CSID 743

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):

Port of Tacoma
(aka 721 Alexander Avenue)
Tacoma, WA 98421
Pierce County
T-21 R-3E Section-27
TCP ID: S-27-6226-000

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

Site Description/History:
The Site Hazard Assessment (SHA) for 721 Alexander Avenue was conducted by the Tacoma-Pierce County Health Department (TPCHD) in late 1996. At that time, the subject site consisted of four acres and was located near the end of the northern-most peninsula of the Tacoma Tideflats in Commencement Bay. The southwestern portion of the site was utilized for the storage of intermodal freight containers and the northeastern portion of the site was leased to a recycling company for materials storage. The property was bordered by PRI Northwest (to the northwest), US Navy piers to the northeast, McMillan-Piper to the southeast and Alexander Avenue to the southwest. According to file records, the subject site and the adjacent PRI site, both had extensive history's of being associated with large scale storage and distribution of various petroleum related products.

Prior to 1920, 721 Alexander Avenue was an undeveloped tidal mud flat which was exposed only at low tide. Records indicate that the tidal/site area was then filled with approximately 16 feet of dredge material as the result of an expansion project that began in approximately 1920. In 1936, well after the expansion project had been completed, Maxwell Petroleum Company developed 4 ½ acres (the site) of this new land to serve as a storage and distribution facility for gasoline, diesel and fuel oils. Maxwell Petroleum Co. then acted as the sole operator at the site until 1944 when they merged with General Petroleum Products. General Petroleum Products conducted the same type of business as Maxwell Petroleum Co. did until 1951. By that time, the site had several very large above ground storage tanks that offered a "total" useful storage capacity of approximately 105,000 barrels. In 1951 the property, and existing storage tanks, were sold to the United States Air Force (USAF) for use as a fuel distribution depot. The USAF utilized the site as a bulk petroleum storage depot until 1965 when the site was determined to be surplus to their needs. At that time, an approximate 3/4 acre section of the parcel, which bordered the Hylebos waterway, was transferred to the Department of the Navy. The remainder of the lot, approximately 4 acres, was acquired by the Port of Tacoma (The Port) in 1966. The Port utilized or leased the petroleum storage facility from 1966 through 1980. In 1983 the Port demolished the storage facility, leveled the site, and paved the entire ground surface with asphaltic concrete. After these most recent improvements, the site was leased by the Port to Tacoma Boat Co. who used it for a materials storage yard until approximately 1986. According to Port sources, from 1986 until 1996 the site was primarily utilized for above grade, commercial storage purposes involving non-hazardous materials.

On February 2, 1995, the Tacoma Sewer Utility (TSU) notified the Washington State Department of Ecology (Ecology)

that petroleum products had been discovered infiltrating into a sewer line beneath Alexander Avenue at a location immediately adjacent to the Port site. According to the TSU, the 1995 incident was their fourth known occurrence of petroleum products infiltrating the pipeline since 1987. As a result, TSU requested Ecology's help in identifying and stopping the source of the oil. Subsequently, Ecology responded to TSU's request for assistance and conducted an Initial Investigation (II) and a sampling event of the sewer line on February 3, 1995. Ecology's investigative efforts resulted in a confirmation that extremely weathered #2 diesel oil was present in the sewer line at a location immediately adjacent to the Port site. The II sampling event was then followed up with a historical search and document review on data that had already been compiled for the surrounding properties, including environmental studies that had been conducted by others for the PRI site. At that time, PRI site was considered to be a defunct tank farm, immediately northwest of the Port site, that a long history, similar to the Port's site for handling petroleum products. Based on the findings of the II, and the results of the literature reviews, it was determined that the likely source of the migrating petroleum contamination was coming from the Port site. As a result, Ecology contacted The Port and requested that they take voluntary steps to conduct further investigations to determine the extent and nature of the petroleum problem.

