

WORKSHEET 1**SUMMARY SCORE SHEET****Site Name/Location (Street, City, County, Section/Township/Range, TCP ID Number):**

Northwest Pipeline Bellingham
Britton Road & Mt. Baker Highway
Bellingham, Whatcom County WA 98226

Sec 10/T38N/R3E
Ecology Site I.D. N-37-5026-000
2906

Site assessed/ranked for August 29, 2000 Update.

Site Description (Include management areas, substances of concern, and quantities):**Northwest Pipeline Bellingham: A Brief Summary of Events**

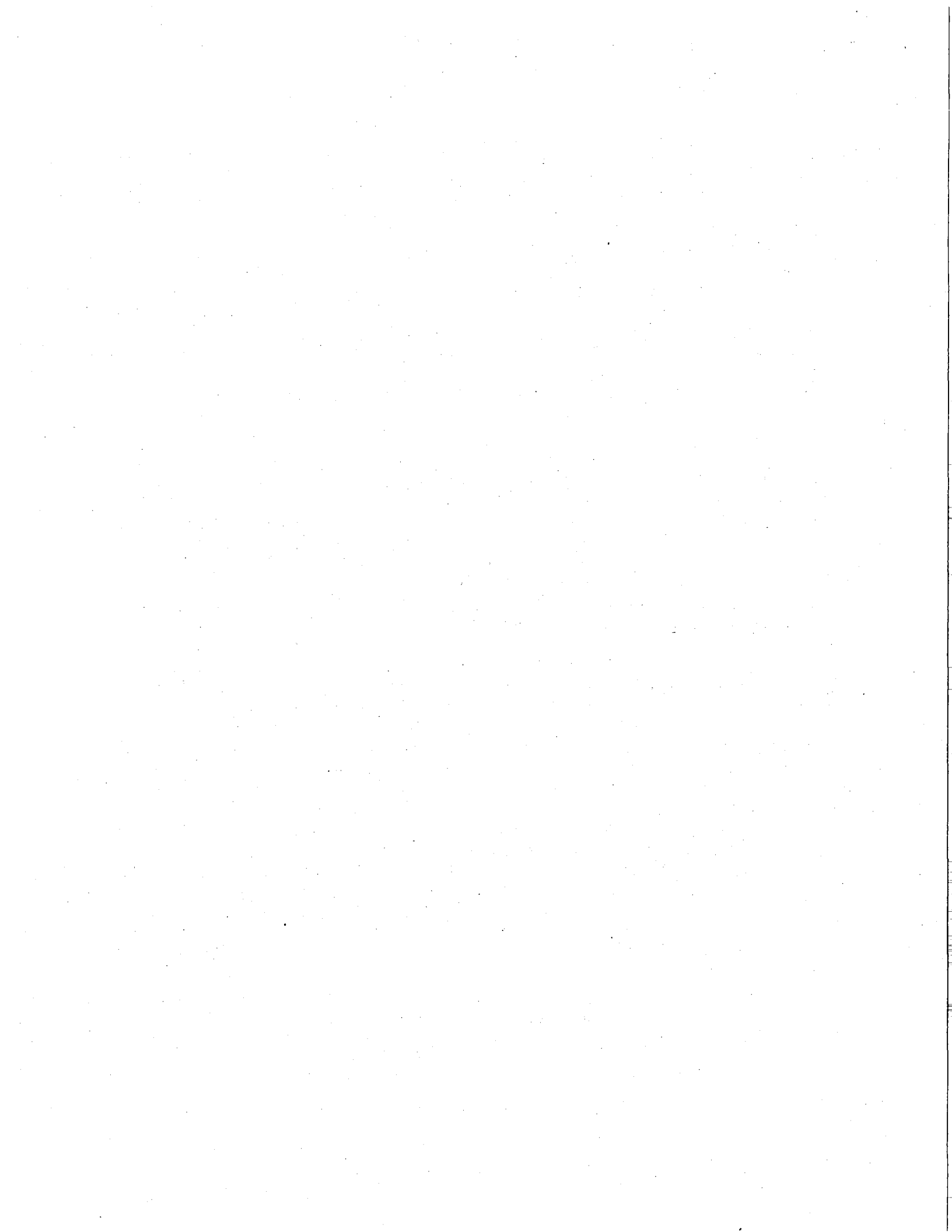
Northwest Pipeline Bellingham is located in Section 10, Township 38 North, Range 03 East, Willamette Meridian, at latitude 48° 47'39.3" and longitude 122° 24' 54.04". The site is the location of a mercury meter station, used formerly by Northwest Pipeline to monitor gas pressure fluctuations and calculate volumes of gas delivery.

