

SITE HAZARD ASSESSMENT

Worksheet 1

Summary Score Sheet

SITE INFORMATION:

Texaco Strickland

6808 196th Street SW

Lynnwood, Snohomish County, WA 98036

Cleanup Site ID: 12541

Facility/Site ID: 27496218

Section: 20

Latitude: 47.82110

Township: 27

Longitude: -122.32550

Range: 04

Tax/Parcel ID: 27042000200600

Site scored/ranked for the Hazardous Sites List Publication: February 2018

SITE DESCRIPTION:

The Texaco Strickland site (Site) is a former gas station and oil change facility located in Lynnwood, Snohomish County, Washington. The 0.42-acre property is located approximately 4,000 feet from Scriber Lake, and zoned for college district mixed (CDM) use.

The property is located at the southwest corner of the intersection of 196th Street SW and 68th Avenue W. To the north across 196th Street SW is a commercial building. To the east across 68th Avenue W is a vacant lot. To the south is an apartment. To the west is a commercial building.

The Site is currently operated as a café by Strickland Real Estate Holdings.

The property was operated as a Texaco service station from approximately 1959 to 1977, at which point it was converted to a lube facility. The lube oil facility operated under various ownership until 2006. The ground surface is primarily asphalt and concrete pavement.

The layout of the original Texaco service station is uncertain, however three underground storage tanks (USTs) used to store gasoline were likely present. Ecology records indicate that the original lube facility included one 3,000-gallon UST storing new oil, one 500-gallon UST storing waste oil, and one 500-gallon UST storing heating oil. In 1995, the new and waste oil USTs were replaced by above-ground storage tanks. There is no report of the decommissioning of the lube facilities in 2006.

SITE BACKGROUND:

A summary of prior operations/tenants at the subject property is presented below.

<u>From</u>	<u>To</u>	<u>Operator/Tenant</u>	<u>Activity</u>
	2002	Lorena Strickland Family	Service station, lube facility, café
2002	2017	Strickland Real Estate Holdings LLC	Café

SITE CONTAMINATION:

In 2014 the Texaco Strickland site was reported to Washington State Department of Ecology (Ecology) and placed on the Confirmed and Suspected Contaminated Sites List (CSCSL).

A release of oil-range hydrocarbons (TPH-O) at the property, apparently due to lube facility operations, was reported to Ecology in 1995. In 2007, a release of gasoline range hydrocarbons (TPH-G), apparently due to the previous service station operations, was reported to Ecology. The dates of these releases are not known.

Site characterizations centering on the lube oil release area were performed in 1995, 2006, 2007, 2010, and 2014. There are no records in Ecology's file of any characterization of the service station release area. A total of 42 soil samples have been collected. Groundwater has been sampled from 10 wells on up to 12 occasions each between 2006 and 2013. Free product has been observed in four wells on multiple occasions, including

SITE HAZARD ASSESSMENT

Worksheet 1

Summary Score Sheet

the most recent round of sampling in 2013. Maximum detected concentrations of various petroleum analytes in soil and groundwater are summarized in Tables 1 and 2, respectively.

No soil vapor characterization has been conducted at the property.

REMEDIATION ACTIVITIES:

In 1995, during a station upgrade from USTs to aboveground storage tanks, a 3,000-gallon UST used for new motor oil was removed and a 500-gallon UST used for used oil was closed in place with concrete slurry fill after emptying and cleaning. Approximately 65 tons of impacted soil were disposed of at TPS Technologies in Tacoma. Concentrations of TPH-D and TPH-O were below MTCA Method A levels in samples collected from the sidewalls and bottom of the new oil UST excavation.

The site entered into the Voluntary Cleanup Program in 2009 in an attempt to resolve the lube oil release. There have been no known attempts to remediate the gasoline release.

CURRENT SITE CONDITIONS:

The closest commercial building is 25 feet west of and the closest residence is 25 feet south of the property. Edmonds Community College is 550 feet south. Lynndale Elementary School is 2,000 feet northwest. A golf course is 860 feet southwest. Gold Park, a 6-acre wooded area, is 1,000 feet southeast.

Fifteen sites on Ecology's Confirmed and Suspected Contaminated Sites List are located within a half mile of the property. The closest are Slaters One Hour Cleaners in the strip mall west of the property, Exxon Co. USA 77065 in the vacant lot east of the property, Lynnwood Gas Station 550 feet east, and 68th Center Complex to the north across 196th Street SW.

