human Health Toxicity/Mobility Matrix Value
(from Table A-7) equals

Final Matrix Value: 24
(Max.=24)

1.5 Environmental Toxicity/Mobility

Source:

Substance _____ Non-human Mammalian Acute (Table A-7)
Inhal. Toxicity (mg/m³) Value Mobility (mmHg) Value Matrix Value

Highest Environmental Toxicity/Mobility Matrix Value
(From Table A-7) equals

Final Matrix Value: N/A
(Max.=24)

1.6 Substance Quantity: < 110 sq. ft. contaminated surface soil.
Explain basis: Eight 55 gallon drums (2.16 cu.yrds.) were already removed from the site with only 2.9 ppm mercury contamination remaining.

Source: 1,6 Value: 1
(Max.=10)

2.0 MIGRATION POTENTIAL

2.1 Containment: Uncontaminated soil cover and all contamination is within building with dirt floor.

Source: 1-3,6 Value: 0
(Max.=10)

WORKSHEET 5 (CONTINUED)
AIR ROUTE

3.0 TARGETS

3.1 Nearest Population: 1000-2000 feet Source: 1,3,13 Value: 8
(Max.=10)

3.2 Distance to, and Name(s) of, Nearest Sensitive Environment(s) Wetlands, 1000-2000 feet Source: 3,6,8,14 Value: 6
(Max.=7)

3.3 Population within 0.5 miles: $\sqrt{\text{pop.}} = \sqrt{302} = 17$ Source: 6,10 Value: 17
(Max.=75)

4.0 RELEASE

Explain basis for scoring a release to air: None Source: 1,6 Value: 0
documented. (Max.=5)

**WORKSHEET 6
GROUND WATER ROUTE**

1.0 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. Mercury	2	8	-	-	0.0003	5	-	-	-

Source: 1, 5, 6

Highest Value: 8
(Max.=10)

*Potency Factor

+2 Bonus Points?
Final Toxicity Value: 8

(max.+12) 1.2 Mobility (Use numbers to refer to above listed substances)

Cations/Anions: Mercury = 3 Source: 1, 6 Value: 3
(Max.=3)

Or

Solubility(mg/l): _____

1.3 Substance Quantity: <10 cubic yards of contaminated soil = 1 Source: 1, 6 Value: 1
(Max.=10)

Explain basis: Eight 55 gallon drums (2.16 cu.yrds.) were removed from the site with only 2.9 ppm mercury contamination remaining.

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 1, 6 Value: 10
Explain basis: Spills, discharge to soil = 10
(Max.=10)

2.2 Net Precipitation: .90 inches Source: 7 Value: 1
(Max.=5)

2.3 Subsurf.Hydraul.Conduct.: coarse sand and gravels Source: 3, 6 Value: 4
(Max.=4)

2.4 Vertical Depth to Ground Water: <25 feet Source: 6, 11 Value: 8
(Max.=8)

3.0 TARGETS

3.1 Ground Water Usage: There are many public water supplies within 2 miles which have no alternate unthreatened sources available with minimal hookup. Source: 8, 11, 12 Value: 9
(Max.=10)

3.2 Dist. to Nearest Drinking Water Well: < 600 feet Source: 3, 11 Value: 5
(Max.=5)

WORKSHEET 6 (CONTINUED)
GROUND WATER ROUTE

- 3.3 Population Served within 2 Miles: $\sqrt{\text{pop.}} = \sqrt{2628} = 51$ Source: 10-12 Value: 51
(Max. = 100)
- 3.4 Area Irrigated by (Groundwater) Wells
within 2 miles: $\frac{0.75\sqrt{\text{no. acres}}}{0.75\sqrt{904}} = 23$ Source: 9 Value: 23
(Max. = 50)
- 4.0 **RELEASE**
Explain basis for scoring a release to ground water: None documented by analytical data. Source: 1, 2, 6 Value: 0
(Max. = 5)

SOURCES USED IN SCORING

1. Release and Independent Actions for Mercury Contaminated Natural Gas Meter Houses, June 7, 1991, submitted by Northwest Pipeline Corporation, Salt Lake City, Utah.
2. Site Screening - Strategy Recommendation, June 24, 1999, by Washington Department of Ecology Toxics Cleanup Program.
3. Site Hazard Assessment Site Visit by Michael Spencer and Cliff Bates, August 15, 2003.
4. U.S.G.S. Topographic Quad. Map, Raymond, WA 7.5 Min. series.
5. Washington Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992.
6. Washington Department of Ecology, WARM Scoring Manual, April 1992.
7. Washington Climate for Benton Franklin Counties, Cooperative Extension Services, College of Agriculture, Washington State University.
8. U.S. EPA SITEINFO GIS Query for lat./long. of site.
9. Ecology Water Rights Information System (WRIS).
10. Washington State Department of Ecology Facility/Site web site
<http://apps.ecy.wa.gov/website/facsit/viewer.htm>.
11. Washington State Department of Ecology well log viewer web site
<http://apps.ecy.wa.gov/welllog/>.
12. Washington State Department of Health S.A.D.I.E database
<http://www.doh.wa.gov>.
13. United States Geological Series, Pasco Quadrangle Washington 7.5 minute series.

WASHINGTON RANKING METHOD

ROUTE SCORES SUMMARY AND RANKING CALCULATION SHEET

Site Name: Northwest Pipeline ST Phillips Region: Central

Street, City, County: GameFarm Road, Kennewick, WA, Benton County

Facility ID: 323

This site was (X) ranked, () re-ranked, on September 19, 2003 based on the August 2003 quintile values from a total of 850 assessed/scored sites.

Pathway	Route Scores	Quintile Group number(s)	Priority scores:
SW-HH	<u>N/S</u>	<u>Not Scored</u>	$\frac{H^2 + 2M + L}{8} = \underline{3}$
Air - HH	<u>2.3</u>	<u>1</u>	
GW-HH	<u>43.6</u>	<u>4</u>	
SW-En	<u>N/S</u>	<u>Not Scored</u>	$\frac{H^2 + 2L}{7} = \underline{N/A}$
Air-En	<u>N/S</u>	<u>Not Scored</u>	

Use the matrix presented to the right, along with the two priority scores, to determine the site ranking. N/A refers to where there is no applicable pathway (e.g. typically with ground water route-only sites).

Human Health	Environment					
	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	N/A

~~DRAFT~~ / **FINAL** *10/16/03*

Matrix ("bin") Ranking 3, _____ No Further Action

CONFIDENCE LEVEL: The relative position of this site within this bin is:
 _____ almost into the next higher bin.
 _____ right in the middle, unlikely to ever change.
X almost into the next lower bin.