Mercury meters, which contain elemental mercury, have been used by the natural gas industry since the 1920's along with mercury manometers used for calibration purposes. These meters and manometers, typically housed in small enclosures, or meter houses (typically less than 16' by 24' and often with dirt/gravel floors), are routinely maintained and serviced. Accidental releases/spillages may have occurred over a period of years at these meter houses.

Mercury meters had been in use at Northwest Pipeline Corporation (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 mercury meters in service at the time were targeted for replacement with dri-flow meters that didn'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, and completed site assessments and remediations at 123 mainline natural gas metering facilities in Washington, Oregon, Idaho, Wyoming, Colorado, and Utah. The Northwest Pipeline Bellingham site is one of 17 NWP sites identified in Washington counties under the jurisdiction of the Washington State Department of Ecology (Ecology) Northwest Office (NWRO).

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.

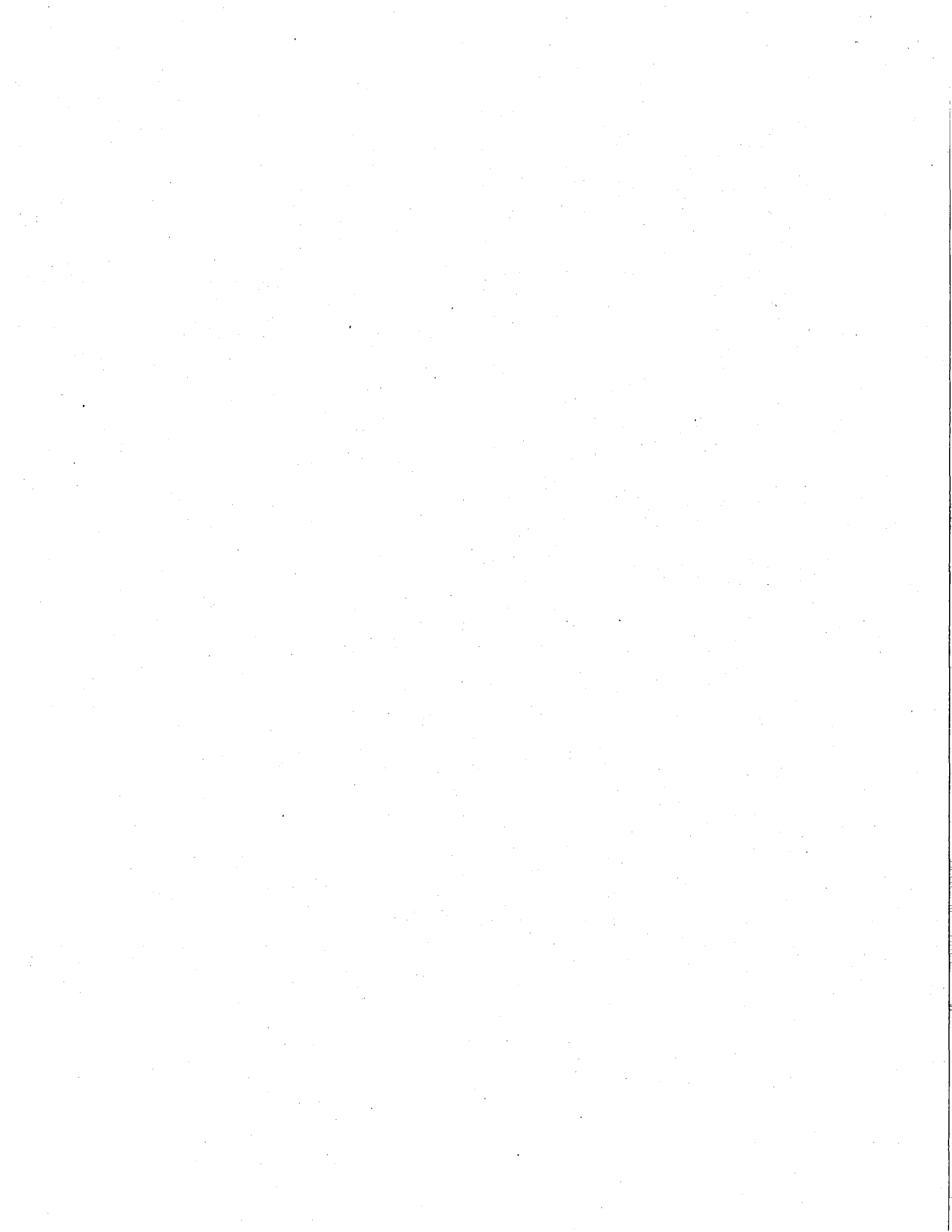
The results of the pre-cleanup sampling were evaluated using the following criteria to select contaminated sites requiring soil cleanup. The site was considered for cleanup if:

- 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 known to have a concrete floor, it was eliminated from the site cleanup list, as any mercury previously spilled onto floors was routinely cleaned up, whereas the cleanup project was aimed at removing any contaminated soils.

