Unocal Edmonds Terminal/SITS.2

Approved as Final
David L. South
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INTERIM ACTION REPORT

UNOCAL EDMONDS TERMINAL

Prepared for

Unocal Corporation

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1 INTRODUCTION

Union Oil Company of California, dba Unocal, entered into Agreed Order No. DE 92TC-N328 with the Washington Department of Ecology (Ecology) to conduct environmental investigations at the UNOCAL Edmonds Terminal (Terminal) located at 11720 Unoco Road in Edmonds, Washington (Figure 1-1). The scope of the Agreed Order, issued pursuant to the Model Toxics Control Act (MTCA), included a facility background history review, a remedial investigation (RI) and feasibility study (FS), and an evaluation of an existing free product recovery system.

The facility background history review and product recovery system evaluation were completed in 1994 and reported to Ecology (EMCON, 1994a and 1994b). The RI was performed between October 1994 and August 1996 and reported to Ecology (EMCON, 1996a and 1998; MFA, 2001a). A preliminary FS was performed in 1996 and reported to Ecology (EMCON, 1996b). An updated and expanded FS will be performed and reported to Ecology in September 2001.

During the FS, Unocal proposes to perform interim actions at the Terminal to reduce potential threats to human health and the environment and to provide additional information for the FS and subsequent design of a cleanup action. Specifically, petroleum-contaminated soil will be removed from the upper yard and shipped off site for treatment or disposal; heavy-metal-contaminated surface soil will be removed from the upper and lower yard and shipped off site for disposal; and free petroleum product and associated petroleum-contaminated soil will be removed from select areas of the lower yard and shipped off site for recycling, treatment and/or disposal. The upper yard interim action is intended to return a portion of the site to productive use by meeting final cleanup standards. Future use of the upper yard is anticipated to be residential. A zoning change will be required to change the zoning from the current Commercial Waterfront designation to a zoning designation appropriate for residential use.

Ecology approval is required prior to initiating the interim actions. If approval is received by July 31, 2001, Unocal anticipates proceeding with the lower yard interim action in August 2001 and proceeding with dismantling and removal of the upper yard tanks and lines in August 2001. The upper yard interim action would then commence in Spring 2002. If Ecology approval is not received by July 31, tank and line removal and the interim actions would be postponed accordingly.

As required by WAC 173-340-430, Interim Actions, a report must be prepared before performing an interim action unless otherwise directed by Ecology.[1] This work plan constitutes the report. It identifies and describes interim actions Unocal proposes to perform at the Terminal, and is organized as follows:

- Section 2 provides a summary of the Terminal features and existing site conditions pertinent to the interim actions;
- Section 3 describes the interim actions and how these actions meet the criteria of WAC 173-340-430;
- Sections 4 and 5 detail the implementation of an interim action for the upper yard and lower yard, respectively;
- Section 6 describes the construction documentation procedures;
- Section 7 notes the public participation activities;
- Section 8 describes the reporting procedures;
- Section 9 discusses requirements of the State Environmental Policy Act; and
- A preliminary schedule is provided in Section 10.

A list of state and local permits pertinent to the interim actions is provided in Appendix A. Ecology intends to exempt these permits pursuant to WAC 173-340-710 while requiring implementation of their substantive requirements.

[1] The chapter 173-340 WAC citations in this report are intended to reflect the revised regulations of February 2001.

2 SITE CONDITIONS

2.1 Site description

The Terminal comprises approximately 47 acres of land on and adjacent to the northern slope of a hillside and lies within approximately 1,000 feet of the Puget Sound shoreline. At its nearest point (southwest corner of lower yard) the Terminal boundary is approximately 160 feet from the Puget Sound shoreline. The Terminal has two distinct areas, the upper yard (tank farm) area and the lower yard area (Figure 2-1).

The lower yard is approximately 22 acres, lying east of the Burlington Northern Santa Fe Railroad (BNSF RR) right-of-way, south of Edmonds Marsh, west of the Deer Creek Salmon Hatchery, and north of the upper yard. The lower yard elevation ranges from approximately 10 to 25 feet above the mean lower low water datum (MLLW). The lower yard consists of office buildings, two former truck loading racks, aboveground piping, two underground (former vapor recovery) tanks, two underground vaults, Detention Basin No. 1, Detention Basin No. 2, and one oil/water separator. Previous operations also included an air-blown asphalt plant, an asphalt packaging warehouse, and a railcar loading/unloading facility.

The upper yard is approximately 25 acres located immediately south of the lower yard. Upper yard elevations range from approximately 25 to 150 feet (MLLW). The upper yard consists of 23 aboveground storage tanks, above-grade piping, a storage shed, garage, and a warehouse.

UNOCAL operated the Terminal from 1923 to 1991. Fuel was brought to the Terminal on ships, pumped to the storage tanks in the upper yard, and loaded from the tanks into rail cars and trucks for delivery to customers. An asphalt plant operated on the site from 1953 to the late 1970s. Detailed descriptions of the Terminal facilities and historic activities are presented in the Background History Report (EMCON, 1994a). The facility is currently used only for office purposes. All tanks and lines are empty.

2.2 Upper Yard

2.2.1 Surface Soil- Metals

As described in the Draft Remedial Investigation Report (MFA, 2001a), elevated metals concentrations were found in surface soil in areas of sand blast grit and paint chips which occur under pipe runs and manifolds, in isolated grit piles, and in certain tank basins. As part of the RI, focused sampling was performed in areas most likely to contain sand blast grit or paint chips. These areas were mapped and are displayed on Drawing No. 4 of the Draft RI Report. Soil sampling locations are displayed on Drawing No. 2 of the Draft RI Report.

Upper yard surface soil samples for metals analysis were collected by focused sampling in areas of visible sand blast grit or paint chips, or in the areas most likely to contain sand blast grit or paint chips. Elevated metals results corresponded with samples collected in areas of sand blast grit and paint chips. Maximum detected concentrations of these metals in the upper yard are shown in the following table:

Metal	Maximum Upper Yard Concentration (mg/kg)
Antimony	130
Arsenic	2,000 (estimated)
Cadmium	8.9
Chromium	120
Copper	4,100
Lead	1,500
Zinc	12,000

Arsenic, cadmium, chromium, copper, lead, mercury, and zinc concentrations exceed Puget Sound background concentrations (Ecology, 1994) in areas impacted by sand blast grit and paint chips.[2] Metals concentrations were highest under the manifold at the base of the upper yard, in an area covered with sand blast grit at the base of the upper yard, and in the basin with Tank 2603 (see Figure 3-1 for tank numbers). Metals concentrations in these three areas were much higher than the on-site background concentrations. Soil samples were collected at a depth of 0.5 feet at the two upper yard locations with the

[2] The Puget Sound background soil metals concentrations for arsenic, cadmium, chromium, copper, lead, mercury, and zinc are 7, 1, 48, 36, 24, 0.07, and 85 mg/kg, respectively. No Puget Sound background concentration exists for antimony.

highest surface soil metals concentrations to evaluate metals concentrations with depth. The metals concentrations of these two near-surface samples were in the range of the on-site and Puget Sound background concentrations, indicating that elevated metals concentrations in the upper yard are confined to surface soil with sand blast grit and paint chips.

Limited areas of sand blast grit and paint chips were also identified in the lower yard. Elevated metals results corresponded with samples collected in these areas, with maximum concentrations as follows.

Metal	Maximum Lower Yard Concentration (mg/kg)
Antimony	200 (estimated)
Arsenic	2,000
Cadmium	15
Chromium	250
Copper	4,200
Lead	2,100
Mercury	0.23
Zinc	24,000 (estimated)

Metals concentrations were highest underneath the pipe runs located in the southwest part of the lower yard. Metals concentrations in samples collected underneath the pipe runs significantly exceed the on-site background concentrations and also exceed the Puget Sound background soil metals concentrations.

The Draft RI Report identified arsenic and lead as indicator metals.

2.2.2 Surface Soil- TPH and PAHs

Elevated total petroleum hydrocarbon (TPH) results corresponded to upper yard samples collected in areas of odorous soil. TPH as diesel (TPH-D) and as oil (TPH-O) were detected in concentrations up to a maximum of 10,000 (estimated) and 6,500 mg/kg, respectively. The maximum concentrations of TPH as gasoline (TPH-G) and benzene, toluene, ethylbenzene and xylenes (BTEX) were in samples collected underneath pipe valves. Maximum concentrations of TPH-D and TPH-O were in samples collected underneath pipe valves and in the basins for Tanks 1749 and 2603.

