Tacoma | Pierce County
Health Department
Healthier. Safer. Smarter.
tpchd.org

Governed by a local Board of Health

18 August 2008

Mr. Tony Reinhard
Cornerstone Property Investments, LLC
1115 S. 348th St., Suite A
Federal Way, WA 98003

RE: Site Hazard Assessment Completion
Ecology Facility Site ID: 81765865

Dear Mr. Reinhard:

The Tacoma-Pierce County Health Department has completed the Site Hazard Assessment (SHA) of the **former Chevron Bulk Terminal** property located at **1648 East J Street, Tacoma** as required under the Model Toxics Control Act. This site's hazard ranking has been determined to be a **1**. The hazard ranking is an estimation of the potential threat to human health and/or the environment, relative to all other Washington State sites assessed at this time. The ranking scale is 1 to 5, with 1 representing the highest relative risk and 5 the lowest relative risk.

Ecology will be publishing the ranking of this and other recently assessed sites in the **August 20, 2008** Special Issue of the Site Register. The site hazard ranking will be used in conjunction with other site-specific considerations in determining Ecology's priority for future actions.

Please contact me at (253) 798-2891 if you have any questions relating to the SHA of your site. If you have inquiries or comments about the site scoring or ranking process, please call Michael . Spencer, Ecology at (360) 407-7195. For inquiries regarding any further activities at your site now that it is on Ecology's Hazardous Sites List, please call Cris Matthews, Ecology at (360) 407-6388.

Sincerely,

Sharon Bell

Sharon Bell
Environmental Health Specialist
Environmental Health Program

cc: Michael Spencer, Ecology
Cris Matthews, Ecology
Daniel Carrier, Chevron
Don Wyll, SAIC

WORKSHEET 1
Summary Score Sheet

SITE INFORMATION:

Name: Chevron Bulk Terminal
Address: 1648 East J Street
City: Tacoma County: Pierce State: WA Zip: 98421
Section/Township/Range: 04/20N/03E
Latitude: 47° 14' 56.6" N Longitude: 122° 25' 24.5" W
TCP ID #: 81765865

Prepared on August 18, 2008

Site scored/ranked for the August 20, 2008 update.

SITE DESCRIPTION (management areas, substances of concern, and quantities):

The former Chevron Bulk Terminal (Chevron) facility at 1648 E. J Street in Tacoma is a 3.5 acre property on parcel number 0320044002. Cornerstone Property Investments, LLC is the listed property owner. Ernest (Tony) Reinhard is the single member of Cornerstone Property Investments, LLC and one of the owners of Reinhard Petroleum. Reinhard Petroleum currently parks petroleum transport trucks on the site, and the property is also leased to Bowman Propane and an asphalt company.

The subject property is located in the Tacoma Tideflats. It is relatively flat with an elevation approximately 10 feet above mean sea level. Pavement covers about half the site. This property, along with the surrounding area, was originally part of a tidal marsh at the mouth of the Puyallup River, but was filled with dredge spoils in the early 1900's. Approximate distances to nearby surface waters are 500 feet northwest to the Wheeler Osgood Waterway, 1700 feet west to the Thea Foss Waterway, and 2000 feet east to the Puyallup River.

History

This site was used as a bulk fuel storage and distribution facility from 1905 through 1988. Chevron sold the site to Bowman Propane in 1999. Cornerstone Property Investments acquired the property in November 2004.

When the Chevron facility was in operation, there were 13 above ground storage tanks and 4 underground storage tanks with capacities ranging from 10,000 to 1.6 million gallons. The tanks held gasoline, diesel, light and industrial fuel oil, aviation gasoline, stove and furnace oils, and additives. The facility included four petroleum fuel lines that ran under East 15th Street to a dock on the east side of the Thea Foss Waterway, about 1700 feet west. All tanks, structures, docks, and fuel lines were removed in 1989/1990. Contaminants of concern are gasoline, diesel and oil range hydrocarbons, benzene, toluene, ethylbenzene, total xylenes, carcinogenic-polycyclic aromatic hydrocarbons (cPAHs), and lead.

Geology/Hydrogeology

Dredge spoils cover the site in a layer approximately 3 to 11 feet deep. It is composed of fine to medium sand with varying amounts of silt and some marine shell fragments. Below the dredge spoils is a 3 to 6 foot layer of native soil composed of silt with varying amounts of sand, organic matter and clay. Beneath the native soil is a unit of fine to medium sand with varying amounts of silt. This unit varies in thickness between ~ 5 and 70 feet.

As is common in the tideflats, two aquifers have been found beneath this site. The upper aquifer is described as unconfined in fill material and groundwater is encountered between 0.5 to 7 feet below ground surface (bgs). Groundwater flows radially away from the center of the site in the upper aquifer, but more to the east and southeast in the direction of the Puyallup River. This aquifer is not consistent and may dewater during dry weather. The lower aquifer is confined in a unit of fine to medium sand. Groundwater is encountered in the lower aquifer at depths ranging from 7 to 10 ft bgs and is tidally influenced, with flow ranging towards the NW to NE. The aquitard separating the two aquifers is clayey silt and sandy silt.

Environmental Investigations

Soil and groundwater contamination were discovered in 1984, including the presence of light non-aqueous phase liquids in the shallow aquifer. Since then, 39 groundwater monitoring wells have been installed, 25 hand-augered borings conducted, and 103 test pits dug. Approximately 58 tons of petroleum contaminated soil (PCS) was removed from the vicinity of the sewer and power lines in 2001, but most of the source contamination has been left on site. Attempts have been made to remediate the soil in situ using phytoremediation, thermal oxidation, and bioremediation. Chevron has contracted with SAIC to conduct routine groundwater monitoring, but no data has been collected since April 2006. A summary report provided by Science Applications International Corporation (SAIC) to the Tacoma-Pierce County Health Department in 2006 indicated that soils remain contaminated. No recent data was included in the summary report to indicate the current concentrations of contaminants in soil. However, soil contamination was described as pervasive in the upper fill unit: *"About two-thirds of the upper soil layer at the site appears to be contaminated with gasoline-range hydrocarbons, much of this in combination with diesel fuel. The other third of the upper soil unit at the site is primarily contaminated with diesel, in some areas combined with heavier fuel components."*

Currently there are five monitoring wells completed in the upper aquifer and three monitoring wells completed in the lower aquifer. While groundwater monitoring has been conducted since 1984, the frequency as well as the analytes have not been consistent. The April 2006 monitoring event found diesel and oil present in both aquifers at concentrations above the MTCA Method A CULs. Gasoline, BTEX, and PAH analyses in groundwater samples have not been conducted since 1997, though all three were found in concentrations exceeding MTCA in earlier monitoring events. Groundwater was apparently never analyzed for lead.

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 contamination detected at this site is in the soil and groundwater. Groundwater contamination was found in both the shallow, upper aquifer and in a deeper aquifer just below it. The information provided by SAIC for this site does not specifically address the bottom depths of the aquifers. Groundwater was encountered in the upper aquifer at starting depths that ranged from 0.5 to 7 feet bgs, whereas groundwater was encountered in the deeper aquifer at starting depths ranging from 7 to 10 feet bgs. The groundwater is classified as usable, but not used.

The population number served by drinking water wells within two miles of the Chevron site used in the groundwater worksheet was zero. Although several Group A and B wells are located within the two mile radius of this site, all are located upgradient and considered unlikely to be affected by the contamination detected in the shallow groundwater at the former Chevron Bulk Terminal site. In addition, the two municipal production wells for the City of Tacoma (ABM929 and ACN711) draw from a deep aquifer, considered unlikely to be hydraulically connected to the contaminated groundwater at the Chevron site. ABM929 is ~ 6800 feet east and 800 feet deep but not equipped with a pump as it was installed as a standby well; ACN711 is ~ 9300 feet south and 656 feet deep. There are no known private drinking water wells within two miles.

