Fact Sheet for NPDES Permit WA0991007

Former Unocal Edmonds Bulk Terminal

Effective Date: November 1, 2016

Purpose of this fact sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for Former Unocal Edmonds Bulk Fuel Terminal No. 0178, in Edmonds, WA.

This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an NPDES permit.

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit. Copies of the fact sheet and draft permit for former Unocal Edmonds Bulk Terminal No. 0178 (Chevron Environmental Management Company assumes the responsibility for this cleanup site), NPDES permit WA0991007, were available for public review and comment from August 5, 2016, to September 6, 2016. For more details on preparing and filing comments about these documents, please see *Appendix A – Public Involvement Information.*

Chevron Environmental Management Company (Chevron) has reviewed the draft permit and fact sheet for factual accuracy. Ecology has corrected any errors or omissions regarding the facility's location, history, discharges, or receiving water prior to publishing this draft fact sheet for public notice.

After the public comment period closes, Ecology will summarize substantive comments and provide responses to them.

Summary

Chevron is proposing to conduct remedial cleanup activities to clean up petroleum contamination at the former Unocal Edmonds site beginning late 2016. Cleanup will consist of excavation of Detention Basin 2, and operation of a dual-phase extraction system to clean up contaminated groundwater, soil, and soil vapor in the area along a Washington State Department of Transportation (WSDOT) stormwater pipe which crosses the site. Past and current interim action cleanup activities and groundwater monitoring are being conducted at the site under Agreed Order No. DE 4460 with Ecology's Toxic Cleanup Program.

The treated excavation dewatering water and groundwater will be discharged through Outfall 002 to Willow Creek. The treatment system for the soil excavation activity and the dual phase extraction system is designed to operate at a maximum flow rate of 15 gpm, and 100 gpm, respectively.

The parameters proposed for the discharge include flow, pH, Benzene, TPH-G, TPH-D, and Total cPAH (consists of seven specific congeners). Chevron monitors for these pollutants under the Agreed Order.

Treated soil vapor will be discharged to the atmosphere under a Puget Sound Clean Air Agency permit.

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I. Introduction

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the state of Washington to manage the NPDES permit program in our state. Washington State legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The Legislature defined Ecology's authority and obligations for administration of the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

The following regulations apply to industrial NPDES permits:

- Procedures Ecology follows for issuing NPDES permits (Chapter 173-220 WAC).
- Water quality criteria for surface waters (Chapter 173-201A WAC).
- Water quality criteria for ground waters (Chapter 173-200 WAC).
- Whole effluent toxicity testing and limits (Chapter 173-205 WAC).
- Sediment management standards (Chapter 173-204 WAC).
- Submission of plans and reports for construction of wastewater facilities (Chapter 173-240 WAC).

These rules require any industrial facility owner/operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

Under the NPDES permit program and in response to a completed and accepted permit application, Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days (WAC 173-220-050). (See *Appendix A – Public Involvement Information* for more detail about the public notice and comment procedures). After the public comment period ends, Ecology may make changes to the draft NPDES permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in *Appendix E*.

II. Background Information

Table 1. General facility information

Facility information	
Applicant	Chevron Environmental Management Company
Facility name and location	Former Unocal Edmonds Bulk Fuel Terminal No. 0178 Edmonds, WA
Contact at facility	Name: Kim Jolitz Project Manager Telephone #: (925) 842-4707
Industry type	Soil Excavation, and Groundwater Extraction and Treatment
Type of treatment	Chitosan Polymer, sand filtration, granular activated carbon, and dual-phase pump and treat system for the groundwater
SIC code	4959, Groundwater Site Remediation Devices
Facility location (NAD83/WGS84 reference datum)	Latitude: 47.806263°N Longitude: 122. 389455°W
Discharge waterbody name and location (NAD83/WGS84 reference datum)	Willow Creek Outfall 002: Latitude: 47. 806976°N Longitude: 122.274722°W

Permit Status	
Application for permit submittal date	April 6, 2015
Date of Ecology acceptance of application	July 17, 2015

Inspection Status	
Date of last non-sampling inspection	July 16, 2015

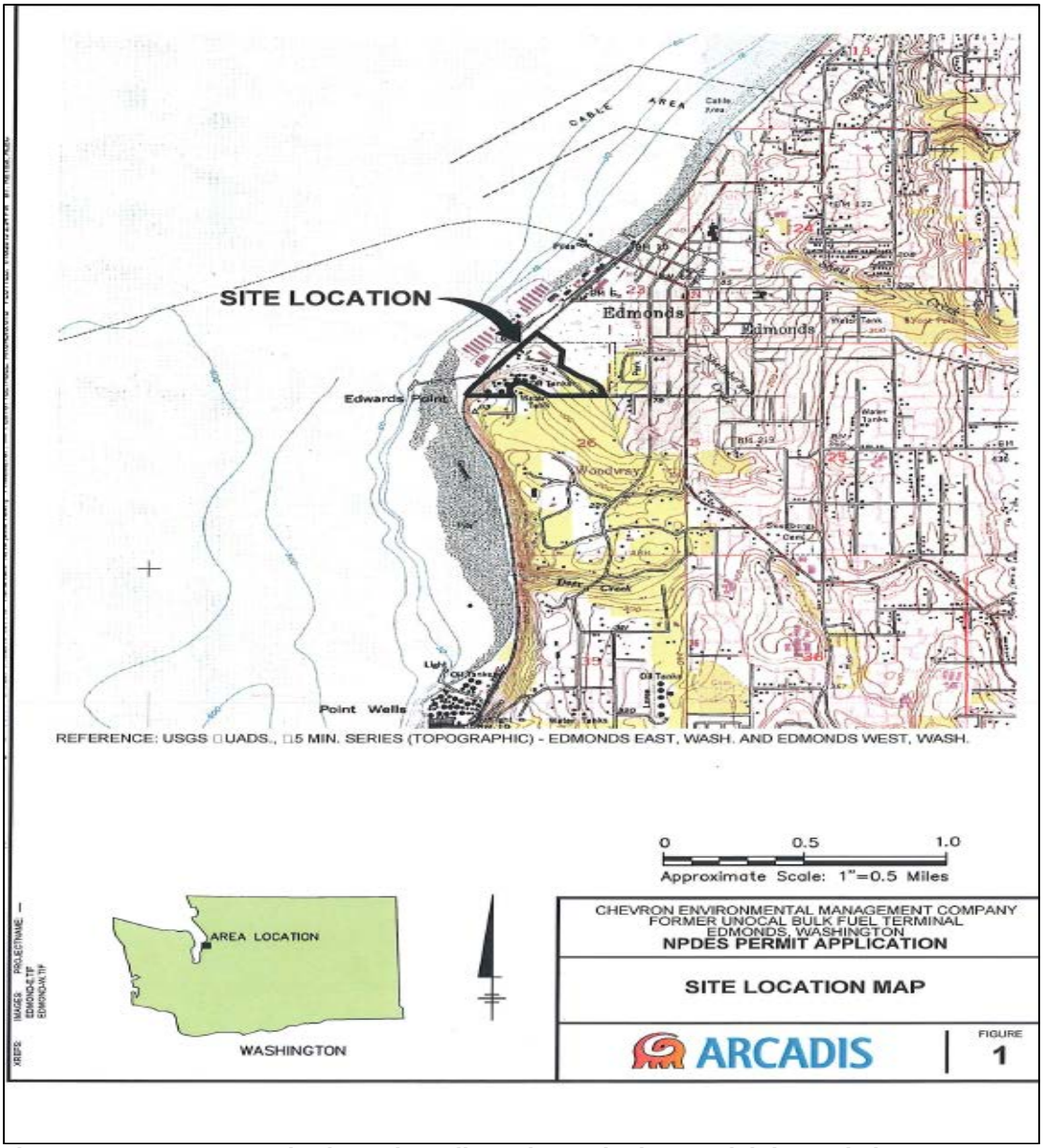

Figure 1. Former Unocal Edmonds Bulk Fuel Terminal 0178 vicinity and site maps

A. Facility description

Background

Unocal operated the terminal from 1923 to 1991 at the site. Historical operations at the site conducted by Unocal included storage and distribution of petroleum products, including gasoline, diesel fuel, and bunker fuel. An asphalt plant was also operated on the site between 1953 and the late 1970s. The terminal consisted of a dock and an Upper and a Lower Yard. Petroleum products were pumped from marine vessels moored at the dock to storage tanks in the Upper Yard, which was on a hill above the Lower Yard. Products were gravity-fed and pumped to loading racks in the Lower Yard for transport by truck and train to customers.

