CSID 5006

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WORKSHEET 1
SUMMARY SCORE SHEET

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

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

Conan Fuel Service
3315 Harborview Drive NW
Gig Harbor, WA 98335
Pierce County
T-21 R-2E Section-SW5
TCP ID: S-27-6058-000

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

Site Description/History:
The subject site was formerly a bulk fuel plant located on the southwest shoreline of Gig Harbor. The bulk plant was owned and operated by Unocal Corporation between 1929 and 1986, when the property was sold to Mr. Ed Conan. According to Mr. Conan, the site was not used for fuel storage after 1985. In 1989, Mr. John Kerr of MCI development purchased the site from Mr. Conan. Due to financial problems in 1991, Mr. Kerr's lender (Mr. Hicks) assumed the property. The property was sold to Mr. Stan Stearns in 1995.

In early 1989, Mr. Conan retained the environmental consulting services of Geo-Engineers (GE) to evaluate the extent of potential subsurface contamination at the site. During GE's initial study, a 6,000 gallon underground storage tank was removed, five hand borings were investigated, and five test-pits were excavated by a backhoe. Soil samples were collected from the areas investigated and monitoring wells were installed in the excavations prior to backfilling. Based on the results of the initial study, GE confirmed that significant concentrations of fuel-related compounds persisted in both the site's soil and groundwater. GE's recommendation was for complete removal of the petroleum contaminated soil (PCS).

During late 1989 and early 1990, GE worked with the city of Gig Harbor and Washington State Department of Ecology (Ecology) to obtain a shoreline permit to remove the PCS and to expand the existing marina facility located immediately adjacent to the property. On April 29, 1990, the shoreline permit application was approved and the excavation/construction activities commenced. As a result, approximately 800 cubic yards of PCS was removed from two different excavation locations at the site. The contaminated soil was hauled off-site for remediation and prior to backfilling, confirmational soil sampling was conducted from the lateral and vertical limits of both excavations. The laboratory analysis results of the confirmational sampling efforts indicated that the sidewalls and bottoms of both excavations were below the Model Toxics Control Act (MTCA), Method A Cleanup Standards, for the compounds that were analyzed for. After the excavations were backfilled, GE concluded that the removal of the contaminated soil would facilitate the natural degradation of the residual hydrocarbons in the ground water. GE 's final recommendation was that the anticipated natural reduction of contaminants be verified through additional ground water sampling events.

After the PCS was removed from the site in mid-1990, the site owner ceased to utilize the consulting services of GE. The recommendation to verify the reduction of petroleum hydrocarbons in the ground water was neglected. Rather, the earthwork activities continued at the site and all the monitoring wells were eventually destroyed in their processes of development. On May 31, 1991 the site was added to Ecology's Site Information System (SIS database) of known or suspected contaminated sites and recommended for a Site Hazard Assessment (SHA).

The SHA was initiated by the Tacoma-Pierce County Health Department (TPCHD) in early 1996, to fulfill data requirements for subsequent scoring/ranking of the site, if appropriate, under the Washington Ranking Method. Based upon the above information, the SHA program determined that a sampling event would be necessary to determine if fuel-related contamination still existed at elevated concentrations in the site's groundwater.

The SHA sampling event was conducted on May 24, 1996. During the sampling event, groundwater samples were collected from two different locations on-site. CFS-#1 was obtained from the upland portion of the site and CFS-#2 was obtained from a lower elevation, adjacent to the facility's dock ramp and bulkhead. The analytical results of the SHA sampling event reported that the groundwater at the CFS-#1 location contained concentrations of total lead at 19 ppb. The groundwater at the CFS-#2 location contained concentrations of TPH (diesel) at 18,000 ppb. At the time of the SHA, the established MTCA Method A Cleanup Levels for these constituents were 5 ppb and 1,000 ppb respectively. Other compounds, such as TPH (gasoline), waste oil (TPH other) and the BETX components, were either reported at concentrations below the laboratory's method detection limits or below the MTCA Cleanup Levels.

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):

ROUTE SCORES:

Surface Water/Human Health: 1.7 Surface Water/Environ.: 4.0

Air/Human Health: NS Air/Environmental: NS

Ground Water/Human Health: 55.2

WARMSSH
Rev. 7/12/94

OVERALL RANK: 4

WORKSHEET 2
ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE

List those substances to be considered for scoring: Source: 1-4

Lead, TPH (Diesel), TPH (Other)

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

Lead and TPH (Diesel) were used in scoring the surface water route, as each of their measured concentrations in the adjacent groundwater exceeded its respective MTCA "Method A" cleanup level, and both were available to the surface water route through less than perfect containment.

List those management units to be considered for scoring: Source: 1-4

Contaminated Soil.

Explain basis for choice of unit to be used in scoring. Source: 1-4

Contaminated soil was the management unit scored for the surface water route. Contaminated soil was scored on the basis of the following contaminants and their concentrations being detected in the groundwater at levels which exceeded their respective MTCA "Method A" Cleanup Levels.