ROUTE SCORES:

Surface Water/Human Health:	**21.6**	Surface Water/Environmental:	**35.4**
Air/Human Health:	**15.3**	Air/Environmental:	**34.0**
Groundwater/Human Health:	**42.5**		

OVERALL RANK: 1

WORKSHEET 2
Route Documentation

1. **SURFACE WATER ROUTE**

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

   Gasoline, diesel, and oil range hydrocarbons; benzene, toluene, ethylbenzene, total xylenes; carcinogenic-PAHs; and lead.

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

   Gasoline and diesel range hydrocarbons, total xylenes, and carcinogenic-PAHs will be scored for the surface water route due to levels detected in contaminated soil, and because they were available to the surface water route through less than perfect containment.

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

   Spill, discharge, or contaminated soil at the surface with no run-on/run-off control.

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

   Contaminated soil at site with no run-on/run-off control.

2. **AIR ROUTE**

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

   Gasoline and diesel range hydrocarbons; benzene, toluene, ethylbenzene, total xylenes; carcinogenic-PAHs; and lead.

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

   Gasoline and diesel range hydrocarbons, and total xylenes will be scored for the air route due to levels detected in soil and because these substances are available to the air route through less than perfect containment.

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

   Contaminated soil, discharges, spills with no vapor collection system.

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

   Contaminated soil verified by sampling and analysis.

3. **GROUNDWATER ROUTE**

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

   Gasoline, diesel, and oil range hydrocarbons; benzene, toluene, ethylbenzene, total xylenes; carcinogenic-PAHs; and lead.

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

Gasoline and diesel range hydrocarbons, total xylenes, and carcinogenic-PAHs will be scored for the groundwater route due to levels detected in the last known sampling of groundwater.

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

Contaminated soil/spill/discharge due to documented contamination of soil with the above listed substances.

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

Contaminated soil and groundwater verified by sampling and analysis.

WORKSHEET 4
Surface Water Route

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

	Substance	Drinking Water Standard (µg/L)	Value	Acute Toxicity (mg/kg-bw)	Value	Chronic Toxicity (mg/kg/day)	Value	Carcinogenicity		Value
								WOE	PF*	
1	TPH-Gasoline (benzene)	5	8	3306 (rat)	3	-	ND	A	0.029	5
2	Xylene	10,000	2	50 (hmn)	10	2	1	--	--	ND
3	TPH -Diesel (naphthalene)	160	4	490 (rat)	5	0.004	3	--	--	ND
4	Benzo(a)pyrene	0.2	10	50 (rat)	10	-	ND	B2	12	7
5										

***Potency Factor*

Source: 2,3
Highest Value: 10
(Max = 10)
Plus 2 Bonus Points? 2
Final Toxicity Value: 12
(Max = 12)

1.2 Environmental Toxicity ( ) Freshwater (x) Marine

	Substance	Acute Water Quality Criteria		Non-Human Mammalian Acute Toxicity	
		(µg/L)	Value	(mg/kg)	Value
1	TPH-Gasoline (benzene)	5100	2		
2	Xylene	--	ND		
3	TPH -Diesel (naphthalene)	2350	2		
4	Benzo(a)pyrene	300	4		
5					

Source: 2,3
Highest Value: 4
(Max = 10)

1.3 Substance Quantity (areal extent)

Explain Basis: Summary report provided by SAIC describes the upper soil layer as being 3.5 to 11 feet thick and contaminated with various petroleum hydrocarbons. Using very rough, average site dimensions of 580 feet by 330 feet, with the unpaved area estimated at 50%, the areal extent of contamination is 95,700 square feet.

Source: 1,2
Value: 9
(Max = 10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment:** Contaminated soil with no known run-on/runoff control **Explain basis:**	1, 2	**10** (Max = 10)
2.2	**Surface Soil Permeability**: Fine to medium sand with varying amounts of silt	1, 2	**1** (Max = 7)
2.3	**Total Annual Precipitation:** 39.05 inches	2, 9	**3** (Max = 5)
2.4	**Max 2yr/24hr Precipitation**: >2.0 inches	2	**3** (Max = 5)
2.5	**Flood Plain:** In a 500 year floodplain	2, 11	**1** (Max = 2)
2.6	**Terrain Slope:** (10/420)(100) = 2.3%	2, 11	**2** (Max = 5)

3.0 TARGETS

		Source	Value
3.1	**Distance to Surface Water:** ~420 northwest to Wheeler Osgood Waterway	2, 11	**10** (Max = 10)
3.2	**Population Served within 2 miles (see WARM Scoring Manual Regarding Direction):** none	2, 6	**0** (Max = 75)
3.3	**Area Irrigated by surface water within 2 miles :** none	2, 6	**0** (Max = 30)
3.4	**Distance to Nearest Fishery Resource:** ~1900' east to Puyallup River	2, 10, 11	**9** (Max = 12)
3.5	**Distance to, and Name(s) of, Nearest Sensitive Environment(s):** ~700' west to wetlands associated with the Wheeler Osgood Waterway	2, 10, 11	**12** (Max = 12)

4.0 RELEASE

Explain Basis: No confirmed release	Source: 1,2 **Value: 0** (Max = 5)

WORKSHEET 5
Air Route

1.0 SUBSTANCE CHARACTERISTICS

1.1. Introduction

1.2 Human Toxicity

	Substance	Air Standard ($\mu g/m^3$)	Value	Acute Toxicity (mg/m^3)	Value	Chronic Toxicity (mg/kg/day)	Value	Carcinogenicity		Value
								WOE	PF*	
1	TPH as gasoline	0.12	10	31947 (rat)	3	--	ND	A	0.029	5
2	TPH as diesel	166.5	4	--	ND	--	ND	--	--	ND
3	Total xylenes	1448.6	1	21714 (rat)	3	0.085	1	--	--	ND
4										
5										

** Potency Factor*

Source: 2,3
Highest Value: 10
(Max = 10)
Plus 2 Bonus Points? 2
Final Toxicity Value: 12
(Max = 12)

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

	1.3.1 Gaseous Mobility	1.3.2 Particulate Mobility		
	Vapor Pressure(s) (mmHg)	Soil Type	Erodibility	Climatic Factor
1	9.5E+01 = 4			
2	8.2E-02 = 3			
3	1.0E+01 = 3			
4				
5				

Source: 1,2,3
Value: 4
(Max = 4)

Source:
Value:
(Max = 4)

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

Final Matrix Value: 24
(Max = 24)

1.5 Environmental Toxicity/Mobility						
	Substance	**Non-human Mammalian Inhalation Toxicity (mg/m^3)**	**Acute Value**	**Mobility (mmHg)**	**Value**	**Matrix Value**
1	TPH as gasoline	31947 (rat)	3	9.5E+01 = 4	4	6
2	TPH as diesel	--	ND	8.2E-02 = 3	3	--
3	Total xylenes	21714 (rat)	3	1.0E+01 = 3	3	5
4						
5						

Highest Environmental Toxicity/Mobility Matrix Value (from Table A-7) = **Final Matrix Value: 6**
(Max = 24)

1.6 Substance Quantity (areal extent)	
Explain Basis: Summary report provided by SAIC describes the upper soil layer as being 3.5 to 11 feet thick and contaminated with various petroleum hydrocarbons. Using very rough, average site dimensions of 580 feet by 330 feet, with the unpaved area estimated at 50$, the areal extent of contamination is 95,700 square feet.	Source: 1,2 **Value: 7** (Max = 10)