Chevron completed purchase of Unocal Corporation in 2005 and has assumed responsibility for cleanup activities for this former Unocal Edmonds terminal.

Cleanup actions and site investigations have been ongoing at this site since 1994. In 1993, Unocal entered into Agreed Order No. DE-92TC-N828, which was superseded in 2007 by Agreed Order No. DE 4460. In accordance with the 2007 Agreed Order. Unocal conducted interim action cleanup activities at the Upper and Lower Yards. Details of these cleanup activities completed in 2007/2008 have been documented in the Interim Action Work Plan (ARCADIS 2014).

Cleanup remediation has been completed in the Upper Yard. Ecology certified the Upper Yard to be suitable for residential use in 2003 and the Point Edwards Condominiums were subsequently constructed.

The remaining areas of contamination include the stormwater Detention Basin 2 area and the vicinity of a Washington State Department of Transportation (WSDOT) storm drain crossing the site in the Lower Yard.

Detention Basins (DB) 1 and 2, and WSDOT stormwater line

This site has two stormwater detention basins (DB-1 and DB-2). They are located in the northern part of the Lower Yard. Stormwater collected on-site is drained into DB-2 by means of gravity flow. DB-2 serves as a stormwater collection area, which drains into Willow Creek via Outfall 002.

DB-1 serves as a retention pond for overflow from DB-2 during storm events. DB-1 is an unlined pond with an aboveground pump and a piping system connected to Outfall 002 on the bank of Willow Creek. DB-2 has an impermeable liner, two submersible pumps, and a piping system to the DB-2 Outfall.

The WSDOT stormwater line runs across the Lower Yard, along lower Unoco Road and out to Puget Sound. During the 2007/2008 interim action excavation activities, the soil along the WSDOT stormwater line was found to exceed the cleanup levels. However, the contaminated area was unable to be excavated without compromising the integrity of the line. Polyethylene sheeting was left in place to demarcate the excavation limits adjacent to the WSDOT stormwater line.

Proposed remediation work

Chevron proposes to remove petroleum-contaminated soil in the area of DB-2 and haul it off-site for disposal. Soil excavation is expected to result in cleanup of groundwater. This excavation activity will include placing temporary dams in Willow Creek to protect it during excavation. Following excavation, the coffer dams will be removed and Willow Creek will be restored to its original stream bed.

Contaminated water produced from the excavations will be treated and discharged to Willow Creek.

Petroleum-contaminated soil and groundwater in the WSDOT storm drain vicinity will be cleaned up by a Dual-Phase Extraction system. Extraction wells will be used to pump contaminated water and vapor for treatment and discharge. Water will be treated and discharged to Willow Creek.

All wastewater produced during these cleanup activities will be discharged to Willow Creek, and regulated by the National Pollutant Discharge Elimination System (NPDES) Permit. Soil vapor will be treated and discharged to the atmosphere under a Puget Sound Clean Air Agency permit.

The cleanup of Detention Basin 2 area is expected to occur in the summer of 2017. It will require heavy equipment to excavate the soil and trucks to haul excavated soil away. Air monitoring and dust control measures will be performed.

The Dual-Phase Extraction System installation is expected to begin in late 2016. Drill rigs will be employed to install extraction wells, conveyance piping will be laid, and an equipment building will be brought onsite. The system is expected to operate for about six years.

Pollutants of concern

The pollutants expected to be present in the water generated from the excavation include total petroleum hydrocarbons (TPHs), total carcinogenic polycyclic aromatic hydrocarbons (cPAHs), benzene, and pH.

Wastewater treatment system

DB-2 area excavation: The treatment for dewatering water generated during excavation activities for DB-2 includes collecting and storing recovered water in a holding tank. From the holding tank, water will be treated with chitosan polymer, followed by sand filtration to remove entrained solids, then with granular activated carbon to polish and remove organic carbons in the water. The sand filter will be equipped with a back-pressure controlled automatic back-wash system.

Dual Phase Extraction (DPE): The preliminary design consists of an array of 11 groundwater extraction wells spaced approximately 40 to 60 feet apart, oriented along the alignment of the WSDOT stormwater line (See Figure 2). The water table in this area is encountered at approximately 5 feet below ground surface. Extraction wells are assumed to be approximately 24 feet deep and pump at a rate between 2 and 3 gpm each. Groundwater is pumped to a remediation treatment compound which houses a sediment settling tank, equalization tank, bag filter, and four granular activated carbon vessels for treatment prior to discharge to Willow Creek (see Figures 3 and 4).

Groundwater flow directions

The estimated shallow groundwater flow directions are to the northwest in the western part of the site, toward Detention Basin No. 1 in the central part of the Lower Yard, and to the northeast in the eastern part of the site. Groundwater flows toward Willow Creek (to the north) in the northeast part of the site, and radially into Detention Basin No. 1.

Perched groundwater occurs beneath the Upper Yard in isolated, laterally discontinuous zones surrounded by unsaturated soil.

Willow Creek and tidal basin

Willow Creek receives all stormwater from this site. Willow Creek also collects runoff from off-site areas northeast and east of the site (wetlands area, hatchery, and State Route 104) and from the southern off-site residential area which abuts the east half of the site's south edge.

The creek flows west from the site's northwest edge through an underground pipe into Puget Sound.

The site is located on the eastern side, within 1,000 feet of Puget Sound. Tides in the Edmonds part of Puget Sound range from approximately -3 to 13 feet relative to MLLW. The site is bounded on the northwest and northeast by Willow Creek, which carries surface runoff from areas east of the site to Puget Sound. North of Willow Creek lies a 23-acre freshwater and brackish water marsh (aka the Union Oil Marsh), owned by the City of Edmonds now, known as the Edmonds Marsh. The marsh is tidally influenced. Small creeks and ditches drain the upland areas to the east of the site.

Willow Creek and the tidal basin are saltwater influenced and vegetation is dominated by seashore saltgrass and Baltic rush, with oracle and seaside plantain as associated species.

The relative proportions of upgradient groundwater and surface water present in Willow Creek vary throughout the tidal cycle, as the relative hydraulic head difference between the surface water and upgradient groundwater fluctuates with the tide.

Discharge outfall (aka Outfall 002)

DB-2 is currently a stormwater collection system. Once excavation is complete, DB-2 will no longer exist. Prior to excavation, the stormwater collection system will be rerouted around the proposed excavation area and discharged directly into DB-1 through above ground hoses under the NPDES permit. Existing piping will be initially capped and then removed during excavation activities. After completion of DB-2 excavation, above-grade piping will be installed in DB-1 for discharge through outfall #002. Stormwater catch basins will be permanently routed to DB-1. Treated groundwater from the DPE system will also be discharged directly to DB-1. DB-1 discharges to Willow Creek via Outfall 002.

B. Description of the receiving water

Willow Creek runs along the east, northeast, north, and northwest boundaries of the site's Lower Yard. Willow Creek is approximately 10 feet wide and is underlain by silt and sand material. The creek banks on the property boundary are sloped (up to approximately 35%) and vegetated with native and non-native vegetation. Water depths in Willow Creek vary from 0 to 4 feet, depending on season and tidal cycles (ARCADIS 2012a). Willow Creek is tidally influenced, and it flows into a tidal basin. Edmonds Marsh is located to the northeast of the Lower Yard and is connected to Willow Creek. Willow Creek runs in a man-made drainage ditch and an underground piped culvert between Edmonds Marsh and Puget Sound.

The designated uses and criteria for Willow Creek are listed in WAC 172-201A-200 (fresh water designated uses and criteria). The designated uses listed in WAC 173-201A-200 include the following: aquatic life uses; primary contact for recreational uses; water supply uses; aquatic life uses; wildlife habitat; harvesting; commerce/navigation; boating and aesthetic enjoyment. Fish which have been observed in Willow Creek include Pacific Salmon, and ground fish.