Polycyclic aromatic hydrocarbons (PAHs) were detected in surface soil samples, with most detections in the low µg/kg range. The highest concentrations of PAHs were found in samples with elevated TPH concentrations. Maximum carcinogenic PAH (cPAH) detections were found in one sample collected beneath valves in a pipe run located in the eastern part of the upper yard. The maximum cPAH concentrations in this sample were 1.0 mg/kg of chrysene and 0.46 mg/kg of benzo(a)anthracene. The maximum noncarcinogenic PAH (nPAH) detections were found located underneath the manifold at the base of the lower yard, and between Tanks 4121 and 3716. The maximum nPAH concentrations in these samples were 2.70 mg/kg of fluoranthene and 0.96 mg/kg (estimated) of fluorene, respectively.

2.2.3 Subsurface Soil- TPH and PAHs

TPH-D, TPH-O, and TPH-G detected in subsurface samples collected from the upper yard during the RI had maximum concentrations of 24,000, 5,300, and 550 mg/kg, respectively. BTEX was detected, at low concentrations, in less than 10 percent of the samples.

The highest concentrations of TPH-D and TPH-O were found in the basins of Tanks 2606 and 2913 and in the area where a French drain drops down to the storm drain system. Elevated concentrations of TPH-D were also found on the north side of Tank 4120. The highest concentrations of TPH-G were found in the basin of Tank 2913 and on the north side of Tank 4120. Elevated concentrations of TPH-D, TPH-O, and TPH-G were only found in the upper 5 feet of soil. The dense, fine-grained soil prevented further downward migration. Samples collected outside of the tank basins had non-detectable or very low concentrations of TPH and BTEX.

Benzo(b)fluoranthene and dibenzo(a,h)anthracene were not detected in any subsurface soil sample. The percentage of detected cPAHs ranged from 3 percent for benzo(a)anthracene to 47 percent for chrysene. Except for chrysene, the maximum cPAH concentrations were in the low µg/kg range. The maximum chrysene concentration was 1.2 mg/kg in a shallow sample from the Tank 2606 basin.

Acenaphthene and acenaphthylene were not detected in any subsurface soil sample. The percentage of detected nPAHs ranged from 7 percent for naphthalene to 54 percent for phenanthrene. Most detections were in the µg/kg range. The maximum nPAH concentrations ranged from 0.16 mg/kg for anthracene to 7.1 mg/kg for fluoranthene. The highest concentrations of non-carcinogenic PAHs were found at locations with elevated concentrations of TPH, as noted above.

The Draft RI Report identified TPH-G, TPH-D, TPH-O, and chrysene as indicator hazardous substances for the upper yard.

2.3 Lower Yard

The current interim action in the lower yard consists of passive free product recovery from all of the groundwater monitoring wells and product recovery wells that contain apparent (measured) product thicknesses greater than 0.10 feet. The interim product recovery program includes measuring depths to groundwater and free product, if present, in most of the monitoring wells and recovery wells in the lower yard on a monthly basis, and pumping the recoverable product from the wells on at least an every-other-week basis by using a peristaltic pump. The interim product recovery activities have been conducted since December 1992.

Based on the results of the interim product recovery activities, six floating product plumes were identified in the lower yard (EMCON, 1996a). The product plumes are located beneath the former railroad loading rack (railroad loading rack plume), beneath the former asphalt plant area (asphalt plant plume), near the northernmost former truck loading rack (truck loading rack plume), near the RW-2 recovery trench (RW-2 plume), beneath the northeastern-most office building (office plume), and near Detention Basin No. 1 (D.B. No. 1 plume) (Figure 2-2). To evaluate if the product in a well represented a localized product area, product near the edge of a floating plume, or product within a floating plume, the following criteria were established to determine product within a floating plume: 1) product was consistently present in the well and the apparent product thickness accumulated to over 0.10 feet within a year, and/or 2) the well yielded more than ¼ gallon (32 ounces) of product during a year of passive pumping. Based on the results of the interim product recovery activities and the RI, the lateral extents of each of the floating product plumes have been conservatively estimated (EMCON, 1996a, MFA, 2001b). The approximate extents of the floating product plumes as of December 2000 are shown on Figure 2-2.

From December 1992 through December 2000, approximately 1,970 gallons of product have been extracted by the interim product recovery operations (MFA, 2001b). Results of the product recovery operations have shown that the annual volume of extracted product typically decreased from 1995 to 2000 due to the recovery operations reducing the volume of product in the plumes. During 2000, 97 percent of the recovered product volume (approximately 163 gallons) was from the truck loading rack plume, the asphalt plant plume, and the RW-2 plume. The total volume of product recovered from the railroad loading rack plume, the D.B. No. 1 plume, and the office plume during 2000 was less than 6 gallons.

3 PROPOSED INTERIM ACTIONS

3.1 Upper Yard Soil Removal

Assuming the interim actions are approved, Unocal has tentatively scheduled dismantling and removal of the upper yard tanks and lines, commencing in August 2001. After removal, soil conditions beneath the tank footprints will be assessed. Additional soil sampling is proposed following tank removal, as described in the Draft Supplemental RI Work Plan (MFA, 2001c).

Following removal of the tanks and lines, removal of soil in the upper yard is proposed to reduce the potential threat to human health or the environment that may be posed by exposing contaminated surface and near surface soil, and to prepare that portion of the site for redevelopment. Storm drain catch basins will be cleaned out at this time as well.

After the tanks and piping are removed, metals-contaminated surface soil (containing sand blast grit and paint chips) will be removed down to 0.5 feet below ground surface (bgs), followed by the removal of surface and near surface soil impacted with TPH. Metals-contaminated soil will be transported off site for disposal. TPH-contaminated soil will then be excavated to depths ranging from 2 feet bgs to approximately 5 feet bgs. TPH-contaminated soil will be transported off site for thermal treatment. The planned areas of soil excavation are shown on Figure 3-1 (for removal of metals-contaminated surface soil) and Figure 3-2 (for excavation of TPH-contaminated soil). As displayed on Figure 3-1, metals-contaminated surface soil exists in the upper yard as well as in limited portions of the lower yard. Metals-contaminated surface soil will be removed from all areas of the site as part of the upper yard interim action.

For the upper yard interim action, it is anticipated that Method B soil cleanup levels will be used for TPH constituents, PAHs and metals. This is believed appropriate because of the intended future use of the upper yard for residential purposes. Method B cleanup levels for TPH will be calculated from available petroleum fraction data, supplemented with additional fraction data as necessary. Unocal has elected to use action levels of 100 mg/kg as TPH-G and 200 mg/kg TPH-D and TPH-O for soil between 0 and 10 feet bgs. An action level of 1,000 mg/kg (combined concentrations of TPH-G, TPH-D, and TPH-O) will be used for impacted soil located between 10 and 15 feet bgs. The Unocal action levels are anticipated to be more stringent than Method B cleanup levels for TPH.

Should the action levels be less stringent that the Method B cleanup levels for TPH, the Method B cleanup levels will be used to define the limits of excavation. A further discussion of cleanup levels for the upper yard is provided below.

3.1.1 General Requirements

Consistent with WAC 173-340-430(2)(a), use of Method B cleanup levels and the Unocal action levels are intended to achieve cleanup standards for TPH constituents, PAHs, and metals for those portions of the upper yard which are excavated and tested during the interim action.

3.1.2 Relationship to the Final Cleanup Action

Consistent with WAC 173-340-430(3)(a) and (b), if this interim action does not complete the cleanup action ultimately required for upper yard, it will not foreclose reasonable alternatives for this part of the Terminal.

3.1.3 Alternatives Considered

Consistent with WAC 173-340-430(7)(a)(ii), Unocal considered other interim actions for the upper yard. Alternative actions considered included capping areas of the upper yard following tank and line removal. Capping would prevent contact with contaminated soil and reduce the potential for contaminant transport via infiltration or storm water runoff, but may not be consistent with the final cleanup action. Final grading for redevelopment is not known at this time; a cap would be difficult to install without risk of future damage

3.1.4 Cleanup Standards for the Upper Yard

Cleanup standards consist of cleanup levels, a point of compliance (location) at which cleanup levels must be achieved, and other regulatory requirements that apply to the site because of the type of action and/or location of the site (WAC 173-340-700). Each of these components is further discussed below. Cleanup standards for the upper yard interim action will be developed in tandem with the feasibility study prepared for the Terminal. Cleanup standards will be reported in the Compliance Monitoring Plan prepared for the upper yard interim action (see Section 3.1.6).

Cleanup Levels. As previously noted, for interim actions in the upper yard, it is anticipated that Method B soil cleanup levels will be used. This is believed appropriate because of the intended future use of the upper yard for residential purposes. Method B soil cleanup levels must be set so as to be at least as stringent as concentrations that are a)

established under applicable state and federal laws; b) protective of the environment; and c) protective of human health (including consideration of groundwater, direct contact and soil vapor pathways). Based on results of the data assessment performed in the RI, it is anticipated that the direct contact pathway will drive the cleanup level determinations for the upper yard interim action; however, evaluation of the vapor pathway must be performed to confirm this.