2.0 MIGRATION POTENTIAL

		Source	**Value**
2.1	**Containment:** At least half the site is unpaved and SAIC's summary report describes the entire upper fill unit (soil) as being contaminated; no uncontaminated soil cover is presumed present.	1, 2	**10** (Max = 10)

3.0 TARGETS

		Source	**Value**
3.1	**Nearest Population:** ~1625' west	2, 11	**8** (Max = 10)
3.2	**Distance to [and name(s) of] nearest sensitive environment(s):** ~700' west to wetlands associated with the Wheeler Osgood Waterway	2, 11	**7** (Max = 7)
3.3	**Population within 0.5 mile:** $\sqrt{49} = 7$	2, 11	**7** (Max = 75)

4.0 RELEASE

Explain Basis for scoring a release to air: No confirmed release	Source: 1,2 **Value: 0** (Max = 5)

WORKSHEET 6
Groundwater Route

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

	Substance	Drinking Water Standard (µg/L)	Value	Acute Toxicity (mg/ kg-bw)	Value	Chronic Toxicity (mg/kg/day)	Value	Carcinogenicity		Value
								WOE	PF*	
1	TPH-Gasoline (benzene)	5	8	3306 (rat)	3	-	ND	A	0.029	5
2	Xylene	10,000	2	50 (hmn)	10	2	1	--	--	ND
3	TPH -Diesel (naphthalene)	160	4	490 (rat)	5	0.004	3	--	--	ND
4	Benzo(a)pyrene	0.2	10	50 (rat)	10	-	ND	B2	12	7
5										

* *Potency Factor*

Source: 1,2,3
Highest Value: 10
(Max = 10)
Plus 2 Bonus Points? 2
Final Toxicity Value: 12
(Max = 12)

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

Cations/Anions [Coefficient of Aqueous Migration (K)] OR	Solubility (mg/L)
1=	1= 3
2=	2= 2
	3= 1
	4= 0

Source: 2, 3
Value: 3
(Max = 3)

1.3 Substance Quantity (volume): ~20,000 cubic yards

Explain basis: Summary report provided by SAIC describes the upper soil layer as being 3.5 to 11 feet thick and contaminated with various petroleum hydrocarbons. Using very rough, average site dimensions of 580 feet by 330 feet, and a contamination layer a minimum of 3 feet deep, an estimate of 21,267 cubic yards in quantity was derived.

Source: 1,2
Value: 5
(Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** Contaminated soil with no cap, liner, or leachate collection system	1, 2	**10** (Max = 10)
2.2	**Net precipitation:** 19.1 inches	2, 9	**2** (Max = 5)
2.3	**Subsurface hydraulic conductivity:** Primarily sand	1, 2	**4** (Max = 4)
2.4	**Vertical depth to groundwater:** Observed release = 0 feet	1, 2, 7	**8** (Max = 8)

3.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** Groundwater usable, but not used	2, 11	**2** (Max = 10)
3.2	**Distance to nearest drinking water well:** 5460', Tacoma Star & Ice	2, 7, 11	**1** (Max = 5)
3.3	**Population served within 2 miles:** 0	2, 8, 11	**0** (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles: 0**	2, 6	**0** (Max = 50)

4.0 RELEASE

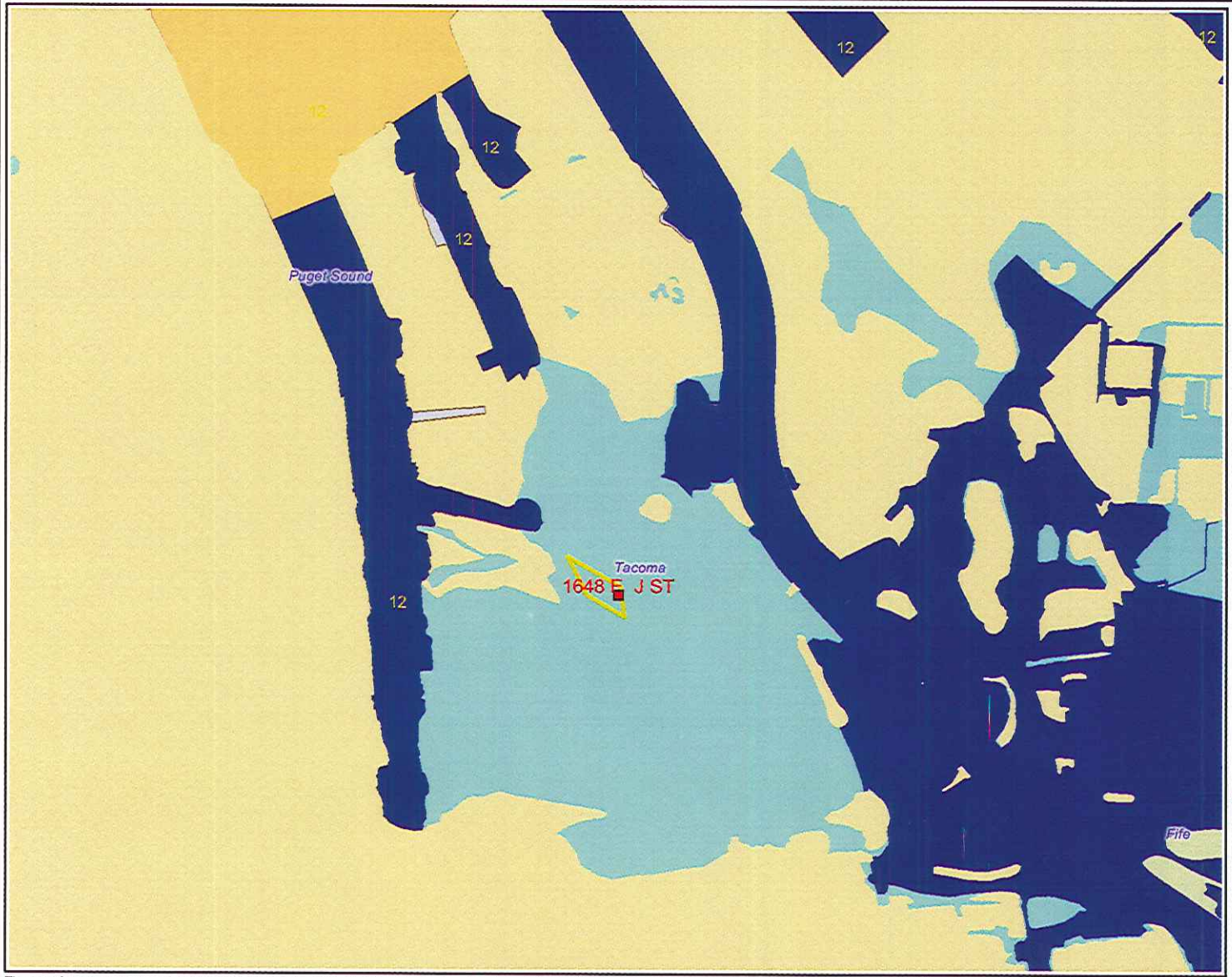
	Source	Value
Explain basis for scoring a release to groundwater: **Release has been confirmed in groundwater sampling**	1, 2	**5** (Max = 5)

SOURCES USED IN SCORING

1. Tacoma-Pierce County Health Department Site Hazard Assessment File/Ecology TCP File
2. Washington State Department of Ecology, WARM Scoring Manual, April 1992.
3. Washington State Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992.
4. U.S. Department of Interior Geological Survey Topographical Map
5. Soil Survey of Pierce County, U.S.D.A. Soil Conservation Service
6. Water Rights Information System (WRIS), Ecology
7. Department of Ecology/Tacoma-Pierce County Health Department Well Logs
8. Washington State Department of Health Public Water Supply System
9. Washington Climate for Pierce County, National Weather Service Forecast Office
10. Department of Fish and Wildlife, Catalog of Washington Streams and Salmon
11. Pierce County Geographic Information System Countyview Database

