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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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October 6, 2020

Jiffy Lube International, Inc.
150 N Dairy Ashford Rd
Houston, TX 77079
Attn: John Robbins

**Re: Notice of Potential Liability under the Model Toxics Control Act for the Release of Hazardous Substances at the following Hazardous Waste Site:**

- **Name: Texaco Strickland**
- **Address: 6808 196th St SW Lynnwood, 98036 WA**
- **Snohomish County Tax Parcel No.: 27042000200600**
- **Facility/Site No.: 27496218**
- **Cleanup Site No.: 12541**

Dear John Robbins:

Under the Model Toxics Control Act (MTCA), chapter 70.105D RCW, which governs the cleanup of hazardous waste sites in Washington State, the Department of Ecology (Ecology) may identify persons that it finds are liable for the release of hazardous substances at a site. Before making such a finding, Ecology must provide persons with notice and an opportunity to comment on the proposed finding. Any person whom Ecology finds, based on credible evidence, to be liable is known as a "potentially liable person" or "PLP".

**Proposed Finding of Liability**

Based on credible evidence, Ecology is proposing to find Jiffy Lube International liable under RCW 70.105D.040 for the release of hazardous substances at the Jiffy Lube Store 2068 (former Shell Station 121607) facility which is part of the Texaco Strickland Site (Site). This proposed finding is based on the following evidence:

On December 9, 2014, Ecology provided an advisory opinion to Shell under the specific authority of RCW 70.105D.030 (1)(i) and WAC 173-340-515(5), for the former Jiffy Lube Store (oil change facilities dates of operation 1977 – 2006) stating that:

- *"Based on ground water data from MW-10, down gradient monitoring well of the waste oil UST, the TPH-O contamination does not appear to have leached into and impacted ground water.*

- *Release 1 former Texaco Service Station (approximate dates of operation 1959 - 1977) and Release 2 Former Jiffy Lube (oil change facilities approximate dates of operation 1977 - 2006) are not comingled."*

Ecology's advisory opinion letter was based on the following documents where groundwater monitoring results used the Silica Gel Cleanup method prior to the NWTPH-Dx Analytical Method:

- Remedial Investigation Report Former Jiffy Lube Store, August 17, 2011, Conestoga-Rovers & Associates
- Subsurface Investigation Report, Former Jiffy Lube Facility, 6808 l961 196th Street Southwest, Lynnwood, WA, dated October 16, 2014,
- Jiffy Lube Store 2068 2013 Annual GW Report, June 9, 2014, prepared by Conestoga-Rovers and Associates.

Recent groundwater Remedial Investigations (*Remedial Investigation Work Plan Addendum: Texaco Strickland Cleanup Site. Project No. 180357. March 25, 2020. Agency Review Draft*) utilizing NWTPH-Dx analyses performed without Silica Gel Cleanup show oil range petroleum organics in soil and groundwater from the former Jiffy Lube Store 2068 have comingled with the gasoline plume from the former Texaco/Strickland Cleanup Site (Agreed Order No. 14315)

- Subsequent NWTPH-Dx testing without the use of Silica Gel Cleanup prior to the NWTPH-Dx Analytical Method indicate that by measuring both the bound petroleum and intermediary by-products (which are considered part of the petroleum mixture) clearly overlap the previous bound petroleum plume (Kennedy-Jenks 2020 draft Combined Figures, Figure 3).
- The base map and corresponding data were developed from the Agency Review Draft Remedial Investigation Work Plan Addendum (RIWP) Results from 14 Feb 2020 (Aspect, 2020).
    - Data from the tables indicate: *X = Chromatographic pattern did not match fuel standard.* However, unless it can be verified that the measured substance is naturally occurring organic material, Ecology considers this part of the release.
    - Measurements for MW16, 17, 18, and 19 contained low concentrations of oil range organics in comparison though, so a high concentration of naturally occurring organic material would be unlikely.

Based on current data showing oil range petroleum organics originating from the former Jiffy Lube Store 2068 comingling with the Texaco/Strickland gasoline range organics in groundwater, Ecology is rescinding the December 19, 2014 advisory opinion letter.

**Opportunity to Respond to Proposed Finding of Liability**

In response to Ecology's proposed finding of liability, you may either:

1. Accept your status as a PLP without admitting liability and expedite the process through a voluntary waiver of your right to comment. This may be accomplished by signing and returning the enclosed form or by sending a letter containing similar information to Ecology;

2. Challenge your status as a PLP by submitting written comments to Ecology within thirty (30) calendar days of the date you receive this letter; or

3. Choose not to comment on your status as a PLP.

Please submit your waiver or written comments to the following address:

Dale Myers
Department of Ecology
NWRO Toxics Cleanup Program
3190 160th Ave. SE
Bellevue, WA 98008

After reviewing any comments submitted or after 30 days if no response has been received, Ecology will make a final determination regarding your status as a PLP and provide you with written notice of that determination.

**Identification of Other Potentially Liable Persons**

Ecology may be notifying additional persons that they may be potentially liable for the release of hazardous substances at the Site.

If you are aware of any other persons who may be liable for the release of hazardous substances at the Site, Ecology encourages you to provide us with their identities and the reason you believe they are liable. Ecology also suggests you contact these other persons to discuss how you can jointly work together to most efficiently clean up the Site.

**Responsibility and Scope of Potential Liability**

Please note that Ecology may either conduct or require PLPs to conduct remedial actions to investigate and clean up the release of hazardous substances at a site. PLPs are encouraged to initiate discussions and negotiations with Ecology and the Office of the Attorney General that may lead to an agreement on the remedial action to be conducted.

Please also note that each liable person is strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release of hazardous substances at a site. If Ecology incurs remedial action costs in connection with the investigation or cleanup of real property and those costs are not reimbursed, then Ecology has the authority under RCW 70.105D.055 to file a lien against that real property to recover those costs.

**Next Steps in Cleanup Process**

The Texaco Strickland Site is under an Agreed Order (No. 14315) to conduct a remedial investigation, feasibility study, interim action (if necessary) and draft a preliminary cleanup action plan.

Ecology expects Jiffy Lube International to cooperate with the Agreed Order PLPs regarding necessary work at the Site.

For a description of the process for cleaning up a hazardous waste site under MTCA, please refer to the enclosed fact sheet.

Ecology's policy is to work cooperatively with PLPs to accomplish the prompt and effective cleanup of hazardous waste sites. Please note that your cooperation in planning, conducting, or paying for remedial actions at the Site is not an admission of guilt or liability.

**Contact Information**

If you have any questions regarding this letter or if you would like additional information regarding the cleanup of hazardous waste sites, please call me at (425) 649-4446 or email at damy461@ecy.wa.gov. Thank you for your cooperation.

Sincerely,

Dale Myers
LUST Formal Site Project Manager
Toxics Cleanup Program, NWRO

Enclosures: 6

1. Enclosure A - Site Map November 2019
2. Enclosure B - Jiffy Lube Store 2068 Notice of Waiver
3. Enclosure C - Preliminary DRAFT RIWP Results 012419
4. Enclosure D - Information & Policy Section Toxics Cleanup Program Memo Strickland Texaco Site Comingling
5. Enclosure E - Kennedy-Jenks 2020 draft Combined Figures
6. Enclosure F – References

cc: Ivy Anderson, Assistant Attorney General
Adam Griffin, Aspect Consulting, for distribution to Chevron, & Strickland
James Kiernan, Chevron Environmental Management Company
Cheryl Cameron, Chevron Environmental Company
Doug Steding, Northwest Resource Law PLLC
Strickland Real Estate Holdings LLC

Soil Vapor Sample
Monitoring Well
Soil Boring
Historical Soil Boring
Historical Monitoring Well

Aloha Cafe Building
Aloha Cafe Property Boundary
Former or Closed-in-place UST or AST
Tax Parcel

N

0 25 50
Feet

196TH STREET SOUTHWEST
68TH AVENUE WEST
Slater's 1-Hour Cleaners
Apartments
Former Service Station & Gas Station

MW-17 MW-16 MW-5 MW-8 MW-3 MW-4 MW-9 MW-11 MW-7 MW-1 MW-18 MW-15 MW-6 MW-10 MW-14 MW-13 MW-2 MW-12 MW-19
B-07 SB-1 SB2 SB1 SVS-01 SVS-02 SB SB-4 SB-3 GP-04 B-06 B-05 GP-01 GP-02 GP-03 B-03

Approximate Location of Former Texaco Dispenser Islands
Approximate Direction of Groundwater Flow
Former 3,000 GAL New Oil UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 6,000 GAL Gasoline UST
1500 µg/L
1000 µg/L
500 µg/L
Used Oil UST (closed in place)
Former Texaco Hoist
Former Used Oil AST
1,000 GAL Heating Oil UST (closed-in-place)

**Legend**

Monitoring Well with Measurable LNAPL
LNAPL >0.01 ft
LNAPL >0.3 ft

**ORO Isoconcentration**

500 µg/L
1000 µg/L
1500 µg/L

**Notes:**
1. All locations are approximate.
2. Basemap and data from Aspect Consulting Preliminary Draft RIWP Results from 14 February 2020.
3. Concentrations and LNAPL depths collected by Aspect Consulting during November 2019.

**DRAFT - For Internal Use Only**

**Kennedy/Jenks Consultants**

Texaco Strickland
Lynnwood, WA

**Oil-Range Organics Isoconcentration Map November 2019**

February 2020
**Figure 2**


Path: Q:\Projects\2019\1996002.02 DOE - Texaco Strickland RI_FS\GIS\mxds\Nov2019_ORO.mxd

# Procedure 500B Enclosure B
# Notice of Waiver
**Revised January 2008**

Jiffy Lube International, Inc.
150 N Dairy Ashford Rd
Houston, TX 77079
Attn: John Robbins

Pursuant to WAC 173-340-500 and WAC 173-340-520(1)(b)(i), I (NAME) _____, a duly authorized representative of Jiffy Lube International, do hereby waive the right to the thirty- (30) day notice and comment period described in WAC 173-340-500(3) and accept status of Jiffy Lube International as a Potentially Liable Person at the following site:

- **Name: Texaco Strickland**
- **Address: 6808 196th St SW Lynnwood, 98036 Snohomish**
- **Snohomish County Tax Parcel No.: 27042000200600**
- **Facility/Site No.: 27496218**
- **Cleanup Site No.: 12541**

By waiving this right, Jiffy Lube International makes no admission of liability.

_____ _____
Signature Date

Relation to the Site (that is, owner or operator)


Basemap Layer Credits || Pictometry, King County

# Site Plan

Remedial Investigation - Texaco Strickland Site
6808 196th Street SW
Lynnwood, Washington

**DRAFT**

| | | | |
|---|---|---|---|
| Aspect Consulting | JAN-2020 | BY: WVG / TDR | FIGURE NO. 1 |
| | PROJECT NO. 180357 | REVISED BY: WEG | |

GIS Path: T:\projects_8\AlohaCafe\Delivered\RI_2019\02 Site Plan.mxd || Coordinate System: NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet || Date Saved: 1/14/2020 || User: trullen || Print Date: 1/14/2020

# Table 1 - Groundwater Elevation Data

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Project No. 180357, Lynwood, Washington

| | TOC Elevation | Date | DTNAPL | DTW | Water Table (ft BTOC)[1] | Groundwater Elevation |
|---|---|---|---|---|---|---|
| MW-1 | 451.74 | 7/31/2019 | -- | 12.86 | 12.86 | 438.88 |
| | | 11/19/2019 | -- | 13.81 | 13.81 | 437.93 |
| MW-2 | 450.59 | 7/31/2019 | -- | 11.51 | 11.51 | 439.08 |
| | | 11/19/2019 | -- | 11.76 | 11.76 | 438.83 |
| MW-3 | 451.69 | 7/31/2019 | 10.45 | 10.75 | 10.52 | 441.17 |
| | | 11/19/2019 | 11.62 | 12.00 | 11.71 | 439.98 |
| MW-4 | 452.01 | 7/31/2019 | 11.22 | 11.33 | 11.25 | 440.76 |
| | | 11/19/2019 | 12.36 | 12.67 | 12.43 | 439.58 |
| MW-5 | 451.38 | 7/31/2019 | 9.87 | 10.69 | 10.07 | 441.31 |
| | | 11/19/2019 | 11.37 | 11.73 | 11.46 | 439.92 |
| MW-6 | 449.4 | 7/31/2019 | -- | 9.01 | 9.01 | 440.39 |
| | | 11/19/2019 | -- | 9.10 | 9.10 | 440.30 |
| MW-7 | 450.14 | 7/31/2019 | -- | 8.29 | 8.29 | 441.85 |
| | | 11/19/2019 | -- | 9.12 | 9.12 | 441.02 |
| MW-8 | 451.31 | 7/31/2019 | 9.41 | 9.92 | 9.53 | 441.78 |
| | | 11/19/2019 | 10.66 | 11.07 | 10.76 | 440.55 |
| MW-9 | 451.75 | 7/31/2019 | -- | 11.9 | 11.90 | 439.85 |
| | | 11/19/2019 | -- | 13.25 | 13.25 | 438.50 |
| MW-10 | 451.34 | 7/31/2019 | -- | 13.53 | 13.53 | 437.81 |
| | | 11/20/2019 | -- | 13.99 | 13.99 | 437.35 |
| MW-11 | 450.81 | 7/31/2019 | -- | 9.81 | 9.81 | 441.00 |
| | | 11/19/2019 | -- | 10.83 | 10.83 | 439.98 |
| MW-12 | 449.42 | 7/31/2019 | -- | 10.93 | 10.93 | 438.49 |
| | | 11/19/2019 | -- | 10.87 | 10.87 | 438.55 |
| MW-13 | 450.57 | 7/31/2019 | -- | 13.67 | 13.67 | 436.90 |
| | | 11/19/2019 | -- | 13.83 | 13.83 | 436.74 |
| MW-14 | 450.85 | 7/31/2019 | -- | 14.64 | 14.64 | 436.21 |
| | | 11/19/2019 | -- | 14.73 | 14.73 | 436.12 |
| MW-15 | 451.16 | 7/31/2019 | 12.40 | 12.42 | 12.40 | 438.76 |
| | | 11/19/2019 | 13.97 | 14.15 | 14.01 | 437.15 |
| MW-16 | 450.6 | 7/31/2019 | -- | 9.15 | 9.15 | 441.45 |
| | | 11/19/2019 | -- | 10.58 | 10.58 | 440.02 |
| MW-17 | 450.18 | 7/31/2019 | -- | 8.47 | 8.47 | 441.71 |
| | | 11/19/2019 | -- | 9.7 | 9.70 | 440.48 |
| MW-18 | 449.28 | 7/31/2019 | -- | 12.08 | 12.08 | 437.20 |
| | | 11/19/2019 | -- | 12.96 | 12.96 | 436.32 |
| MW-19 | 446.02 | 7/31/2019 | -- | 11.54 | 11.54 | 434.48 |
| | | 11/19/2019 | -- | 10.31 | 10.31 | 435.71 |