Point of Compliance. The point of compliance (POC) is the point or points where the soil cleanup levels must be attained. For Method B soil cleanup levels based on protection of groundwater, the POC is established in soils throughout the site. For Method B soil cleanup levels based on protection from vapors, the POC is established in the soils throughout the site from ground surface to the uppermost water table. For Method B soil cleanup levels based on direct contact, the POC is established in soils throughout the site from ground surface to 15 feet below ground surface. This represents a reasonable estimate of the depth of soil that could be excavated and distributed at the soil surface as a result of site development activities (WAC 173-340-740(6)).

For this interim action, "throughout the site" means throughout soil below the upper yard. Figure 2-1 shows the boundary of the upper yard as defined by the south site boundary, the toe of the bluff, and the main entrance road.

Other Regulatory Requirements. These are requirements that apply to the site because of the type of action and/or location of the site ("applicable state and federal laws") (WAC 173-340-700(3)). Applicable state and federal laws are defined by MTCA regulation as legally applicable requirements, including those cleanup standards, standards of control, and other environmental protection requirements, criteria, or limitations adopted under state or federal law that specifically address a hazardous substance, cleanup action, location or other circumstances at the site (WAC 173-340-710(3)). Additionally, Ecology may determine that other "relevant and appropriate requirements" may be considered in establishing cleanup standards (WAC 173-340-710(4).

Specific to the upper yard interim action, these include State Environmental Policy Act requirements (see Section 9) and National Pollutant Discharge Elimination System (NPDES) requirements for wastewater discharges and storm water runoff.

3.1.5 Contingency Considerations

This interim action is being taken to clean up contaminated soil whose extent, based on the RI results, is expected to be within fifteen feet of the ground surface. Should contamination extend below fifteen feet of the ground surface (or other required POC) at the end of the interim action, the area in which it occurs will be delineated. The area will

be evaluated both for the appropriateness of excavation versus other cleanup methods and for the appropriateness of using Method B concentrations as soil cleanup levels below a depth of 15 feet. This contingency is likely to be invoked if, after tank demolition, areas of significant tank leakage are found.

Cleanup of contaminated soil at depths greater than 15 feet below the ground surface is not included in this interim action. Contamination extending below 15 feet will be addressed either in another interim action or in the final cleanup action, as required. Ecology may, at its sole discretion, approve soil cleanup below a depth of 15 feet during this interim action if the required cleanup actions are obvious and undisputed.

3.1.6 Compliance Monitoring

Compliance monitoring will be accomplished as required by WAC 173-340-740(7). Details of compliance monitoring to be performed for this interim action will be specified in a Compliance Monitoring Plan (CMP). This will include a discussion of the use of the Unocal action levels in directing soil excavation activities and the use of MTCA cleanup levels in demonstrating compliance.

Additionally, the CMP must provide procedures to demonstrate that soil outside the planned excavation areas meets the cleanup standards identified for the upper yard.

The CMP will be prepared and transmitted to Ecology for review and approval by December 15, 2001. This will allow time to develop cleanup standards in tandem with the feasibility study for the Terminal, and also to make use of pertinent Ecology guidance which may be released in conjunction with the February 2001 revisions to the MTCA regulations. Assuming a three-month period for review and approval, the final CMP would be ready for use by April 2002.

Implementation details for the proposed upper yard interim action are provided in Section 4.

3.2 Lower Yard Free Product Assessment and Recovery

To evaluate and design a final cleanup action for free product in the lower yard, the lateral extent of the product plumes must be defined more accurately to verify the floating plume criteria. Additionally, the continuity of floating product within each plume must be determined. Since 97 percent of the product recovered in 2000 was from the truck loading rack plume, the asphalt plant plume, and the RW-2 plume (Figure 2-2), the interim action described in this work plan will be conducted at these three plumes. The results of the interim action will be applied to the three low-yield plumes (railroad loading rack plume, D.B. No. 1 plume, and office plume) to re-evaluate the extent and

mobility of the plumes, and to recalculate the volume of product remaining at the site. The planned interim action will also provide a partial cleanup of the free product and impacted soil in the lower yard. The current interim product recovery operations will continue to be conducted at the low-yield plumes.

To assess the lateral extent of the product plumes and determine the continuity of the floating product within each plume, the planned interim action will consist of excavating product-saturated soil from the truck loading rack plume, the asphalt plant plume, and the RW-2 plume. Each of the excavations will remain open for a period of up to one month to allow remaining product to enter the excavation. The product that collects on the groundwater in each excavation will be recovered by skimming methods. The excavations will vertically extend to a maximum depth of approximately 7.5 feet below ground surface (approximately 0.5 foot below the low seasonal groundwater table), and will extend laterally until product-saturated soil is not observed in the sidewalls. To prevent damage to the site oil/water separator and associated storm water collection and treatment equipment, the soil excavation at the eastern part of the RW-2 plume may not include the entire plume. The planned areas of soil excavation are shown on Figure 3-3.

Soil excavated from the top of the zone of groundwater fluctuation to the base of each excavation (approximately 4 to 7.5 feet bgs) will be considered contaminated and transported off site for thermal treatment. Soil excavated at depths above 4 feet bgs will be stockpiled on site and sampled for subsequent laboratory analysis.

The stockpiled soil that contains a combined TPH-G, TPH-D, and TPH-O concentration below 5,000 mg/kg will be backfilled into the excavations. This concentration was selected to reflect the WAC 173-340-747 residual saturation default screening levels; however, this concentration is not identified for use as a cleanup level. Stockpiled soil that contains a combined TPH-G, TPH-D, and TPH-O concentration above 5,000 mg/kg will be transported off site for thermal treatment.

Unocal recognizes that re-excavation of soil backfilled into excavations may be necessary for final cleanup actions in the lower yard, including actions that may be necessary to address contamination below the depth reached in the interim action excavations.

Product skimmed from the excavations will be pumped into a tank for subsequent shipment off site. Residual groundwater will be discharged to a holding tank. It will be sampled and tested for petroleum constituents, metals, and other relevant compounds to assess whether it complies with discharge limitations pursuant to requirements of the site NPDES permit (Appendix B). Testing will be performed as specified in the NPDES permit. After testing, the water will be treated to meet discharge limits if necessary and, after verification of successful treatment by sampling, discharged to the oil/water separator.

General Requirements. Consistent with WAC 173-340-430(2)(b) and (c), the interim action will clean up hazardous substances from part of the Terminal and provide information on how to achieve cleanup standards for the lower yard.

Relationship to the Final Cleanup Action. Consistent with WAC 173-340-430(3)(b), the interim action will not foreclose reasonable alternatives for cleanup actions in the lower yard.

Alternatives Considered. Consistent with WAC 173-340-430(7)(a)(ii), other interim actions were evaluated to assess the lateral extent of the plumes and the continuity of the floating product within each plume. These actions included soil excavation, test pit excavations, and drilling and sampling soil borings. Soil excavation was selected over test pitting and drilling because it will be more effective in meeting the objectives and because it will remove the product plumes that contain the greatest volume of recoverable product. Regarding the final disposition of the excavated soil and the recovered product and groundwater, off-site soil treatment was selected over on-site thermal treatment and off-site disposal, and groundwater treatment in the site's storm water treatment system was selected over off-site treatment and discharge.

Implementation details for the proposed lower yard interim action are provided in Section 5.

4 IMPLEMENTATION OF UPPER YARD SOIL REMOVAL

4.1 Mobilization

Prior to excavation, a private utility locating company will identify and mark the locations of underground utilities and structures within 50 feet of the planned excavation areas. Exclusion zones and associated site controls will be established in accordance with the site Health and Safety Plan (HASP). A traffic control plan will be prepared. Air monitoring procedures will be established, for purposes of controlling dust and monitoring petroleum odors during the excavation work. A sedimentation and erosion control plan will also be prepared; this plan will specify control methods to be implemented during excavation as well as post-excavation restoration requirements. Filter fabric fences and straw bale barriers will be placed for erosion control and storm drain inlets will be protected.

Waste profiles for each material to be transported off site will be prepared, as required by the treatment or disposal facility. Profiles will be submitted to prospective facilities identified by Unocal, and waste acceptance will be obtained.

4.2 Soil Excavation

Excavation oversight and monitoring for consistency with the interim action will be performed by a professional engineer registered in the state of Washington or a qualified technician under the direct supervision of a professional engineer registered in the state of Washington.

Based on the RI data, the maximum depth of excavation in the upper yard is expected to be less than 5.5 feet bgs. Soil removal will be completed with conventional excavation equipment.