Chevron Bulk Terminal, 1648 E. J Street, Tacoma; Flood Plain

Dark blue ~ 100 year flood plain; light blue ~ 500 year flood plain



Map Legend

- Highlighted Tax Parcels
- County Floodplains
- 1% Annual Chance Flood
- VE - Coastal High Hazard Areas
- X - 0.2% Annual Chance Flood
- Pierce County Basemap
- Unincorporated County
- Tacoma
- Lakewood, Edgewood, Bonney Lake, Buckley, South Prairie
- Steilacoom, Fircrest, Fife, Gig Harbor, Orting, Eatonville, Roy, Carbonado, Wilkeson, Mt Rainier
- University Place, Puyallup, Auburn
- DuPont, Milton, Sumner
- Fort Lewis, McChord, McNeil Island
- Water

Scale 1:20,000

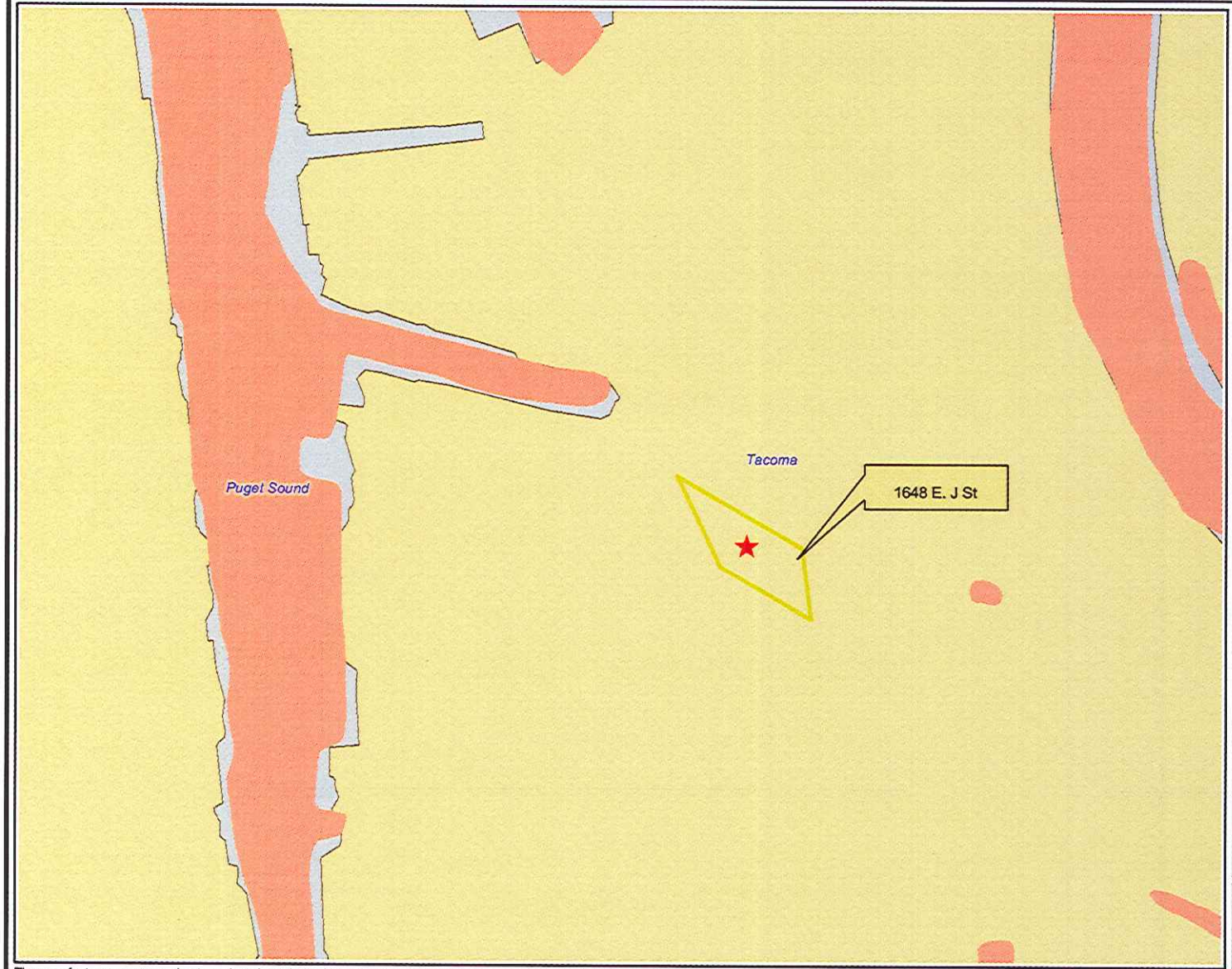
0 850 1700 ft.

Printed: 7/15/08 4:33 PM

Tacoma | Pierce County Health Department
Healthier. Safer. Smarter.

Chevron Bulk Terminal SHA

Nearest Sensitive Environment



Map Legend

- Highlighted Tax Parcels
- CWI Wetlands Delineation
- Delineated
- Verified
- Unverified
- CWI Wetlands
- Supplemental Wetland Inventory
- National Wetlands Inventory
- Pierce County Basemap
- Unincorporated County
- Tacoma
- Lakewood, Edgewood, Bonney Lake, Buckley, South Prairie
- Steilacoom, Fircrest, Fife, Gig Harbor, Orting, Eatonville, Roy, Carbonado, Wilkeson, Mt Rainier
- University Place, Puyallup, Auburn
- DuPont, Milton, Sumner
- Fort Lewis, McChord, McNeil Island
- Water