**Notes**

TOC = Top of Casing elevation in ft above mean sea level (NAVD88); NAPL = Non-aqueous phase liquid

DTNAPL = Depth to NAPL below TOC (ft); DTW = Depth to water below TOC (ft); btoc = below TOC

[1] - In wells where NAPL is present, the depth to water table was calculated as
Water Table = DTW + 0.76*(DTNAPL-DTW)

# Table 2 - Soil Analytical Results

Project No. 180357, Lynwood, Washington

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| Analyte | Unit | MTCA Method A Cleanup Level | Location | B-05 | B-06 | B-07 | | B-08 | GP-04 | MW-11 | | | MW-12 | MW-13 | MW-14 | MW-15 | | | | | MW-16 | MW-17 | MW-18 | MW-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Date | 06/10/2019 | 06/11/2019 | 06/12/2019 | 06/12/2019 | 07/16/2019 | 06/05/2019 | 06/10/2019 | 06/10/2019 | 06/10/2019 | 06/10/2019 | 06/11/2019 | 06/11/2019 | 06/12/2019 | 06/12/2019 | 06/12/2019 | 06/12/2019 | 06/12/2019 | 06/14/2019 | 06/14/2019 | 07/15/2019 | 07/16/2019 |
| | | | Sample | B-05-16 | B-06-13 | B-07-8 | B-07-12.5 | B-08-13.5 | GP-04-2 | MW-11-1 | MW-11-6 | MW-11-13 | MW-12-15 | MW-13-12.5 | MW-14-12.5 | MW-15-7.5 | MW-15-10.5 | MW-15-13 | MW-15-17.5 | MW-15-25 | MW-16-7.5 | MW-17-8.5 | MW-18-10 | MW-19-8.5 |
| | | | Depth | 16 ft | 13 ft | 8 ft | 12.5 ft | 13.5 ft | 2 ft | 1 ft | 6 ft | 13 ft | 15 ft | 12.5 ft | 12.5 ft | 7.5 ft | 10.5 ft | 13 ft | 17.5 ft | 25 ft | 7.5 ft | 8.5 ft | 10 ft | 8.5 ft |
| **TPHs** | | | | | | | | | | | | | | | | | | | | | | | | |
| Gasoline Range Organics | mg/kg | 30 | | < 5 U | < 5 U | **87 J** | < 5 U | < 5 U | < 5 U | **280** | **2600** | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | **6500 J** | **3400** | **200** | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| Diesel Range Organics | mg/kg | 2000 | | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | -- | **240 X** | -- | < 50 U | < 50 U | < 50 U | < 50 U | **1500 X** | **990 X** | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U |
| Motor Oil Range Organics | mg/kg | 2000 | | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U | -- | < 250 U | -- | < 250 U | < 250 U | < 250 U | < 250 U | **590** | **370** | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U |
| Diesel and Oil Extended Range Organics | mg/kg | 2000 | | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U | -- | **240 X** | -- | < 250 U | < 250 U | < 250 U | < 250 U | **2090 X** | **1360 X** | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U |
| **BTEX** | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | mg/kg | 0.03 | | < 0.02 U | < 0.02 U | -- | -- | < 0.02 U | < 0.03 U | < 0.2 U | **0.63** | < 0.02 U | < 0.02 U | < 0.02 U | < 0.02 U | -- | -- | **0.7 J** | **0.22** | **0.026** | -- | -- | < 0.02 U | < 0.02 U |
| Toluene | mg/kg | 7 | | < 0.02 U | < 0.02 U | -- | -- | < 0.02 U | < 0.05 U | **0.99** | **4.1** | **0.031** | < 0.02 U | < 0.02 U | < 0.02 U | -- | -- | **4.7 J** | **0.096** | < 0.005 U | -- | -- | < 0.02 U | < 0.02 U |
| Ethylbenzene | mg/kg | 6 | | < 0.02 U | < 0.02 U | -- | -- | < 0.02 U | < 0.05 U | **2** | **38** | **0.025** | < 0.02 U | < 0.02 U | < 0.02 U | -- | -- | **10 J** | **0.19** | < 0.005 U | -- | -- | < 0.02 U | < 0.02 U |
| Total Xylenes | mg/kg | 9 | | < 0.06 U | < 0.06 U | -- | -- | < 0.06 U | < 0.1 U | **11** | **140** | **0.12** | < 0.06 U | < 0.06 U | < 0.06 U | -- | -- | **64 J** | **1.19** | < 0.01 U | -- | -- | < 0.06 U | < 0.06 U |
| **PAHs** | | | | | | | | | | | | | | | | | | | | | | | | |
| Naphthalene | mg/kg | 5 | | -- | -- | < 0.005 UJ | < 0.005 UJ | -- | < 0.05 U | **1.5** | **7.4** | -- | -- | -- | -- | < 0.005 UJ | **6.3 J** | **4.9** | -- | -- | -- | -- | -- | -- |
| **Metals** | | | | | | | | | | | | | | | | | | | | | | | | |
| Lead | mg/kg | 250 | | -- | -- | **1.44** | -- | -- | -- | -- | **8.76** | -- | -- | -- | -- | -- | **1.88** | **1.93** | -- | -- | -- | -- | -- | -- |
| **VOCs** | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1,1-Trichloroethane | mg/kg | 2 | | -- | -- | -- | -- | < 0.05 U | < 0.05 U | -- | -- | -- | < 0.05 U | < 0.05 U | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | < 0.05 U | < 0.05 U |
| 1,1,2,2-Tetrachloroethane | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1,2-Trichloroethane | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethane | mg/kg | | | -- | -- | -- | -- | < 0.05 U | < 0.05 U | -- | -- | -- | < 0.05 U | < 0.05 U | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | < 0.05 U | < 0.05 U |
| 1,1-Dichloroethene | mg/kg | | | -- | -- | -- | -- | < 0.05 U | < 0.05 U | -- | -- | -- | < 0.05 U | < 0.05 U | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | < 0.05 U | < 0.05 U |
| 1,1-Dichloropropene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2,3-Trichlorobenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.25 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2,3-Trichloropropane | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2,4-Trichlorobenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.25 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2,4-Trimethylbenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dibromo-3-chloropropane | mg/kg | | | -- | -- | -- | -- | -- | < 0.5 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dibromoethane (EDB) | mg/kg | 0.005 | | -- | -- | < 0.005 U | < 0.005 U | -- | < 0.05 U | < 0.005 U | < 0.005 U | -- | -- | -- | -- | < 0.005 U | < 0.005 U | < 0.005 U | -- | -- | -- | -- | -- | -- |
| 1,2-Dichlorobenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloroethane (EDC) | mg/kg | | | -- | -- | < 0.005 U | < 0.005 U | < 0.05 U | < 0.05 U | < 0.005 U | < 0.005 U | -- | < 0.05 U | < 0.05 U | < 0.05 U | < 0.005 U | < 0.005 U | < 0.005 U | -- | -- | -- | -- | < 0.05 U | < 0.05 U |
| 1,2-Dichloropropane | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,3,5-Trimethylbenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,3-Dichlorobenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,3-Dichloropropane | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2,2-Dichloropropane | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Butanone | mg/kg | | | -- | -- | -- | -- | -- | < 0.5 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Chlorotoluene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Hexanone | mg/kg | | | -- | -- | -- | -- | -- | < 0.5 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 4-Chlorotoluene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 4-Methyl-2-pentanone | mg/kg | | | -- | -- | -- | -- | -- | < 0.5 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acetone | mg/kg | | | -- | -- | -- | -- | -- | < 0.5 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromobenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromodichloromethane | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromoform | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromomethane | mg/kg | | | -- | -- | -- | -- | -- | < 0.5 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbon Tetrachloride | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chlorobenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloroethane | mg/kg | | | -- | -- | -- | -- | < 0.5 U | < 0.5 U | -- | -- | -- | < 0.5 U | < 0.5 U | < 0.5 U | -- | -- | -- | -- | -- | -- | -- | < 0.5 U | < 0.5 U |
| Chloroform | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloromethane | mg/kg | | | -- | -- | -- | -- | -- | < 0.5 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene (cDE) | mg/kg | | | -- | -- | -- | -- | < 0.05 U | < 0.05 U | -- | -- | -- | < 0.05 U | < 0.05 U | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | < 0.05 U | < 0.05 U |

# Table 2 - Soil Analytical Results

Project No. 180357, Lynwood, Washington

| Analyte | Unit | MTCA Method A Cleanup Level | Location | B-05 | B-06 | B-07 | | B-08 | GP-04 | MW-11 | | | MW-12 | MW-13 | MW-14 | MW-15 | | | | | MW-16 | MW-17 | MW-18 | MW-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Date | 06/10/2019 | 06/11/2019 | 06/12/2019 | 06/12/2019 | 07/16/2019 | 06/05/2019 | 06/10/2019 | 06/10/2019 | 06/10/2019 | 06/10/2019 | 06/11/2019 | 06/11/2019 | 06/12/2019 | 06/12/2019 | 06/12/2019 | 06/12/2019 | 06/12/2019 | 06/14/2019 | 06/14/2019 | 07/15/2019 | 07/16/2019 |
| | | | Sample | B-05-16 | B-06-13 | B-07-8 | B-07-12.5 | B-08-13.5 | GP-04-2 | MW-11-1 | MW-11-6 | MW-11-13 | MW-12-15 | MW-13-12.5 | MW-14-12.5 | MW-15-7.5 | MW-15-10.5 | MW-15-13 | MW-15-17.5 | MW-15-25 | MW-16-7.5 | MW-17-8.5 | MW-18-10 | MW-19-8.5 |
| | | | Depth | 16 ft | 13 ft | 8 ft | 12.5 ft | 13.5 ft | 2 ft | 1 ft | 6 ft | 13 ft | 15 ft | 12.5 ft | 12.5 ft | 7.5 ft | 10.5 ft | 13 ft | 17.5 ft | 25 ft | 7.5 ft | 8.5 ft | 10 ft | 8.5 ft |
| **VOCs (continued)** | | | | | | | | | | | | | | | | | | | | | | | | |
| cis-1,3-Dichloropropene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromomethane | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dichlorodifluoromethane | mg/kg | | | -- | -- | -- | -- | -- | < 0.5 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Isopropylbenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| m,p-Xylenes | mg/kg | | | -- | -- | -- | -- | -- | < 0.1 U | -- | -- | -- | -- | -- | -- | -- | -- | **46 J** | **0.88** | < 0.01 U | -- | -- | -- | -- |
| Methyl tert-butyl ether (MTBE) | mg/kg | 0.1 | | -- | -- | < 0.005 U | < 0.005 U | -- | < 0.05 U | < 0.005 U | < 0.005 U | -- | -- | -- | -- | < 0.005 U | < 0.005 U | < 0.005 U | -- | -- | -- | -- | -- | -- |
| Methylene Chloride | mg/kg | 0.02 | | -- | -- | -- | -- | < 0.5 U | < 0.5 U | -- | -- | -- | < 0.5 U | < 0.5 U | < 0.5 U | -- | -- | -- | -- | -- | -- | -- | < 0.5 U | < 0.5 U |
| n-Hexane | mg/kg | | | -- | -- | -- | -- | -- | < 0.25 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| n-Propylbenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| o-Xylene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | **18 J** | **0.31** | < 0.005 U | -- | -- | -- | -- |
| p-Isopropyltoluene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| sec-Butylbenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Styrene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| tert-Butylbenzene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Tetrachloroethene (PCE) | mg/kg | 0.05 | | -- | -- | -- | -- | < 0.025 U | < 0.025 U | -- | -- | -- | < 0.025 U | < 0.025 U | < 0.025 U | -- | -- | -- | -- | -- | -- | -- | < 0.025 U | < 0.025 U |
| trans-1,2-Dichloroethene | mg/kg | | | -- | -- | -- | -- | < 0.05 U | < 0.05 U | -- | -- | -- | < 0.05 U | < 0.05 U | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | < 0.05 U | < 0.05 U |
| trans-1,3-Dichloropropene | mg/kg | | | -- | -- | -- | -- | -- | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichloroethene (TCE) | mg/kg | 0.03 | | -- | -- | -- | -- | < 0.02 U | < 0.02 U | -- | -- | -- | < 0.02 U | < 0.02 U | < 0.02 U | -- | -- | -- | -- | -- | -- | -- | < 0.02 U | < 0.02 U |
| Trichlorofluoromethane | mg/kg | | | -- | -- | -- | -- | -- | < 0.5 U | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vinyl Chloride | mg/kg | | | -- | -- | -- | -- | < 0.05 U | < 0.05 U | -- | -- | -- | < 0.05 U | < 0.05 U | < 0.05 U | -- | -- | -- | -- | -- | -- | -- | < 0.05 U | < 0.05 U |