4.2.1 Excavation Extent

The approximate extent of each excavation will be delineated in the field before the contractor begins work. The estimated excavation areas are shown on Figure 3-1 (for removal of metals-contaminated surface soil) and Figure 3-2 (for excavation of TPH-

contaminated soil). Soil will be excavated using conventional excavation equipment (e.g., trackhoe). Once soil is removed from the excavation it will be placed in a dump truck for transfer to an on-site stockpile or for direct off-site transfer to the selected treatment or disposal facility.

Where feasible, overburden will be excavated and stockpiled adjacent to the excavation. Overburden will be classified as uncontaminated based on visual inspection and RI sampling results; acceptable overburden will be used as backfill.

Excavation work will be completed in two phases. The first phase will consist of excavating metals-contaminated surface soil. The estimated extent of this soil is shown on Figure 3-1. As previously noted, metals-contaminated surface soil will be removed from both the upper and lower yards at this time. It is anticipated that excavations to remove metals-contaminated soil will be no deeper than 0.5 feet; however, the final depth and lateral extent of excavation will be determined by performance monitoring as described in the Compliance Monitoring Plan. The estimated surface area and volume of associated soil is 75,000 square feet and 1,400 cubic yards, respectively.

The second phase of excavation will consist of removing TPH- and associated PAH-impacted soil. The estimated lateral extent of TPH-impacted soil is shown on Figure 3-2. For this report it is assumed that excavations beneath existing tanks will extend to 3.5 feet bgs. The actual depth of excavation beneath existing tanks will be determined after the tanks are removed and analytical data are collected within the tank footprints consistent with the Supplemental RI Work Plan. The estimated surface area and volume of TPH/PAH-impacted soil is 115,000 square feet and 15,000 cubic yards, respectively. The final depth and lateral extent of excavation will be determined by performance monitoring

As metals-contaminated surface soil will be disposed at a different facility than the TPH/PAH-impacted soil, separate stockpiles will be maintained.

Once the lateral and vertical extent of soil containing concentrations exceeding the respective cleanup levels has been reached, confirmation samples will be collected as discussed in Section 4.3. Excavations will remain open during laboratory analysis of confirmation samples.

4.2.2 Soil Stockpiles

Temporary stockpiles may be used by the contractor prior to transferring soil to trucks for transportation off site. Soil stockpiles will be established in locations approved by Unocal.

Soil stockpiles will be placed on impermeable liners, and covered and secured at the end of each work day. Before placing liners, the contractor will clear the existing ground surface of debris and sharp objects. Soil stockpile covers will be secured so that they cannot be blown off by wind, and will not allow precipitation to come in contact with excavated soils. Berms will be constructed around stockpiles to prevent run-on and run-off.

4.2.3 Truck Loading

Trucks will be loaded in a manner that prevents spilling or tracking of contaminated soil. Loose material that falls onto the truck exterior during loading will be removed before the truck leaves the loading area.

Truck loading will be adjacent to stockpiles or excavations, just outside designated exclusion zones. Any material collected on the ground surface in the loading area will be placed back into the truck or respective excavation. The contractor will be responsible for ensuring that trucks loaded for off-site transport are within acceptable weight limits. The trucks will be covered before they leave the loading area.

Off-site hauling will be performed consistent with the traffic control plan, which will set work hours and describe truck traffic control on Pine Street.

4.3 Excavation Sampling and Analysis

Soil samples will be collected and analyzed using the procedures identified in the RI Sampling and Analysis Plan (SAP) (EMCON, 1995, as amended) and the Compliance Monitoring Plan (CMP).

After excavation, samples will be collected to evaluate metals and TPH concentrations at the extent of the excavation. Samples will be collected in accordance with the procedures described in the CMP. The samples will be submitted to North Creek Analytical, Inc., for analysis of antimony, arsenic, BTEX, TPH as Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and Heavy Oils (HO), and PAHs. Stockpile samples will be collected and submitted for analysis of BTEX, GRO, DRO, HO, and PAHs. Additional analyses may be performed (e.g., VPH/EPH), per the CMP.

Laboratory results will be used to determine if the final extent of excavation has been reached, or if additional soil removal is necessary. Results will also be used to determine if overburden is suitable for backfill. Once the final extent of excavation is reached, the excavations will be backfilled.

The associated analytical methods and method detection limits are described in the SAP.

If performance monitoring indicates cleanup standards have not been achieved, additional excavation will be performed until cleanup standards have been achieved or until a decision is made that re-evaluation of cleanup standards and cleanup methods is necessary.

4.4 Area Restoration

Since the excavations are relatively shallow, requirements for imported fill will be minimized by grading the excavations into the surrounding topography. The excavation areas will be graded such that storm water will not pond but be conveyed away from these areas. Portions of the existing asphalt/polyurethane surface coating (present on the soil berms which surround the tanks) may be removed during excavation of contaminated soil; this coating will not be replaced. Pursuant to the sedimentation and erosion control plan, excavation areas will be seeded for erosion control with cover appropriate for a 6- to 12-month predevelopment period. At this time, the storm drain catch basins will be cleaned of accumulated material. Filter fabric fences and straw bale barriers will be placed for erosion control and storm drain inlets will be protected.

5 IMPLEMENTATION OF LOWER YARD FREE PRODUCT ASSESSMENT AND RECOVERY

5.1 Mobilization

Prior to excavation in the lower yard, a private utility locating company will identify and mark the locations of underground utilities and structures within 50 feet of the planned excavation areas. A licensed well driller will abandon the groundwater monitoring wells (MW-2, MW-5, MW-6, MW-15, MW-19, MW-20, MW-21, MW-102, MW-103, MW-110, MW-112, MW-113, MW-114, MW-115, MW-117, MW-118, MW-128, MW-132, and LM-1) and the recovery well (RW-1) that are located in planned areas of soil excavation. The locations of the monitoring wells and recovery well are shown on Figure 3-3. The monitoring wells and recovery well will be abandoned pursuant to procedures described in *Minimum Standards for Construction and Maintenance of Wells* (WAC 173-160-310).

Replacement wells will be installed downgradient of and in the center of each excavation area after backfilling is completed (at MW-20 and MW-102 locations and new wells MW-140, MW-141, and MW-142). MW-139 will not be abandoned and will remain as a downgradient well for the RW-2 plume area (Figure 3-3).

A traffic control plan will be prepared. Air monitoring procedures will be established, for purposes of controlling dust and monitoring and controlling petroleum odors as necessary during the excavation work. Exclusion zones and associated site controls will be established in accordance with the HASP. A sedimentation and erosion control plan will also be prepared; this plan will specify control methods to be implemented during excavation as well as post-excavation restoration requirements. Storm drain inlets will be protected with filter fabric fences or straw bale barriers.

Waste profiles will be prepared for each material to be transported off site, as required by the treatment or disposal facility. Profiles will be submitted to prospective facilities identified by Unocal, and waste acceptance will be obtained.

5.2 Soil Excavation and Product Recovery

Excavation oversight and monitoring for consistency with the interim action will be performed by a professional engineer registered in the state of Washington or a qualified technician under the direct supervision of a professional engineer registered in the state of Washington.

5.2.1 Excavation Extent

Soil will be excavated using conventional excavation equipment. The excavations will vertically extend to a maximum depth of approximately 7.5 feet bgs (approximately 0.5 foot below the low seasonal groundwater table), and will extend laterally until product-saturated soil is not observed in the sidewalls or until safety considerations make it prudent to cease excavation. Soil excavation may be discontinued at the eastern edge of the RW-2 plume to prevent damage to the site oil/water separator and associated storm water collection and treatment equipment. Additionally, storm drain lines in the excavation areas will be supported and protected, or replaced as necessary during backfilling. The planned areas of soil excavation are shown on Figure 3-3. Assuming that the estimated extents of the floating product plumes are accurate and floating product occurs throughout each plume, an estimated 11,500 cubic yards of soil will be excavated. If unanticipated field conditions are encountered, Unocal will propose a plan for addressing the unanticipated conditions for approval by Ecology.

Field personnel will visually inspect the excavated soil to evaluate the presence of product-saturated soil. Liquid product must be observed in the pore spaces or coated on the soil to be considered part of a floating product plume. Soil that contains product staining but no liquid-phase product will be considered an area that is not part of a floating plume. At each excavation, areas of product-saturated soil, stained-only soil, and unstained soil will be mapped in the field. During the excavations, field personnel will observe product migration, if any, into the excavation, and will evaluate the mobility of the product under these ideal conditions (i.e., minimal pore water resistance to flow).