Scale 1:8,400

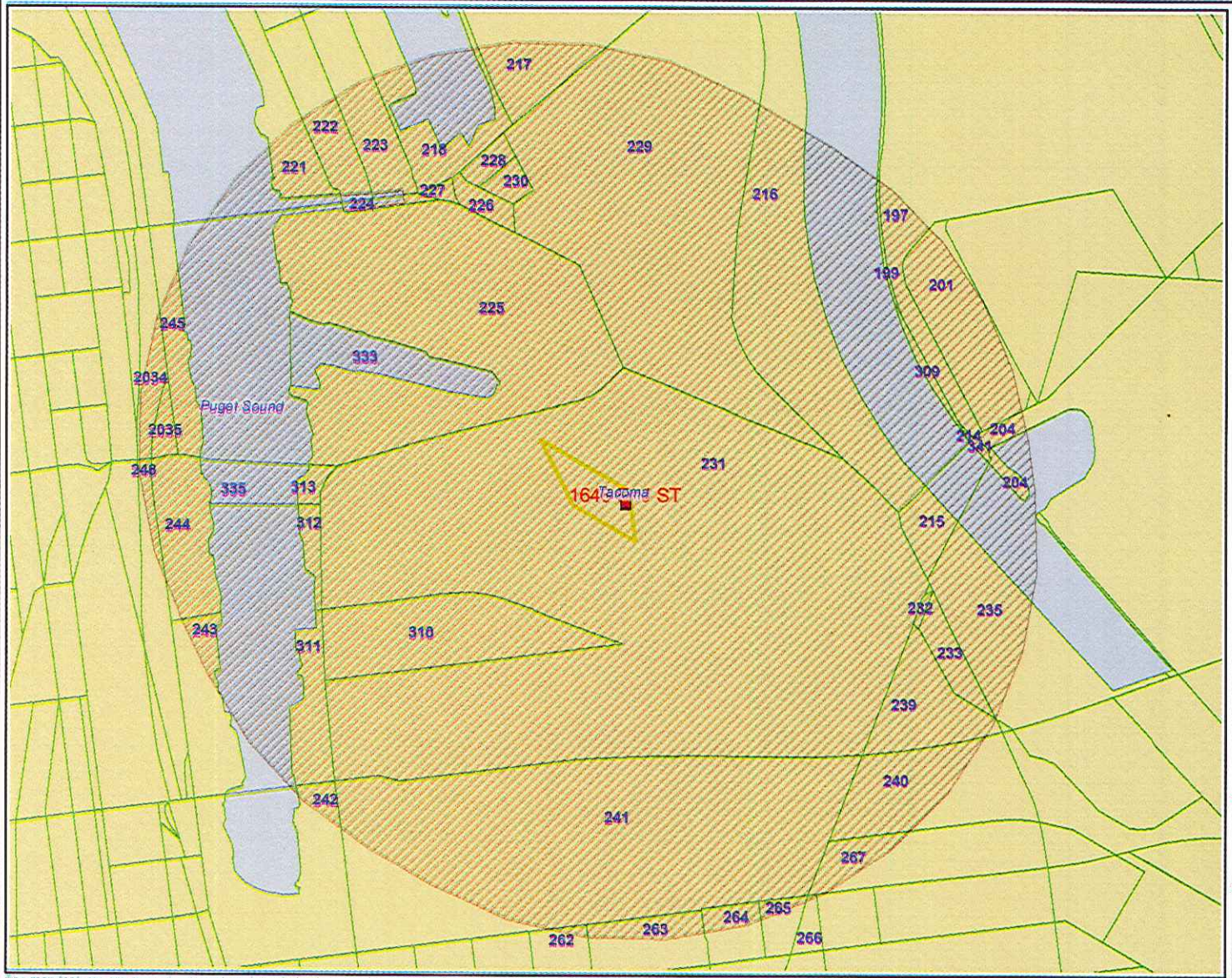
0 350 700 ft.

Printed: 8/14/08 4:43 PM

Tacoma | Pierce County Health Department
Healthier. Safer. Smarter.

Chevron Bulk Terminal SHA, 1648 E. J St., Tacoma

Census Data (Block ID) Within 0.5 Mile



Map Legend

- Highlighted Tax Parcels
- 2000 - Blocks
- Pierce County Basemap
- Unincorporated County
- Tacoma
- Lakewood, Edgewood, Bonney Lake, Buckley, South Prairie
- Steilacoom, Fircrest, Fife, Gig Harbor, Orting, Eatonville, Roy, Carbonado, Wilkeson, Mt Rainier
- University Place, Puyallup, Auburn
- DuPont, Milton, Sumner
- Fort Lewis, McChord, McNeil Island
- Water

Scale 1:12,000

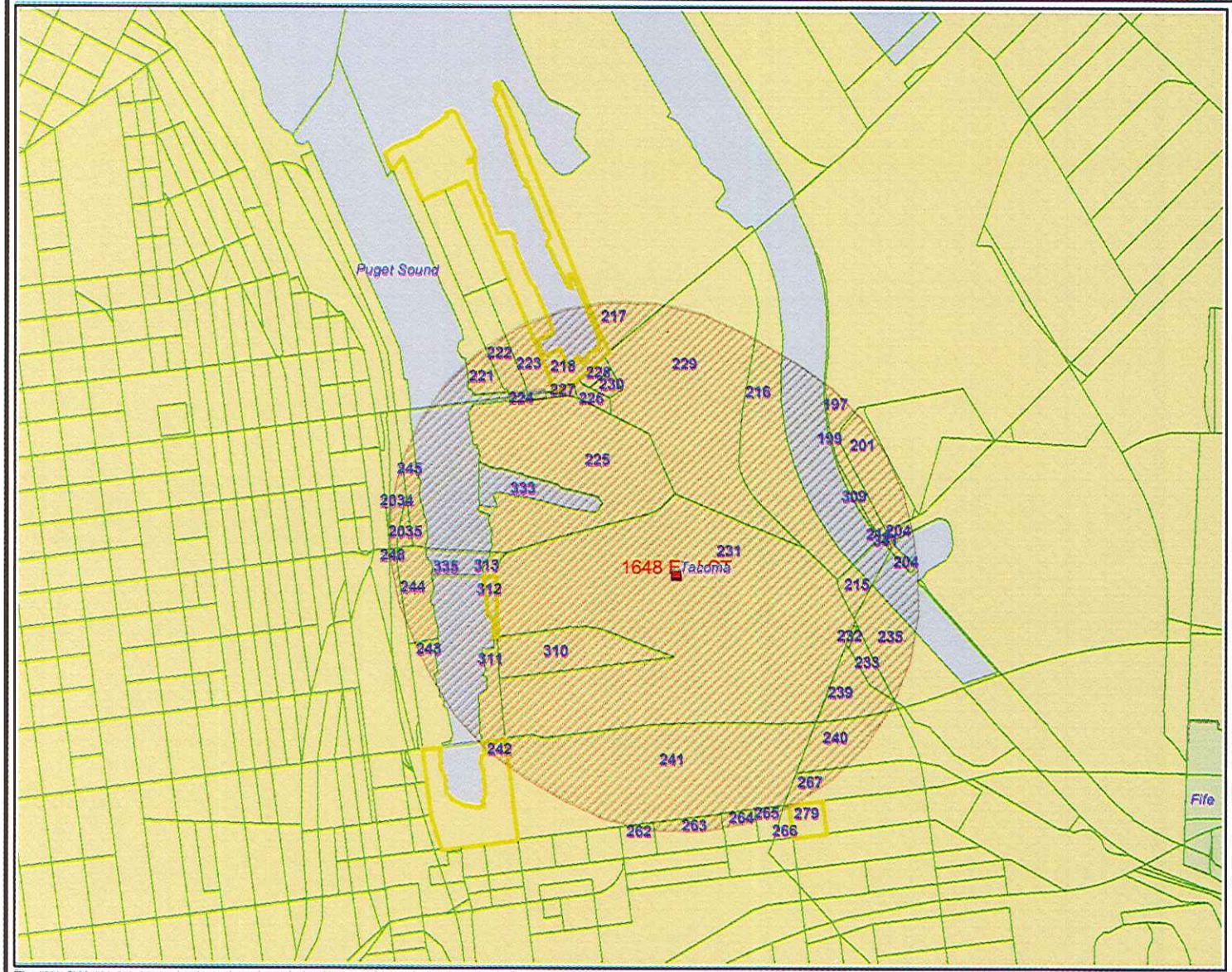
0 500 1000 ft.

Printed: 7/24/08 2:36 PM

Tacoma | Pierce County Health Department
Healthier. Safer. Smarter.