The area around the property is served by city water supply. The Alderwood Water District has 10 wells within a two-mile radius of the property. These wells serve a population of 34,224.

Edmonds Community College has irrigation wells. The Snohomish County parcel viewer indicates that 120 acres are owned by the college. It was assumed that all of this land was irrigated by well water.

The approximate depth to groundwater is 6.1-14.9 feet below ground surface, with groundwater flowing to the southwest. Subsurface soils are fill materials to 7.5 feet bgs underlain by silts and sands with gravels and clay.

SPECIAL CONSIDERATIONS:

Checked boxes indicate routes applicable for Washington Ranking Method (WARM) scoring

Surface Water

Not analyzed because of no observed releases

Air

Volatile chemicals present in soil and groundwater

Groundwater

Observed releases to groundwater

ROUTE SCORES:

Surface Water/ Human Health:

Surface Water/ Environment:

Air/ Human Health: 42.1

Air/ Environment: 1.6

Groundwater/ Human Health: 78.9

SITE HAZARD ASSESSMENT
Worksheet 1
Summary Score Sheet

Overall Rank: 1

REFERENCES:

- 1 Conestoga-Rovers & Associates (CRA). 2011. Remedial Investigation Report, Former Jiffy Lube Facility, 6808 196th Street SW, Lynnwood. August 17.
- 2 CRA. 2013. 2012 Annual Groundwater Monitoring Report, Former Jiffy Lube Facility, 6808 196th Street SW, Lynnwood. January 18.
- 3 CRA. 2014. Subsurface Investigation Report, Former Jiffy Lube Facility, 6808 196th Street SW, Lynnwood. October.
- 4 Nowicki & Associates. 1995. Lynnwood Quaker State Lube, UST Closure Site Characterization. September 27.

SITE HAZARD ASSESSMENT
Worksheet 2
Route Documentation

Cleanup Site ID: 12541

Texaco Strickland

Facility/Site ID: 27496218

1. SURFACE WATER ROUTE

List those substances to be considered for scoring:

Not evaluated

Explain the basis for choice of substances to be used in scoring:

List those management units to be considered for scoring:

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

2. AIR ROUTE

List those substances to be considered for scoring:

Gasoline (benzene), toluene, ethylbenzene, and xylenes

Explain the basis for choice of substances to be used in scoring:

Observed in soil and groundwater

List those management units to be considered for scoring:

Subsurface soil

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

Observed in soil

3. GROUNDWATER ROUTE

List those substances to be considered for scoring:

Gasoline (benzene), diesel (naphthalene), toluene, ethylbenzene, and xylenes

Explain the basis for choice of substances to be used in scoring:

Observed in groundwater

List those management units to be considered for scoring:

Groundwater

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

Observed in groundwater

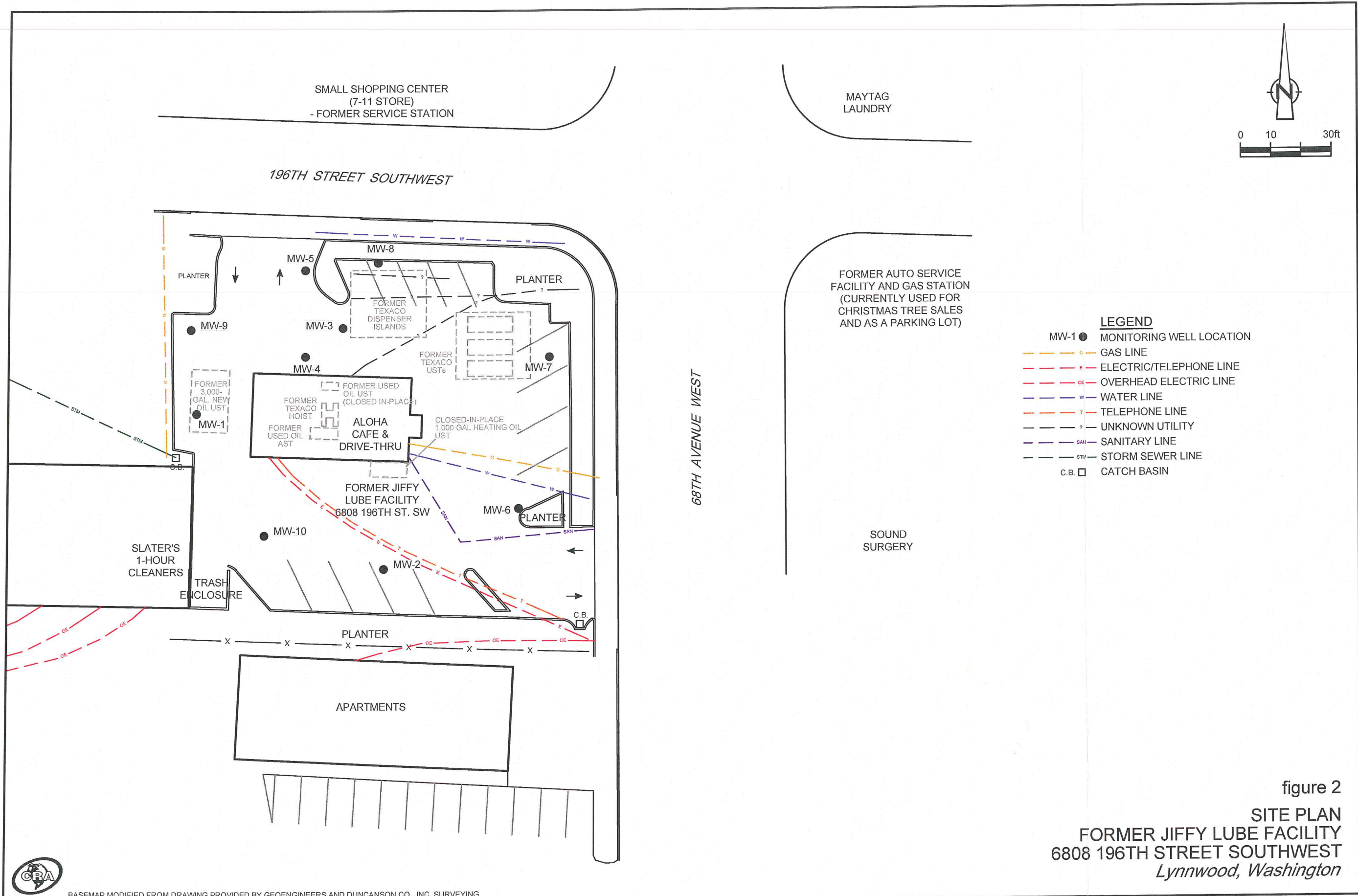


figure 2
SITE PLAN
FORMER JIFFY LUBE FACILITY
6808 196TH STREET SOUTHWEST
Lynnwood, Washington



BASEMAP MODIFIED FROM DRAWING PROVIDED BY GEOENGINEERS AND DUNCANSON CO., INC. SURVEYING

Table 1. Maximum Detected Soil Concentrations, Texaco Strickland Site

Analyte	Maximum Concentration (mg/kg)	Location	Depth (feet bgs)	Method A (mg/kg)
TPH-G	4,100	SB1	12.5	30
TPH-D	5,100	WW	6	2,000
TPH-O	13,000	WW	6	2,000
Benzene	18	SB1	12.5	0.03
Toluene	150	SB1	12.5	7
Ethylbenzene	57	SB1	12.5	6
Xylenes	280	SB1	12.5	9
Naphthalene	6.34	GW5	7.5	5

Table 2. Maximum Detected Groundwater Concentrations, Texaco Strickland Site

Analyte	Maximum Concentration (µg/L)	Location	Date	Method A (µg/L)
TPH-G	771,000	MW-5	February 2007	800
TPH-D	327,000	MW-5	January 2011	500
TPH-O	10,900	MW-5	January 2011	500
Benzene	32,400	MW-4	December 2006	5
Toluene	43,600	MW-5 MW-8	February 2007 July 2007	1,000
Ethylbenzene	17,000	MW-8	July 2010	700
Xylenes	110,000	MW-8	July 2010	1,000

Worksheet 4

Surface Water Route

CSID: 12541

Site: Texaco Strickland

Not evaluated.

Worksheet 5

Air Route

CSID: 12541

Site: Texaco Strickland

1.0 SUBSTANCE CHARACTERISTICS

1.1 Introduction

No scoring in Section 1.1.