C. Wastewater characterization

The concentration of pollutants in the discharge has been reported in the permit application. The tabulated data represents the anticipated flow and quality of the wastewater effluent under optimal conditions once the treatment system is in place. The wastewater effluent is reported to have the following characteristics:

Table 2. Effluent characterization

Parameter	Units	Average Value	Maximum Value
Wastewater from excavation			
Total Petroleum Hydrocarbons (TPH)	µg/L	5.61	250.9
Total carcinogenic polycyclic aromatic hydrocarbons (cPAHs)	µg/L	0.00049	0.00149
pH	Standard Units	7.9	8.8
Turbidity	NTU	16.8	125
Treated water from Dual Phase Extraction System			
TPH	µg/L	9.09	234.16
cPAHs [1]	µg/L	0.00012	0.001195
Benzene	µg/L	1.52	59
[1] cPAHs means carcinogenic polycyclic aromatic hydrocarbons. Total cPAHs is the sum of benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, benzo(a)pyrene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene concentrations.			

D. State environmental policy act (SEPA) compliance

To meet the intent of SEPA, new discharges must undergo SEPA review during the permitting process. Chevron has filed a SEPA checklist with Ecology for the Interim Action at the Lower Yard of Unocal Edmonds Bulk Fuel Terminal. The Ecology Toxic Cleanup Program approved the SEPA checklist and issued the Determination of Non-significance (DNS) for this proposed work on July 6, 2015.

III. Proposed Permit Limits

Federal and state regulations require that effluent limits in an NPDES permit must be either technology- or water quality-based.

Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC).

Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC), Model Toxics Control Act Cleanup Levels (Chapter 173-340 WAC), or the National Toxics Rule (40 CFR 131.36).

Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Ecology does not usually develop limits for pollutants not reported in the permit application but which may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must

notify Ecology if significant changes occur in any constituent [40 CFR 122.42(a)]. Until Ecology modifies the permit to reflect additional discharge of pollutants, a permitted facility could be violating its permit.

A. Design criteria/outfalls flow rates

Under WAC 173-220-150 (1)(g), flows and waste loadings must not exceed approved design criteria. Chevron submitted the Draft Interim Action Work Plan to Ecology on July 6, 2015. The draft work plan described the proposed remediation for the Lower Yard which contains petroleum hydrocarbon concentrations above the soil remediation levels and cleanup levels. Those areas in the Lower Yard include the vicinity of DB-2, and the WSDOT stormwater line.

B. Technology-based effluent limits

Ecology must ensure that facilities provide all known, available, and reasonable methods of prevention, control, and treatment (AKART) when it issues a discharge permit. The technology-based effluent limits proposed in this permit are as follows:

Table 3. Technology-based limits

Parameter	Maximum Daily Limit
Flow1 (dewatering water from excavation)	15 gpm
Flow2 (flow from Dual Phase Extraction)	100 gpm
Oily Sheen	No visible sheen
Chitosan Acetate	0.2 mg/L

Parameter	Daily Minimum	Daily Maximum
pH	6.0 standard units	9.0 standard units

C. Surface water quality-based effluent limits

The Washington State surface water quality standards (Chapter 173-201A WAC) are designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet the water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin-wide total maximum daily load study (TMDL).

Numerical criteria for the protection of aquatic life and recreation

Numerical water quality criteria are listed in the Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits. The proposed effluent limits are listed in Section J (on page 15) of this fact sheet.

Numerical criteria for the protection of human health

The U.S. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (EPA, 1992). These criteria

are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The water quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1); 2006) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200, 2006) and of all marine waters (WAC 173-201A-210, 2006) in the state of Washington.

Antidegradation

Description--The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

Facility specific requirements— Ecology has determined that this facility must prepare a Tier II analysis. A Tier II analysis focuses on evaluating feasible alternatives that would eliminate or significantly reduce the level of degradation. The analysis also includes a review of the benefits and costs associated with alternative to lowering of water quality.

New discharges and facility expansions are prohibited from lowering water quality without providing overriding public benefits.

Ecology proposes to issue a new NPDES Permit for this facility which will authorize a new discharge. Therefore, the facility must comply with Tier II requirements of the anti-degradation policy. Under Tier II (WAC 173-201A-320), a new or expanded action is allowed if the action will not result in a "measurable change" in the quality of the receiving water, or if there is an overriding public interest that makes the action necessary.

After reviewing the facility's Interim Action Work Plan, Ecology has made a finding of overriding public interest. The basis for this finding includes the following: 1) data collected in detention basin 2 and along the WSDOT stormwater drain line in the south-central portion of the Site indicates concentrations exceeding Site Cleanup levels; 2) there is hydraulic continuity between groundwater and surface water, and contamination will eventually migrate to surface water if it is not contained or removed promptly; 3) there is a greater benefit to the environment if the Permittee addresses the contamination by employing AKART (all known, available, reasonable treatment technologies) to treat the contaminated soil and water (utilizing soil excavation and dual phase extraction system) before reaching surface water; 4) the treated water will meet surface water standards prior to discharge to Willow Creek. This decision is made as allowed under Chapter 173-201A-320.

The finding that the benefits of undertaking the pump/treat/discharge to surface water option exceed the costs, is based on the following facts:

- If Ecology does not issue a discharge permit to authorize the discharge of treated water (meeting surface water standards) resulting from the proposed cleanup activity, the contamination in the soil will reach groundwater and contaminate groundwater. Through hydraulic continuity, the contaminated groundwater will migrate into surface water; thus, polluting the receiving water body and causing surface water quality standards to be exceeded.
- If Ecology issues this discharge permit to authorize the discharge of treated water resulting from the proposed cleanup activity, the source of the contamination in the soil will be removed, which results in preventing or reducing the contamination from reaching groundwater. The contamination in groundwater will be contained and removed through the remediation pump and treat system, and reduce the transport of pollutants to reaching surface water. Thus, the groundwater quality will be improved and surface water quality will be better, than would be achieved if the cleanup option were not undertaken. The environmental net benefit is greater if the discharge permit is issued to allow the cleanup activity to proceed because the resulting treated water meet water quality standards.
- By undertaking this project, the property values and the recreational values are more likely to be enhanced than if the project were not to be undertaken.
- Social benefits related to recreational uses are likely to be accrued. This project will improve and promote a healthy environment and waterbody for the area and community.

Mixing zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones the pollutant concentrations may exceed water quality numeric standards, so long as the discharge doesn't interfere with designated uses of the receiving water body (for example, recreation, water supply, and aquatic life and wildlife habitat, etc.) The pollutant concentrations outside of the mixing zones must meet water quality numeric standards.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control, and treatment (AKART). Mixing zones typically require compliance with water quality criteria within a specified distance from the point of discharge and must not use more than 25% of the available width of the water body for dilution [WAC 173-201A-400 (7)(a)(ii-iii)].

Ecology uses modeling to estimate the amount of mixing within the mixing zone. Through modeling Ecology determines the potential for violating the water quality standards at the edge of the mixing zone and derives any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (see Ecology's *Permit Writer's Manual*). Each critical condition parameter, by itself, has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

There is no mixing zone granted in this permit for Former Unocal Edmonds Bulk Fuel Terminal's discharge.

D. Designated uses and surface water quality criteria

Applicable designated uses and surface water quality criteria are defined in Chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (EPA 1992). The tables included below summarize the criteria applicable to this facility's discharge. Due to the fact that Willow Creek is tidally influenced, and groundwater beneath the Lower Yard is hydraulically connected to Puget Sound (a marine water), which is not suitable for domestic water supply, Willow Creek is treated as a marine water body. Thus, marine aquatic life uses and associated criteria are presented below.

- Aquatic Life Uses are designated based on the presence of, or the intent to provide protection for the key uses. All indigenous fish and non-fish aquatic species must be protected in waters of the state in addition to the key species. The Aquatic Life Uses for this receiving water are identified below.

Table 4. Marine aquatic life uses and associated criteria

Excellent Quality	
Temperature Criteria – Highest 1Day MAX	16°C (60.8°F)
Dissolved Oxygen Criteria – Lowest 1 Day Minimum	6.0 mg/L
Turbidity Criteria	• 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU
pH Criteria	pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

- The *recreational uses* for this receiving water are identified below.

