Questions and Answers Sheet Unocal Edmonds Bulk Fuel Terminal 0178

Toxics Cleanup Program

Washington State Department of Ecology
Northwest Regional Office
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Cover photo credit

- Image courtesy of Chevron

Related Information

- Cleanup site ID: 5180
- Facility site ID: 2720

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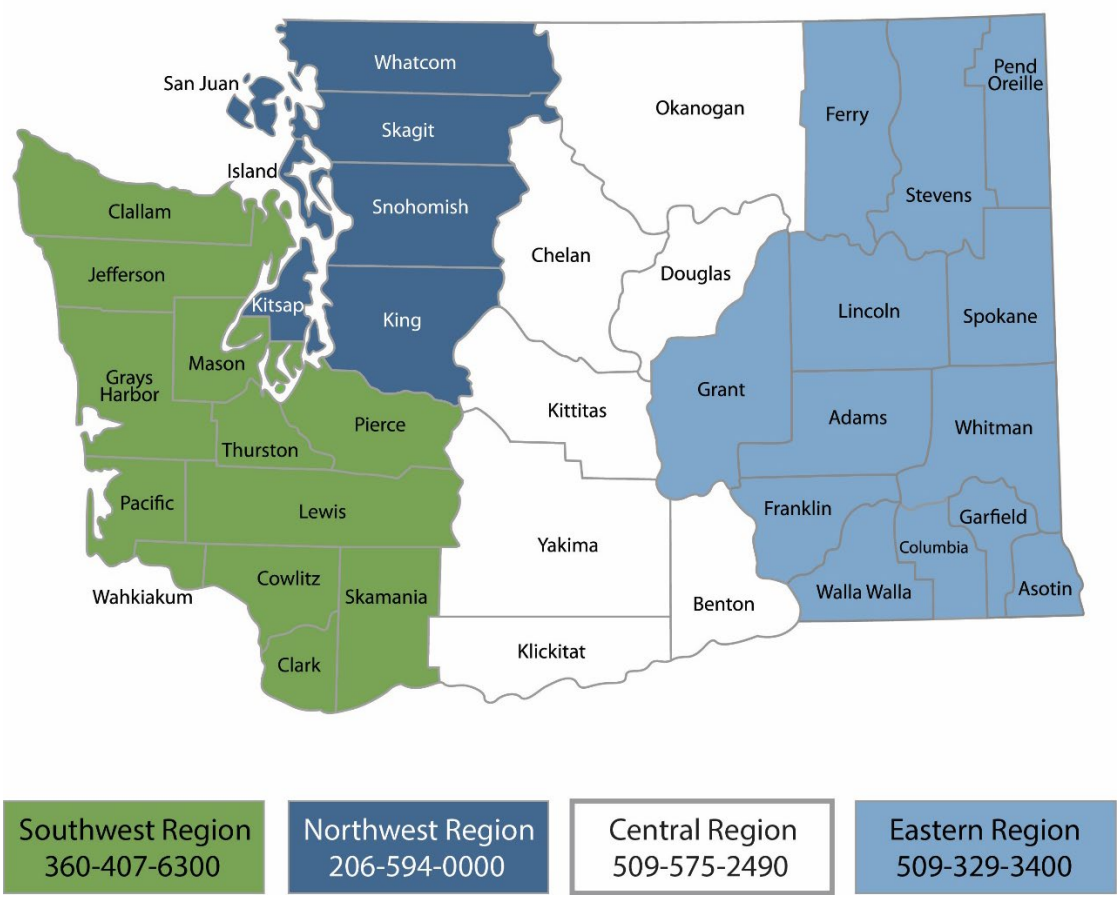
[1] https://apps.ecology.wa.gov/cleanupsearch/site/5180
[2] https://ecology.wa.gov/About-us/Contact-us

Department of Ecology's Region Offices

Map of Counties Served



Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	PO Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
Headquarters	Across Washington	PO Box 46700 Olympia, WA 98504	360-407-6000

Table of Contents

QUESTIONS AND ANSWERS SHEET 2

UNOCAL EDMONDS BULK FUEL 2

TERMINAL 0178 2

Publication Information **2**
Cover photo credit 2
Related Information 2

Contact Information **2**

ADA Accessibility **2**

Department of Ecology's Region Offices **3**
Map of Counties Served 3

Table of Contents **4**
Background 5
More information 5
Questions and Answers 6
Site Overview 6
Cleaning up contamination 8
Addressing existing contamination 9
Monitoring the site following cleanup 11
Future landowners 11

Background

Union Oil Company of California (Unocal), a subsidiary of Chevron Corp, owned and operated a former asphalt plant (operating 1953 to late 1970s) and bulk fuel terminal (operating 1923 to 1991). The Washington Department of Ecology (Ecology) entered into an Agreed Order with Unocal to conduct remedial activities at the Unocal Edmonds Bulk Fuel Terminal 0178 Site[1] (the "Site") under the Model Toxics Control Act (MTCA)[3], Washington's environmental cleanup law. MTCA provides requirements for contaminated site cleanup and sets standards that protect human health and the environment. Ecology enacts MTCA and oversees cleanups. The MTCA site cleanup process[4] is completed in steps over a variable timeline.