Lead.....Up to 19 ppb
TPH (Diesel).....Up to 18 ppb

2. AIR ROUTE

List those substances to be considered for scoring: Source: 1-4

Not applicable to site / not scored.

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

List those management units to be considered for scoring: Source: 1-4

Explain basis for choice of unit to be used in scoring. Source: 1,4

WORKSHEET 2 (CONTINUED)
ROUTE DOCUMENTATION

3. GROUND WATER ROUTE

List those substances to be considered for scoring: Source: 1-4

Lead, TPH (Diesel), TPH (Other).

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

Lead and TPH (Diesel) were used in scoring the ground water route, as each of their measured concentrations exceeded its respective MTCA "Method A" Cleanup Level, and both were available to the ground water route through less than perfect containment.

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

Contaminated Soil.

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

Contaminated soil was the management unit scored for the ground water route. Contaminated soil was scored on the basis of the following contaminants being detected in the groundwater at concentrations which exceeded their respective MTCA "Method A" Cleanup Levels.

Lead----------Up to 19 ppb
TPH (Diesel)-----Up to 18 ppb

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.	Carcinogenicity WOE	PF*	Val.
1. Lead	5	8	--------	ND	-----	ND	B2	--	ND
2. TPH (Diesel)	20	6	490(rat)	5	0.004	3	-	--	ND

*Potency Factor

Source: 1,2
Highest Value: 8 (Max.=10)

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

1.2 Environmental Toxicity

( ) Freshwater
(X) Marine

Substance	Acute Water Quality Criteria (ug/l)	Value	Non-human Mammalian Acute Toxicity (mg/kg)	Value
1. Lead	140	4	--------	ND
2. TPH (Diesel)	2350	2	490	5

Source: 1,2 **Value:** 5

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

Explain basis: All contamination appeared to be sub-subsurface in nature. There was limited lab data to estimate the lateral or vertical extent of the contamination.

WORKSHEET 4 (CONTINUED)
SURFACE WATER ROUTE

2.0 MIGRATION POTENTIAL

2.1 Containment — Source: 1,3 — **Value: 0** (Max.=10)
Explain basis: Contaminated subsurface soil.

2.2 Surface Soil Permeability: Sand, Gravel and silt. — Source: 3,13 — **Value: 1** (Max.=7)

2.3 Total Annual Precipitation: 35.2 inches (Tacoma) — Source: 5 — **Value: 3** (Max.=5)

2.4 Max. 2-Yr/24-hour Precipitation: 2.0 - 2.5 inches — Source: 1 — **Value: 3** (Max.=5)

2.5 Flood Plain: Site not in flood plain. — Source: 3 — **Value: 0** (Max.=2)

2.6 Terrain Slope: 7.0% — Source: 7,13 — **Value: 3** (Max.=5)

3.0 TARGETS

3.1 Distance to Surface Water: Gig Harbor < 1,000 feet. — Source: 3,7,13 — **Value: 10** (Max.=10)

3.2 Population Served within 2 miles (See WARM Scoring Manual Regarding Direction): $\sqrt{pop.}=\sqrt{0}=0$ (NA) — Source: --- — **Value: 0** (Max.=75)

3.3 Area Irrigated within 2 miles $0.75\sqrt{no.\ acres}$=(NA)
(Refer to note in 3.2.): $0.75\sqrt{0} = 0.75(0) = 0$ — Source: --- — **Value: 0** (Max.=30)

3.4 Distance to Nearest Fishery Resource: < 1,000 feet — Source: 16 — **Value: 12** (Max.=12)

3.5 Distance to, and Name(s) of, Nearest Sensitive Environment(s) Gig Harbor is a fisheries resource That is located < 1,000 feet away. — Source: 16 — **Value: 12** (Max.=12)

4.0 RELEASE

Explain basis for scoring a release to surface water: No release of any hazardous substance to the surface water was able to be documented. — Source: 3 — **Value: 0**

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. Lead	5	8	--------	ND	------	ND	B2	---	ND
2. TPH (Diesel)	20	6	490(rat)	5	0.004	3	-	---	ND

*Potency Factor

Source: 2
Highest Value: 8 (Max.=10)

+2 Bonus Points? 2

Final Toxicity Value: 10 (Max.=12)

1.2 Mobility (Use numbers to refer to above listed substances)
Cations/Anions: 1)=2 (lowest concentration) Approx. 4 X Cleanup Level. Source: 1,2 **Value:** 1 (Max.=3)

OR
Solubility(mg/l): 2)=1 (highest concentration) Approx. 18 X Cleanup Level.

1.3 Substance Quantity: Unknown Source: 1,3,4 **Value:** 1 (Max.=10)
Explain basis: All contamination appeared to be subsurface in nature. There was limited lab data available to estimate the lateral or vertical extent to calculate a volume.

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 1,3,4 **Value:** 10 (Max.=10)
Explain basis: Contaminated soil from spills or discharges has a value of 10 for containment.