1.2 Human Toxicity

Substance	Amb. Air Stnd.		Acute Toxicity		Chronic Toxicity		Carcinogenicity	
	Value (ug/m ³)	Score	Value (mg/m ³)	Score	Value (ug/m ³)	Score	WOE	Score
Benzene (gasoline)	0.0345	10	31947	3	8.57E-03	8	2.73E-02	5
Toluene	5000	1	--	X	1.43E+00	3	--	X
Ethylbenzene	0.4	10	--	X	2.86E-01	3	--	X
Xylenes	--	X	21714	3	2.86E-02	5	--	X
Naphthalene (diesel)	0.0294	10	--	X	8.57E-04	10	0.0595	5

Maximum score: 10

Bonus points: 2

Source: WARM Toxicity Database

Human Toxicity Score: 12

Range: 1-12

1.3 Mobility

Gaseous Mobility

Substance	Vapor Pressure		Henry's Law	
	Value (mm Hg)	Score	Value (atm- m ³ /mol)	Score
Benzene (gasoline)	9.50E+01	4	5.56E-03	4
Toluene	2.80E+01	4	6.63E-03	4
Ethylbenzene	7.00E+00	3	7.88E-03	4
Xylenes	1.00E+01	3	6.80E-03	4
Naphthalene (diesel)	8.20E-02	3	4.83E-04	3

Maximum score: 4

Source: WARM Toxicity Database

Particulate Mobility

Soil type:

Erodibility factor:

Climatic factor:

Mobility value:

Source:

Mobility Score: 4

Range: 0-4

1.4 Human Toxicity/Mobility

Source: WARM Scoring Manual

Human Tox/Mobil Score: 24
Range: 1-24

1.5 Environmental Toxicity/Mobility

Substance	Acute	
	Value	Score
	(ug/m ³)	
Benzene (gasoline)	3.19E+04	3
Toluene	--	X
Ethylbenzene	--	X
Xylenes	2.17E+04	3
Naphthalene (diesel)	--	X

Maximum score 3
Source: WARM Toxicity Database

Environmental Toxicity Score: 3
Range: 1-10

Environmental Tox/Mobil Score: 6
Range: 1-24

1.6 Substance Quantity

Quantity: 2,030 yd³
Basis: 0.42 acres x 3 ft thickness
Source: Site reports

Substance Quantity Score: 7
Range: 1-10

2.1 Containment

Description: Soil cover > 2 feet thick, no vapor collection
Basis: Site reports

Containment Score: 5
Range: 0-10

SUBSTANCE PARAMETER CALCULATIONS

Human Health Pathway

SUBh : (Human Tox/Mobil + 5) x (Containment +1) + Substance Quantity

181.0

Environmental Pathway

SUBe : (Environ. Tox/Mobil + 5) x (Containment +1) + Substance Quantity

73.0

3.0 TARGETS

3.1 Nearest Population

Description: Residence to south
Distance (ft): 25
Source: iMap

Nearest Population Score: 10
Range: 0-10

3.2 Nearest Sensitive Environment

Description: Gold Park
Distance (ft): 1,000
Source: iMap

Nearest Sensitive Environment Score: 7
Range: 0-7

3.3 Population within One-Half Mile

Number: 4,142
Source: MO CDC

Population within Half Mile Score: 64.4
Range: 0-75

TARGET PARAMETER CALCULATIONS

Human Health Pathway

TARh = Nearest Population + Population within Half Mile 74.4

Environmental Pathway

TARe = Nearest Sensitive Environment 7.0

4.0 RELEASE

Evid. of release? No
Source: Site reports

Release Score (REL): 0.0
Range: 0 or 5

AIR ROUTE CALCULATIONS

Human Health Pathway

AIRh = (SUBh x 60/329) x {REL + (TARh x 35/85)} / 24 42.1

Environmental Pathway

AIRe = (SUBe x 60/329) x {REL + (TARe x 35/85)} / 24 1.6

Range: 0-100

Worksheet 6

Groundwater Route

CSID: 12541

Site: Texaco Strickland

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human toxicity

Substance	Drink. Wat. Stnd		Acute Toxicity		Chronic Toxicity		Carcinogenicity	
	Value (ug/L)	Score	Value (ug/L)	Score	Value (ug/L)	Score	Aq. CP+O (risk/mg/kg- day)	Score
Benzene (gasoline)	5	8	3,306	3	4.00E-03	3	5.50E-02	5
Toluene	1000	4	5,000	3	8.00E-02	1	--	X
Ethylbenzene	700	4	3,500	3	1.00E-01	1	--	X
Xylenes	10000	2	50	10	2.00E-01	1	--	X
Naphthalene (diesel)	--	X	490	5	0.02	1	--	X