The majority of the Site has been cleaned up through Interim Actions (early partial cleanups), including several excavations and a groundwater treatment system. Cleanup work at the Site continues as an Interim Action. Ecology is negotiating the final Cleanup Action Plan and Consent Decree (settlement) with Unocal/Chevron.

In 2005, the Washington State Department of Transportation (WSDOT) signed a Purchase and Sale Agreement to purchase property from Unocal, which includes part of the Site. As part of the Purchase and Sale Agreement, transfer of the property to the State cannot occur until certain remediation work has been completed.

Although the property is zoned for mixed use/commercial, the City of Edmonds and community groups have expressed interest in using a portion of the Site for a marsh restoration project to daylight tidal connections between Edmonds Marsh (not part of the Site) and Puget Sound. By doing so the marsh would become accessible to migrating salmon, including the endangered juvenile Chinook. Ecology recognizes these potential future land use interests and has therefore revised the Terrestrial Ecological Evaluation (TEE)[5] for unrestricted land use.

More information

To learn more about this site and review related documents visit the Unocal Edmonds Bulk Fuel Terminal 0178 cleanup site page.[1]

[3] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Rules-directing-our-cleanup-work/Model-Toxics-Control-Act
[4] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-process
[5] https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Terrestrial-ecological-evaluation

Questions and Answers

Site Overview

1) **How is the site defined?**
   The Site is where contamination (primarily petroleum products) from former operations at the property had come to be located. For this Site, contamination was found in soil, groundwater, and sediments.

2) **Who is responsible for cleaning up the site?**
   Unocal is a Potentially Liable Person (PLP) for the Site as the current owner of property at the Site and as an owner/operator at the time that contamination was released. Unocal is a subsidiary of Chevron Corporation, and Chevron Environmental Management Company is conducting the cleanup under Ecology's oversight.

3) **What is Ecology's role in the cleanup of the Site?**
   Ecology is overseeing cleanup work at the Site under the Model Toxics Control Act (MTCA) to ensure the contamination released from operations at the property is not a risk to human health or the environment.

4) **What is Ecology's position on the community's proposal to restore salmon habitat?**
   Ecology supports habitat restoration projects that actively preserve, restore, and enhance existing wetlands throughout the state. Nevertheless, Ecology does not dictate how property is used by the property owner – so long as that use does not impact the cleanup.

5) **What cleanup work has been completed at the Site to date?**
   A number of Interim Actions (early partial cleanups) have been conducted over the years to clean up petroleum floating on groundwater, remove arsenic-contaminated soil, and remove petroleum-contaminated soil.

   The Site was divided into two parts – an Upper Yard and Lower Yard. Ecology certified that the Upper Yard was suitable for residential use in 2003 and the Point Edwards Condominiums were subsequently constructed.