Based on the above criteria, 10 out of 17 NWP sites in Ecology Northwest Regional Office jurisdiction were determined to require cleanup. The Bellingham meter station was one of these 10 sites. Mercury vapor was detected at the Bellingham meter station and seven drums of soil were removed during the first remedial action in 1990. Soil sampling was conducted after removal of the contaminated soil, and the level of mercury remaining was found to be 53 mg/Kg. A second remedial action was undertaken in 1992, and five more drums of soil were removed, followed by an additional soil analysis, which noted contamination at a concentration of 4.0 mg/Kg.

Northwest Pipeline Bellingham was added to Ecology's Confirmed and Suspected Contaminated Sites List (SIS) on 10/29/91 for confirmed contamination by mercury at a concentration greater than its Ecology Model Toxics Control Act (MTCA) Method A Cleanup Level of 1 mg/Kg. An Ecology Early Notice Letter was sent to Mr. David Lof of Northwest Pipeline on December 13, 1991.

A brief site visit conducted on 3/2/00 by Michael Spencer of Ecology and Mindy Miller of Whatcom County Health & Human Services (WCHHS) noted that the site is in a rural area, is fenced and gated, and that the area of contamination is located inside a locked building inside the gated property.



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 Northwest Pipeline Bellingham site will be scored for groundwater only due to the fact that the area was cleaned up to the point that air monitoring equipment no longer detected mercury, and that there is no surface water route impacted. The mercury contaminated soil is located within a locked building in a locked and gated facility with no public access.

ROUTE SCORES:

Surface Water/Human Health: NS

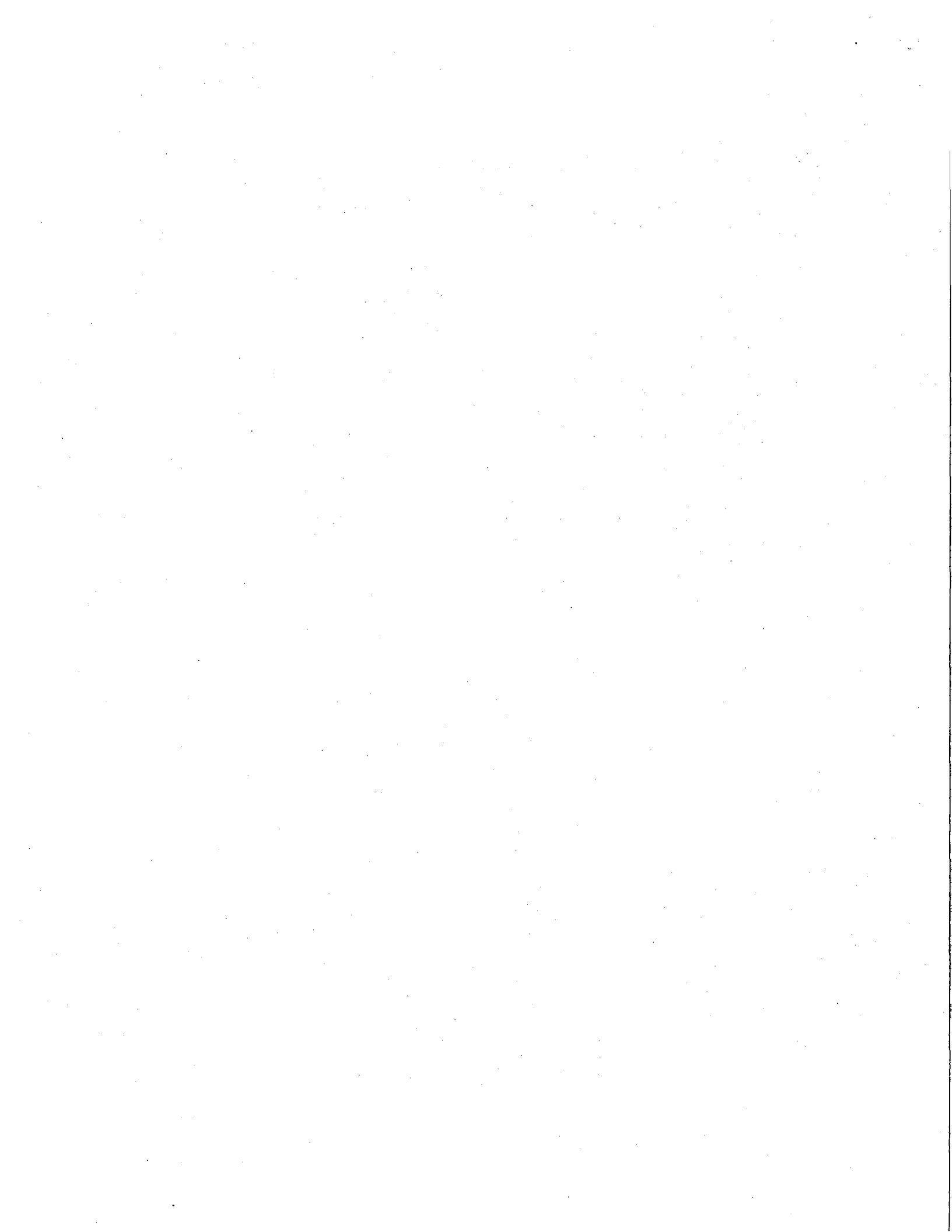
Surface Water/Environ.: NS

Air/Human Health: NS

Air/Environmental: NS

Ground Water/Human Health: 18.8

OVERALL RANK: 5



**WORKSHEET 2
ROUTE DOCUMENTATION**

1. SURFACE WATER ROUTE : Not Scored

List those substances to be considered for scoring: Source:

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

List those management units to be considered for scoring: Source:

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

2. AIR ROUTE : Not Scored

List those substances to be considered for scoring: Source:

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

List those management units to be considered for scoring: Source:

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

3. GROUND WATER ROUTE

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

Mercury

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

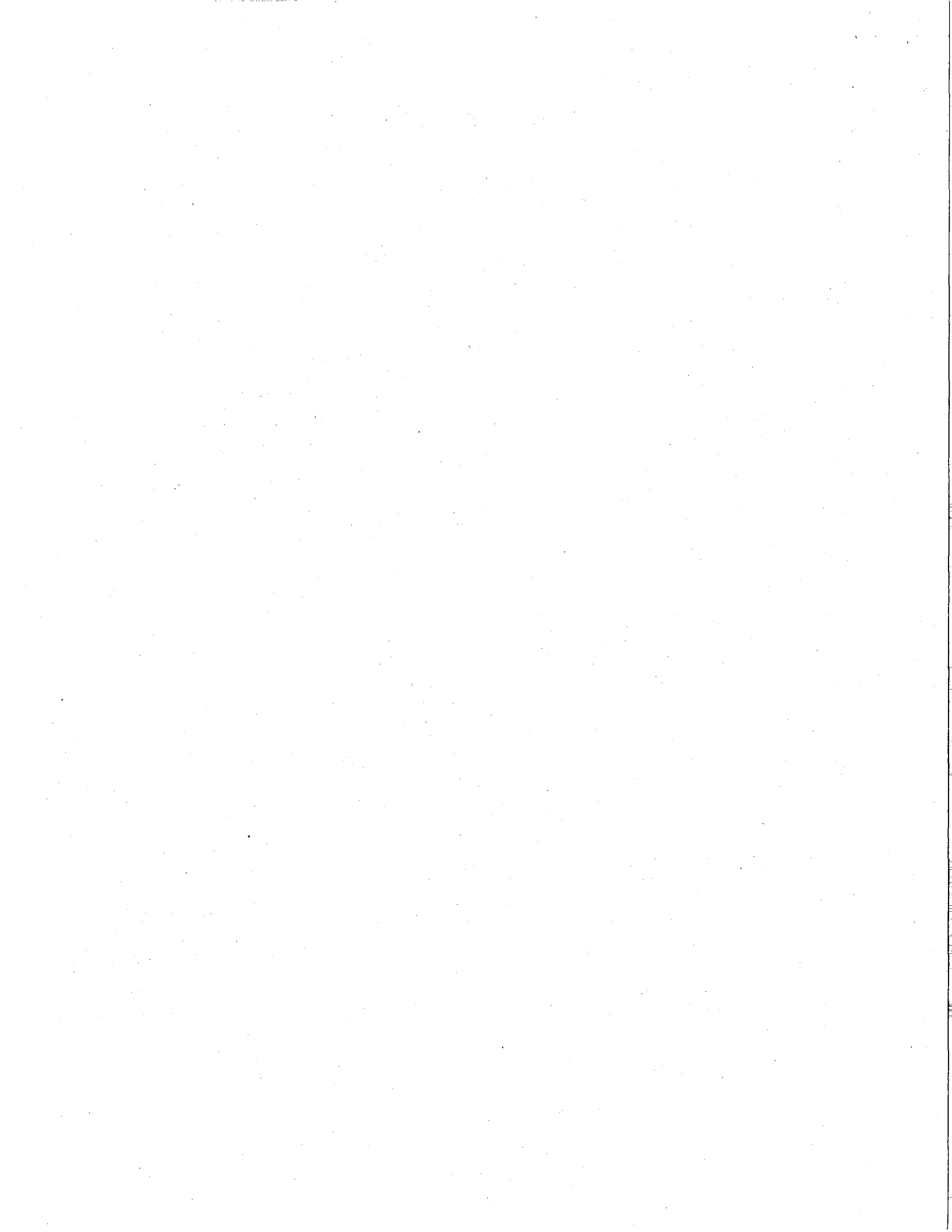
Mercury found in soil during pre-cleanup sampling in 1990 conducted by NWPipeline at concentration of 4 mg/Kg.