**Notes**

All results are pending validation and subject to change

**Bold** = detected

Blue = exceeded

U = nondetect

J = estimated

UJ = nondetect, estimated

X = chromatographic pattern did not match fuel standard

## Table 3 - Groundwater Analytical Data

Project No. 180357, Lynwood, Washington

DRAFT

| Location | | | MW-1 | | MW-2 | | MW-6 | | MW-7 | | MW-9 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | | | 08/01/2019 | 11/20/2019 | 08/01/2019 | 11/20/2019 | 07/31/2019 | 11/20/2019 | 07/31/2019 | 11/19/2019 | 08/01/2019 | 11/20/2019 |
| Sample | | | MW-1-080119 | MW-1-112019 | MW-2-080119 | MW-2-112019 | MW-6-073119 | MW-6-112019 | MW-7-073119 | MW-7-111919 | MW-9-080119 | MW-9-112019 |
| **Analyte** | **Unit** | **MTCA Method A Cleanup Level** | | | | | | | | | | |
| **TPHs** | | | | | | | | | | | | |
| Gasoline Range Organics | ug/L | 800 | **24000** | **44000** | **1600** | **4600** | < 100 U | < 100 U | < 100 U | < 100 U | < 100 U | **560** |
| Diesel Range Organics | ug/L | 500 | **2100 X** | **3200 X** | **790 X** | **2200 X** | **68 X** | < 50 U | **83 X** | < 50 U | **88 X** | **290 X** |
| Motor Oil Range Organics | ug/L | 500 | **1000 X** | **570 X** | < 250 U | **260 X** | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U |
| Diesel and Oil Extended Range Organics | ug/L | 500 | **3100 X** | **3770 X** | **790 X** | **2460 X** | **68 X** | < 250 U | **83 X** | < 250 U | **88 X** | **290 X** |
| **BTEX** | | | | | | | | | | | | |
| Benzene | ug/L | 5 | **4200** | **6700** | **13** | **30** | < 0.35 U | < 0.35 U | < 0.35 U | < 0.35 U | < 0.35 U | **6.4** |
| Toluene | ug/L | 1000 | **410** | **1500** | **2.2** | **6.5** | < 1 U | < 1 U | < 1 U | **2.7** | < 1 U | < 1 U |
| Ethylbenzene | ug/L | 700 | **520** | **860** | **6.5** | **28** | < 1 U | < 1 U | < 1 U | **1.6** | < 1 U | **6.6** |
| Total Xylenes | ug/L | 1000 | **1650** | **3680** | **7.4** | **23.9** | < 2 U | < 2 U | < 2 U | **8.8** | < 2 U | **3.3** |
| **PAHs** | | | | | | | | | | | | |
| Naphthalene | ug/L | 160 | **130** | **210** | **33** | **150** | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U |
| **Metals** | | | | | | | | | | | | |
| Lead | ug/L | 15 | < 1 UJ | < 1 U | < 1 UJ | < 1 U | < 1 UJ | < 1 U | < 1 UJ | < 1 U | < 1 UJ | < 1 U |
| **VOCs** | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | ug/L | 200 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethane | ug/L | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethene | ug/L | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dibromoethane (EDB) | ug/L | 0.01 | < 1 U | < 100 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U |
| 1,2-Dichloroethane (EDC) | ug/L | 5 | < 1 U | < 100 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U |
| Chloroethane | ug/L | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene (cDCE) | ug/L | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| m,p-Xylenes | ug/L | | **1300** | **2800** | **5.6** | **19** | < 2 U | < 2 U | < 2 U | **7.1** | < 2 U | < 2 U |
| Methyl tert-butyl ether (MTBE) | ug/L | 20 | < 1 U | < 100 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U |
| Methylene Chloride | ug/L | 5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| o-Xylene | ug/L | | **350** | **880** | **1.8** | **4.9** | < 1 U | < 1 U | < 1 U | **1.7** | < 1 U | **3.3** |
| Tetrachloroethene (PCE) | ug/L | 5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| trans-1,2-Dichloroethene | ug/L | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichloroethene (TCE) | ug/L | 5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vinyl Chloride | ug/L | 0.2 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

**Notes**
**Bold = detected**
Blue = exceeded
U = nondetect
J = estimated
UJ = nondetect, estimated
X = chromatographic pattern did not match fuel standard

## Table 3 - Groundwater Analytical Data

Project No. 180357, Lynwood, Washington

DRAFT

| Location | | | MW-10 | | MW-11 | | MW-12 | | MW-13 | | MW-14 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | | | 08/01/2019 | 11/20/2019 | 07/31/2019 | 11/19/2019 | 08/01/2019 | 11/20/2019 | 07/31/2019 | 11/20/2019 | 07/31/2019 | 11/20/2019 |
| Sample | | | MW-10-080119 | MW-10-112019 | MW-11-073119 | MW-11-111919 | MW-12-080119 | MW-12-112019 | MW-13-073119 | MW-13-112019 | MW-14-073119 | MW-14-112019 |
| **Analyte** | **Unit** | **MTCA Method A Cleanup Level** | | | | | | | | | | |
| **TPHs** | | | | | | | | | | | | |
| Gasoline Range Organics | ug/L | 800 | **19000** | **21000** | **13000** | **20000** | **240** | **540** | **1400** | **1800** | **7500** | **11000** |
| Diesel Range Organics | ug/L | 500 | **1900 X** | **3900 X** | **1100 X** | **2400 X** | **310 X** | **370 X** | **530 X** | **780 X** | **1200 X** | **1600 X** |
| Motor Oil Range Organics | ug/L | 500 | **260 X** | **340 X** | < 250 U | **310 X** | < 250 U | < 250 U | < 250 U | < 250 U | **330 X** | **300 X** |
| Diesel and Oil Extended Range Organics | ug/L | 500 | **2160 X** | **4240 X** | **1100 X** | **2710 X** | **310 X** | **370 X** | **530 X** | **780 X** | **1530 X** | **1900 X** |
| **BTEX** | | | | | | | | | | | | |
| Benzene | ug/L | 5 | **2400** | **2800** | **320** | **270** | **0.59** | **1.1** | **7.5** | **4** | **2400** | **2700** |
| Toluene | ug/L | 1000 | **44** | < 100 U | **1800** | **1500** | < 1 U | < 1 U | < 1 U | < 1 U | **32** | < 100 U |
| Ethylbenzene | ug/L | 700 | **670** | **1000** | **410** | **690** | < 1 U | < 1 U | < 1 U | < 1 U | **130** | < 100 U |
| Total Xylenes | ug/L | 1000 | **1103** | **1500** | **1400** | **2580** | < 2 U | < 2 U | < 2 U | < 2 U | **90** | < 200 U |
| **PAHs** | | | | | | | | | | | | |
| Naphthalene | ug/L | 160 | **160** | **270** | **42** | **130** | < 1 U | < 1 U | < 1 U | < 1 U | **50** | < 100 U |
| **Metals** | | | | | | | | | | | | |
| Lead | ug/L | 15 | < 1 UJ | < 1 U | **3.49 J** | **1.85** | < 1 UJ | < 1 U | < 1 UJ | < 1 U | < 1 UJ | < 1 U |
| **VOCs** | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | ug/L | 200 | -- | -- | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 100 U |
| 1,1-Dichloroethane | ug/L | | -- | -- | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 100 U |
| 1,1-Dichloroethene | ug/L | | -- | -- | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 100 U |
| 1,2-Dibromoethane (EDB) | ug/L | 0.01 | < 1 U | < 100 U | < 1 U | < 100 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 100 U |
| 1,2-Dichloroethane (EDC) | ug/L | 5 | < 1 U | < 100 U | < 1 U | < 100 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 100 U |
| Chloroethane | ug/L | | -- | -- | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 100 U |
| cis-1,2-Dichloroethene (cDCE) | ug/L | | -- | -- | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 100 U |
| m,p-Xylenes | ug/L | | **1100** | **1500** | **1000** | **2100** | < 2 U | < 2 U | < 2 U | < 2 U | **72** | < 200 U |
| Methyl tert-butyl ether (MTBE) | ug/L | 20 | < 1 U | < 100 U | < 1 U | < 100 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 100 U |
| Methylene Chloride | ug/L | 5 | -- | -- | -- | -- | -- | -- | < 5 U | < 5 U | < 5 U | < 500 U |
| o-Xylene | ug/L | | **2.7** | < 100 U | **400** | **480** | < 1 U | < 1 U | < 1 U | < 1 U | **18** | < 100 U |
| Tetrachloroethene (PCE) | ug/L | 5 | -- | -- | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 100 U |
| trans-1,2-Dichloroethene | ug/L | | -- | -- | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 100 U |
| Trichloroethene (TCE) | ug/L | 5 | -- | -- | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 100 U |
| Vinyl Chloride | ug/L | 0.2 | -- | -- | -- | -- | -- | -- | < 0.2 U | < 0.2 U | **2.7** | < 20 U |

**Notes**
**Bold = detected**
Blue = exceeded
U = nondetect
J = estimated
UJ = nondetect, estimated
X = chromatographic pattern did not match fuel standard

## Table 3 - Groundwater Analytical Data

Project No. 180357, Lynwood, Washington

DRAFT

| | | Location | MW-16 | | MW-17 | | MW-18 | | MW-19 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Date | 07/31/2019 | 11/19/2019 | 07/31/2019 | 11/19/2019 | 07/31/2019 | 11/19/2019 | 07/31/2019 | 11/20/2019 |
| | | Sample | MW-16-073119 | MW-16-111919 | MW-17-073119 | MW-17-111919 | MW-18-073119 | MW-18-111919 | MW-19-073119 | MW-19-112019 |
| **Analyte** | **Unit** | **MTCA Method A Cleanup Level** | | | | | | | | |
| **TPHs** | | | | | | | | | | |
| Gasoline Range Organics | ug/L | 800 | < 100 U | < 100 U | **1800** | **1100** | < 100 U | **1300** | < 100 U | < 100 U |
| Diesel Range Organics | ug/L | 500 | **84 X** | < 50 U | **320 X** | **560 X** | **55 X** | **260 X** | < 50 U | < 50 U |
| Motor Oil Range Organics | ug/L | 500 | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U | < 250 U |
| Diesel and Oil Extended Range Organics | ug/L | 500 | **84 X** | < 250 U | **320 X** | **560 X** | **55 X** | **260 X** | < 250 U | < 250 U |
| **BTEX** | | | | | | | | | | |
| Benzene | ug/L | 5 | < 0.35 U | < 0.35 U | < 0.35 U | **4.2** | **1** | **240** | < 0.35 U | < 0.35 U |
| Toluene | ug/L | 1000 | < 1 U | < 1 U | < 1 U | **2.8** | < 1 U | **8.2** | < 1 U | < 1 U |
| Ethylbenzene | ug/L | 700 | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | **14** | < 1 U | < 1 U |
| Total Xylenes | ug/L | 1000 | < 2 U | < 2 U | < 2 U | **6.3** | < 2 U | **65** | < 2 U | < 2 U |
| **PAHs** | | | | | | | | | | |
| Naphthalene | ug/L | 160 | < 1 U | < 1 U | < 1 U | **1.6** | < 1 U | **5.2** | < 1 U | < 1 U |
| **Metals** | | | | | | | | | | |
| Lead | ug/L | 15 | < 1 UJ | **1.02** | < 1 UJ | < 1 U | < 1 UJ | < 1 U | < 1 UJ | < 1 U |
| **VOCs** | | | | | | | | | | |
| 1,1,1-Trichloroethane | ug/L | 200 | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 1 U |
| 1,1-Dichloroethane | ug/L | | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 1 U |
| 1,1-Dichloroethene | ug/L | | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 1 U |
| 1,2-Dibromoethane (EDB) | ug/L | 0.01 | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U |
| 1,2-Dichloroethane (EDC) | ug/L | 5 | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U |
| Chloroethane | ug/L | | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 1 U |
| cis-1,2-Dichloroethene (cDCE) | ug/L | | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 1 U |
| m,p-Xylenes | ug/L | | < 2 U | < 2 U | < 2 U | **4.2** | < 2 U | **48** | < 2 U | < 2 U |
| Methyl tert-butyl ether (MTBE) | ug/L | 20 | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U | < 1 U |
| Methylene Chloride | ug/L | 5 | -- | -- | -- | -- | < 5 U | < 5 U | < 5 U | < 5 U |
| o-Xylene | ug/L | | < 1 U | < 1 U | < 1 U | **2.1** | < 1 U | **17** | < 1 U | < 1 U |
| Tetrachloroethene (PCE) | ug/L | 5 | -- | -- | -- | -- | < 1 U | < 1 U | **17** | **12** |
| trans-1,2-Dichloroethene | ug/L | | -- | -- | -- | -- | < 1 U | < 1 U | < 1 U | < 1 U |
| Trichloroethene (TCE) | ug/L | 5 | -- | -- | -- | -- | < 1 U | < 1 U | **1** | < 1 U |
| Vinyl Chloride | ug/L | 0.2 | -- | -- | -- | -- | < 0.2 U | < 0.2 U | < 0.2 U | < 0.2 U |

**Notes**
**Bold = detected**
Blue = exceeded
U = nondetect
J = estimated
UJ = nondetect, estimated
X = chromatographic pattern did not match fuel standard