2.2 Net Precipitation: 19.1" (Tacoma) Source: 5 **Value:** 2 (Max.=5)

2.3 Subsurface Hydraulic Conductivity: Silty SAND Source: 1,6,13 **Value:** 3 (Max.=4)

2.4 Vertical Depth to Ground Water: 0-feet Source: 1,3,13 **Value:** 8 (Max.=8)

WORKSHEET 6 (CONTINUED)
GROUND WATER ROUTE

3.0 TARGETS

3.1 Ground Water Usage: Pub. & Priv., alt. available — Source: 10-12 — **Value: 4** (Max.=10)

3.2 Distance to Nearest Drinking Water Well: 1300-2640' — Source: 7-12 — **Value: 3** (Max.=5)

3.3 Population Served within 2 Miles: √pop.=√>10000=100 — Source: 10 — **Value: 100** (Max.=100)

3.4 Area Irrigated by (Groundwater) Wells within 2 miles: 0.75√ no.acres
0.75√44 = 0.75 (6.6) = 5 — Source: 12 — **Value: 5** (Max.=50)

4.0 RELEASE

Explain basis for scoring a release to ground water: Documentation was made, and is available that a hazardous substance was released to the ground water. — Source: 3,4,13 — **Value: 5** (Max.=5)

SOURCES USED IN SCORING

1. Washington Department of Ecology, WARM Scoring Manual, April 1992.

2. Washington Department of Ecology, Toxicology Database for use in Washington Ranking Method Scoring, January 1992.

3. Tacoma-Pierce County Health Department, 1996 SHA, on-site observations/file review.

4. Sound Analytical laboratory analysis results from SHA sampling event, May 24, 1996.

5. Washington Climate for Pierce County, National Weather Service Forecast Office.

6. Soil Survey of Pierce County Washington, United States of Agriculture Soil Conservation Service.

7. U.S.G.S. Topo Map, 7.5 Min. Series, Photorev. 1981.

8. The Thomas Guide, Pierce County Street Guide and Directory, 1994 Edition.

9. Washington Atlas and Gazetteer.

10. DOH Public Water Supply System.

11. DOE/TPCHD Well Logs.

12. DOE Water Rights Information System (WRIS).

13. "Report of Geotechnical Services, Subsurface Contamination Study, Conan's Fuel Service, Gig Harbor, WA. (Dated 03-22-89) and Report of Remedial Action, Monitoring Services, Conan's Fuel Service, Gig Harbor, WA. (Dated 08-13-90), by GeoEngineers, Inc.

14. Dept. of Fish & Wildlife, Habitat Biologist (Don Nauer), 863-7979.

15. Aerial Photographs, 1991.

16. A Catalog of Washington Streams and Salmon Utilization, Volume 1 Puget Sound, Washington State Department of Fisheries.

WASHINGTON RANKING METHOD SCORING

Input values from worksheets 4, 5, and 6 to these three spreadsheets. Press F9 to calculate scc

WORKSHEET 4
SURFACE WATER ROUTE

	Site 1	Site 2	Site 3	Site 4
SUBSTANCE CHARACTERISTICS				
Human Health Toxicity	10	0	0	0
Environmental Toxicity	5	0	0	0
Substance Quantity	1	0	0	0
Containment	0	0	0	0
MIGRATION				
Soil Permeability	1	0	0	0
Annual Precipitation	3	0	0	0
2–yr/24–hour Precip.	3	0	0	0
Flood Plain	0	0	0	0
Terrain Slope	3	0	0	0
TARGETS				
Distance to Surf. Water	10	0	0	0
Population Served	0	0	0	0
Area Irrigated	0	0	0	0
Distance to Fisheries	12	0	0	0
Sensitive Environment	12	0	0	0
RELEASE	0	0	0	0
SW HH ROUTE SCORE	1.7	0.0	0.0	0.0
SW Env. ROUTE SCORE	4.0	0.0	0.0	0.0

WORKSHEET 6
GROUND WATER ROUTE

SUBSTANCE CHARACTERISTICS				
Toxicity	10	0	0	0
Mobility	1	0	0	0
Substance Quantity	1	0	0	0
Containment	10	0	0	0
MIGRATION				
Net Precipitation	2	0	0	0
Hydraulic Conductivity	3	0	0	0
Depth to Ground Water	8	0	0	0
TARGETS				
Aquifer Usage	4	0	0	0
Nearest Well Distance	3	0	0	0
Population Served	100	0	0	0
Area Irrigated	5	0	0	0
RELEASE	5	0	0	0
GW ROUTE SCORE	55.2	0.0	0.0	0.0

SCORE SUMMARY	Site 1	Site 2	Site 3	Site 4
Surface Water Human Health	1.7	0.0	0.0	0.0
Air Human Health	0.0	0.0	0.0	0.0
Ground Water Human Health	55.2	0.0	0.0	0.0
Surface Water Environment	4.0	0.0	0.0	0.0
Air Environment	0.0	0.0	0.0	0.0