In mid-1995, the Port retained the environmental consulting firm of AGI Technologies (AGI) to conduct a subsurface investigation at 721 Alexander Avenue. AGI's subsurface investigation was limited to the approximate southwest 1/3 portion of the site, which is nearest to where the petroleum products had been detected entering the sanitary sewer. During the investigation, AGI installed 4 monitoring wells and completed 4 hand borings. The results of AGI's study were then summarized in a report dated October 27, 1995, entitled "Petroleum Hydrocarbon Evaluation 721 Alexander Avenue". Based on the report, petroleum products (or derivatives) were detected in the groundwater samples, from all four of the monitoring wells, above the Model Toxics Control Act (MTCA) Method A Cleanup Levels for ground water. Two of the monitoring wells were also determined to contain approximately 1 foot of light non-aqueous phase liquid (LNAPL) which was characterized as 60-65% diesel and 35-40% gasoline. The shallow 2-4 foot hand auger borings, which were advanced in an area referred to as the former "USAF Sludge Area", also confirmed the presence of soils that were contaminated by gasoline and heavy oil (TPH other). AGI's 1995 investigative work did not include the assessment of the other 2/3rds of the Port site, which was once the primary location of the former tank farm.

Based on the above information, 721 Alexander Avenue was added to Ecology's Site Information System (S.I.S. database) of known or suspected contaminated sites and recommended for an SHA. The SHA was initiated by the TPCHD in mid-to-late 1996 to fulfill data requirements for subsequent scoring/ranking of the site under the Washington Ranking Method. Due to extensive existing site specific analytical data, and additional investigative information that had been compiled for the adjacent PRI site, the SHA Program determined that further site sampling was beyond the scope of the SHA. As a result, the ranked value for 721 Alexander Avenue was based on the site specific laboratory analysis data which was documented by AGI during their 1995 investigation.

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):

Based on the information provided in the site file and conversations with Port personnel, there was no evidence to indicate that an environmental assessment or cleanup action had been conducted for any part of the subject site at the time when the tank farm was demolished and the property was paved in 1983. As discussed above, a limited investigation was conducted by AGI in 1995 for the southwest 1/3rd of the site. Therefore, at the time of this assessment there was no data to substantiate the actual soil and groundwater conditions beneath the northeastern 2/3rds of the site, where the tank farm had formerly been.

During the early 1990's the PRI-Northwest site, which is immediately adjacent to the subject Port property, was designated as an EPA Federal Superfund Site. In 1995 the environmental consulting firm of Hart Crowser (HC) conducted an extensive environmental assessment for the PRI site. HC's 1995 assessment included the evaluation of the subsurface soil conditions in 11 backhoe excavated test pits and the groundwater chemistry from 19 monitoring wells that had been installed on the site. Based on the results of HC's assessment, it appeared that wide spread soil and groundwater contamination also persisted at the adjacent PRI site. However, according to the report, no free product (NAPL's) were detected in any of HC's monitoring wells on the PRI property. It should also be noted that during HC's investigation they identified what appeared to be the leading edge of a contaminant plume that was near a section of PRI's property line that was immediately adjacent to the Port site. The groundwater at this location was reported to contain tetrachloroethylene (PCE) and trichloroethylene (TCE) at concentrations that exceeded their respective MTCA Cleanup Standards. The conclusion that elevated concentrations of PCE & TCE, are also likely to have originated from the Port property, was based on HC's analytical data which indicates an increasing trend of PCE & TCE concentrations as their groundwater sample locations approached the property boundary.

Based on the above information, the SHA Program has determined that: 1) the Port should take voluntary steps to immediately minimize the potential for any additional future off-site migration of petroleum hydrocarbons, by removing the free product that has been identified on site; 2) additional subsurface investigations are warranted and highly recommended for the northeastern 2/3rds of the Port property and; 3) the Port should investigate and determine if subsurface contaminants have migrated towards, and/or have been potentially released to the Hylebos Waterway. As a minimum, analytical testing for volatile organic compounds (VOC's), TPH and heavy metals should be conducted to further define the soil and groundwater conditions in the entire area of the Port's former tank farm. The placement of additional monitoring wells to further define the lateral/vertical limits of potential VOC, Metals and the confirmed TPH contamination is also recommended for the former "USAF Sludge Area".

ROUTE SCORES:

Surface Water/Human Health: N.S. Surface Water/Environ.: N.S.

Air/Human Health: N.S. Air/Environmental: N.S.

Ground Water/Human Health: 48.0

WARMSSH
Rev. 7/12/94

OVERALL RANK: 3

WORKSHEET 2
ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE

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

Not applicable to site, route not scored. At the time of the SHA, the entire site was paved and there was no evidence to indicate active releases to the surface water were occurring.

2. AIR ROUTE

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

Not applicable to site, route not scored.

3. GROUND WATER ROUTE

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

Benzene, Ethylbenzene, Toluene, Xylene, TPH-(Diesel), TPH-(Other), Tetrachloroethylene and Trichlorothene.