Table 5. Recreational uses and associated criteria

Recreational Use	Criteria
Primary Contact Recreation	Fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies /100 mL.

- The miscellaneous marine water uses are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

E. Water quality impairments

Ecology has not documented any water quality impairments in the receiving water in the vicinity of the outfall.

F. Evaluation of surface water quality-based effluent limits for numeric criteria

Ecology has not authorized a mixing zone in the permit.

G. Human health

Washington's water quality standards include 91 numeric human health-based criteria that Ecology must consider when writing NPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria.

Ecology has determined the effluent contains chemicals of concern for human health, based on data or information indicating the discharge contains regulated chemicals. The effluent limits are listed in Section J of this fact sheet.

H. Sediment quality

The aquatic sediment standards (Chapter 173-204 WAC) protect aquatic biota and human health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400). Additional information about sediments can be obtained at the Aquatic Lands Cleanup Unit website. http://www.ecy.wa.gov/programs/tcp/smu/sediment.html

Through a review of the discharger characteristics and of the effluent characteristics, Ecology has determined that this discharge has no reasonable potential to violate the sediment management standards.

I. Groundwater quality limits

The groundwater quality standards (Chapter 173-200 WAC) protect beneficial uses of groundwater. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100).

The former Unocal Edmonds Bulk Fuels Terminal does not discharge wastewater to the ground. No permit limits are required to protect groundwater.

J. Effluent limits based on the Original and Amended Agreed Order No. 4460

The effluent limits proposed in this permit are consistent with those treatment/discharge limits listed in the Interim Action Work Plan as part of the Agreed Order No. 4460. Those limits are based on the most stringent of state and federal groundwater, surface water, and water quality standards. The limits and basis for these limits are listed in Table 6 below:

Table 6. Surface water cleanup levels

Parameter	Effluent Limits (µg/L)
TPH-G [1]	800 µg/L
TPH-D [1]	500 µg/L
Benzene [2]	16 µg/L
Total cPAHs [2,3]	0.00013 µg/L [4]

Notes:

[1] Method A (WAC 173-340-900, Table 720-1).

[2] National Recommended Ambient Water Quality Criteria (NRAWQC) for human-health (for consumption of organisms only as opposed to water + organisms) (USEPA 2002).

[3] Total cPAHs is the sum of benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, benzo(a)pyrene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene concentrations that are adjusted using toxicity equivalency factors to represent a total benzo(a)pyrene concentration. The toxicity equivalency factors published in WAC 173-340-900, Table 708-2 are to be used for making the adjustments.

[4] The daily maximum effluent limit for total cPAHs is 0.00013 µg/L. The quantitation level (QL) for PAHs is 0.05 µg/L, greater than the effluent limit, using the approved analytical test method EPA 625. Therefore, the QL will be used for assessment of compliance with the effluent limit. This QL will be referred to as enforcement limit in this permit.

The effluent limits above are surface-water cleanup levels (CULs) which represent the lowest of the Water Quality Standard (WQS) in WAC 173-201A-240, National Recommended Water Quality Criteria (NRAWQC), and NTR in 40 CFR 131.36. The most stringent CULs for benzene and cPAHs are the NRAWQC human health (organisms only). The NRAWQC human health (organisms only) for benzene (16 µg/L) is associated with a cancer risk of 2×10^{-6}, and the NRAWQC for cPAHs (0.00013 µg/L) is associated with a cancer risk of 6×10^{-7} (Amended Agreed Order 4460). Under the MTCA, standards are considered sufficiently protective if the cancer risk for those standards is less than 1×10^{-5}. Therefore, the NRAWQC for benzene and cPAHs are appropriate surface water CULs [WAC 173-340-730(5)(b)]. (ARCADIS 2015).

WQSs and NRAWQC are not established for TPH mixtures. The MTCA regulations allow the use of Method A groundwater CULs (WAC 173-340-900, Table 720-1) to calculate surface water CULs for petroleum mixtures [WAC 173-340-730(3)(b)(iii)(C)]. (ARCADIS 2015). Thus, for the purpose of this permit, MTCA Method A CULs for TPH as presented in WAC 173-340-900, Table 720-I are used to establish effluent limits for TPH-diesel range organics, and TPH-gasoline range organics. This permit does not contain an effluent limit based on cleanup level for Heavy Oil. The CLUs for TPH-G and TPH-D are proposed below:

800 = Method A groundwater CUL for GRO (µg/L)

500 = Method A groundwater CUL for DRO and HO (µg/L)

K. Whole effluent toxicity

The water quality standards for surface waters forbid discharge of effluent that has the potential to cause toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Using the screening criteria in Chapter 173-205-040 WAC, Ecology determined that toxic effects caused by unidentified pollutants in the effluent are unlikely. Therefore, this permit does not require WET testing. Ecology may require WET testing in the future if it receives information indicating that toxicity may be present in this effluent.

IV. Monitoring Requirements

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's effluent limits.

If a facility uses a contract laboratory to monitor wastewater, it must ensure that the laboratory uses the approved analytical methods which meet or exceed the method detection levels required by the permit. The permit describes when facilities may use alternative methods. It also describes what to do in certain situations when the laboratory encounters matrix effects. When a facility uses an alternative method as allowed by the permit, it must report the test method, DL, and QL on the discharge monitoring report or in the required report.

A. Wastewater monitoring

The monitoring schedule is detailed in the proposed permit under Special Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

V. Other Permit Conditions

A. Reporting and record keeping

Ecology based Special Condition S3 on its authority to specify any appropriate reporting and record keeping requirements to prevent and control waste discharges (WAC 173-220-210).

B. Operation and maintenance manual

Ecology requires industries to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state and federal regulations [40 CFR 122.41(e) and WAC 173-220-150 (1)(g)]. The facility will submit an updated operation and maintenance manual as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150). Implementation of the procedures in the operation and maintenance manual would increase the facility's compliance with the terms and limits in the permit.

C. Stormwater pollution prevention plan requirements

In accordance with 40 CFR 122.44(k) and 40 CFR 122.44 (s), the permit includes requirements for the development and implementation of SWPPPs along with BMPs to minimize or prevent the discharge of pollutants to waters of the state. The BMPs in the proposed permit constitute:

- Best Practicable Control Technology Currently Available (BPT), (40 CFR §450.21).
- Best Conventional Pollutant Control Technology (BCT), (40 CFR §450.22).
- Best Available Technology Economically Achievable (BAT), 40 CFR §450.23). New Source Performance Standards representing the degree of effluent reduction attainable by application of the best available demonstrated control technology (NSPS), (40 CFR §450.24).

The objectives of the SWPPP are to:

1. Implement BMPs to prevent erosion and sedimentation, and to identify, reduce, eliminate, or prevent stormwater contamination and water pollution from construction activity.
2. Prevent violations of surface water quality, ground water quality, or sediment management standards.
3. Prevent adverse water quality impacts, including impacts to beneficial uses of the receiving water by controlling peak flow rates and volumes of stormwater runoff at the Permittee's outfalls and downstream of the outfalls during the construction phase of a project.

Condition S7 outlines specific requirements to prepare, implement, and modify the SWPPP. Permittees must prepare and fully implement the SWPPP, including narrative and drawings, in accordance with this permit. The SWPPP must address all phases of the construction project, beginning with initial soil disturbance until final site stabilization. All BMPs used or planned for a project (or specific phase of a project) must be clearly referenced in the SWPPP narrative and marked on the drawings.

D. General conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual industrial NPDES permits issued by Ecology.

VI. Permit Issuance Procedures

A. Permit modifications

Ecology may modify this permit to impose numerical limits, if necessary, to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for groundwater, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed permit issuance

This proposed permit includes all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of 5 years.

VII. References for Text and Appendices

Former Union Oil Company of California (Unocal) Edmonds Bulk Fuel Terminal

2015. National Pollutant Discharge Elimination System Waste Discharge Permit Application, EPA forms 1 and 2C.

2015. Public Review Draft Interim Action Work Plan for Former Unocal Edmonds Bulk Fuel Terminal Edmonds, WA.

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. *Water Quality Standards Handbook*. USEPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace.