Soil excavated from the top of the zone of groundwater fluctuation to the base of each excavation (approximately 4 to 7.5 feet bgs) will be considered contaminated and will be shipped off site for thermal treatment. The soil excavated at depths above 4 feet bgs will be stockpiled on site and sampled for laboratory analysis. The stockpiles will be constructed consistent with the procedures described below.

5.2.2 Soil Stockpiles

Temporary stockpiles may be used by the contractor prior to transferring soil to trucks for transportation off site. Soil stockpiles will be established in locations approved by Unocal.

Soil stockpiles will be placed on impermeable liners, and covered and secured at the end of each work day. Before placing liners, the contractor will clear the existing ground surface of debris and sharp objects. Soil stockpile covers will be secured so that they cannot be blown off by wind, and will not allow precipitation to come in contact with excavated soils. Berms will be constructed around stockpiles to prevent run-on and run-off, and be configured to allow free product to drain away from the pile and be collected from within the bermed area.

5.2.3 Truck Loading

Trucks will be loaded in a manner that prevents spilling or tracking of contaminated soil. Loose material that falls onto the truck exterior during loading will be removed before the truck leaves the loading area.

Truck loading will be adjacent to stockpiles or excavations, just outside designated exclusion zones. Any material collected on the ground surface in the loading area will be placed back into the truck or respective excavation. The contractor will be responsible for ensuring that trucks loaded for off-site disposal are within acceptable weight limits. The trucks will be covered before they leave the loading area.

Off-site hauling will be performed consistent with the traffic control plan, which will set work hours and describe truck traffic control on Pine Street.

5.3 Sampling and Analysis

Soil samples will be collected and analyzed using the procedures identified in the SAP.

After excavation, sidewall samples will be collected to evaluate TPH concentrations in the unsaturated soil at the extent of the excavation. Samples will be collected on 50-foot centers and in accordance with the procedures described in the SAP. The samples will be submitted to North Creek Analytical, Inc., for analysis of BTEX, GRO, DRO, HO, and PAHs. Stockpile samples will be collected and submitted for analysis of GRO, DRO, HO, PAHs and BTEX.

Laboratory results will be used to compare actual contaminant concentrations to visual observations and to document contaminant concentrations at the final extent of

excavation. Results will also be used to determine if stockpiled soil is suitable for backfill.

Stockpiled soil that contains combined GRO, DRO, and HO concentrations below 5,000 mg/kg will be used as backfill material (at depths above the high seasonal groundwater table). Stockpiled soil that contains combined GRO, DRO and HO concentrations greater than 5,000 mg/kg will be shipped off site for thermal treatment.

The associated analytical methods and method detection limits are described in the SAP.

5.4 Area Restoration

Excavations will remain open for a period of about a month to allow remaining product to enter the excavations. The product that collects on the groundwater in each excavation will be recovered by skimming methods and transferred into a temporary, aboveground storage tank for subsequent shipment off site.

Residual groundwater will be discharged to a holding tank. It will be sampled and tested for petroleum constituents, metals, and other compounds to assess whether it complies with discharge limitations pursuant to the site NPDES permit (Appendix B). Sampling will be performed on a batch basis, prior to discharge to the oil/water separator. Test parameters will be as specified in this permit. After testing, the water will be treated to meet discharge limits if necessary and, after verification of successful treatment, discharged to the oil/water separator.

It is estimated that less than 2,000 gallons of product and groundwater will be skimmed from the excavations.

When product is no longer observed on the groundwater in the excavations or when seasonal considerations make it prudent to do so, excavations will be backfilled with clean, imported sand and/or gravel up to the top of the zone of groundwater fluctuation (approximately 4 feet bgs), It is anticipated that the schedule will permit excavations to stay open for about one month. Backfilling of excavations shall begin by October 1, 2001.

Above this zone, the excavations will be backfilled with imported sand and/or gravel and stockpiled soil that contains a combined GRO, DRO, and HO concentration below 5,000 mg/kg. The top six inches of each excavation will be filled with clean, imported gravel. All material will be backfilled and compacted in one-foot-thick lifts.

After backfilling the excavations, a licensed well driller will drill and install two groundwater monitoring wells to replace abandoned wells MW-20 and MW-102 and a well in the center of each of three former plume areas. The five replacement wells will be

used to monitor groundwater conditions in the former plume areas and between the former product plumes and the tidal basin and drainage ditch (Figure 3-3). The new wells will be installed at approximately the same locations as MW-20 and MW-102, and at new locations designated MW-140, MW-141 and MW-142 (Figure 3-3) following procedures specified in the SAP. Groundwater monitoring at these wells may be performed more frequently than the current biannual monitoring schedule, to assess post-excavation groundwater quality and residual contaminant migration.

6 CONSTRUCTION DOCUMENTATION

As required by WAC 173-340-400(6)(b), the construction aspects of the interim actions will be performed under the oversight of a professional engineer registered in the state of Washington or a qualified technician under the direct supervision of a professional engineer registered in the state of Washington.

During implementation, detailed records will be kept to document construction techniques, materials removed, and tests and measurements performed. The documentation procedures are discussed briefly below.

The contractor will complete records to document the work performed. These records will include, but are not limited to, the following:

- Daily Activity Log - A daily activity log will be completed by the contractor to describe general site activity and to identify personnel working on site. These records will be completed daily and will be provided to the Unocal construction supervisor weekly;

- On-Site Transfer Logs - Unocal or its designated representative will prepare a daily log of the soil generated and transferred within the site boundaries (e.g., from excavations to stockpiles). The source (e.g., soil from beneath Tank 1749) and the approximate quantity of soil will be identified in this daily log.

- Health and Safety Log - A daily record will be maintained of the personnel who are on site and the levels of protection they worked in by task. Results of field health and safety monitoring will be documented in the health and safety log.

Unocal or their designated representative will complete the following:

- Manifests for Waste Shipment - Unocal will be responsible for reviewing and signing all manifests. The contractor will provide Unocal with waste quantity information.

- Off-Site Tracking Log - A continuous log of all off-site shipments, which will include the following information: type of material, source of material, day shipped, receiver, and weight.

- Compliance monitoring documentation – An electronic database of all samples collected and electronic and hard-copy calculations of all compliance monitoring statistics.

Once the interim actions are complete, a registered surveyor will survey the boundaries of each excavation. The survey will be used to generate as-built drawings for the required as-built report (Section 8).

7 PUBLIC PARTICIPATION

The 1996 Public Participation Plan, prepared cooperatively by Unocal and Ecology, defines the public involvement activities to be accomplished as related to remedial actions at the Terminal. These required activities are relevant to the interim actions. The points of contact in the Public Participation Plan will be updated to include David South as the Ecology project manager, Mark Brearley as the Unocal project manager, and Rebekah Padgett as Ecology's Public Information Specialist.

The required public involvement activities are listed below. These activities will be led by Ecology with informational support from Unocal:

- This Interim Action Report will available for review during a 30-day public comment period.
- A public meeting will be held in June 2001.
- A notice will be placed in the MTCA Site Register.
- Ecology will prepare and distribute a Fact Sheet to describe the interim actions.
- A display advertisement will be published in the local newspaper of highest circulation; the ad will announce the public comment period and public meeting.
- Copies of this report will be place at designated repositories.

Additionally, a letter(s) will be prepared by Unocal and distributed to neighbors adjacent the Terminal, informing the neighbors of the interim action activities and schedule. Unocal contact information will be provided in the letter. Unocal may distribute letters at various times during the interim action schedule to ensure property owners are aware of imminent activities.

8 REPORTING

Technical requirements in contractor bid documents will be transmitted to Ecology for review and comment no later than the time they are transmitted to the contractor(s). A set will also be placed in the public repositories.

As required by WAC 173-340-400(6)(b)(ii), an as-built report will be completed by the engineer responsible for oversight during the interim actions. The report will include as-built drawings and an opinion as to whether the interim action was completed in substantial compliance with this work plan. As-built drawings will be based on the surveys described in Section 6.

The report will include the following items:

- Descriptions of field activities, including unusual or unexpected conditions or events;
- Figures showing the final lateral and vertical extent of excavations and grading;
- Figures showing confirmation soil sampling locations;
- Tables presenting the soil sampling results;
- An estimate of the total in-place volume of soil removed;
- A summation of soil, in yards, that was transferred off site;
- A summation of free product and residual groundwater removed from the lower yard excavations;
- Copies of daily reports and other field documentation;
- Copies of laboratory reports and chain-of-custody documentation;
- Copies of all waste manifests and bills of lading.
- Electronic database including all sampling data.

The report will be transmitted to Ecology for review and approval.

9 SEPA

Per Chapter 43.21C RCW, State Environmental Policy Act (SEPA) requirements must be met for interim actions. The SEPA rules specify the requirements for SEPA/MTCA integration at cleanup sites. A threshold determination must be made for interim actions. In addition, SEPA considerations for interim actions must include considerations for the entire project.