Chevron Bulk Terminal, 1648 E. J St., Tacoma

Populated Census Blocks Within 0.5 Mile



Map Legend

- Highlighted 2000 - Blocks
- 2000 - Blocks
- Pierce County Basemap
- Unincorporated County
- Tacoma
- Lakewood, Edgewood, Bonney Lake, Buckley, South Prairie
- Steilacoom, Fircrest, Fife, Gig Harbor, Orting, Eatonville, Roy, Carbonado, Wilkeson, Mt Rainier
- University Place, Puyallup, Auburn
- DuPont, Milton, Sumner
- Fort Lewis, McChord, McNeil Island
- Water

Scale 1:20,240

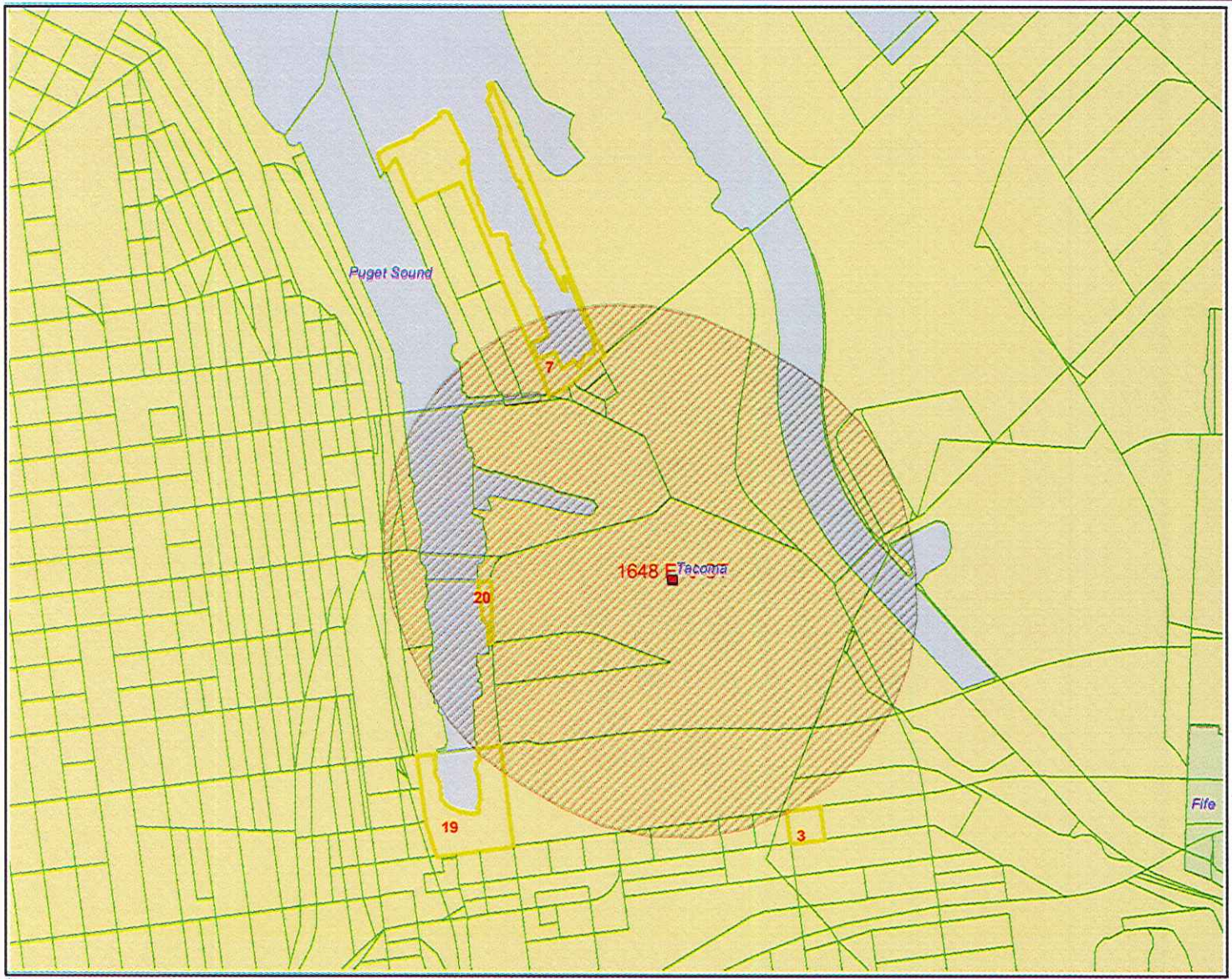
0 850 1700 ft.

Printed: 7/24/08 2:46 PM

Tacoma | Pierce County Health Department
Healthier. Safer. Smarter.

Chevron Bulk Terminal, 1648 E. J St., Tacoma

Resident Population Within 0.5 Mile Radius



Map Legend

- Highlighted 2000 - Blocks
- 2000 - Blocks
- Pierce County Basemap
- Unincorporated County
- Tacoma
- Lakewood, Edgewood, Bonney Lake, Buckley, South Prairie
- Steilacoom, Fircrest, Fife, Gig Harbor, Orting, Eatonville, Roy, Carbonado, Wilkeson, Mt Rainier
- University Place, Puyallup, Auburn
- DuPont, Milton, Sumner
- Fort Lewis, McChord, McNeil Island
- Water

Scale 1:20,240

0 850 1700 ft.

Printed: 7/24/08 3:54 PM

Tacoma | Pierce County Health Department
Healthier. Safer. Smarter.