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

Benzene, Ethylbenzene, Toluene, Xylene and TPH-(Diesel) were used in scoring the groundwater route, as each of their measured concentrations exceeded it's respective MTCA Method A Cleanup Level for groundwater (and/or industrial soil), and all were available to the ground 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 groundwater route. The soil was scored on the basis of the above mentioned contaminants being detected at concentrations which exceeded their respective MTCA Method A Cleanup Levels for industrial soils and groundwater.

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. Benzene	5	8	3306	3	X	-	A	.029	5
2. Ethylbenzene	700	4	3500	3	0.1	1	D	X	-
3. Toluene	2000	2	5000	3	0.2	1	D	X	-
4. Xylene	10,000	2	50	10	2	1	D	X	-
5. TPH (diesel)	20	6	490(rat)	5	0.004	3	-	--	ND

Source: 2,14

*Potency Factor

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: _____ Source: 1,2 **Value:** 3 (Max.=3)

OR
Solubility(mg/l): 1.)= 3, 2.)= 2, 3.)= 2, 4.)= 2, 5.)= 1

1.3 Substance Quantity: Unknown. Source: 1,2 **Value:** 4 (Max.=10)
Explain basis: Default gives a score vale of "1".

1 mgd

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 1,3 **Value:** 9 (Max.=10)
Explain basis: Contamination has been capped with asphalt therefore, it was scored like a landfill with a cover and no liner or leachate collection system.

2.2 Net Precipitation: >20 - 30 inches. Source: 5 **Value:** 3 (Max.=5)

2.3 Subsurface Hydraulic Conductivity: Silt and clay. Source: 12,14 **Value:** 1 (Max.=4)

2.4 Vertical Depth to Ground Water: > 300 Source: 13 **Value:** 1 (Max.=8)
Aquifer of concern (productive for drinking).

WORKSHEET 6 (CONTINUED)
GROUND WATER ROUTE

3.0 TARGETS

3.1 Ground Water Usage: Pub. & Priv., alt. available — Source: 11,12 — **Value:** 4 (Max.=10)

3.2 Distance to Nearest Drinking Water Well: 2,300 ft. — Source: 8,14,? — **Value:** 3 (Max.=5)

3.3 Population Served within 2 Miles: √pop.=√>10000=100 — Source: 12-14 — **Value:** 100 (Max.=100)

3.4 Area Irrigated by (Groundwater) Wells within 2 miles: 0.75√ no.acres
0.75√75 = 0.75 (8.7) = 7 — Source: 14 — **Value:** 7 (Max.=50)

4.0 RELEASE

Explain basis for scoring a release to ground water: Documentation was made, and is available regarding hazardous substances released to the groundwater. — Source: 14 — **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. 1st Weather Squadron (ACC) USAF.
5. Washington Climate for Pierce County, National Weather Service Forecast Office. Based on Vashon Island & Tacoma data.
6. Defense Environmental Restoration Program (DERP), Inventory Project Report, Tacoma AF POL Retail Distribution Station, Pierce County Washington, Project No. F10WA045600.
7. FIRM, National Flood Insurance Rate Map, City of Tacoma, Pierce County. Panel 25 of 45, Community Panel # 530148 07.
8. U.S.G.S. Topo Map, Tacoma North Quad., 7.5 Min. Series, Photorev. 1981.
9. The Thomas Guide, Pierce County Street Guide and Directory, 1994 Edition.
10. Washington Atlas and Gazetteer.
11. DOH Public Water Supply System.
12. DOE/TPCHD Well Logs.
13. DOE Water Rights Information System (WRIS).
14. "Petroleum Hydrocarbon Evaluation, 721 Alexander Avenue". Prepared for Port of Tacoma, dated October 27, 1995. AGI Technologies.
15. "PRI-Northwest Petroleum Study", Prepared by Hart Crowser, 1995, #J-3712.
16. a catalog of WASHINGTON STREAMS and salmon utilization, volume 1, Puget Sound Region, Washington Department of Fisheries, November 1975.
17. Aerial Photographs.
18. Sanborn Map Co. Volume 2A, Metskers Map of Taccoma, Volume 2A, 1926.
19. Tacoma News Tribune (TNT)Issue Dates: 02-15-29, 10-15-35, 12-03-43.
20. Annual Report of the Port & City of Tacoma, 1920.