For this action, a threshold decision to issue a Determination of Nonsignificance has been made by Ecology based upon review of the SEPA checklist submitted for the site (Appendix C).

10 SCHEDULE

Ecology approval is required prior to initiating the interim actions. If approval is received by July 31, 2001, Unocal anticipates proceeding with the lower yard interim action in August 2001 and proceeding with dismantling and removal of the upper yard tanks and lines in August 2001. The upper yard interim action would then commence in Spring 2002. If Ecology approval is not received by July 31, tank and line removal and the interim actions would be postponed accordingly. If the lower yard interim action commences in early August 2001, results will be incorporated into the feasibility study and associated FS report.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

REFERENCES

Ecology. 1994. Natural Background Soil Metals Concentrations in Washington State. Publication No. 94-115. Washington State Department of Ecology, Toxics Cleanup Program. October.

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EMCON. 1994b. Free Petroleum Product Recovery System Report, Unocal Edmonds Bulk Fuel Terminal. January 20.

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EMCON. 1996a. Draft Remedial Investigation Report, Unocal Edmonds Bulk Fuel Terminal, Edmonds, Washington. Prepared for Unocal Corporation. August 23.

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EMCON. 1998. Draft Remedial Investigation Report, Unocal Edmonds Bulk Fuel Terminal, Edmonds, Washington. Prepared for Unocal Corporation. October 19.

MFA. 2001a. Draft Remedial Investigation Report, Unocal Edmonds Bulk Fuel Terminal, Edmonds, Washington. Prepared for Unocal Corporation. June.

MFA. 2001b. Letter from Michael D. Staton, Maul Foster & Alongi, Inc., to Dr. Mark Brearley, Unocal Asset Management Group, regarding 2000 Interim Product Recovery Operations Report, Unocal Edmonds Bulk Fuel Terminal. February 6.

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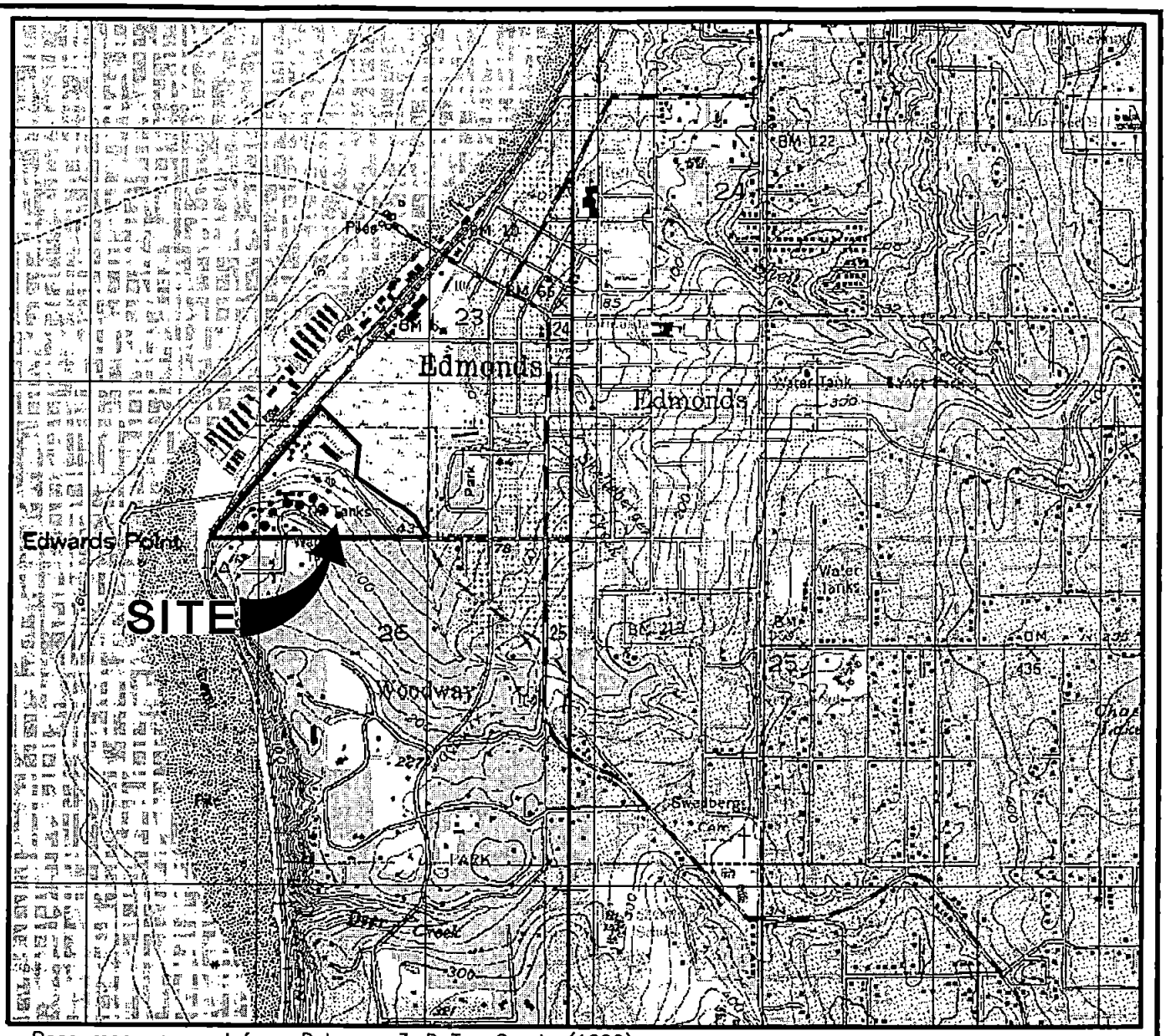
FIGURES



Base map prepared from DeLorme 3-D TopoQuads (1999)

0 2000 4000

SCALE IN FEET

Maul Foster & Alongi, Inc.

DATE	03/01
DWN.	BDT
APPR.	
REVIS.	
PROJECT NO.	9077.001.002

Figure 1-1
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

SITE LOCATION MAP

File: \9077.001\002\003-01.DWG Last edited: MAR 12, 2001 by: btookey Xrefs: none black/white

PUGET SOUND

BURLINGTON NORTHERN RAILWAY

DRAINAGE DITCH

DITCH

DETENTION BASIN NO.2

DETENTION BASIN NO.1

UNION OIL MARSH

OFFICE

TIDAL BASIN

LOWER YARD AREA

LOAD RACK

OFFICE

UPPER YARD AREA

GARAGE

WAREHOUSE

PIER

TOE OF BLUFF

PINE STREET

ROAD

MAIN ENTRANCE

DEER CREEK SALMON HATCHERY

EXPLANATION

Facility Boundary

Above Ground Storage Tank

0 200 400

SCALE IN FEET

Source: Union Oil Company of California — Los Angeles, California. Site area study General Arrangement Edmonds Terminal — Edmonds, Washington. 10/12/92

Maul Foster & Alongi, Inc.