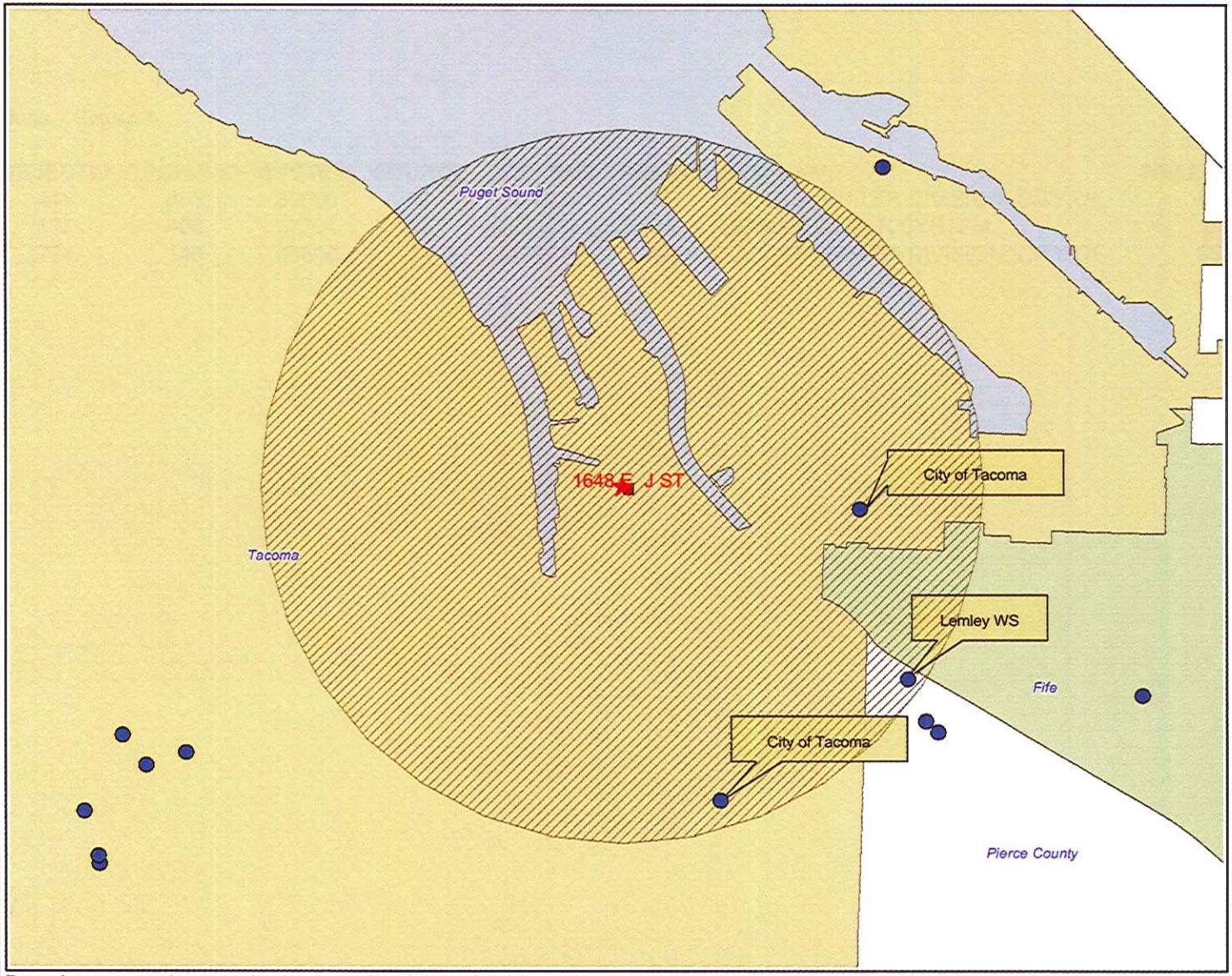
2000 - Blocks

TRBLK ID	Blocks.ID	FIPSSTCO	TRACT2000	BLKGRP	TRACT	NAME	TOTAL POP
12845	197	53053	060200	0602001	060200	Block 1037	0
12842	199	53053	060200	0602001	060200	Block 1039	0
12852	200	53053	060200	0602001	060200	Block 1040	0
12851	201	53053	060200	0602001	060200	Block 1041	0
12897	204	53053	060200	0602001	060200	Block 1044	0
12903	212	53053	060200	0602001	060200	Block 1052	0
12902	213	53053	060200	0602001	060200	Block 1053	0
12843	214	53053	060200	0602001	060200	Block 1054	0
12849	215	53053	060200	0602001	060200	Block 1055	0
12847	216	53053	060200	0602001	060200	Block 1056	0
12263	217	53053	060200	0602001	060200	Block 1057	0
12269	218	53053	060200	0602001	060200	Block 1058	7
12268	221	53053	060200	0602001	060200	Block 1061	0
12266	222	53053	060200	0602001	060200	Block 1062	0
12267	223	53053	060200	0602001	060200	Block 1063	0
12270	224	53053	060200	0602001	060200	Block 1064	0
12883	225	53053	060200	0602001	060200	Block 1065	0
12272	226	53053	060200	0602001	060200	Block 1066	0
12271	227	53053	060200	0602001	060200	Block 1067	0
12273	228	53053	060200	0602001	060200	Block 1068	0
12848	229	53053	060200	0602001	060200	Block 1069	0
12274	230	53053	060200	0602001	060200	Block 1070	0
12893	231	53053	060200	0602001	060200	Block 1071	0
12837	232	53053	060200	0602001	060200	Block 1072	0
12839	233	53053	060200	0602001	060200	Block 1073	0
12836	234	53053	060200	0602001	060200	Block 1074	0
12841	235	53053	060200	0602001	060200	Block 1075	0
12838	239	53053	060200	0602001	060200	Block 1079	0
12895	240	53053	060200	0602001	060200	Block 1080	0
12894	241	53053	060200	0602001	060200	Block 1081	0
12892	242	53053	060200	0602001	060200	Block 1082	19
12861	243	53053	060200	0602001	060200	Block 1083	0
12860	244	53053	060200	0602001	060200	Block 1084	0
12859	245	53053	060200	0602001	060200	Block 1085	0
12866	248	53053	060200	0602001	060200	Block 1088	0
9865	262	53053	060200	0602001	060200	Block 1102	0
9871	263	53053	060200	0602001	060200	Block 1103	0
9872	264	53053	060200	0602001	060200	Block 1104	0
9873	265	53053	060200	0602001	060200	Block 1105	0
9878	266	53053	060200	0602001	060200	Block 1106	0
12896	267	53053	060200	0602001	060200	Block 1107	0
9879	279	53053	060200	0602001	060200	Block 1119	3
12844	309	53053	060200	0602001	060200	Block 1149	0
12890	310	53053	060200	0602001	060200	Block 1150	0
12889	311	53053	060200	0602001	060200	Block 1151	0
12888	312	53053	060200	0602001	060200	Block 1152	20
12886	313	53053	060200	0602001	060200	Block 1153	0
12278	331	53053	060200	0602001	060200	Block 1982	0

12287	332	53053	060200	0602001	060200	Block 1983	0
12882	333	53053	060200	0602001	060200	Block 1984	0
12884	334	53053	060200	0602001	060200	Block 1985	0
12885	335	53053	060200	0602001	060200	Block 1986	0
12887	336	53053	060200	0602001	060200	Block 1987	0
12891	337	53053	060200	0602001	060200	Block 1988	0
12900	340	53053	060200	0602001	060200	Block 1991	0
12850	341	53053	060200	0602001	060200	Block 1992	0
12846	342	53053	060200	0602001	060200	Block 1993	0
12857	2034	53053	061601	0616011	061601	Block 1061	0
12858	2035	53053	061601	0616011	061601	Block 1062	0

Chevron Bulk Terminal SHA

Group A Wells Within 2 Mile Radius



Map Legend

- Wells - Group A
- Pierce County Basemap
- Unincorporated County
- Tacoma
- Lakewood, Edgewood, Bonney Lake, Buckley, South Prairie
- Steilacoom, Fircrest, Fife, Gig Harbor, Orting, Eatonville, Roy, Carbonado, Wilkeson, Mt Rainier
- University Place, Puyallup, Auburn
- DuPont, Milton, Sumner
- Fort Lewis, McChord, McNeil Island
- Water

Scale 1:53,575

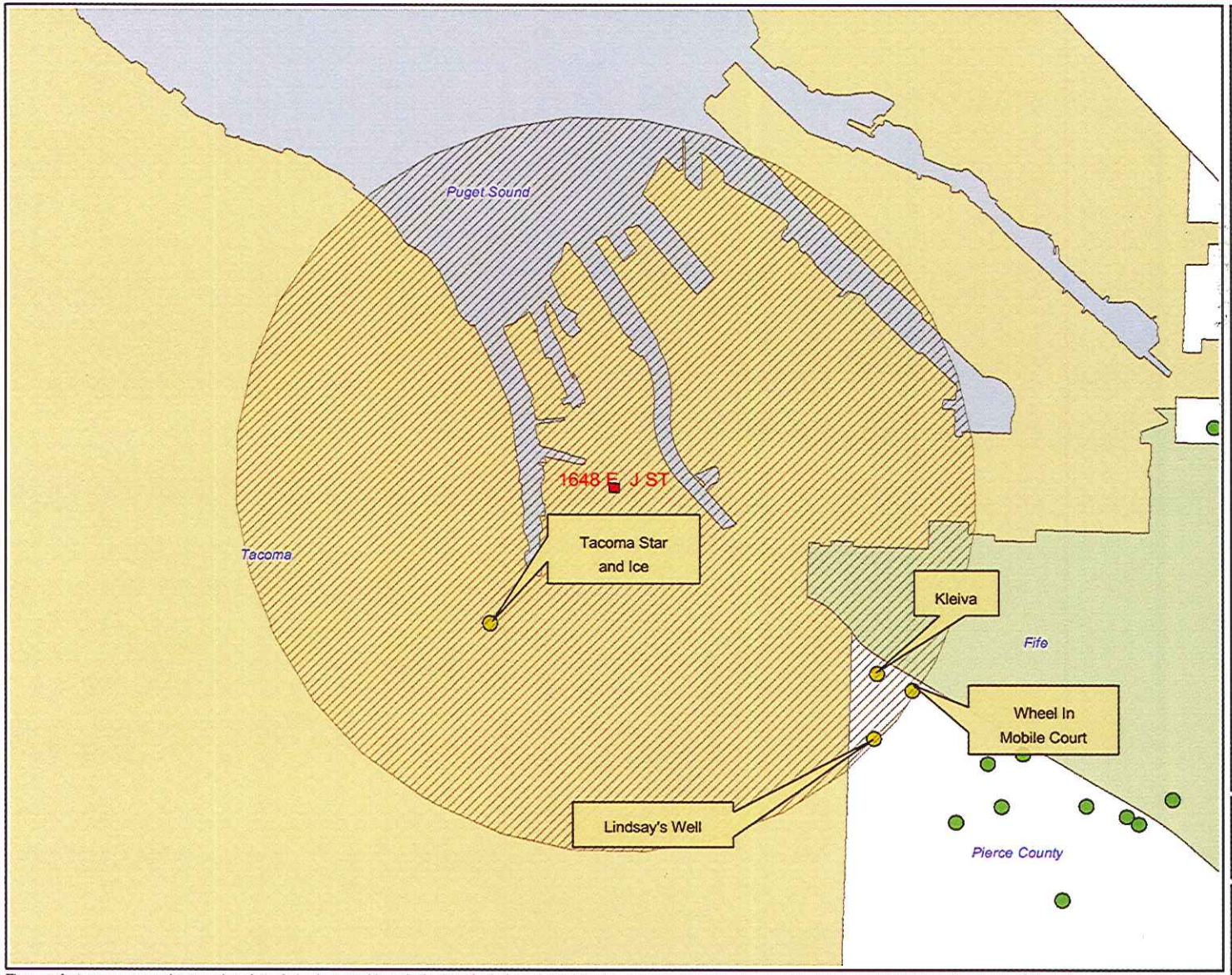
0 2250 4500 ft.