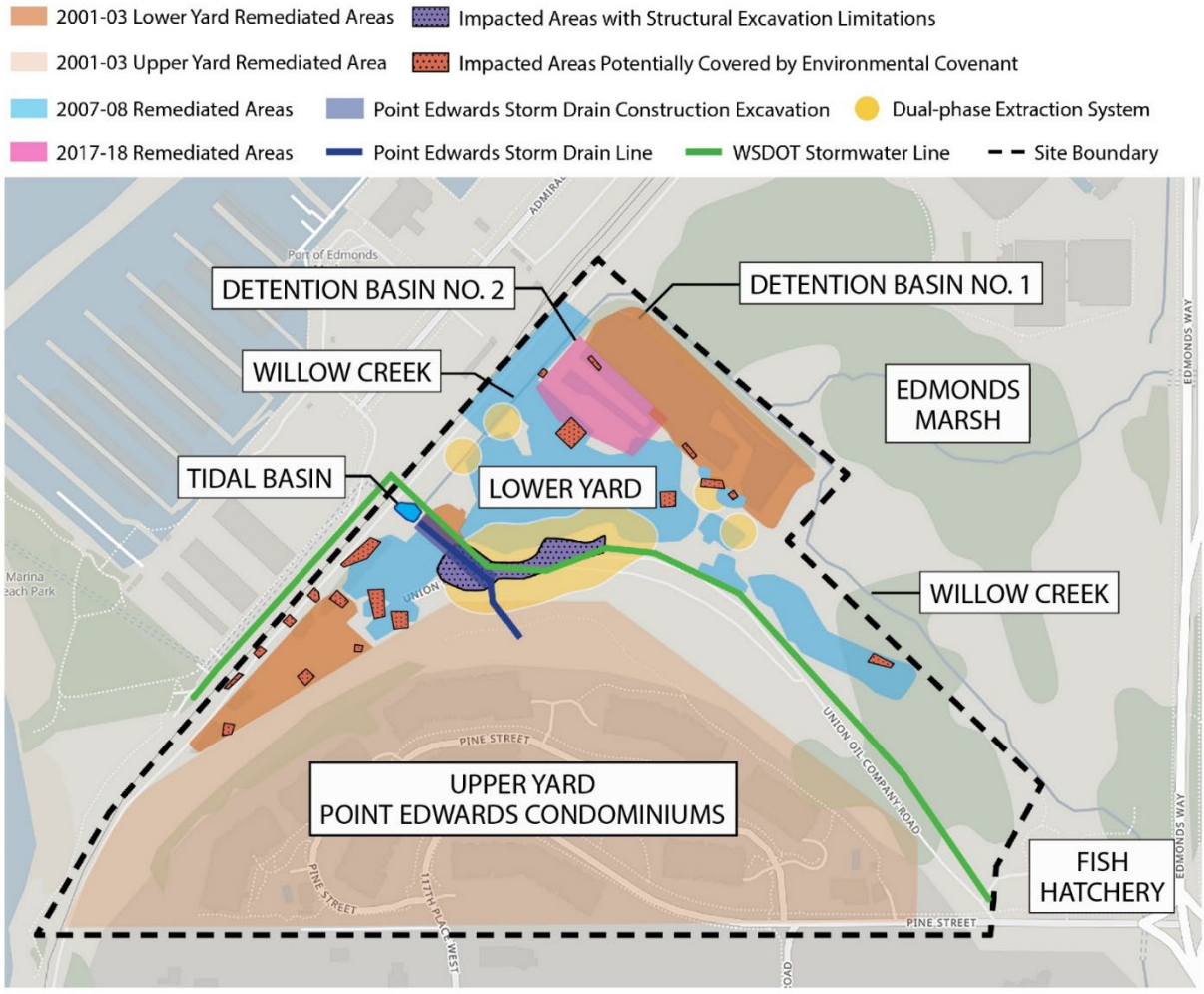
6) **What is the current status of the property transfer of the Lower Yard?**
   Unocal currently owns the Lower Yard. In 2005, Unocal and WSDOT entered into a Purchase and Sale Agreement that provides for WSDOT to assume ownership of the Lower Yard upon the issuance of a Cleanup Action Plan and the completion of "capital remediation work," as that term is defined in the Agreement. Ecology is not a party to this agreement and cannot enforce this agreement.

7) How much contamination remains at the site?

Historical data was re-evaluated considering ecological receptors in areas ecological receptors would be expected to be found, i.e. in soil within 4 feet of the ground surface. Based on this evaluation, several small, isolated areas of contamination remain at the Site. See map below. As many of the soil samples were collected many years ago, additional sampling will be conducted to verify remaining contamination. Some of the data used to generate the map below is over 20 years old.

Additionally, soil contamination remains in a deeper area along the storm water line.

Contamination is intermittently detected in groundwater. Of greatest concern are detections along Willow Creek. The expanded DPE system is targeting these areas. Groundwater contamination along Willow Creek and the stormwater line must be cleaned up as part of the cleanup action plan.



Site map and locations of interim actions (remediated areas). Site map is a graphical representation of current Site conditions for illustrative purposes only.

8) Are there similar cleanup sites in the state of Washington that compare to this site?
The North Marina West End site[6], Great Northern BNRR Tank Farm site[7], and Golden Gardens Park site[8] are a few examples of similar cleanup sites. More similar sites can be investigated through the What's In My Neighborhood[9] interactive map. The upper yard of the Unocal Edmonds Bulk Fuel Terminal Site, now Point Edwards, is also a good example of a successful cleanup.