1972. *Characterization of Stream Reaeration Capacity*. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

December 2011. *Permit Writer's Manual*. Publication Number 92-109 (https://fortress.wa.gov/ecy/publications/SummaryPages/92109.html)

Laws and Regulations (http://www.ecy.wa.gov/laws-rules/index.html)

Permit and Wastewater Related Information (http://www.ecy.wa.gov/programs/wq/permits/guidance.html)

February 2007. *Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees*, Publication Number 07-10-024. http://www.ecy.wa.gov/pubs/0710024.pdf

Wright, R.M., and A.J. McDonnell.

1979. *In-stream Deoxygenation Rate Prediction*. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

Appendix A--Public Involvement Information

Ecology proposes to issue a discharge permit to Chevron Environmental Management Company (Chevron) for the Former Unocal Edmonds Buk Fuel Terminal. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a public notice of application on July 20, 2015, in the *Everett Herald* to inform the public about the submitted application and to invite comment on the reissuance of this permit.

Ecology placed a public notice of the draft permit on August 5, 2016, in the *Everett Herald* to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

- Told where copies of the draft permit and fact sheet were available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website).
- Offered to provide the documents in an alternate format to accommodate special needs.
- Urged people to submit their comments, in writing, before the end of the Comment Period.
- Told how to request a public hearing of comments about the proposed NPDES permit.
- Explained the next step(s) in the permitting process.

Ecology has published a document entitled *Frequently Asked Questions about Effective Public Commenting* which is available on our website at https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html.

You may obtain further information from Ecology by telephone at (425) 649-7201, or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

The primary author of this permit and fact sheet is Jeanne Tran, P.E.

Appendix B--Your Right to Appeal

You have a right to appeal this permit to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of the final permit. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2) (see glossary).

To appeal you must do the following within 30 days of the date of receipt of this permit:

- File your appeal and a copy of this permit with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this permit on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel RD SW STE 301 Tumwater, WA 98501	Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903

Appendix C--Glossary

1-DMax or 1-day maximum temperature -- The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

7-DADMax or 7-day average of the daily maximum temperatures -- The arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

Acute toxicity -- The lethal effect of a compound on an organism that occurs in a short time period, usually 48 to 96 hours.

AKART -- The acronym for "all known, available, and reasonable methods of prevention, control and treatment." AKART is a technology-based approach to limiting pollutants from wastewater discharges, which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

Alternate point of compliance -- An alternative location in the groundwater from the point of compliance where compliance with the groundwater standards is measured. It may be established in the groundwater at locations some distance from the discharge source, up to, but not exceeding the property boundary and is determined on a site specific basis following an AKART analysis. An "early warning value" must be used when an alternate point is established. An alternate point of compliance must be determined and approved in accordance with WAC 173-200-060(2).

Ambient water quality -- The existing environmental condition of the water in a receiving water body.

Ammonia -- Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual average design flow (AADF) -- The average of the daily flow volumes anticipated to occur over a calendar year.

Average monthly (intermittent) discharge limit -- The average of the measured values obtained over a calendar month's time taking into account zero discharge days.

Average monthly discharge limit -- The average of the measured values obtained over a calendar month's time.

Background water quality -- The concentrations of chemical, physical, biological or radiological constituents or other characteristics in or of groundwater at a particular point in time upgradient of an activity that has not been affected by that activity, [WAC 173-200-020(3)]. Background water quality for any parameter is statistically defined as the 95% upper tolerance interval with a 95% confidence based on at least eight hydraulically upgradient water quality samples. The eight samples are collected over a period of at least one year, with no more than one sample collected during any month in a single calendar year.

Best management practices (BMPs) -- Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and

practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD5 -- Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD_5 is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass -- The intentional diversion of waste streams from any portion of a treatment facility.

Categorical pretreatment standards -- National pretreatment standards specifying quantities or concentrations of pollutants or pollutant properties, which may be discharged to a POTW by existing or new industrial users in specific industrial subcategories.

Chlorine -- A chemical used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic toxicity -- The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean water act (CWA) -- The federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance inspection-without sampling -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance inspection-with sampling -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

Composite sample -- A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction activity -- Clearing, grading, excavation, and any other activity, which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous monitoring -- Uninterrupted, unless otherwise noted in the permit.

Critical condition -- The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Date of receipt -- This is defined in RCW 43.21B.001(2) as five business days after the date of mailing; or the date of actual receipt, when the actual receipt date can be proven by a preponderance of the evidence. The recipient's sworn affidavit or declaration indicating the date of receipt, which is unchallenged by the agency, constitutes sufficient evidence of actual receipt. The date of actual receipt, however, may not exceed forty-five days from the date of mailing.

Detection limit -- The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Dilution factor (DF) -- A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Distribution uniformity -- The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Early warning value -- The concentration of a pollutant set in accordance with WAC 173-200-070 that is a percentage of an enforcement limit. It may be established in the effluent, groundwater, surface water, the vadose zone or within the treatment process. This value acts as a trigger to detect and respond to increasing contaminant concentrations prior to the degradation of a beneficial use.

Enforcement limit -- The concentration assigned to a contaminant in the groundwater at the point of compliance for the purpose of regulation, [WAC 173-200-020(11)]. This limit assures that a groundwater criterion will not be exceeded and that background water quality will be protected.

Engineering report -- A document that thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal coliform bacteria -- Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab sample -- A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Groundwater -- Water in a saturated zone or stratum beneath the surface of land or below a surface water body.

Industrial user -- A discharger of wastewater to the sanitary sewer that is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial wastewater -- Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
- Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Local limits -- Specific prohibitions or limits on pollutants or pollutant parameters developed by a POTW.

Major facility -- A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum daily discharge limit -- The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Maximum day design flow (MDDF) -- The largest volume of flow anticipated to occur during a one-day period, expressed as a daily average.

Maximum month design flow (MMDF) -- The largest volume of flow anticipated to occur during a continuous 30-day period, expressed as a daily average.

Maximum week design flow (MWDF) -- The largest volume of flow anticipated to occur during a continuous 7-day period, expressed as a daily average.

Method detection level (MDL) -- See Method Detection Level.

Minor facility -- A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing zone -- An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The permit specifies the area of the authorized mixing zone that Ecology defines following procedures outlined in state regulations (Chapter 173-201A WAC).

National pollutant discharge elimination system (NPDES) -- The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable

waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

pH -- The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7 is defined as neutral and large variations above or below this value are considered harmful to most aquatic life.

Pass-through -- A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

Peak hour design flow (PHDF) -- The largest volume of flow anticipated to occur during a one-hour period, expressed as a daily or hourly average.

Peak instantaneous design flow (PIDF) -- The maximum anticipated instantaneous flow.

Point of compliance -- The location in the groundwater where the enforcement limit must not be exceeded and a facility must comply with the Ground Water Quality Standards. Ecology determines this limit on a site-specific basis. Ecology locates the point of compliance in the groundwater as near and directly downgradient from the pollutant source as technically, hydrogeologically, and geographically feasible, unless it approves an alternative point of compliance.

Potential significant industrial user (PSIU) --A potential significant industrial user is defined as an Industrial User that does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day; or

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

Ecology may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation level (QL) -- Also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to (1, 2, or 5) x 10^n, where n is an integer (64 FR 30417).
ALSO GIVEN AS:
The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency, December 2007).

Reasonable potential -- A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

Responsible corporate officer -- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Significant industrial user (SIU) --

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR 403.8(f)(6)].

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

Slug discharge -- Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge to the POTW. This may include any pollutant released at a flow rate that may cause interference or pass through with the POTW or in any way violate the permit conditions or the POTW's regulations and local limits.

Solid waste -- All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

Soluble BOD_5 -- Determining the soluble fraction of Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of soluble organic material present in an effluent that is utilized by bacteria. Although the soluble BOD_5 test is not specifically described in Standard Methods, filtering the raw sample through at least a 1.2 um filter prior to running the standard BOD_5 test is sufficient to remove the particulate organic fraction.

State waters -- Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater -- That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based effluent limit -- A permit limit based on the ability of a treatment method to reduce the pollutant.

Total coliform bacteria -- A microbiological test, which detects and enumerates the total coliform group of bacteria in water samples.

Total dissolved solids -- That portion of total solids in water or wastewater that passes through a specific filter.

Total maximum daily load (TMDL) -- A determination of the amount of pollutant that a water body can receive and still meet water quality standards.