# Table 4 - Soil Gas Analytical Results

DRAFT

Project No. 180357, Lynwood, Washington

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Location | GP-01 | GP-02 | GP-03 | GP-04 | SVS-01 | SVS-02 |
| | | | | | Date | 07/25/2019 | 07/25/2019 | 07/25/2019 | 07/25/2019 | 07/25/2019 | 07/25/2019 |
| | | | | | Sample | GP-01-072519 | GP-02-072519 | GP-03-072519 | GP-04-072519 | SVS-01-072519 | SVS-02-072519 |
| Analyte | Unit | Risk Driver | MTCA Method B Subslab Screening Level (Unrestricted)[1] | MTCA Method B Subslab Screening Level (Commercial)[2] | | | | | | | |
| **BTEX** | | | | | | | | | | | |
| Benzene | ug/m3 | C | 11 | 37 | | **3.8** | **1.5** | **3.9** | **1.2** | **2.2** | **3.3** |
| Toluene | ug/m3 | NC | 76,000 | 560,000 | | **28** | **12** | **17** | **11** | **9.3** | **13** |
| Ethylbenzene | ug/m3 | NC | 15,000 | 110,000 | | **6** | **3.4** | **4.9** | **3.4** | **2.6** | **2.9** |
| Total Xylenes | ug/m3 | NC | 1,500 | 11,000 | | **32.9** | **18.3** | **27.1** | **18.7** | **14.4** | **14.2** |
| **PAHs** | | | | | | | | | | | |
| Naphthalene | ug/m3 | C | 2.5 | 8.4 | | < 0.84 U | < 0.81 U | < 2 U | < 0.84 U | < 0.81 U | < 0.81 U |
| **VOCs** | | | | | | | | | | | |
| 1,2-Dibromoethane (EDB) | ug/m3 | NC | 0.14 | 0.47 | | < 0.25 U | < 0.24 U | < 0.58 U | < 0.25 U | < 0.24 U | < 0.24 U |
| 1,2-Dichloroethane (EDC) | ug/m3 | NC | 3.2 | 10.7 | | < 0.13 U | < 0.13 U | < 0.3 U | < 0.13 U | < 0.13 U | < 0.13 U |
| Methyl tert-butyl ether (MTBE) | ug/m3 | NC | 320 | 1,070 | | < 5.8 U | < 5.6 U | < 14 U | < 5.8 U | < 5.6 U | < 5.6 U |
| **APH** | | | | | | | | | | | |
| C5 - C8 Aliphatic Hydrocarbons | ug/m3 | -- | -- | -- | | **410** | **350** | **8,700** | **510** | **1,000** | **1,700** |
| C9 - C12 Aliphatic Hydrocarbons | ug/m3 | -- | -- | -- | | **2,200** | **2,600** | **9,600** | **1,800** | **1,300** | **1,100** |
| C9 - C10 Aromatic Hydrocarbons | ug/m3 | -- | -- | -- | | < 80 U | < 77 U | < 190 U | **100** | **78** | **100** |
| Total Petroleum Hydrocarbons (ND = 1/2 RL)[3] | ug/m3 | NC | 4,700 | 35,000 | | **2,721** | **3,024** | **18,449** | **2,445** | **2,407** | **2,934** |

**Notes**

(1) Model Toxic Control Act (MTCA) Method B Subslab Soil Gas Screening Levels (SLs).

(2) Commercial screening levels calculated by adjusting exposure frequency for both noncarcinogens and carcinogens to 0.30, and average body weight and breathing rate for noncarcinogens to 70 kg and 20 $m^3$/day, respectively. These adjustments are in accordance with MTCA Equations 750-1 and 750-2 and Ecology's Implementation Memorandum No. 21 (FAQs Regarding VI and Ecology's 2009 Draft VI Guidance).

(3) Total petroleum hydrocarbon concentration is the sum total of VOCs and APHs, one-half of the laboratory detection limit was used for non-detects

(4) Generic sub-slab TPH screening level based on generic TPH indoor air cleanup level of 140 ug/m3 and an attenuation factor of 0.03 (Ecology Implementation Memo #18.)

**Bold** - Analyte Detected

Blue Shaded - Detected result exceeded unrestricted use MTCA Method B Subslab Screening Leve

**Red** - Detected result exceeded commercial use MTCA Method B Subslab Screening Level

BTEX = benzene, toleuene, ethylbenzene, and total xylenes

PAHs = polycyclic aromatic hydrocarbons

VOCs = volatile organic compounds

APH = air petroleum hydrocarbon

µg/$m^3$ = micrograms per cubic meter

-- = not applicable

U = analyte was not detected at or above the reported result.

C = Carcinogenic; NC = Non carcinogenic

# Table 5 - LNAPL Gauging Data

DRAFT

Project No. 180357, Lynwood, Washington

| Well | Date | Depth to LNAPL (ft btoc) | Depth to Water (ft btoc) | LNAPL Thickness (ft) |
|---|---|---|---|---|
| MW-3 | 6/5/2019 | 9.10 | 9.15 | 0.05 |
| | 7/31/2019 | 10.45 | 10.75 | 0.30 |
| | 8/5/2019 | 10.56 | 10.87 | 0.31 |
| | 8/12/2019 | 10.73 | 11.02 | 0.29 |
| | 8/20/2019 | 10.99 | 11.24 | 0.25 |
| | 8/28/2019 | 11.15 | 11.47 | 0.32 |
| | 9/4/2019 | 11.23 | 11.61 | 0.38 |
| | 9/13/2019 | 11.44 | 11.83 | 0.39 |
| | 9/18/2019 | 11.46 | 11.84 | 0.38 |
| | 9/27/2019 | 11.43 | 11.78 | 0.35 |
| | 10/1/2019 | 11.4 | 11.72 | 0.32 |
| MW-4 | 6/5/2019 | 9.63 | 9.75 | 0.12 |
| | 7/31/2019 | 11.22 | 11.33 | 0.11 |
| | 8/5/2019 | 11.35 | 11.46 | 0.11 |
| | 8/12/2019 | 11.52 | 11.62 | 0.1 |
| | 8/20/2019 | 11.76 | 11.9 | 0.14 |
| | 8/28/2019 | 11.86 | 12.01 | 0.15 |
| | 9/4/2019 | 12.05 | 12.25 | 0.2 |
| | 9/13/2019 | 12.25 | 12.57 | 0.32 |
| | 9/18/2019 | 12.22 | 12.54 | 0.32 |
| | 9/27/2019 | 12.22 | 12.50 | 0.28 |
| | 10/1/2019 | 12.20 | 12.43 | 0.23 |
| MW-5 | 6/5/2019 | 9.63 | 9.75 | 0.12 |
| | 7/31/2019 | 11.22 | 11.33 | 0.11 |
| | 8/5/2019 | 11.35 | 11.46 | 0.11 |
| | 8/12/2019 | 11.52 | 11.62 | 0.1 |
| | 8/20/2019 | 11.76 | 11.9 | 0.14 |
| | 8/28/2019 | 11.86 | 12.01 | 0.15 |
| | 9/4/2019 | 12.05 | 12.25 | 0.2 |
| | 9/13/2019 | 12.25 | 12.57 | 0.32 |
| | 9/18/2019 | 12.22 | 12.54 | 0.32 |
| | 9/27/2019 | 12.22 | 12.50 | 0.28 |
| | 10/1/2019 | 11.10 | 11.40 | 0.30 |

# Table 5 - LNAPL Gauging Data

DRAFT

Project No. 180357, Lynwood, Washington

| Well | Date | Depth to LNAPL (ft btoc) | Depth to Water (ft btoc) | LNAPL Thickness (ft) |
|---|---|---|---|---|
| MW-8 | 6/5/2019 | -- | 8.49 | -- |
| | 7/31/2019 | 9.41 | 9.92 | 0.51 |
| | 8/5/2019 | 9.47 | 10.08 | 0.61 |
| | 8/12/2019 | 9.63 | 10.24 | 0.61 |
| | 8/20/2019 | 9.86 | 10.03 | 0.17 |
| | 8/28/2019 | 10.03 | 10.44 | 0.41 |
| | 9/4/2019 | 10.21 | 10.8 | 0.59 |
| | 9/13/2019 | 10.4 | 10.68 | 0.28 |
| | 9/18/2019 | 10.41 | 10.69 | 0.28 |
| | 9/27/2019 | 10.41 | 10.7 | 0.29 |
| | 10/1/2019 | 10.39 | 10.66 | 0.27 |
| MW-15 | 6/5/2019[(a)] | -- | -- | -- |
| | 7/31/2019 | 12.40 | 12.42 | 0.02 |
| | 8/5/2019 | 12.62 | 12.65 | 0.03 |
| | 8/12/2019 | 12.64 | 12.77 | 0.13 |
| | 8/20/2019 | 13.29 | 13.49 | 0.20 |
| | 8/28/2019 | 13.80 | 14.02 | 0.22 |
| | 9/4/2019 | 14.15 | 14.44 | 0.29 |
| | 9/13/2019 | 14.34 | 14.70 | 0.36 |
| | 9/18/2019 | 14.26 | 14.51 | 0.25 |
| | 9/27/2019 | 14.01 | 14.16 | 0.15 |
| | 10/1/2019 | 13.85 | 13.96 | 0.11 |

Notes:

LNAPL - light non-aqueous phase liquids

Indicates LNAPL was bailed from the well after gauging

(a) Monitoring well had not been installed as of this date

DEPARTMENT OF ECOLOGY
State of Washington

# Strickland Texaco Site:
# Comingling of Contamination

To: Dale Myers, Site Manager
Voluntary Cleanup Program Site Manager
Toxics Cleanup Program
Northwest Regional Office

From: Arthur Buchan, Toxicologist
Information & Policy Section
Toxics Cleanup Program

Date: April 30, 2020

---

This memorandum represents a Department of Ecology recommendation specific to the Strickland Texaco Site, located in the City of Lynwood, Snohomish County, WA:

Strickland Texaco
6808 196th St SW
Lynnwood, WA 98036
Facility Site # 27496218
Cleanup Site # 12541

**Determination:**

It is recommended that Release 1 (former Texaco Service Station – approximate dates of operation 1959 – 1977) and Release 2 (former Jiffy Lube – oil change facilities approximate dates of operation 1977 – 2006) have comingled contamination.

For questions or concerns regarding this memorandum, please contact:

Arthur Buchan
Phone: (360) 407-7146
Email: abuc461@ecy.wa.gov

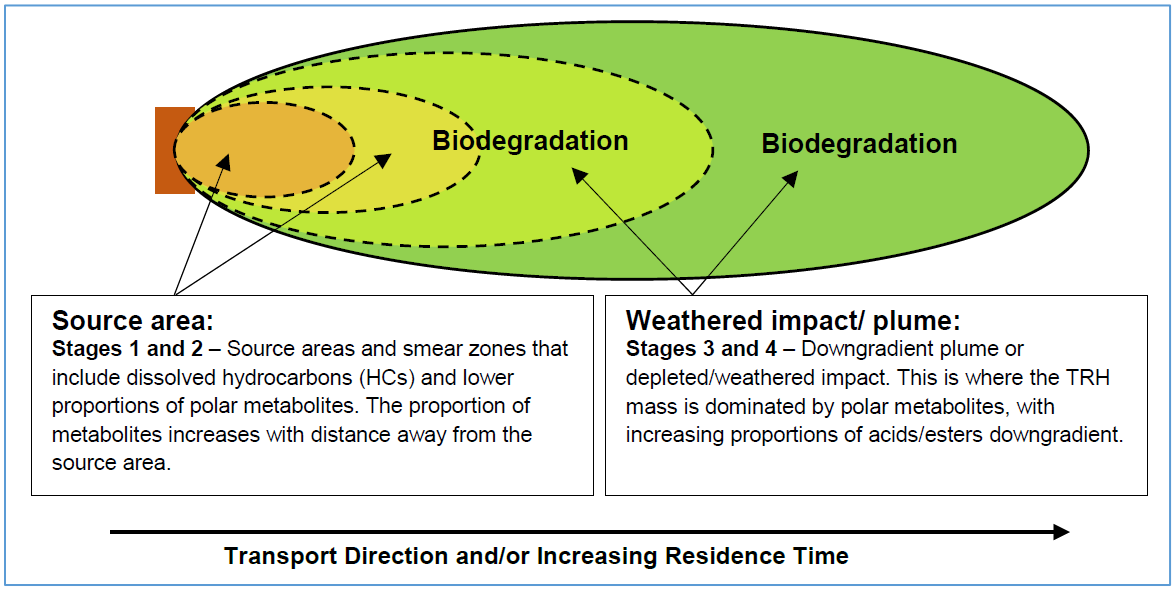
**Background:**

Silica gel is a cleanup process that is run prior to the Northwest Total Petroleum Hydrocarbon – Diesel Range and Heavy Oil Range Organics (NWTPH-Dx) Analytical Method. Silica Gel works by attaching to and removing naturally occurring non-petroleum organic matter (such as leaf litter, bark, and peat). However, as petroleum degrades over time through microbial and chemical reactions, some of the petroleum components from the original release will be transformed to intermediary degradation by-products that are polar organics. These intermediary by-products are considered part of the petroleum mixture. The problem is that the silica gel cleanup process removes through the extraction process both naturally occurring organic material and those petroleum degradation by-products that are polar organics (Ecology, 2016).

Silica gel is an especially useful tool to help determine where sources of petroleum material are located at the site and where cleanup actions should be focused. However, it should not be used to fully characterize the nature and extent of the petroleum contamination. This is because those released polar metabolites that were cleaned up by the silica gel prior to the NWTPH-Dx analytical method are considered part of the petroleum mixture – which means they are also considered part of the release.

Figure 1 shows that dissolved hydrocarbons are found closer to the source (bound petroleum/source material, and the weathered plume (intermediary by-products/polar metabolites) are further down-gradient.