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

Spills, contaminated soil.

Explain basis for choice of unit to be used in scoring: Source: 1,2

Spills discharged in contaminated soil will be evaluated due to mercury found in soil in 1990.



**WORKSHEET 6
GROUND WATER ROUTE**

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

<u>Substance</u>	<u>Drinking Water Standard (ug/l)</u>	<u>Acute Toxicity Val.</u>	<u>Chronic Toxicity (mg/kg-bw)</u>	<u>Val.</u>	<u>Carcinogenicity (mg/kg/day)</u>	<u>Val.</u>	<u>WOE</u>	<u>PF*</u>	<u>Val.</u>
1. Mercury	2	8	-----	ND	.0003	8	---	---	---

*Potency Factor

Source: 3, 4

Highest Value: 8
(Max.=10)

+2 Bonus Points? 0

Final Toxicity Value: 8
(Max.=12)

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

Cations/Anions: 1

Source: 3 Value: 3
(Max.=3)

OR

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

1.3 Substance Quantity: Unknown, default = 1
Explain basis: _____

Source: 3 Value: 1
(Max.=10)

2.0 MIGRATION POTENTIAL

2.1 Containment

Explain basis: Covered soil, score as landfill
No liner = 3; Low permeability cover = 1; No
leachate collection system = 2; free liquids disposed = 3

Source: 3 Value: 8
(Max.=10)