Cleaning up contamination

9) What are cleanup levels (CULs)?
CULs are defined as the concentration of a hazardous substance in soil, water, air, or sediment that is determined to be protective of human health and the environment under specified exposure conditions.

10) How are CULs determined?
CULs for the Site are set by considering the potential exposure pathways and selecting the lowest acceptable concentration from all pathways assessed. Washington law requires the responsible party to conduct a disproportionate cost analysis (DCA) to select a cleanup approach. It is possible that the selected remedy includes leaving some contamination on-site with controls to mitigate potential exposure at those locations. Potential liable persons (PLPs) have the option to set Site-specific CULs or use predetermined levels that are part of the MTCA rule.

To confirm CULs were protective of aquatic receptors, bioassays were conducted with media from the Site. Fathead minnows, daphnids, topsmelt, and mysid shrimp, were exposed to contaminated groundwater from the Site. Amphipods, bivalve larvae, and juvenile polychaete were exposed to sediment from the Site.

11) What is a Terrestrial Ecological Evaluation?
A Terrestrial Ecological Evaluation (TEE)[5] works to protect native plants, soil biota, and wildlife at contaminated sites cleaned up under the state's cleanup law, the Model Toxics Control Act (MTCA).

12) How does the TEE affect remediation and CULs?
In general, CULs based on the protection of plants, soil biota, and wildlife are quite low. Due to the expected future use of this Site as open space available as ecological habitat, some of the CULs will be based on ecological receptors. The majority of the Site has been cleaned up and does not pose a risk to receptors, including ecological receptors. There are small areas

[6] https://apps.ecology.wa.gov/cleanupsearch/site/934
[7] https://apps.ecology.wa.gov/cleanupsearch/site/2781
[8] https://apps.ecology.wa.gov/cleanupsearch/site/4753
[9] https://apps.ecology.wa.gov/neighborhood

that may still pose a risk however. The Feasibility Study recommends controls be put in place to mitigate potential exposure in those areas. Controls put in place to protect ecological receptors would also protect human receptors.

13) What CULs are being used for this Site?

CULs will consider direct contact with soil and surface water and environmental receptors. Terrestrial organisms including plants, animals, and soil biota, as well as humans were considered in the assessment.

Section 3 of the 2024 Feasibility Study Addendum presents recommended CULs.

14) Have the CULs changed?

Yes, in 2022, the previously used preliminary CULs for total petroleum hydrocarbons (gasoline, diesel, and oil contamination) were identified as needing to be lowered due to ecological receptors. The TEE, presented as an appendix to the 2024 Feasibility Study Addendum, identified CULs specific to ecological receptors for benzene and individual PAHs also needed to be included.

The groundwater cleanup level for benzene is based on the EPA's Water Quality Criteria, which was updated in 2016. The new Water Quality Criteria for benzene is 1.6 µg/L.

15) Could CULs change in the future if the use of the property changes?

Yes, but changes would require an amendment to the Cleanup Action Plan, which would include a public review and comment period. Proposed points of compliance are presented in the 2024 Feasibility Study Addendum.

16) Have there been cleanup level exceedances in wells installed in excavated areas?

Monitoring Well 504 appears to be the only well installed in an excavated area to exceed a CUL post-excavation; however, gasoline related impacts only exceeded CULs once out of approximately 46 sampling events since the well was installed in 2008. Several wells installed at the edge of excavations have intermittently exceeded CULs, including MW-101, MW-518, MW-ER, MW-129R, and LM-2.

Addressing existing contamination

17) What is the issue surrounding the contaminated soil adjacent to the Washington State Department of Transportation (WSDOT) stormwater pipe?

In the 1970s WSDOT installed a 6-foot diameter stormwater pipe extending from highway 104 to Puget Sound. Contamination from the Site exists directly adjacent to the stormwater pipe. The presence of the stormwater pipe has complicated complete removal of contamination as it is both large and of older construction.

18) How is the dual-phase extraction system removing contamination to CULs around the WSDOT stormwater pipe?

Dual Phase Extraction is a remedial technology that uses pumps and a large vacuum to

depress the water table in areas of soil and groundwater impacts. The extracted groundwater is treated above ground and clean water is discharged. With the water table depressed, a vacuum is induced on the same wells creating air movement through the impacted soil and removing the volatile constituents in the extracted soil gas. The extracted soil gas is then treated prior to discharge to the atmosphere.

19) **Has the contaminated soil been excavated above the WSDOT stormwater pipe?**
A portion of the soil has been excavated…Soil above the western 100' of the WSDOT stormwater pipe on the Site was excavated in 2001, exposing the top of the pipe. Removal of overburden soil in 2001 resulted in damage to the stormwater pipe that required repair.