*Figure 1: Conceptual model for source area and weathered impact/plumes (CRC CARE, 2018).*



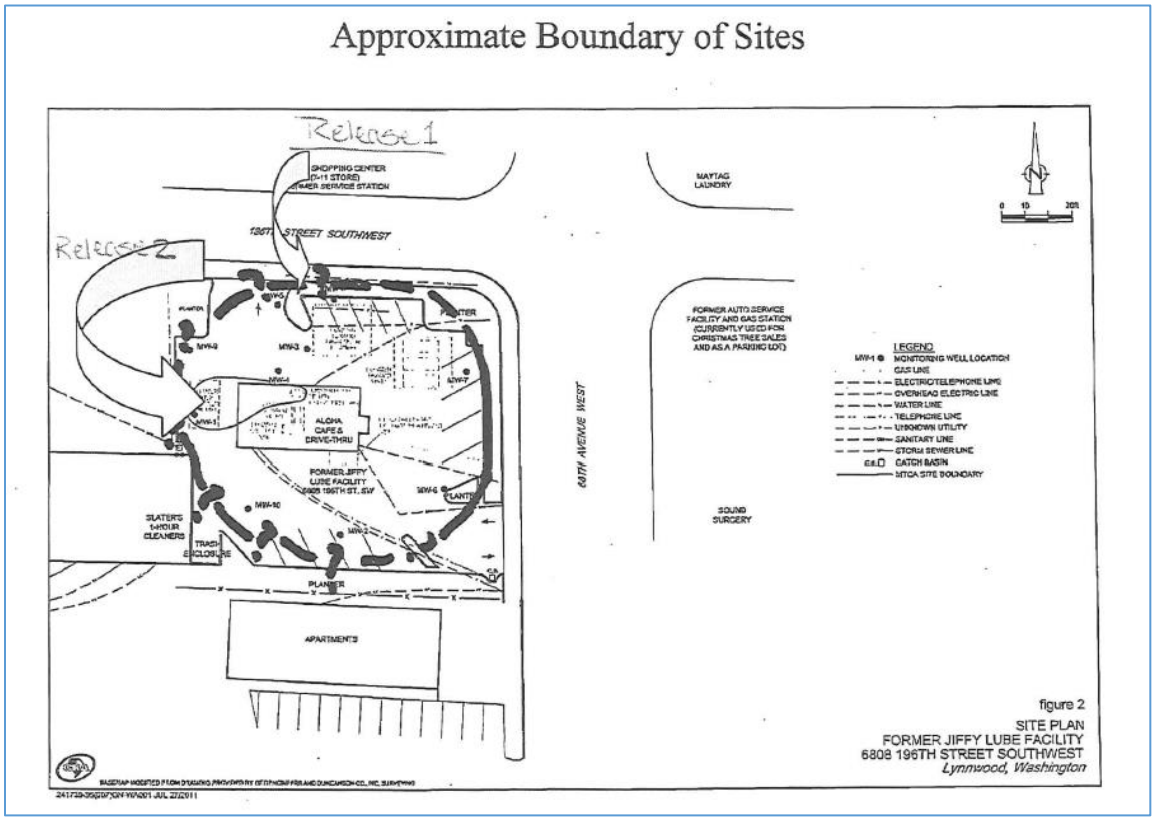
**Discussion:**

The December 09, 2014 opinion letter from Ecology, Toxics Cleanup Program (Ecology, 2014), indicates that:

*Release 1 Former Texaco Service Station (approximate dates of operation 1959 – 1977) and Release 2 Former Jiffy Lube (oil change facilities approximate dates of operation 1977 – 2006) are not comingled.*

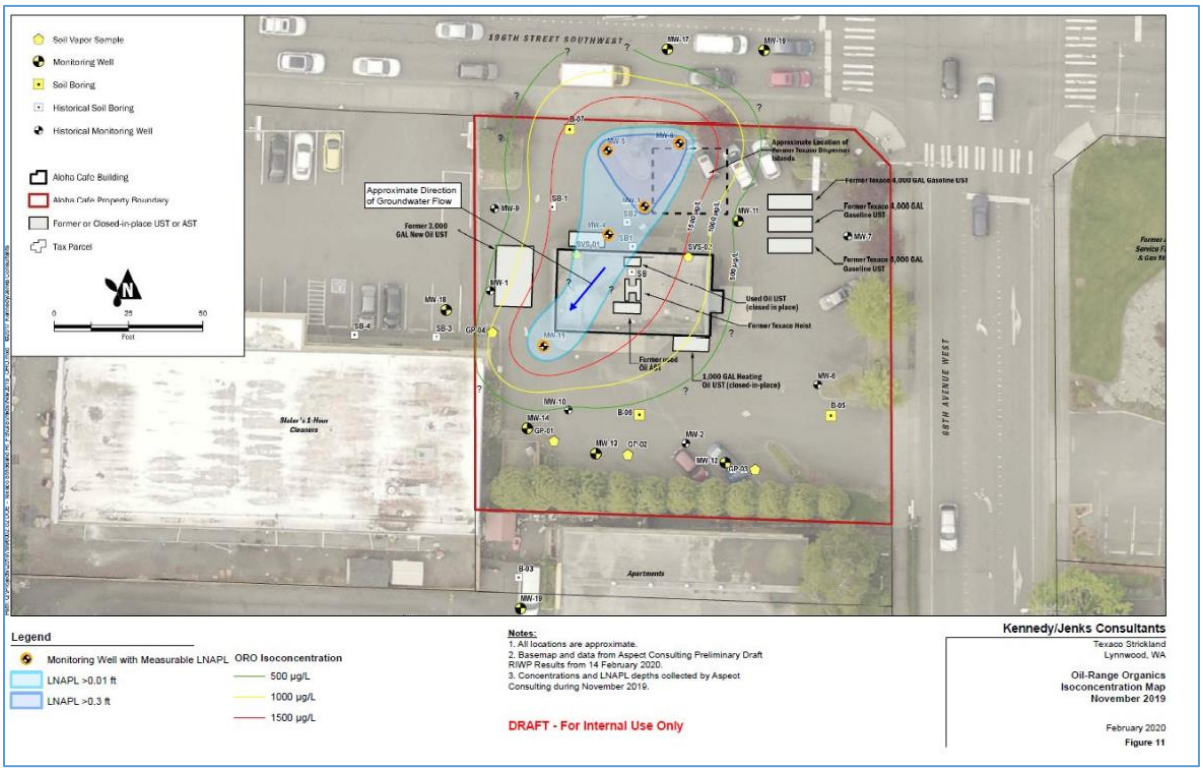
It appears that this opinion is based on groundwater monitoring results that included the Silica Gel Cleanup method used prior to the NWTPH-Dx Analytical Method. These results indicate two distinct plumes of contamination of source material (bound petroleum). This is indicated in the following map (figure 2) that was included as an attachment in the opinion letter:

*Figure 2: Map indicating distinct areas of source material. Depicted by Release 1 and Release 2. This map was generated using groundwater data and the Silica Gel Cleanup Method prior to the NWTPH-Dx Analytical Method.*



Subsequent NWTPH-Dx testing without the use of Silica Gel Cleanup prior to the NWTPH-Dx Analytical Method indicate that by measuring both the bound petroleum and intermediary by-products (which are considered part of the petroleum mixture) clearly overlap the previous bound petroleum plume (Figure 3) (Kennedy/Jenks, 2020). The base map and corresponding data were developed from Aspect Consulting Preliminary Draft RIWP Results from 14 Feb 2020 (Aspect, 2020). Data from the tables indicate: *X = Chromatographic pattern did not match fuel standard.* However, unless it can be verified that the measured substance is naturally occurring organic material, it should be considered part of the release. It should be noted that measurements for MW16, 17, 18, and 19 contained low concentrations of oil range organics in comparison though, so a high concentration of naturally occurring organic material would be unlikely.

*Figure 3: Map indicating the comingling of Release 1 and Release 2 when measuring both source material and intermediary by-products. This map was generated using groundwater data and NWTPH-Dx Analytical Method only (no Silica Gel Cleanup).*




As a result, I recommend that the December 09, 2014 opinion letter from Ecology, Toxics Cleanup Program (Ecology, 2014) that states that the two releases are distinct and not comingled is incorrect, and that there appears to be comingling of contamination between these two sites.

**References:**

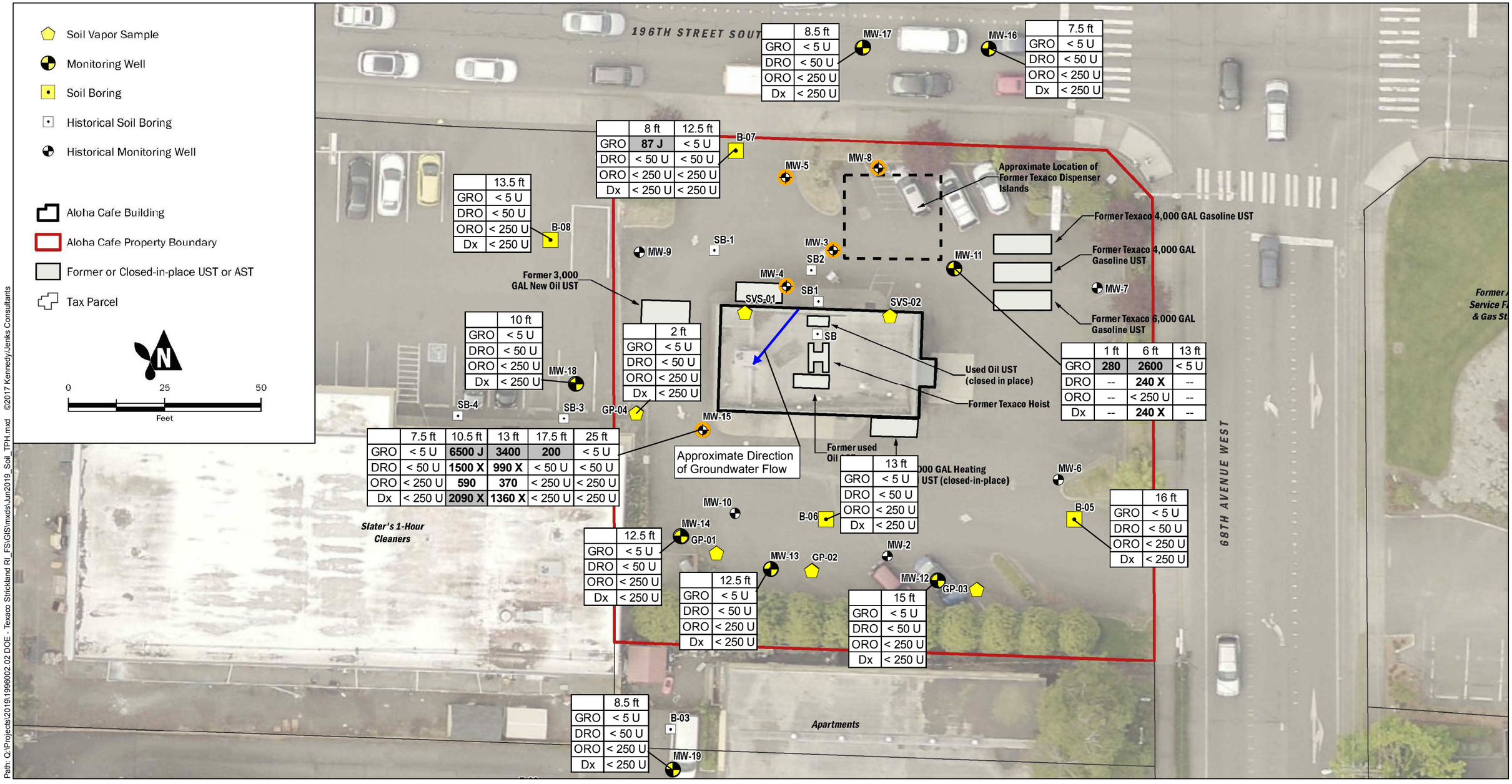
Aspect Consulting, 2020. *Remedial Investigation Work Plan Addendum: Texaco Strickland Cleanup Site.* Project No. 180357. March 25, 2020. Agency Review Draft.

Ecology, 2014. Memorandum: *Re: Opinion Pursuant to WAC 173-340-515(5) on Proposed Remedial Action for the following Hazardous Waste Site…* Washington State Department of Ecology. No Publication No.

Ecology, 2016. Guidance for Remediation of Petroleum Contaminated Sites. Publication No. 10-090057. Revised June 2016.

CRC CARE, 2018. Weathered Petroleum Hydrocarbons (Silica Gel Clean-up). Cooperative Research Centre for Contamination Assessment and Remediation of the Environment, Technical Report series, no. 40. January 2018.

Kennedy/Jenks, 2020. Draft: Oil-Range Organics Isoconcentration Map. November 2019. Figure 11.

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## Legend

Monitoring Well with Measurable LNAPL

**DRAFT - For Internal Use Only**

**Notes:**

1. All locations are approximate.
2. Basemap and data from Aspect Consulting Preliminary Draft RIWP Results from 14 February 2020.
3. Soil samples collected by Aspect Consulting between June and July 2019.
4. Concentrations detected above the laboratory reporting limit are bold, concentrations above the MTCA Method A Cleanup Levels are shaded.
5. U = Not detected.
6. X = Chromatographic pattern did not match fuel standard.