Total suspended solids (TSS) -- Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset -- An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water quality-based effluent limit -- A limit imposed on the concentration of an effluent parameter to prevent the concentration of that parameter from exceeding its water quality criterion after discharge into receiving waters.

Appendix D--Site Maps

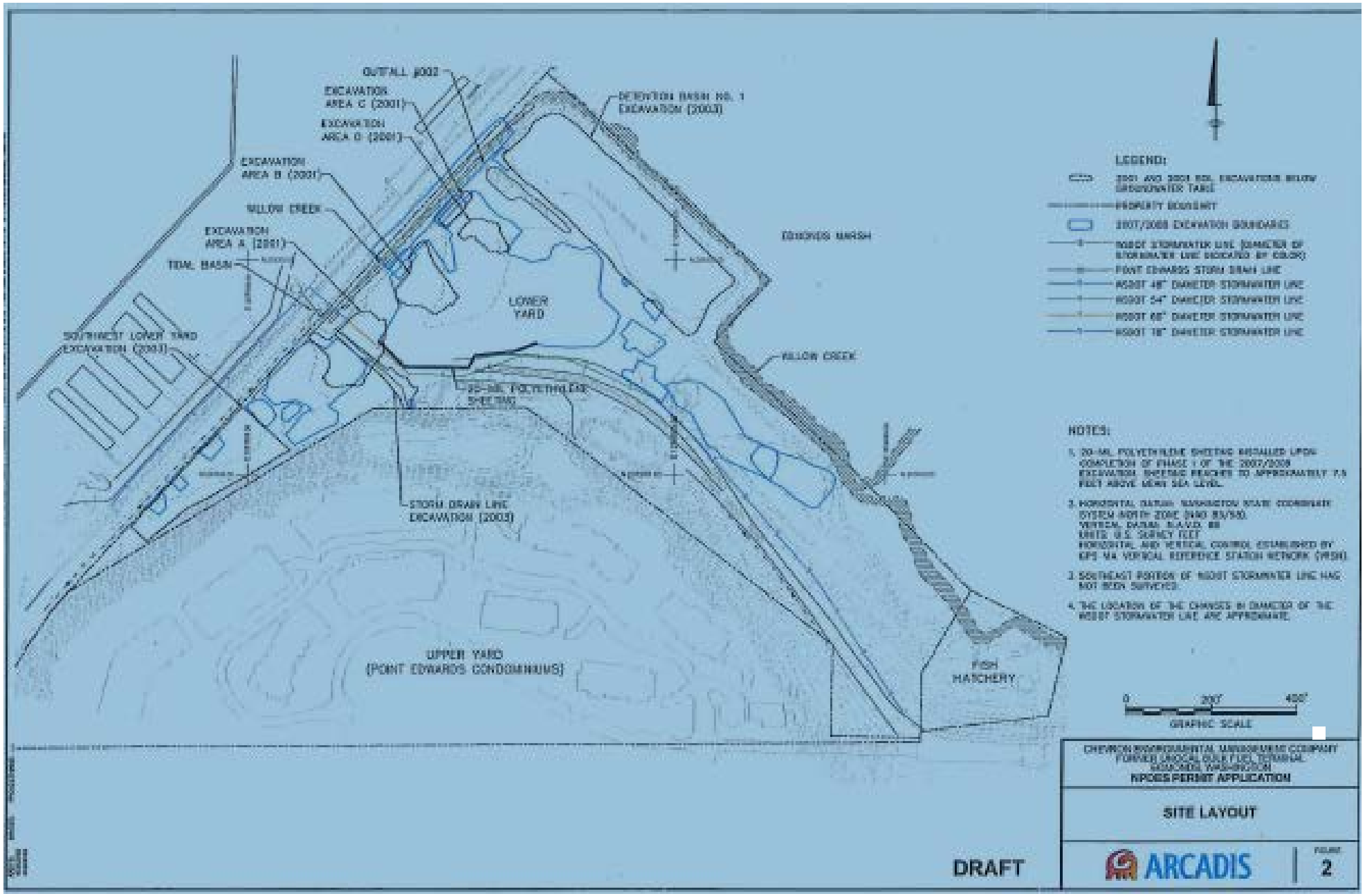

Figure 2. Site plan

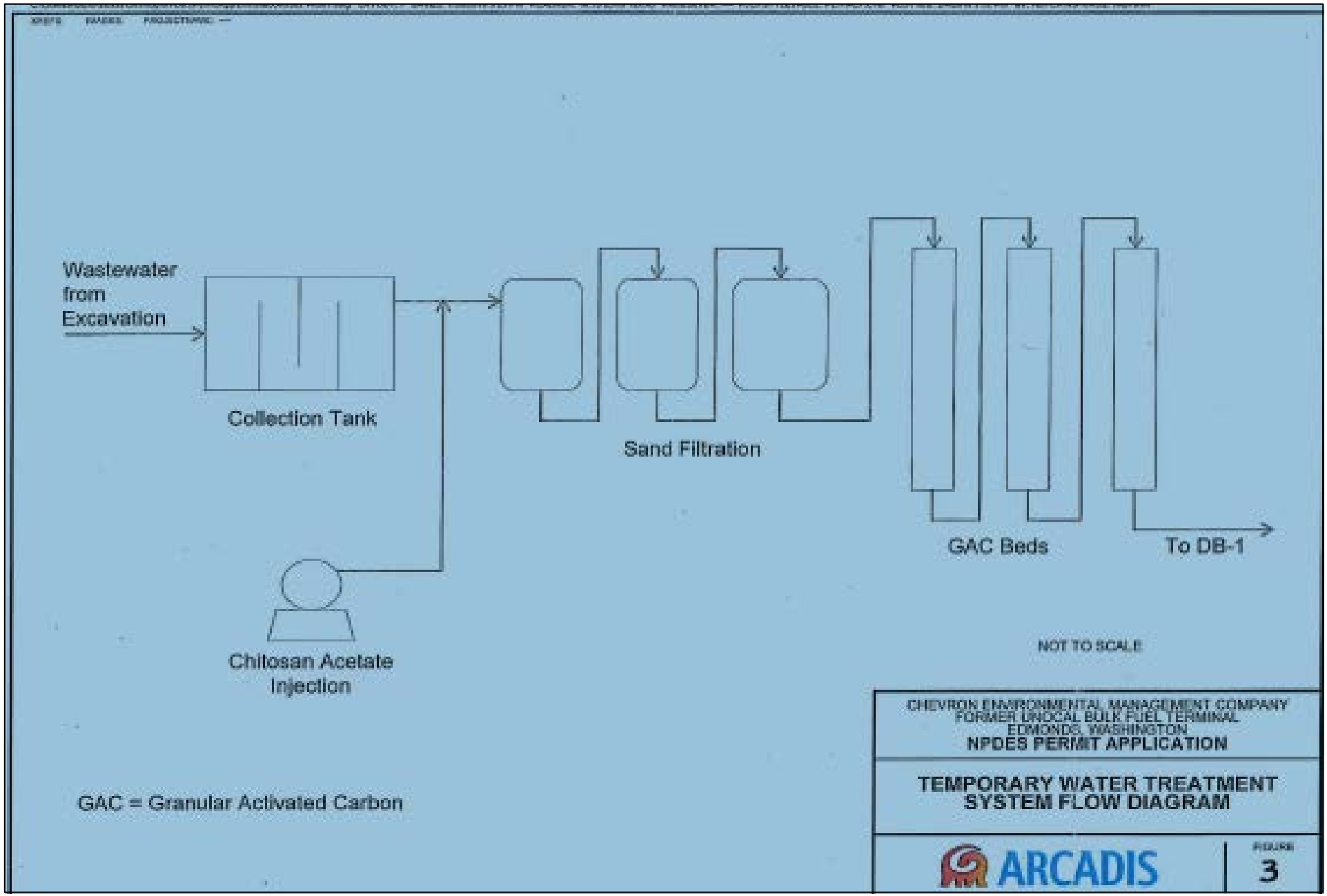

Figure 3. NPDES engineering report process flow diagram

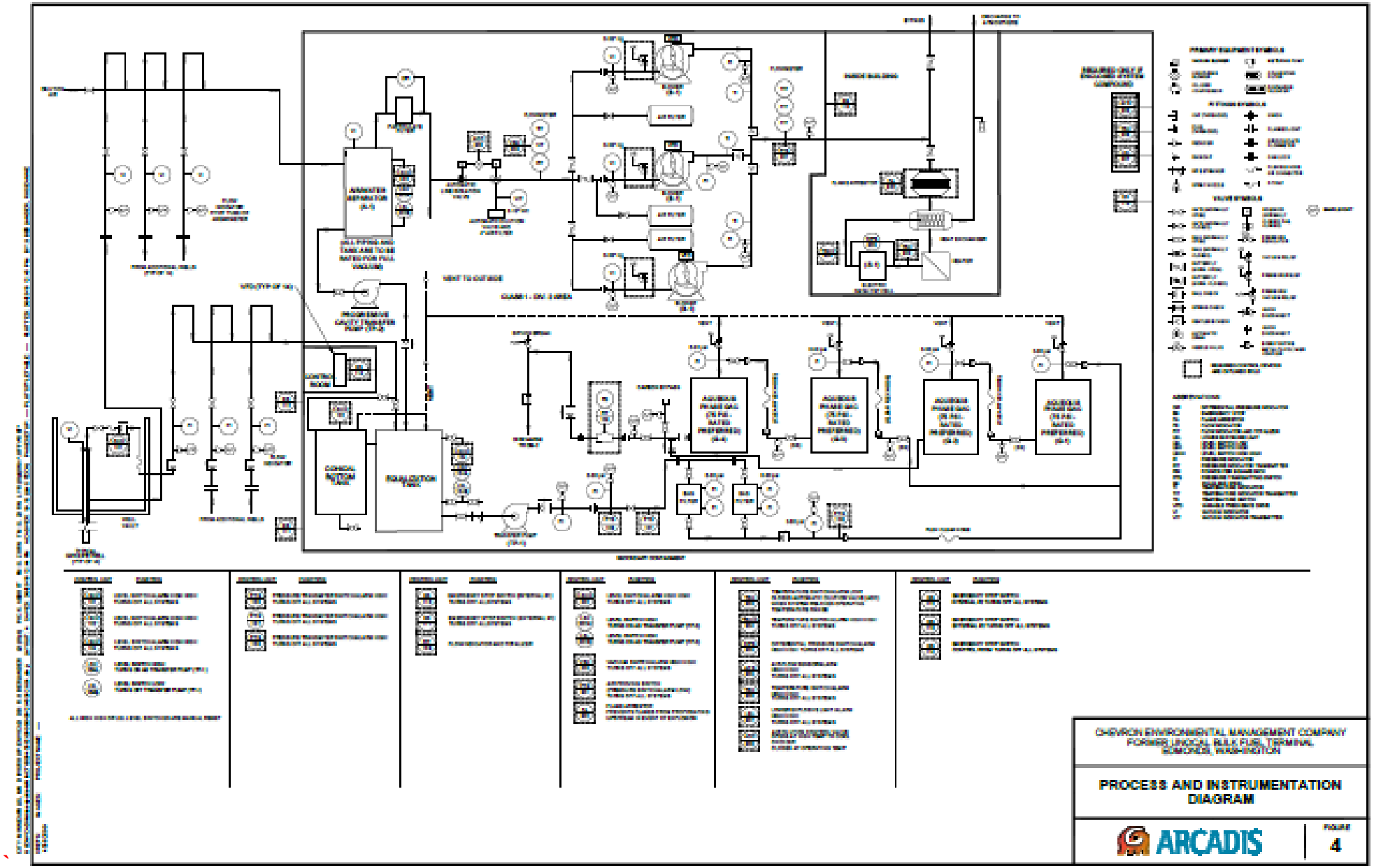

Figure 4. Process and instrumentation diagram

Appendix E--Response to Comments

South, David (ECY)

From: Marjorie Fields <mvfields@me.com>
Sent: Sunday, August 07, 2016 5:22 PM
To: South, David (ECY)
Subject: Edmonds Unocal Cleanup Site

Progress in clean up at the Edmonds Unocal site is good news.

However, pumping petroleum-contaminated water into Willow Creek and then into the Sound could be dangerous for water quality, even after water treatment. Please be certain all possible safeguards are in place for this process.

Similarly, the contaminated soil extraction process requires extreme care to keep dangerous contaminants from escaping.

Thank you for your efforts to make this cleanup successful.

Marjorie Fields
327 2nd Ave N.
Edmonds, WA 98020

South, David (ECY)

From: Dawna Lahti <edmondite1@hotmail.com>
Sent: Tuesday, August 23, 2016 11:18 AM
To: South, David (ECY)

Mr. David South
Dear Sir:
I am availing myself of the privilege of weighing in on the Edmonds Bulk Fuel Terminal 0178 cleanup during the comment period ending September 6th. I am a resident of Edmonds for more than 30 years and and am increasingly aware of the successful efforts to clean and preserve the remaining Edmonds marsh. To allow cleanup pollutants to leach in would undo many years of conservation effort. Therefore, I strongly agree with the Draft Amendment Agreed Order to abate benzene products prior to release and with NPDES which would uphold the highest standards available to us.
Thank you. Kindly RSVP.
Sincerely
Mrs. Jim Lahti

South, David (ECY)

From:	dmm98020@comcast.net
Sent:	Tuesday, August 09, 2016 9:24 AM
To:	South, David (ECY)
Subject:	Unocal Edmonds Cleanup Site

David South
Toxic Cleanup Program Site Manager

As an Edmonds resident, my comment is appreciation to the Dept. of Ecology for their follow-up to protect the water quality, require polluting
entities to be responsible for cleanup.

With the major federal, state and local funds proposed to daylight Willow Creek, the water quality is of particular importance to returning fish, salmon,