20) **Was excavation of all contaminated soil above the WSDOT stormwater pipe considered?**
Yes, this is included as part of Alternative 4 of the 2017 Draft Feasibility Study.[10]

21) **Will the remaining contaminated soil along the WSDOT stormwater pipe be excavated and replaced with clean fill?**
A Feasibility Study prepared for the Site assessed different cleanup technologies for the Site, including excavation of contaminated soil along the WSDOT stormwater pipe. Based on the results of the DCA, the Feasibility Study recommends leaving contaminated soil along the stormwater pipe in place and managing the contamination with an Environmental Covenant.

22) **Will the WSDOT stormwater pipe be replaced?**
The storm line is owned and maintained by WSDOT, and we are unaware of any plans to replace it.

23) **Given that contaminated soil exists along the WSDOT stormwater pipe and that water flows through and around the site and presumably around the stormwater pipe, why do the wells not indicate that the contamination exists?**
The detectable contamination remaining in the stormwater pipe area is adsorbed to soil and immobile. The Dual Phase Extraction system has successfully removed and degraded mobile contamination from groundwater in that area.

24) **Is WSDOT still a participant in discussions on how to remediate the contaminated soil next to the stormwater pipe?**
Yes.

[10] https://apps.ecology.wa.gov/cleanupsearch/document/64911

Monitoring the site following cleanup

25) How many years will groundwater monitoring continue?

Quarterly groundwater monitoring is ongoing at the Site. Samples are collected and analyzed for contamination every three months. Monitoring will continue on a quarterly basis throughout the cleanup of the Site to measure cleanup performance. Following the completion of cleanup activities, monitoring will continue for an additional two years to confirm the cleanup was successful.

26) How will soil be monitored?

Soil compliance testing has been conducted throughout the cleanup of the Site. The last soil sampling at the Site was conducted in 2018 to assess the performance of the dual phase extraction system. Future compliance testing may consist of only groundwater monitoring, although additional soil sampling will be required to meet the requirements of the Terrestrial Ecological Evaluation.

27) What are Environmental Covenants and how could they be used at this site?

Environmental Covenants are legal documents issued in accordance with Ecology guidance and in compliance with MTCA regulations. They are used to manage remaining contamination exceeding CULs. At this Site, an Environmental Covenant may be used to restrict excavation in areas of known contamination and require a soil cover to allow use of the Site.

An Environmental Covenant is attached to the property deed and informs the owner of the contamination and how to manage it. They are typically reviewed every 5 years through a periodic review, in which monitoring may be required.

28) Is there a process for ending an Environmental Covenant?

Yes. Ecology's guidance and covenant template provides a process by which an Environmental Covenant could end: "If the conditions at the Site requiring a Covenant have changed or no longer exist, then the Grantor may submit a request to Ecology that this Covenant be amended or terminated. Any amendment or termination of this Covenant must follow the procedures in MTCA and UECA and any rules promulgated under these chapters." See the following links:
https://apps.ecology.wa.gov/publications/documents/1509054.pdf
https://apps.ecology.wa.gov/publications/documents/1509057.pdf

Future landowners

29) Will future landowners be restricted from restoring the marsh to a saltwater estuary (through excavation and flooding)?

a) First, Ecology recommends that restoration efforts at a contaminated site be supported by a MTCA attorney.

b) Second, ground disturbing work must meet the requirements of a likely Environmental Covenant and be consistent with the remedial actions in the Cleanup Action Plan. If not, the party responsible for the work could be named a Potentially Liable Person by Ecology to correct the violations.

c) Entering into an Agreed Order with Ecology may be required to ensure exposure risk is not increased.

d) A Soils Management Plan will be needed for excavations both within and outside of the contaminated areas.

30) Would existing monitoring wells prevent restoration of the marsh (through excavation and flooding)?

Removal of monitoring wells requires Ecology approval. Many wells have been removed at the Site for the purposes of excavation under Ecology approval and oversight.

31) If contamination from historical Unocal activities was found on the site in a location previously undetected by Ecology, who would be responsible?

Ecology could reopen the Consent Decree and require Unocal to perform additional remedial actions at the Site if information about previously unknown contamination became available. If contamination from historical Unocal activities was found on the Site as a result of ground disturbing activities that were inconsistent with an Environmental Covenant, the Consent Decree, or the remedial actions in the Cleanup Action Plan (which will be attached to the Consent Decree), the persons responsible for the work could be named Potentially Liable Persons and become responsible for the contamination.