**Kennedy/Jenks Consultants**

Texaco Strickland
Lynnwood, WA

**TPH Concentrations in Soil**

March 2020

**Figure 1**

Soil Vapor Sample

Monitoring Well

Soil Boring

Historical Soil Boring

Historical Monitoring Well

Aloha Cafe Building

Aloha Cafe Property Boundary

Former or Closed-in-place UST or AST

Tax Parcel

N

0 25 50

Feet

196TH STREET SOUT

68TH AVENUE WEST

Apartments

| | 8.5 ft |
|---|---|
| B | -- |
| T | -- |
| E | -- |
| X | -- |
| N | -- |

MW-17

MW-16

| | 7.5 ft |
|---|---|
| B | -- |
| T | -- |
| E | -- |
| X | -- |
| N | -- |

| | 8 ft | 12.5 ft |
|---|---|---|
| B | -- | -- |
| T | -- | -- |
| E | -- | -- |
| X | -- | -- |
| N | < 0.005 UJ | < 0.005 UJ |

B-07

MW-5

MW-8

Approximate Location of Former Texaco Dispenser Islands

| | 13.5 ft |
|---|---|
| B | < 0.02 U |
| T | < 0.02 U |
| E | < 0.02 U |
| X | < 0.06 U |
| N | -- |

B-08

MW-9

SB-1

MW-3

SB2

MW-11

| | 1 ft | 6 ft | 13 ft |
|---|---|---|---|
| B | < 0.2 U | **0.63** | < 0.02 U |
| T | **0.99** | **4.1** | **0.031** |
| E | **2** | **38** | **0.025** |
| X | **11** | **140** | **0.12** |
| N | **1.5** | **7.4** | -- |

Former Texaco 4,000 GAL Gasoline UST

Former Texaco 4,000 GAL

Former Texaco 6,000 GAL Gasoline UST

Former 3,000 GAL New Oil UST

MW-4

SB1

SVS-01

SVS-02

SB

| | 10 ft |
|---|---|
| B | < 0.02 U |
| T | < 0.02 U |
| E | < 0.02 U |
| X | < 0.06 U |
| N | -- |

MW-18

| | 2 ft |
|---|---|
| B | < 0.03 U |
| T | < 0.05 U |
| E | < 0.05 U |
| X | < 0.1 U |
| N | < 0.05 U |

Used Oil UST (closed in place)

Former Texaco Hoist

SB-4

SB-3

GP-04

MW-15

Former used Oil AST

1,000 GAL Heating UST (closed-in-place)

Approximate Direction of Groundwater Flow

| | 7.5 ft | 10.5 ft | 13 ft | 17.5 ft | 25 ft |
|---|---|---|---|---|---|
| B | -- | -- | **0.7 J** | **0.22** | **0.026** |
| T | -- | -- | **4.7 J** | **0.096** | < 0.005 U |
| E | -- | -- | **10 J** | **0.19** | < 0.005 U |
| X | -- | -- | **64 J** | **1.19** | < 0.01 U |
| N | < 0.005 UJ | **6.3 J** | **4.9** | -- | -- |

MW-10

MW-14

GP-01

B-06

| | 13 ft |
|---|---|
| B | < 0.02 U |
| T | < 0.02 U |
| E | < 0.02 U |
| X | < 0.06 U |
| N | -- |

MW-6

B-05

| | 16 ft |
|---|---|
| B | < 0.02 U |
| T | < 0.02 U |
| E | < 0.02 U |
| X | < 0.06 U |
| N | -- |

| | 12.5 ft |
|---|---|
| B | < 0.02 U |
| T | < 0.02 U |
| E | < 0.02 U |
| X | < 0.06 U |
| N | -- |

MW-13

GP-02

MW-12

GP-03

| | 12.5 ft |
|---|---|
| B | < 0.02 U |
| T | < 0.02 U |
| E | < 0.02 U |
| X | < 0.06 U |
| N | -- |

| | 15 ft |
|---|---|
| B | < 0.02 U |
| T | < 0.02 U |
| E | < 0.02 U |
| X | < 0.06 U |
| N | -- |

| | 8.5 ft |
|---|---|
| B | < 0.02 U |
| T | < 0.02 U |
| E | < 0.02 U |
| X | < 0.06 U |
| N | -- |

B-03

MW-19

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## Legend

Monitoring Well with Measurable LNAPL

**DRAFT - For Internal Use Only**

**Notes:**

1. All locations are approximate.
2. Basemap and data from Aspect Consulting Preliminary Draft RIWP Results from 14 February 2020.
3. Soil samples collected by Aspect Consulting between June and July 2019.
4. Concentrations detected above the laboratory reporting limit are bold, concentrations above the MTCA Method A Cleanup Levels are shaded.
5. U = Not detected.
6. B, T, E, X, N = Benzene, toluene, ethylbenzene, xylenes (total), and naphthalene.

**Kennedy/Jenks Consultants**

Texaco Strickland
Lynnwood, WA

**BTEX Concentrations in Soil**

March 2020

**Figure 2**

Soil Vapor Sample
Monitoring Well
Soil Boring
Historical Soil Boring
Historical Monitoring Well

Aloha Cafe Building
Aloha Cafe Property Boundary
Former or Closed-in-place UST or AST
Tax Parcel

N

0 25 50
Feet

196TH STREET SOUTHWEST
68TH AVENUE WEST
Slater's 1-Hour Cleaners
Apartments
Former Service Station & Gas Station

MW-17 MW-16 MW-5 MW-8 MW-3 MW-4 MW-9 MW-11 MW-7 MW-1 MW-18 MW-15 MW-10 MW-14 MW-13 MW-2 MW-12 MW-6 MW-19
B-07 SB-1 SB2 SB1 SVS-01 SVS-02 SB SB-4 SB-3 GP-04 B-06 GP-01 GP-02 GP-03 B-05 B-03

Approximate Location of Former Texaco Dispenser Islands
Approximate Direction of Groundwater Flow
Former 3,000 GAL New Oil UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 6,000 GAL Gasoline UST
Used Oil UST (closed in place)
Former Texaco Hoist
Former used Oil AST
1,000 GAL Heating Oil UST (closed-in-place)

1000 µg/m3
1700 µg/m3
510 µg/m3
410 µg/m3
350 µg/m3
8700 µg/m3

500 µg/m3
1000 µg/m3
1500 µg/m3
2000 µg/m3
3000 µg/m3
4000 µg/m3
5000 µg/m3
6000 µg/m3
7000 µg/m3
8000 µg/m3

## Legend

Monitoring Well with Measurable LNAPL

**C5 - C8 Aliphatics Isoconcentration**

500 µg/m3
1000 µg/m3
1500 µg/m3
2000 µg/m3
3000 µg/m3
4000 µg/m3
5000 µg/m3
6000 µg/m3
7000 µg/m3
8000 µg/m3

LNAPL >0.01 ft
LNAPL >0.3 ft

**Notes:**
1. All locations are approximate.
2. Basemap and data from Aspect Consulting Preliminary Draft RIWP Results from 14 February 2020.
3. Concentrations and LNAPL depths collected by Aspect Consulting during July 2019.

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**Kennedy/Jenks Consultants**

Texaco Strickland
Lynnwood, WA

**C5-C8 Aliphatics Vapor Isoconcentration Map July 2019**

March 2020
**Figure 3**

Soil Vapor Sample
Monitoring Well
Soil Boring
Historical Soil Boring
Historical Monitoring Well

Aloha Cafe Building
Aloha Cafe Property Boundary
Former or Closed-in-place UST or AST
Tax Parcel

N

0 25 50
Feet

196TH STREET SOUTHWEST
68TH AVENUE WEST
Slater's 1-Hour Cleaners
Apartments
Former Service Station & Gas Station

MW-17 MW-16 MW-5 MW-8 MW-3 MW-4 MW-9 MW-11 MW-7 MW-1 MW-18 MW-15 MW-10 MW-14 MW-13 MW-2 MW-12 MW-6 MW-19
B-07 SB-1 SB2 SB1 SVS-01 SVS-02 SB SB-4 SB-3 GP-04 GP-01 GP-02 GP-03 B-06 B-05 B-03

Approximate Direction of Groundwater Flow
Approximate Location of Former Texaco Dispenser Islands
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 6,000 GAL Gasoline UST
Former 3,000 GAL New Oil UST
Used Oil UST (closed in place)
Former Texaco Hoist
Former Used Oil AST
1,000 GAL Heating Oil UST (closed-in-place)

1300 µg/m3
1100 µg/m3
1800 µg/m3
2200 µg/m3
2600 µg/m3
9600 µg/m3

1500 µg/m3
2000 µg/m3
2500 µg/m3
3000 µg/m3
4000 µg/m3
5000 µg/m3
6000 µg/m3
7000 µg/m3
8000 µg/m3
9000 µg/m3

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## Legend

Monitoring Well with Measurable LNAPL

**C9-C12 Aliphatics Isoconcentration**

- 1500 µg/m3
- 2000 µg/m3
- 2500 µg/m3
- 3000 µg/m3
- 4000 µg/m3
- 5000 µg/m3
- 6000 µg/m3
- 7000 µg/m3
- 8000 µg/m3
- 9000 µg/m3

LNAPL >0.01 ft
LNAPL >0.3 ft

**Notes:**
1. All locations are approximate.
2. Basemap and data from Aspect Consulting Preliminary Draft RIWP Results from 14 February 2020.
3. Concentrations and LNAPL depths collected by Aspect Consulting during July 2019.

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**Kennedy/Jenks Consultants**

Texaco Strickland
Lynnwood, WA

**C9-C12 Aliphatics Vapor Isoconcentration Map July 2019**

March 2020

**Figure 4**

Soil Vapor Sample
Monitoring Well
Soil Boring
Historical Soil Boring
Historical Monitoring Well

Aloha Cafe Building
Aloha Cafe Property Boundary
Former or Closed-in-place UST or AST
Tax Parcel

N

0 25 50
Feet

196TH STREET SOUTHWEST
68TH AVENUE WEST
Slater's 1-Hour Cleaners
Apartments
Former Service Station & Gas Station

MW-17 MW-16 MW-5 MW-8 MW-3 MW-4 MW-9 MW-11 MW-7 MW-1 MW-18 MW-15 MW-10 MW-14 MW-13 MW-2 MW-12 MW-6 MW-19
B-07 SB-1 SB2 SB1 SVS-01 SVS-02 SB SB-4 SB-3 GP-04 GP-01 GP-02 GP-03 B-06 B-05 B-03

Approximate Direction of Groundwater Flow
Approximate Location of Former Texaco Dispenser Islands
Former 3,000 GAL New Oil UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 6,000 GAL Gasoline UST
Used Oil UST (closed in place)
Former Texaco Hoist
Former used Oil AST
1,000 GAL Heating Oil 60 µg/m3 (closed-in-place)

78 µg/m3
100 µg/m3
90 µg/m3
80 µg/m3
70 µg/m3
50 µg/m3
80 µg/m3
100 µg/m3
80 U µg/m3
77 U µg/m3
190 U µg/m3

Path: Q:\Projects\2019\1996002.02 DOE - Texaco Strickland RI_FS\GIS\mxds\Jul2019_Vapor_C9-C10Aro.mxd ©2017 Kennedy/Jenks Consultants

## Legend

Monitoring Well with Measurable LNAPL

**C9 - C10 Aromatics Isoconcentration**

- 50 µg/m3
- 60 µg/m3
- 70 µg/m3
- 80 µg/m3
- 90 µg/m3
- LNAPL >0.01 ft
- LNAPL >0.3 ft

**Notes:**
1. All locations are approximate.
2. Basemap and data from Aspect Consulting Preliminary Draft RIWP Results from 14 February 2020.
3. Concentrations and LNAPL depths collected by Aspect Consulting during July 2019.
4. U = Analyte was not detected at or above the reported result.

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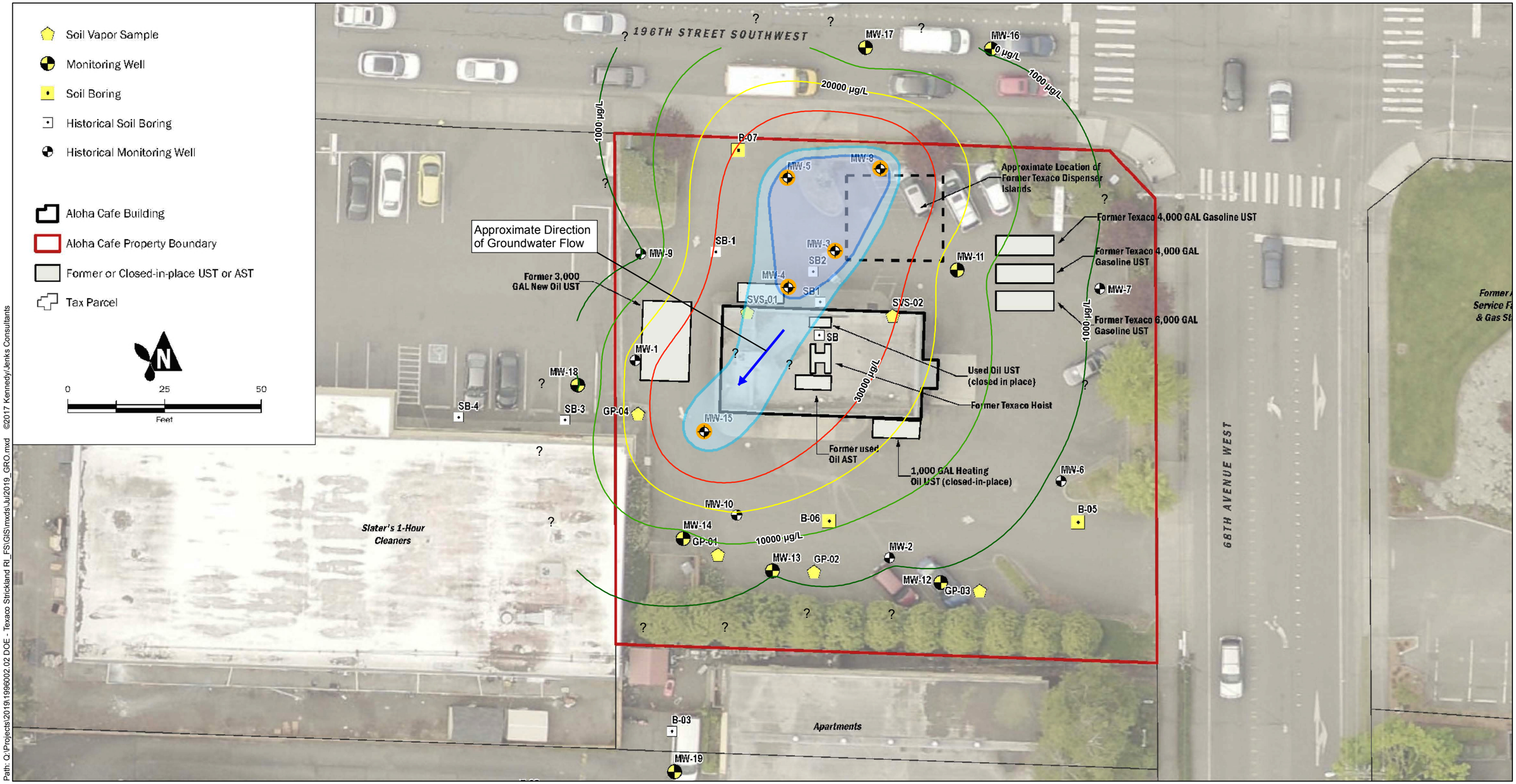
**Kennedy/Jenks Consultants**