Maximum score: 10

Bonus points: 2

Source: WARM Toxicity Database

Human Toxicity Score: 12

Range: 1-12

1.2 Mobility

Substance	Solubility	
	Value (ug/L)	Score
Benzene (gasoline)	1.75E+03	3
Toluene	5.26E+02	2
Ethylbenzene	1.69E+02	2
Xylenes	1.71E+02	2
Naphthalene (diesel)	31	1

Maximum value: 3

Source: WARM Toxicity Database

Mobility Score: 3

Range: 1-3

1.3 Substance quantity

Quantity: 2,030 yd³

Basis: 0.42 acres x 3 ft thickness

Source: Site reports

Substance Quantity Score: 4

Range: 1-10

2.1 Containment

Description: Contaminated soil in contact with groundwater; NAPL in groundwater

Source: Site reports

Containment Score: 10

Range: 0-10

SUBSTANCE PARAMETER CALCULATION

SUB = (Human Toxicity + Mobility + 3) x (Containment + 1) + Substance Quantity

202.0

2.0 MIGRATION POTENTIAL

2.2 Net precipitation

Amount (in.): 37.5
Source: NOAA data for Seatac Airport

Net Precipitation Score: 4
Range: 0-5

2.3 Subsurface Hydraulic Conductivity

Description: Silt and sand
Source: Site reports

Hydraulic Conductivity Score: 3
Range: 1-4

2.4 Vertical Depth to Aquifer

Depth (ft): 6.2-14.9
Source: Site reports

Depth to Aquifer Score: 8
Range: 1-8

MIGRATION PARAMETER CALCULATION

MIG = Depth to Aquifer + Net Precipitation + Hydraulic Conductivity

15.0

3.0 TARGETS

3.1 Aquifer Usage

Description: Public supply
Source: iMap, WDOH Water System Database

Aquifer Use Score: 9
Range: 1-10

3.2 Distance to Nearest Drinking Water Well

Distance (ft): 4,400
Source: iMap, WDOH Water System Database

Well Distance Score: 2
Range: 0-5

3.3 Population Served by Drinking Water Wells within Two Miles

No. of people: 34,224
Source: WDOH Water System Database, Well Log Viewer

Population Served Score: 100.0
Range: 0-100

3.4 Area Irrigated by Wells within Two Miles

Area (acres): 120
Source: Water Resources Explorer

Area Irrigated Score: 8.2
Range: 0-50

TARGET PARAMETER CALCULATION

119.2

TAR = Aquifer Use + Well Distance + Population Served + Area Irrigated

4.0 RELEASE

Evid. of release? Yes
Source: Ground water contamination

Release Score (REL): 5.0

Range: 0 or 5

GROUND WATER ROUTE CALCULATION

78.9

GW = (SUB x 40/208) x {(MIG x 25/17) + REL + (TAR x 30/165)} / 24

Range: 0-100

Washington Ranking Method

Route Scoring Summary and Ranking Calculation

CSID: 12541
Site: Texaco Strickland

Human Health Route Scores		
Pathway	Score	Quintile
Surface water	0.0	
Air	42.1	5
Groundwater	78.9	5
Quintile Value		
High (H)	5	
Middle (M)	5	
Low (L)		

Human Health Pathway Quintiles - February 2015							
Quintile	Surface Water		Air		Groundwater		
1	<=	7.9	<=	8.3	<=	23.9	
2		8.0		15.4		15.7	
3		15.5		21.3		24.9	
4		21.4		29.7		39.0	
5	>=	29.8	>=	39.1	>=	50.3	

$$(H^2 + 2M + L) / 8$$

Human Health Priority Bin Score: 4.4

Environmental Route Scores		
Pathway	Score	Quintile
Surface water	0.0	
Air	1.6	3
Quintile Value		
High (H)	3	
Low (L)		

Environmental Pathway Quintiles - February 2015				
Quintile	Surface Water		Air	
1	<=	11.5	<=	1.2
2		11.6		1.3
3		24.2		1.6
4		32.1		15.3
5	>=	49.7	>=	27.8

$$(H^2 + 2L) / 7$$

Environmental Priority Bin Score: 1.3

FINAL MATRIX RANKING

Human Health Priority	Environmental Priority					n/a
	5	4	3	2	1	
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	NFA

n/a - not applicable

NFA - no further action

Site Rank: 1