Printed: 7/15/08 1:19 PM

Tacoma | Pierce County Health Department
Healthier. Safer. Smarter.

Chevron Bulk Terminal SHA

Group B Wells Within 2 Mile Radius



Map Legend

- Highlighted Group B Water Systems
- Group B Water Systems
- Pierce County Basemap
- Unincorporated County
- Tacoma
- Lakewood, Edgewood, Bonney Lake, Buckley, South Prairie
- Steilacoom, Fircrest, Fife, Gig Harbor, Orting, Eatonville, Roy, Carbonado, Wilkeson, Mt Rainier
- University Place, Puyallup, Auburn
- DuPont, Milton, Sumner
- Fort Lewis, McChord, McNeil Island
- Water

Scale 1:53,575

0 2250 4500 ft.

Printed: 7/15/08 1:43 PM

Tacoma | Pierce County Health Department
Healthier. Safer. Smarter.

Group B Wells Within 2 Mile Radius of Chevron Bulk Terminal

Group B Water Systems

WELLGRPB	WELLGRP B	TPCHDID	DOE	SYSTEM	PWSID	SOURCE	SITEADDRES	POPULATION
798	26698	10667	0	Kleiva Well	12057	01	2514 29th av e	8
799	27258	11268	ACY943	Wheel in Mobile Court	95960	01	3120 River Rd	20
800	27355	11364		Lindsay's Well	08284	01	2805 Pioneer Wy E	9
1377	55906	11162	0	Tacoma (Star) Ice Co.	86791	01		3

Washington Ranking Method
Route Scores Summary and Ranking Calculation Sheet

Site Name: Chevron Bulk Terminal

Street, City, County1648 East J Street, Tacoma, Pierce

Ecology TCP ID#: 81765865 Ecology Region: SWRO

This site was (X) ranked, ( ) reranked, on August 20, 2008 based on quintile values from a total of 1121 assessed/scored sites.

Pathway	Route Scores	Quintile Group #	Priority Scores:
SW-HH	21.6	4	**$H^2 + 2M + L/8 = 4$**
Air-HH	15.3	3	$(16 + 8 + 3)/8 = 27/8 = 3.4$
GW-HH	42.5	4	
SW-En	35.4	4	**$H^2 + 2L/7 = 5$**
Air-En	34.0	5	$(25 + 8)/7 = 33/7 = 4.7$

Use the matrix presented below, along with the two priority scores, to determine the site ranking. N/A refers to where there is no applicable pathway.

Human Health	**Environmental**					
	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	2
2	2	3	4	4	5	3
1	2	3	4	5	5	5
N/A	3	4	5	5	5	NFA

DRAFT / FINAL

Matrix (bin) Ranking: _____, or _____ **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.
_____Almost into the next lower bin.

WASHINGTON RANKING METHOD SCORING PACKAGE

Press F9 to calculate scores.

WORKSHEET 4
SURFACE WATER ROUTE

	Chevron Bulk Terminal
SUBSTANCE CHARACTERISTICS	
Human Health Toxicity	12
Environmental Toxicity	4
Substance Quantity	9
Containment	10
MIGRATION	
Soil Permeability	1
Annual Precipitation	3
2-yr/24-hour Precip.	3
Flood Plain	1
Terrain Slope	2
TARGETS	
Distance to Surf. Water	10
Population Served	0
Area Irrigated	0
Distance to Fisheries	9
Sensitive Environment	12
RELEASE	0
SW HH ROUTE SCORE	21.6
SW Env. ROUTE SCORE	35.4

|::

WORKSHEET 5
AIR ROUTE

SUBSTANCE CHARACTERISTICS	
HH Tox/Mobility	24
Env Tox/Mobility	6
Substance Quantity	7
Containment	10
TARGETS	
Nearest Population	8
Sensitive Environment	7
Population within 1/2 mi	7
RELEASE	0
AIR HH ROUTE SCORE	15.3
AIR ENV. ROUTE SCORE	34.0

|::

WORKSHEET 6
GROUND WATER ROUTE

SUBSTANCE CHARACTERISTICS	
Toxicity	12
Mobility	3
Substance Quantity	5
Containment	10
MIGRATION	
Net Precipitation	2
Hydraulic Conductivity	4
Depth to Ground Water	8
TARGETS	
Aquifer Usage	2
Nearest Well Distance	1
Population Served	0
Area Irrigated	0
RELEASE	5
GW ROUTE SCORE	42.5

|::

SCORE SUMMARY	Chevron
	==========
Surface Water Human Health	21.6
Air Human Health	15.3
Ground Water Human Health	42.5
Surface Water Environment	35.4
Air Environment	34.0

UPDATE*UPDATE***UPDATE***UPDATE*UPDATE***UPDATE***UPDATE***UPDATE**

Pathway Score Ranges
DRAFT

The following ranges of pathway scores are the quintile breakdowns used for the August 20, 2008, Site Register update rankings, based on a total of 1121 assessed sites (all ranked sites minus all delisted sites). Slight changes to any, or all, of these ranges may occur in the future when additional sites are assessed/scored, and their applicable pathway scores added to their respective master list for ranking purposes. When sites are "de-listed" from Ecology's hazardous sites list their pathway scores will also be removed from the respective master lists. This may also result in minor alterations of these ranges.

I. Human health pathway scores

Quintile No.	Surface Water	Air	Ground Water
5	>26.2	>31.8	>52.1
4	18.4 - 26.2	21.2 - 31.8	41.2 - 52.1
3	12.4 - 18.3	13.8 - 21.1	32.5 - 41.1
2	7.3 - 12.3	7.8 - 13.7	23.3 - 32.4
1	<7.3	<7.8	<23.3

II. Environmental pathway scores

Quintile No.	Surface Water	Air
5	>46.8	>30.5
4	30.6 - 46.8	24.1 - 30.5
3	21.9 - 30.5	16.2 - 24.0
2	10.6 - 21.8	0.9 - 16.1
1	<10.6	<0.9

QGENPWS
07/31/08