Texaco Strickland
Lynnwood, WA

**C9-C10 Aromatics Vapor Isoconcentration Map July 2019**

March 2020

**Figure 5**




Path: Q:\Projects\2019\1996002.02 DOE - Texaco Strickland RI_FS\GIS\mxds\Jul2019_GRO.mxd ©2017 Kennedy/Jenks Consultants

**Legend**

- Monitoring Well with Measurable LNAPL

**GRO Isoconcentration**

- 1000 µg/L
- 10000 µg/L
- 20000 µg/L
- 30000 µg/L
- LNAPL >0.01 ft
- LNAPL >0.3 ft

**Notes:**

1. All locations are approximate.
2. Basemap and data from Aspect Consulting Preliminary Draft RIWP Results from 14 February 2020.
3. Concentrations and LNAPL depths collected by Aspect Consulting during July and August 2019.

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**Kennedy/Jenks Consultants**

Texaco Strickland
Lynnwood, WA

**Gasoline-Range Organics Isoconcentration Map July/August 2019**

March 2020

**Figure 6**

Soil Vapor Sample
Monitoring Well
Soil Boring
Historical Soil Boring
Historical Monitoring Well

Aloha Cafe Building
Aloha Cafe Property Boundary
Former or Closed-in-place UST or AST
Tax Parcel

N

0 25 50
Feet

196TH STREET SOUTHWEST
68TH AVENUE WEST
Slater's 1-Hour Cleaners
Apartments
Former A Service Fa & Gas St

MW-17 MW-16 MW-5 MW-8 MW-3 MW-4 MW-9 MW-11 MW-7 MW-1 MW-18 MW-15 MW-10 MW-14 MW-13 MW-2 MW-12 MW-6 MW-19
B-07 SB-1 SB2 SB1 SVS-01 SVS-02 SB SB-4 SB-3 B-06 B-05 B-03
GP-01 GP-02 GP-03 GP-04

2000 µg/L
1500 µg/L
1000 µg/L
500 µg/L
2500 µg/L
500 µg/L

Approximate Direction of Groundwater Flow
Approximate Location of Former Texaco Dispenser Islands
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 6,000 GAL Gasoline UST
Former 3,000 GAL New Oil UST
Used Oil UST (closed in place)
Former Texaco Hoist
Former used Oil AST
1,000 GAL Heating Oil UST (closed-in-place)

Path: Q:\Projects\2019\1996002.02 DOE - Texaco Strickland RI_FS\GIS\mxds\Jul2019_DRO.mxd ©2017 Kennedy/Jenks Consultants

**Legend**

Monitoring Well with Measurable LNAPL

**DRO Isoconcentration**

500 µg/L
1000 µg/L
1500 µg/L
2000 µg/L
2500 µg/L
LNAPL >0.01 ft
LNAPL >0.3 ft

**Notes:**
1. All locations are approximate.
2. Basemap and data from Aspect Consulting Preliminary Draft RIWP Results from 14 February 2020.
3. Concentrations and LNAPL depths collected by Aspect Consulting during July and August 2019.

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**Kennedy/Jenks Consultants**

Texaco Strickland
Lynnwood, WA

**Diesel-Range Organics Isoconcentration Map July/August 2019**

March 2020
**Figure 7**

Soil Vapor Sample
Monitoring Well
Soil Boring
Historical Soil Boring
Historical Monitoring Well

Aloha Cafe Building
Aloha Cafe Property Boundary
Former or Closed-in-place UST or AST
Tax Parcel

N

0 25 50
Feet

196TH STREET SOUTHWEST
68TH AVENUE WEST
Slater's 1-Hour Cleaners
Apartments
Former Service Station & Gas Station

MW-17 MW-16 MW-5 MW-8 MW-3 MW-4 MW-9 MW-11 MW-7 MW-1 MW-18 MW-15 MW-10 MW-14 MW-13 MW-2 MW-12 MW-6 MW-19
B-07 SB-1 SB2 SB1 SB SB-4 SB-3 B-06 B-05 B-03
SVS-01 SVS-02
GP-01 GP-02 GP-03 GP-04

1000 µg/L
1500 µg/L
500 µg/L

Approximate Direction of Groundwater Flow
Approximate Location of Former Texaco Dispenser Islands
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 6,000 GAL Gasoline UST
Former 3,000 GAL New Oil UST
Used Oil UST (closed in place)
Former Texaco Hoist
Former used Oil AST
1,000 GAL Heating Oil UST (closed-in-place)

Path: Q:\Projects\2019\1996002.02 DOE - Texaco Strickland RI_FS\GIS\mxds\Jul2019_ORO.mxd ©2017 Kennedy/Jenks Consultants

**Legend**

Monitoring Well with Measurable LNAPL
LNAPL >0.01 ft
LNAPL >0.3 ft

**ORO Isoconcentration**

500
1000
1500

**Notes:**
1. All locations are approximate.
2. Basemap and data from Aspect Consulting Preliminary Draft RIWP Results from 14 February 2020.
3. Concentrations and LNAPL depths collected by Aspect Consulting during July and August 2019.

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**Kennedy/Jenks Consultants**

Texaco Strickland
Lynnwood, WA

**Oil-Range Organics Isoconcentration Map July/August 2019**

**Figure 8**

Soil Vapor Sample
Monitoring Well
Soil Boring
Historical Soil Boring
Historical Monitoring Well

Aloha Cafe Building
Aloha Cafe Property Boundary
Former or Closed-in-place UST or AST
Tax Parcel

N

0 25 50
Feet

196TH STREET SOUTHWEST
68TH AVENUE WEST
Slater's 1-Hour Cleaners
Apartments
Former A Service Fa & Gas St

MW-17 MW-16 MW-5 MW-8 MW-3 MW-4 MW-11 MW-7 MW-1 MW-18 MW-15 MW-6 MW-10 MW-14 MW-13 MW-2 MW-12 MW-19 MW-9
B-07 SB-1 SB2 SB1 SVS-01 SVS-02 SB SB-4 SB-3 GP-04 GP-01 GP-02 GP-03 B-06 B-05 B-03

Approximate Direction of Groundwater Flow
Approximate Location of Former Texaco Dispenser Islands
Former 3,000 GAL New Oil UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 6,000 GAL Gasoline UST
Used Oil UST (closed in place)
Former Texaco Hoist
Former used Oil AST
1,000 GAL Heating Oil UST (closed-in-place)

1000 µg/L
10000 µg/L
20000 µg/L
30000 µg/L
40000 µg/L

## Legend

Monitoring Well with Measurable LNAPL
LNAPL >0.01 ft
LNAPL >0.3 ft

**GRO Isoconcentration**
1000 µg/L
10000 µg/L
20000 µg/L
30000 µg/L
40000 µg/L

**Notes:**
1. All locations are approximate.
2. Basemap and data from Aspect Consulting Preliminary Draft RIWP Results from 14 February 2020.
3. Concentrations and LNAPL depths collected by Aspect Consulting during November 2019.

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**Kennedy/Jenks Consultants**

Texaco Strickland
Lynnwood, WA

**Gasoline-Range Organics Isoconcentration Map November 2019**

February 2020
**Figure 9**



Path: Q:\Projects\2019\1996002.02 DOE - Texaco Strickland RI_FS\GIS\mxds\Nov2019_GRO.mxd

Soil Vapor Sample
Monitoring Well
Soil Boring
Historical Soil Boring
Historical Monitoring Well

Aloha Cafe Building
Aloha Cafe Property Boundary
Former or Closed-in-place UST or AST
Tax Parcel

N

0 25 50
Feet

196TH STREET SOUTHWEST
68TH AVENUE WEST
Slater's 1-Hour Cleaners
Apartments
Former Service Station & Gas Station

MW-17 MW-16 MW-5 MW-8 MW-3 MW-4 MW-9 MW-11 MW-7 MW-1 MW-18 MW-15 MW-10 MW-14 MW-13 MW-2 MW-12 MW-6 MW-19
B-07 SB-1 SB2 SB1 SVS-01 SVS-02 SB SB-4 SB-3 GP-04 GP-01 GP-02 GP-03 B-06 B-05 B-03

Approximate Direction of Groundwater Flow
Approximate Location of Former Texaco Dispenser Islands
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 6,000 GAL Gasoline UST
Former 3,000 GAL New Oil UST
Used Oil UST (closed in place)
Former Texaco Hoist
Former used Oil AST
1,000 GAL Heating Oil UST (closed-in-place)

4000 µg/L
3500 µg/L
3000 µg/L
2500 µg/L
2000 µg/L
1500 µg/L
1000 µg/L
500 µg/L

## Legend

Monitoring Well with Measurable LNAPL
LNAPL >0.01 ft
LNAPL >0.3 ft

**DRO Isoconcentration**

500 µg/L
1000 µg/L
1500 µg/L
2000 µg/L
2500 µg/L
3000 µg/L
3500 µg/L
4000 µg/L

**Notes:**
1. All locations are approximate.
2. Basemap and data from Aspect Consulting Preliminary Draft RIWP Results from 14 February 2020.
3. Concentrations and LNAPL depths collected by Aspect Consulting during November 2019.

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Texaco Strickland
Lynnwood, WA

**Diesel-Range Organics Isoconcentration Map November 2019**

February 2020
**Figure 10**


Path: Q:\Projects\2019\1996002.02 DOE - Texaco Strickland RI_FS\GIS\mxds\Nov2019_DRO.mxd

Soil Vapor Sample
Monitoring Well
Soil Boring
Historical Soil Boring
Historical Monitoring Well

Aloha Cafe Building
Aloha Cafe Property Boundary
Former or Closed-in-place UST or AST
Tax Parcel

N

0 25 50
Feet

196TH STREET SOUTHWEST
68TH AVENUE WEST
Slater's 1-Hour Cleaners
Apartments
Former Service Station & Gas Station

MW-17 MW-16 B-07 MW-5 MW-8 MW-3 SB2 MW-4 SB1 SVS-01 SVS-02 SB MW-1 MW-9 SB-1 MW-11 MW-7 MW-18 SB-4 SB-3 GP-04 MW-15 MW-10 B-06 MW-14 GP-01 MW-13 GP-02 MW-2 MW-12 GP-03 MW-6 B-05 B-03 MW-19

Approximate Direction of Groundwater Flow
Former 3,000 GAL New Oil UST
Approximate Location of Former Texaco Dispenser Islands
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 4,000 GAL Gasoline UST
Former Texaco 6,000 GAL Gasoline UST
1500 µg/L
1000 µg/L
500 µg/L
Used Oil UST (closed in place)
Former Texaco Hoist
Former Used Oil AST
1,000 GAL Heating Oil UST (closed-in-place)

**Legend**

Monitoring Well with Measurable LNAPL
LNAPL >0.01 ft
LNAPL >0.3 ft

**ORO Isoconcentration**

500 µg/L
1000 µg/L
1500 µg/L

**Notes:**
1. All locations are approximate.
2. Basemap and data from Aspect Consulting Preliminary Draft RIWP Results from 14 February 2020.
3. Concentrations and LNAPL depths collected by Aspect Consulting during November 2019.

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**Kennedy/Jenks Consultants**

Texaco Strickland
Lynnwood, WA

**Oil-Range Organics Isoconcentration Map November 2019**

February 2020
**Figure 11**


Path: Q:\Projects\2019\1996002.02 DOE - Texaco Strickland RI_FS\GIS\mxds\Nov2019_ORO.mxd

# Enclosure F - References

**References:**

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Aspect Consulting, 2020. *Remedial Investigation Work Plan Addendum: Texaco Strickland Cleanup Site.* Project No. 180357. March 25, 2020. Agency Review Draft.

Kennedy-Jenks 2020 draft Combined Figures Draft: Oil-Range Organics Isoconcentration Map. November 2019

Enclosure D - Information & Policy Section Toxics Cleanup Program Memo Strickland Texaco Site Comingling, April 30, 2020, Ecology

WASHINGTON STATE DEPARTMENT OF ECOLOGY

# Focus

## Model Toxics Control Act Cleanup Regulation: Process for Cleanup of Hazardous Waste Sites

In March of 1989, an innovative, citizen-mandated toxic waste cleanup law went into effect in Washington, changing the way hazardous waste sites in this state are cleaned up. Passed by voters as Initiative 97, this law is known as the Model Toxics Control Act, chapter 70.105D RCW. This fact sheet provides a brief overview of the process for the cleanup of contaminated sites under the rules Ecology adopted to implement that Act (chapter 173-340 WAC).