DATE 03/00
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9077.001.002

Figure 2–1
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

SITE PLAN

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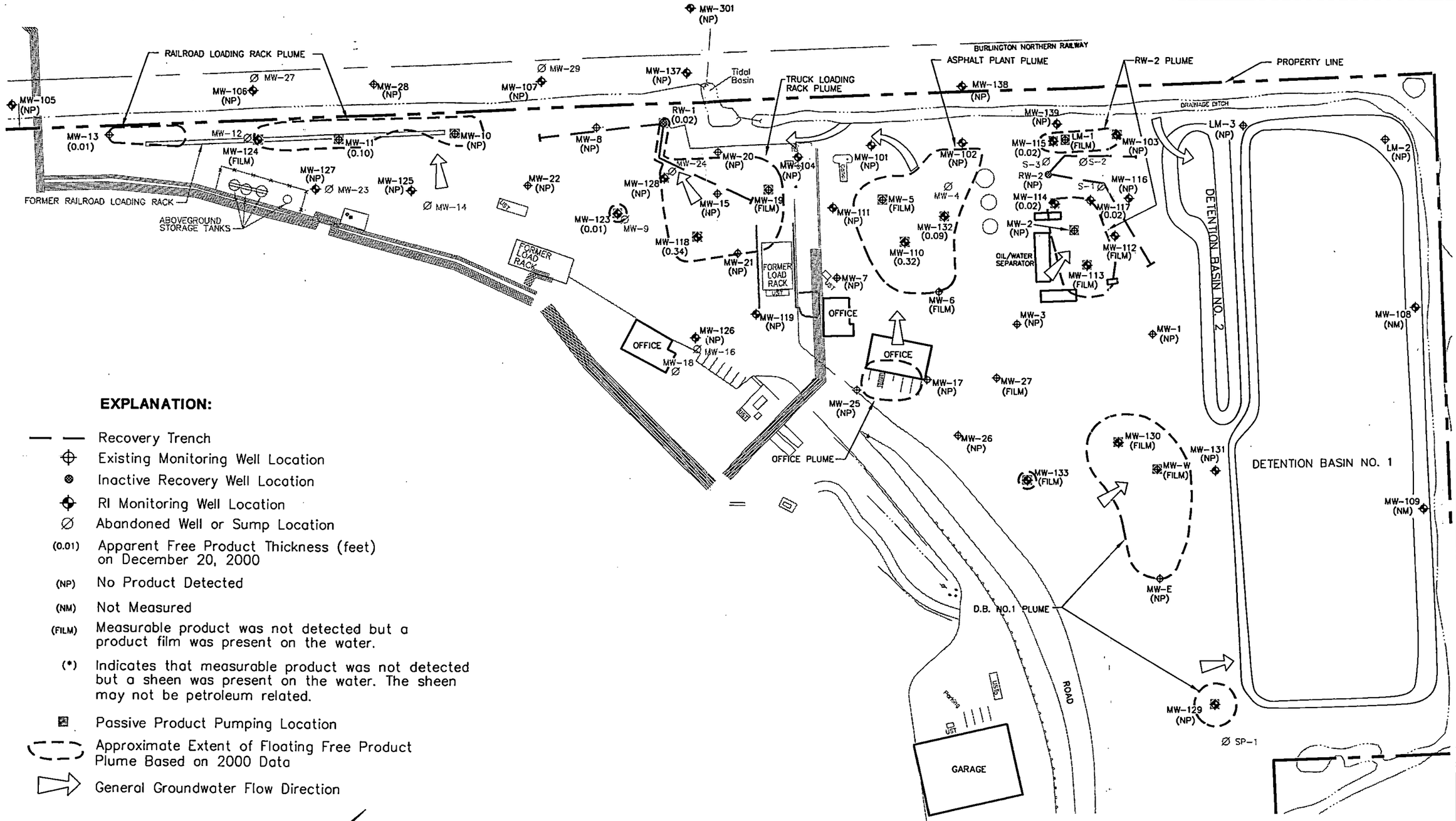

EXPLANATION:

- Recovery Trench
- Existing Monitoring Well Location
- Inactive Recovery Well Location
- RI Monitoring Well Location
- Ø Abandoned Well or Sump Location
- (0.01) Apparent Free Product Thickness (feet) on December 20, 2000
- (NP) No Product Detected
- (NM) Not Measured
- (FILM) Measurable product was not detected but a product film was present on the water.
- (*) Indicates that measurable product was not detected but a sheen was present on the water. The sheen may not be petroleum related.
- Passive Product Pumping Location
- Approximate Extent of Floating Free Product Plume Based on 2000 Data
- General Groundwater Flow Direction

0 100 200
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Maul Foster & Alongi, Inc.

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REVIS. ____
PROJECT NO. 9077.001.002

Figure 2-2
UNOCAL BULK FUEL TERMINAL
EDMONDS, WASHINGTON

APPROXIMATE EXTENTS OF FREE PRODUCT PLUMES - DECEMBER 20, 2000

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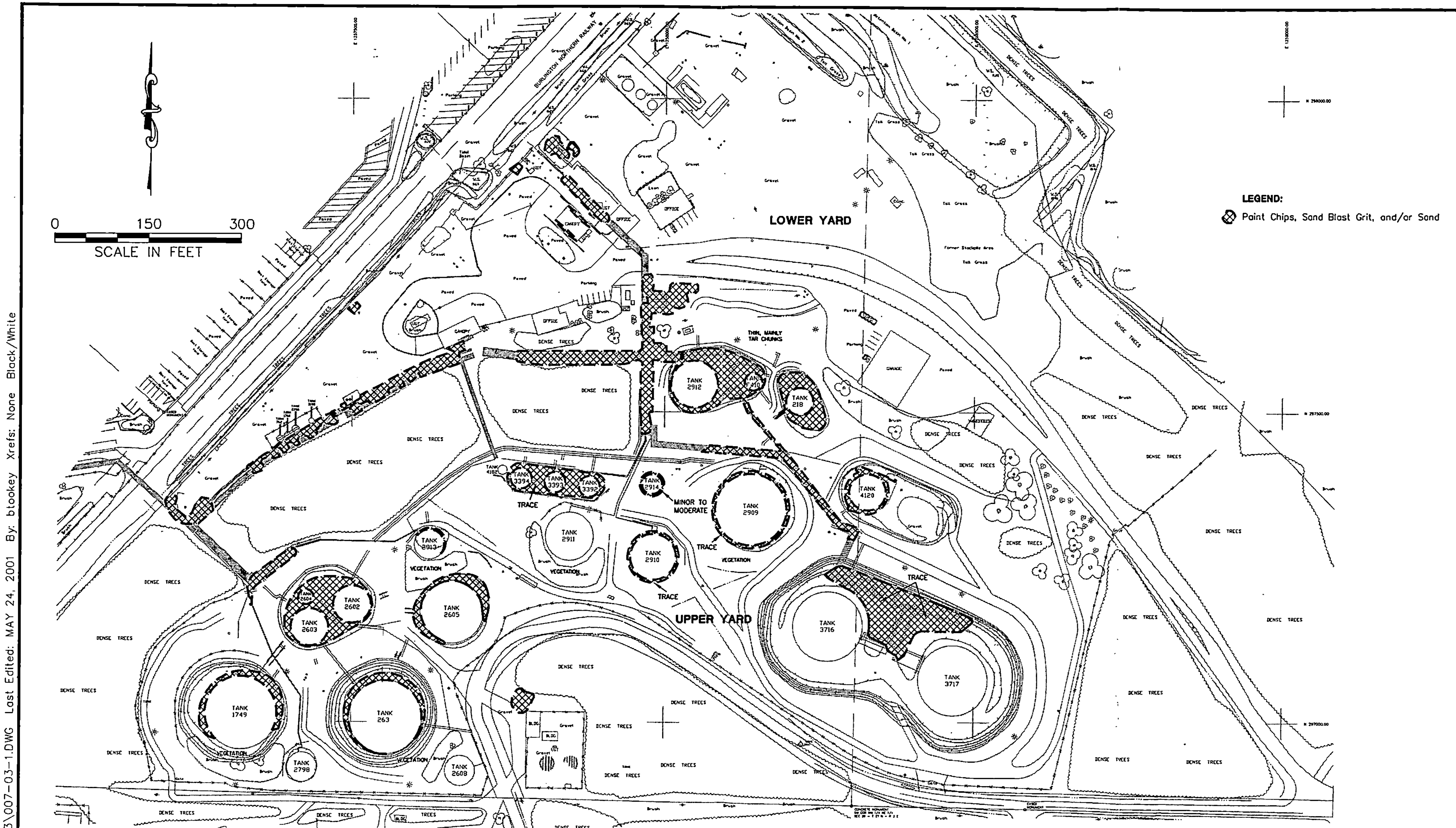

Maul Foster & Alongi, Inc.