among them. We are most fortunate that this area of the Edmonds Marsh was not filled and developed and each of these steps to protect the natural
environment have such significant and long term consequences.

Thank you,

Dianna Maish
Edmonds

South, David (ECY)

From: Tran, Jeanne (ECY)
Sent: Wednesday, September 21, 2016 8:07 AM
To: South, David (ECY)
Subject: FW: Comments on National Pollutant Discharge Elimination System Waste Discharge Permit No. WA0991007

From: joe scordino [mailto:joe.scordino@yahoo.com]
Sent: Tuesday, September 06, 2016 4:24 PM
To: Tran, Jeanne (ECY) <JTRA461@ECY.WA.GOV>
Subject: Comments on National Pollutant Discharge Elimination System Waste Discharge Permit No. WA0991007

To: Jeanne Tran, Dept. of Ecology.

The following are my comments on the Draft National Pollutant Discharge Elimination System (NPDES) Permit application from the Chevron Environmental Management Company for the Unocal Edmonds Bulk Fuel Terminal Site to address contaminated soil and groundwater.

The permit should clarify that discharges into Willow Creek will ultimately discharge into the Edmonds Marsh AND/OR Puget Sound dependent on tide levels. During periods of higher tides (greater than about six to seven feet), Willow Creek DOES NOT flow into Puget Sound; the creek either backs up into the Edmonds Marsh (when tide gate is functioning in fall/winter months) or is mixed with incoming saltwater from Puget Sound and flows into the Edmonds Marsh (when tide gate is secured open in spring/summer months). Thus, UnoCal cleanup discharges into Willow Creek do affect the Edmonds Marsh and discharged contaminants may deposit in the sediments in the Edmonds Marsh. The Edmonds Marsh has likely been contaminated by groundwater infusion and runoff from past UnoCal operations and additional contaminant discharges, even if at low levels, may increase the contaminant load in the sediments in the Edmonds Marsh.

The tide gate downstream of the UnoCal property is secured open by the City of Edmonds between about March 15 and October 15 of each year to allow tidal influx into the Edmonds Marsh. In the late fall/winter months (mid-October to mid-March), the tidegate is returned to functioning to prevent saltwater from entering the Edmonds Marsh due to winter flooding concerns. This tide gate and tidal height will affect the flow of discharges of treated/contaminated water from the UnoCal site.

The permit should take into account potential adverse affects to the Edmonds Marsh due to flow conditions. One approach would be to restrict discharges to only those periods when the tide is below six feet to ensure that discharges will be flowing into Puget Sound and not settling into the sediments in the Edmonds Marsh.