### How the Law Works

The cleanup of hazardous waste sites is complex and expensive. In an effort to avoid the confusion and delays associated with the federal Superfund program, the Model Toxics Control Act is designed to be as streamlined as possible. It sets strict cleanup standards to ensure that the quality of cleanup and protection of human health and the environment are not compromised. At the same time, the rules that guide cleanup under the Act have built-in flexibility to allow cleanups to be addressed on a site-specific basis.

The Model Toxics Control Act funds hazardous waste cleanup through a tax on the wholesale value of hazardous substances. The tax is imposed on the first in-state possessor of hazardous substances at the rate of 0.7 percent, or $7 per $1,000. Since its passage in 1988, the Act has guided the cleanup of thousands of hazardous waste sites that dot the Washington landscape. The Washington State Department of Ecology's Toxic Cleanup Program ensures that these sites are investigated and cleaned up.

### What Constitutes a Hazardous Waste Site?

Any owner or operator who has information that a hazardous substance has been released to the environment at the owner or operator's facility and may be a threat to human health or the environment must report this information to the Department of Ecology (Ecology). If an "initial investigation" by Ecology confirms further action (such as testing or cleanup) may be necessary, the facility is entered onto either Ecology's "Integrated Site Information System" database or "Leaking Underground Storage Tank" database. These are computerized databases used to track progress on all confirmed or suspected contaminated sites in Washington State. All confirmed sites that have not been already voluntarily cleaned up are ranked and placed on the state "Hazardous Sites List." Owners, operators, and other persons known to be potentially liable for the cleanup of the site will receive an "Early Notice Letter" from Ecology notifying them that their site is suspected of needing cleanup, and that it is Ecology's policy to work cooperatively with them to accomplish prompt and effective cleanup.

November 2007 (revised) Focus No. 94-129 *printed on recycled paper*

## Who is Responsible for Cleanup?

Any past or present relationship with a contaminated site may result in liability. Under the Model Toxics Control Act a potentially liable person can be:

- A current or past facility owner or operator.
- Anyone who arranged for disposal or treatment of hazardous substances at the site.
- Anyone who transported hazardous substances for disposal or treatment at a contaminated site, unless the facility could legally receive the hazardous materials at the time of transport.
- Anyone who sells a hazardous substance with written instructions for its use, and abiding by the instructions results in contamination.

In situations where there is more than one potentially liable person, each person is jointly and severally liable for cleanup at the site. That means each person can be held liable for the entire cost of cleanup. In cases where there is more than one potentially liable person at a site, Ecology encourages these persons to get together to negotiate how the cost of cleanup will be shared among all potentially liable persons.

Ecology must notify anyone it knows may be a "potentially liable person" and allow an opportunity for comment before making any further determination on that person's liability. The comment period may be waived at the potentially liable person's request or if Ecology has to conduct emergency cleanup at the site.

## Achieving Cleanups through Cooperation

Although Ecology has the legal authority to order a liable party to clean up, the department prefers to achieve cleanups cooperatively. Ecology believes that a non-adversarial relationship with potentially liable persons improves the prospect for prompt and efficient cleanup. The rules implementing the Model Toxics Control Act, which were developed by Ecology in consultation with the Science Advisory Board (created by the Act), and representatives from citizen, environmental and business groups, and government agencies, are designed to:

- Encourage independent cleanups initiated by potentially liable persons, thus providing for quicker cleanups with less legal complexity.
- Encourage an open process for the public, local government and liable parties to discuss cleanup options and community concerns.
- Facilitate cooperative cleanup agreements rather than Ecology-initiated orders. *Ecology can, and does, however use enforcement tools in emergencies or with recalcitrant potentially liable persons.*

## What is the Potentially Liable Person's Role in Cleanup?

The Model Toxics Control Act requires potentially liable persons to assume responsibility for cleaning up contaminated sites. For this reason, Ecology does not usually conduct the actual cleanup when a potentially liable person can be identified. Rather, Ecology oversees the cleanup of sites to ensure that investigations, public involvement and actual cleanup and monitoring are done appropriately. Ecology's costs of this oversight are required to be paid by the liable party.

When contamination is confirmed at the site, the owner or operator may decide to proceed with cleanup without Ecology assistance or approval. Such "independent cleanups" are

allowed under the Model Toxics Control Act under most circumstances, but must be reported to Ecology, and are done at the owner's or operator's own risk. Ecology may require additional cleanup work at these sites to bring them into compliance with the state cleanup standards. Most cleanups in Washington are done independently.

Other than local governments, potentially liable persons conducting independent cleanups do not have access to financial assistance from Ecology. Those who plan to seek contributions from other persons to help pay for cleanup costs need to be sure their cleanup is "the substantial equivalent of a department-conducted or department-supervised remedial action." Ecology has provided guidance on how to meet this requirement in WAC 173-340-545. Persons interested in pursuing a private contribution action on an independent cleanup should carefully review this guidance prior to conducting site work.

## Working with Ecology to Achieve Cleanup

Ecology and potentially liable persons often work cooperatively to reach cleanup solutions. Options for working with Ecology include formal agreements such as consent decrees and agreed orders, and seeking technical assistance through the Voluntary Cleanup Program. These mechanisms allow Ecology to take an active role in cleanup, providing help to potentially liable persons and minimizing costs by ensuring the job meets state standards the first time. This also minimizes the possibility that additional cleanup will be required in the future – providing significant assurances to investors and lenders.

Here is a summary of the most common mechanisms used by Ecology:

- **Voluntary Cleanup Program**: Many property owners choose to cleanup their sites independent of Ecology oversight. This allows many smaller or less complex sites to be cleaned up quickly without having to go through a formal process. A disadvantage to property owners is that Ecology does not approve the cleanup. This can present a problem to property owners who need state approval of the cleanup to satisfy a buyer or lender.

  One option to the property owner wanting to conduct an independent cleanup yet still receive some feedback from Ecology is to request a technical consultation through Ecology's Voluntary Cleanup Program. Under this voluntary program, the property owner submits a cleanup report with a fee to cover Ecology's review costs. Based on the review, Ecology either issues a letter stating that the site needs "No Further Action" or identifies what additional work is needed. Since Ecology is not directly involved in the site cleanup work, the level of certainty in Ecology's response is less than in a consent decree or agreed order. However, many persons have found a "No Further Action" letter to be sufficient for their needs, making the Voluntary Cleanup Program a popular option.

- **Consent Decrees:** A consent decree is a formal legal agreement filed in court. The work requirements in the decree and the terms under which it must be done are negotiated and agreed to by the potentially liable person, Ecology and the state Attorney General's office. Before consent decrees can become final, they must undergo a public review and comment period that typically includes a public hearing. Consent decrees protect the potentially liable person from being sued for "contribution" by other persons that incur cleanup expenses at the site while facilitating any contribution claims against the other persons when they are responsible for part of the cleanup costs. Sites cleaned up under a consent decree are also exempt from having to obtain certain state and local permits that could delay the cleanup.

- ***De Minimus* Consent Decree:** Landowners whose contribution to site contamination is "insignificant in amount and toxicity" may be eligible for a de minimus consent decree. In these decrees, landowner typically settle their liability by paying for some of the cleanup instead of actually conducting the cleanup work. Ecology usually accepts a de minimus settlement proposal only if the landowner is affiliated with a larger site cleanup that Ecology is currently working on.
- **Prospective Purchaser Consent Decree:** A consent decree may also be available for a "prospective purchaser" of contaminated property. In this situation, a person who is not already liable for cleanup and wishes to purchase a cleanup site for redevelopment or reuse may apply to negotiate a prospective purchaser consent decree. The applicant must show, among other things, that they will contribute substantial new resources towards the cleanup. Cleanups that also have a substantial public benefit will receive a higher priority for prospective purchaser agreements. If the application is accepted, the requirements for cleanup are negotiated and specified in a consent decree so that the purchaser can better estimate the cost of cleanup before buying the land.
- **Agreed Orders:** Unlike a consent decree, an agreed order is not filed in court and is not a settlement. Rather, it is a legally binding administrative order issued by Ecology and agreed to by the potentially liable person. Agreed orders are available for remedial investigations, feasibility studies, and final cleanups. An agreed order describes the site activities that must occur for Ecology to agree not to take enforcement action for that phase of work. As with consent decrees, agreed orders are subject to public review and offer the advantage of facilitating contribution claims against other persons and exempting cleanup work from obtaining certain state and local permits.

## Ecology-Initiated Cleanup Orders

Administrative orders requiring cleanup activities without an agreement with a potentially liable person are known as **enforcement orders**. These orders are usually issued to a potentially liable person when Ecology believes a cleanup solution cannot be achieved expeditiously through negotiation or if an emergency exists. If the responsible party fails to comply with an enforcement order, Ecology can clean up the site and later recover costs from the responsible person(s) at up to three times the amount spent. The state Attorney General's Office may also seek a fine of up to $25,000 a day for violating an order. Enforcement orders are subject to public notification.

## Financial Assistance

Each year, Ecology provides millions of dollars in grants to local governments to help pay for the cost of site cleanup. In general, such grants are available only for sites where the cleanup work is being done under an order or decree. Ecology can also provide grants to local governments to help defray the cost of replacing a public water supply well contaminated by a hazardous waste site. Grants are also available for local citizen groups and neighborhoods affected by contaminated sites to facilitate public review of the cleanup. See Chapter 173-322 WAC for additional information on grants to local governments and Chapter 173-321 WAC for additional information on public participation grants.

## Public Involvement

Public notices are required on all agreed orders, consent decrees, and enforcement orders. Public notification is also required for all Ecology-conducted remedial actions.

Ecology's Site Register is a widely used means of providing information about cleanup efforts to the public and is one way of assisting community involvement. The Site Register is published every two weeks to inform citizens of public meetings and comment periods, discussions or negotiations of legal agreements, and other cleanup activities. The Site Register can be accessed on the Internet at: www.ecy.wa.gov/programs/tcp/pub_inv/pub_inv2.html.

## How Sites are Cleaned Up

The rules describing the cleanup process at a hazardous waste site are in chapter 173-340 WAC. The following is a general description of the steps taken during the cleanup of an average hazardous waste site. Consult the rules for the specific requirements for each step in the cleanup process.

***1. Site Discovery:*** Sites where contamination is found must be reported to Ecology's Toxics Cleanup Program within 90 days of discovery, unless it involves a release of hazardous materials from an underground storage tank system. In that case, the site discovery must be reported to Ecology within 24 hours. At this point, potentially liable persons may choose to conduct independent cleanup without assistance from the department, but cleanup results must be reported to Ecology.

***2. Initial Investigation:*** Ecology is required to conduct an initial investigation of the site within 90 days of receiving a site discovery report. Based on information obtained about the site, a decision must be made within 30 days to determine if the site requires additional investigation, emergency cleanup, or no further action. If further action is required under the Model Toxics Control Act, Ecology sends early notice letters to owners, operators and other potentially liable persons inviting them to work cooperatively with the department.

***3. Site Hazard Assessment:*** A site hazard assessment is conducted to confirm the presence of hazardous substances and to determine the relative risk the site poses to human health and the environment.

***4. Hazard Ranking:*** The Model Toxics Control Act requires that sites be ranked according to the relative health and environmental risk each site poses. Working with the Science Advisory Board, Ecology created the Washington Ranking Method to categorize sites using data from site hazard assessments. Sites are ranked on a scale of 1 to 5. A score of 1 represents the highest level of risk and 5 the lowest. Ranked sites are placed on the state Hazardous Sites List.

***5. Remedial Investigation/Feasibility Study:*** A remedial investigation and feasibility study is conducted to define the extent and magnitude of contamination at the site. Potential impacts on human health and the environment and alternative cleanup technologies are also evaluated in this study. Sites being cleaned up by Ecology or by potentially liable persons under a consent decree, agreed order or enforcement order are required to provide for a 30 day public review before finalizing the report.

***6. Selection of Cleanup Action:*** Using information gathered during the study, a cleanup action plan is developed. The plan identifies preferred cleanup methods and specifies cleanup standards and other requirements at the site. A draft of the plan is subject to public review and comment before it is finalized.

***7. Site Cleanup:*** Actual cleanup begins when the cleanup action plan is implemented. This includes design, construction, operation and monitoring of cleanup actions. A site may be taken off the Hazardous Sites List after cleanup is completed and Ecology determines cleanup standards have been met.

## For More Information / Special Accommodation Needs

If you would like more information about the state Model Toxics Control Act, please call us toll-free at **1-800-826-7716**, or contact your regional Washington State Department of Ecology office listed below. Information about site cleanup, including a listing of ranked hazardous waste sites, is also accessible through our Internet address: http://www.ecy.wa.gov/programs/tcp/cleanup.html

- **Northwest Regional Office** **425/649-7000**
  (Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom Counties)
- **Southwest Regional Office** **360/407-6300**
  (Southwestern Washington, Olympic Peninsula, Pierce, Thurston and Mason Counties)
- **Central Regional Office** **509/575-2490**
  (Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima Counties)
- **Eastern Regional Office** **509/329-3400**
  (Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman Counties)

*If you need this publication in an alternative format, please contact the Toxics Cleanup Program at (360) 407-7170. Persons with a hearing loss can call 711 for the Washington Relay Service. Persons with a speech disability can call 877-833-6341.*

**Disclaimer Notice:** This fact sheet is intended to help the user understand the Model Toxics Control Act Cleanup Regulation, chapter 173-340 WAC. It does not establish or modify regulatory requirements.