2.2 Net Precipitation: 22.3-5.6 = 16.7 inches

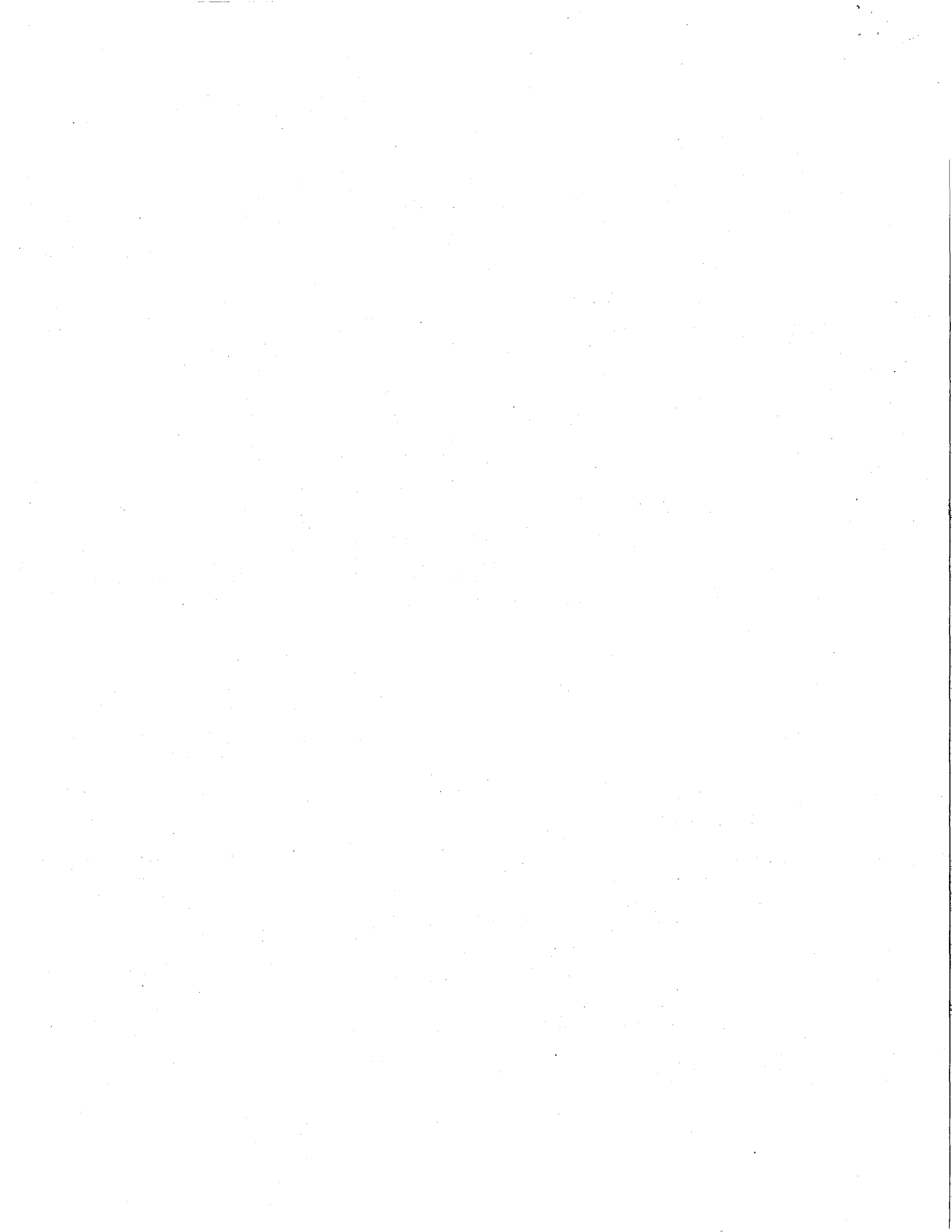
Source: 5 Value: 2
(Max.=5)

2.3 Subsurface Hydraulic Conductivity: Squalicum-Chuckanut
-NATI: moderately well drained to well drained

Source: 8 Value: 3
(Max.=4)

2.4 Vertical Depth to Ground Water: nearest well depth 115'

Source: 6 Value: 3
(Max.=8)



WORKSHEET 6 (CONTINUED)
GROUND WATER ROUTE

3.0 TARGETS

- | | | |
|---|----------------------|---------------------------------------|
| 3.1 Ground Water Usage: <u>private supply, alternate</u> | Source: <u>3</u> | Value: <u>4</u>
(Max.=10) |
| 3.2 Dist. to Nearest Drinking Water Well: <u>> 600' - 1300'</u> | Source: <u>3</u> | Value: <u>4</u>
(Max.=5) |
| 3.3 Population Served within 2 Miles: <u>$\sqrt{\text{pop.}} = \sqrt{492} = 22$</u> | Source: <u>3,9</u> | Value: <u>22</u>
(Max.=100) |
| 3.4 Area Irrigated by (Groundwater) Wells
within 2 miles: <u>$0.75\sqrt{\text{no. acres}} =$</u>
<u>$0.75\sqrt{90} = 0.75 (9.49) = 7$</u> | Source: <u>3,6,7</u> | Value: <u>7</u>
(Max.=50) |

4.0 RELEASE

- | | | |
|--|------------------|------------------------------------|
| Explain basis for scoring a release to ground water:
<u>No release documented</u> | Source: <u>3</u> | Value: <u>0</u>
(Max.=5) |
|--|------------------|------------------------------------|

SOURCES USED IN SCORING

1. Northwest Pipeline sampling activities, Northwest Pipeline Bellingham, 7/9/90.
2. Relevant Site History/Investigations/Whatcom County Health & Human Services File
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. Whatcom County Health and Human Services, well logs.
7. Water Rights Application Tracking System, NWRO Ecology, List of Wells in Surrounding Area.
8. Soil Survey of Whatcom County Area, Washington, United States Department of Agriculture, Soil Conservation Service (1985).
9. Washington State Department of Health Public Water Systems (list on file at Whatcom County Health and Human Services Drinking Water Program).