I would also recommend that the permit require some sort of independent monitoring. Self-monitoring, although more cost efficient, does not provide the level of certainty that the public expects in clean-up of petroleum-compound contaminated areas. There are negative repercussions of oil industry self-monitoring as evidenced by the Deepwater Horizon situation in the Gulf, and they can only be addressed through independent monitoring. The permittee should pay the costs of such monitoring, but there should be no contractual arrangements or otherwise between the permittee and the independent monitors. Public funded agencies also should not have to pay for the monitoring. The permit could require that the Dept. of Ecology would contract for independent monitoring and then bill the permittee for the contractor and administrative costs (so there is no expenditure of public funds for the monitoring).

The reporting requirements in the permit appear adequate, but it is not clear that the reports will be made easily accessible for the public (without having to go through

public disclosure procedures). I don't know if it needs to be a permit condition, but there needs to be a mechanism for the public to access all reports and data through an internet portal or something. One approach is for Ecology to set-up a publicly accessible site and have a permit condition requiring the permittee to post all reports and data to such site. The City of Edmonds had a citizen group (the ECAC) that oversaw previous UnoCal cleanup operations and although the group has disbanded, there are still a number of Edmonds citizens who are interested in overseeing and tracking the clean-up operation. Many of us are disappointed that potential impacts of the UnoCal operations on the Edmonds Marsh and the need for sediment sampling in the Marsh have been dismissed by Department of Ecology and we want to track cleanup operations to ensure the Edmonds Marsh is not further impacted even by low contaminant levels.

Lastly, section G.2 of the permit pertains to site entry and inspection. Would it be possible for Department of Ecology to designate the 'Edmonds Stream Team' as an authorized representative to access the site for the purpose of collecting water quality measurements and water samples in Willow Creek and the ditch along the UnoCal property? The 'Edmonds Stream Team' is a citizen science project, recognized by the City of Edmonds, that collects water quality data in three Edmonds streams and the Edmonds Marsh with high school students. I can provide more details on the 'Edmonds Stream Team' and work out details if Ecology would be willing to help authorize access to the UnoCal property for monitoring waters along the southern edge of the Marsh/Willow Creek.

Sincerely,

Joe Scordino

South, David (ECY)

From: Sharon Sneddon <sksneddon@frontier.com>
Sent: Monday, August 22, 2016 11:44 AM
To: South, David (ECY)
Subject: Unocal Edmonds Cleanup Site

I concur that the Interim Action Work Plan should proceed as amended. Increasing the cleanup levels for benzo(a)pyrene and benzene will contribute to a more healthy environment once the cleanup is finally finished.

Sharon Sneddon
Edmonds

South, David (ECY)

From: Tran, Jeanne (ECY)
Sent: Wednesday, September 21, 2016 8:07 AM
To: South, David (ECY)
Subject: FW: Unocal Edmonds Cleanup Site

-----Original Message-----
From: Sharon Sneddon [mailto:sksneddon@frontier.com]
Sent: Monday, August 22, 2016 11:55 AM
To: Tran, Jeanne (ECY) <JTRA461@ECY.WA.GOV>
Subject: Unocal Edmonds Cleanup Site

The National Pollutant Discharge Elimination System Permit should not be granted to Chevron Environmental Management. Washington State Water Pollution Control regulations and the Federal Clean Water Act may not be strict enough to keep some of the latent chemicals remaining in the treated wastewater from disrupting optimal stream chemistry that allows aquatic creatures to flourish. The treated wastewater should not be allowed to flow into Willow Creek.

Sharon Sneddon
Edmonds

From: South, David (ECY)
Sent: Tuesday, September 27, 2016 9:53 AM
To: Sharon Sneddon <sksneddon@frontier.com>; Dawna Lahti <edmondite1@hotmail.com>; joe.scordino@yahoo.com; dmm98020@comcast.net; Marjorie Fields <mvfields@me.com>
Cc: Jolitz, Kim S <kjolitz@chevron.com>; Boortz, Marielle (MJBoortz) <MJBoortz@chevron.com>; Zorn, Scott <Scott.Zorn@arcadis.com>; Tran, Jeanne (ECY) <JTRA461@ECY.WA.GOV>; Lui, Nancy (ECY) <nlui461@ECY.WA.GOV>; Svoboda, Patrick <SvobodP@wsdot.wa.gov>
Subject: Unocal Edmonds cleanup site - response to comments

This email responds to comments received during the August 2016 public comment period on cleanup of contamination at the Unocal Edmonds Bulk Fuel Terminal Site. The comment period was on making cleanup levels for benzo(a)pyrene and benzene more strict and on the Draft National Pollution Discharge Elimination System (NPDES) Permit for the Site. The NPDES Permit requires treatment of contaminated water produced during cleanup to a quality protective of human health and the environment prior to discharge to Willow Creek.

Comments were received via email from five people. These emails, which are public record documents, are in the attached file **Compiled_Comments.pdf**. Ecology considered each comment. No changes were made to the Amendment to the Consent Decree setting stricter cleanup levels or to the NPDES Permit as a result of the comments. Specific points are addressed below.

Several commenters expressed agreement with setting stricter cleanup levels for benzo(a)pyrene and benzene. The lower concentrations are a result of changes made to the federal National Recommended Water Quality Criteria for the protection of human health.

One commenter said the NPDES Permit should not be issued to Chevron Environmental Management Company (Chevron). The commenter indicated treated wastewater should not be allowed to flow into Willow Creek because state and federal standards may not be strict enough to protect aquatic life. As mentioned above, the stricter standards are based on protection of human health. This is based on people eating fish (or other aquatic organisms). There are no federal or state standards for the protection of aquatic life for the chemicals of interest at this Site. Testing performed as part of investigations at the Site indicate the concentrations protective of human health will be protective of aquatic life.

One commenter expressed concern that cleanup of contaminated soil be done with extreme care to keep contaminants from escaping. Cleanup is done using strict health and safety protocols to keep contaminants for re-entering the environments. Dust control measures are employed (e.g., fugitive dust will be controlled with water spray from an on-site water tank), truckloads of excavated soil are covered, and truck wheels are washed prior to leaving the Site. Two dust monitors will be installed during work hours, one upwind of the work area and one downwind of the work area.

Willow Creek is a tidally-influenced stream, and at high tides greater than six feet water flows from Puget Sound up Willow Creek into Edmonds Marsh. One commenter indicated that the permit should clarify that discharges into Willow Creek will ultimately discharge into the Edmonds Marsh or Puget Sound, depending on the tide levels. This commenter suggested that discharges be restricted to periods when the tide level is below six feet to ensure that discharges flow into Puget Sound and not Willow Creek. Discharge limits in the NPDES permit are protective of both Puget Sound and Edmonds Marsh.

On commenter recommended that the NPDES Permit require independent monitoring by a contractor independent of Chevron, but paid by Chevron. The Washington State Department of Ecology is the regulatory agency charged with overseeing the discharge monitoring required the NPDES Permit. Self-monitoring by the Permittee is the basic approach used by the NPDES Permit system nationwide. The permit contains language (Section S3 of the permit) that requires that the contract laboratory be accredited by Ecology's Manchester Laboratory in order to perform the analysis. The contract laboratory reports must include information on the chain of custody, QA/QC results, and documentation of accreditation for the parameter. The permittee is required to monitor and report in accordance with the conditions set forth in the permit. Falsification of information submitted to Ecology is a violation of the terms and conditions of the permit. If Ecology identifies issues regarding the monitoring, Ecology will take appropriate measures, including sampling the discharge, as necessary.

One commenter asked about the public availability of the monitoring results. Monitoring results will be available on Ecology's Permitting and Reporting Information System (PARIS) web site. A member of the public can click on Access PARIS and enter the permit number (WA0991007) to obtain the data. no information will be available until the discharge actually starts.

One commenter asked if it would be possible for Ecology to designate the Edmonds Stream Team as an authorized representative to access the site. Ecology authorized representatives are under contract to Ecology, are working at the direction of Ecology, and must have legally-required health and safety training for working on hazardous waste sites. It would not be possible for Ecology to authorize the Edmonds Stream Team to access the Site.