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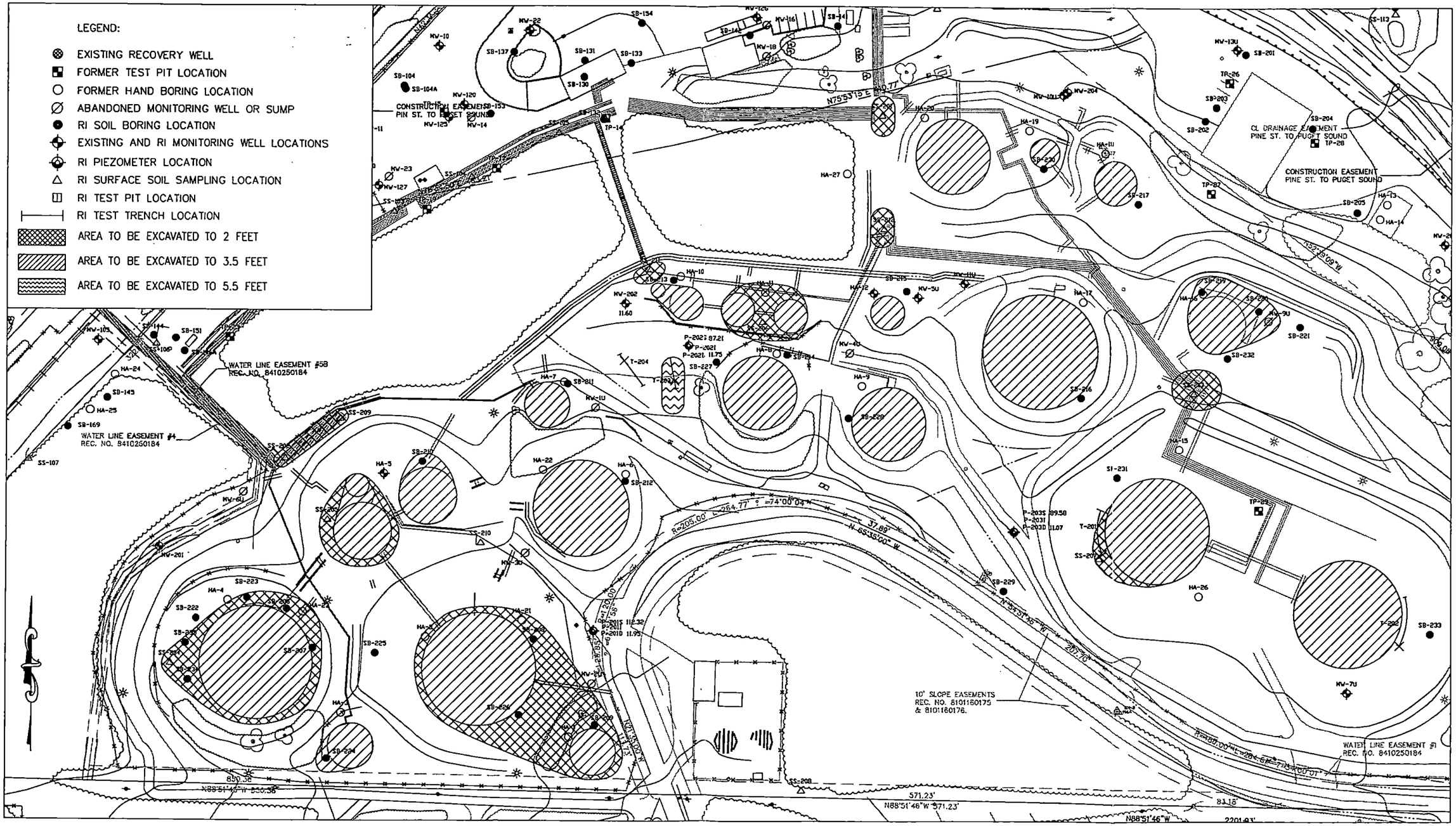
REVIS.	
PROJECT NO.	9077.001.003

FIGURE 3-1
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
PLANNED AREAS OF METALS - CONTAMINATED SURFACE SOIL REMOVAL UPPER & LOWER YARD

File: \9077\001.003\007-03-1.DWG Last Edited: MAY 24, 2001 By: btookey Xrefs: None Black/White

LEGEND:

- EXISTING RECOVERY WELL
- FORMER TEST PIT LOCATION
- FORMER HAND BORING LOCATION
- ABANDONED MONITORING WELL OR SUMP
- RI SOIL BORING LOCATION
- EXISTING AND RI MONITORING WELL LOCATIONS
- RI PIEZOMETER LOCATION
- RI SURFACE SOIL SAMPLING LOCATION
- RI TEST PIT LOCATION
- RI TEST TRENCH LOCATION
- AREA TO BE EXCAVATED TO 2 FEET
- AREA TO BE EXCAVATED TO 3.5 FEET
- AREA TO BE EXCAVATED TO 5.5 FEET



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PROJECT NO.
9077.001.002

Figure 3-2
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

PLANNED AREAS OF UPPER YARD SOIL EXCAVATION

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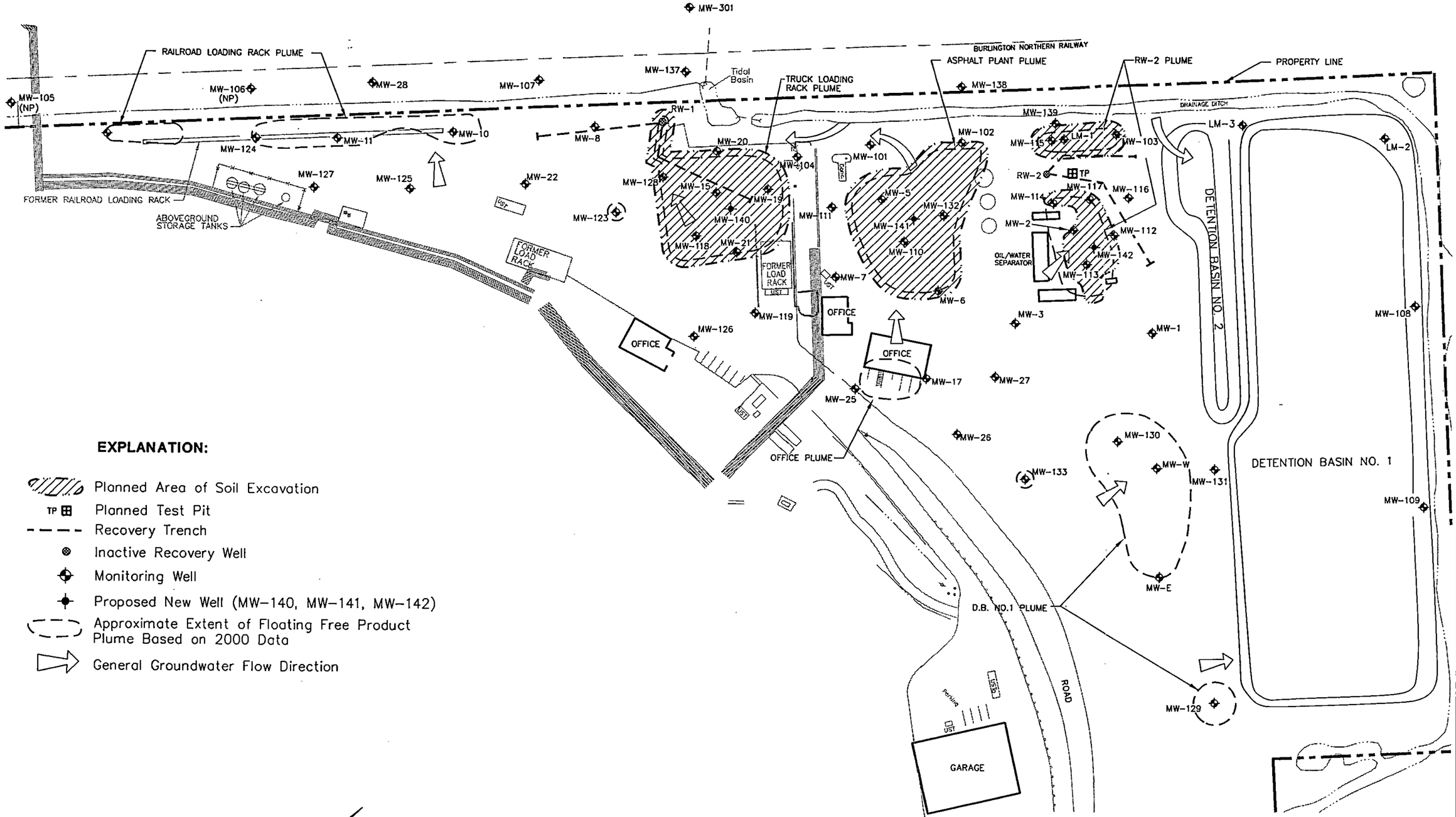
LAYOUT: 1



EXPLANATION:

- Planned Area of Soil Excavation
- TP ⊞ Planned Test Pit
- Recovery Trench
- Inactive Recovery Well
- Monitoring Well
- Proposed New Well (MW-140, MW-141, MW-142)
- Approximate Extent of Floating Free Product Plume Based on 2000 Data
- General Groundwater Flow Direction

0 100 200

SCALE IN FEET

Maul Foster & Alongi, Inc.

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PROJECT NO.
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Figure 3-3
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

PLANNED AREAS OF LOWER YARD SOIL EXCAVATION

File: \9077\001.003\005-03-3.DWG Last edited: MAY 24, 2001 by: blookey Xrefs: none black/white

APPENDIX A

LIST OF
STATE AND LOCAL PERMITS

List of State and Local Permits

Provided below is a list of state and local permits pertinent to the interim actions.

Pursuant to WAC 173-340-710(9), the remedial actions to be conducted are exempt from compliance with the procedural requirements of these permits; all substantive requirements must be complied with. In practice, this means that the substantive requirements of the permits are incorporated into the requirements of this work plan and the procedural requirements for the individual permits are replaced by the procedural requirements of MTCA for conducting the remedial actions.

- **State NPDES Permit**
- **City of Edmonds Grading, Fill and Excavation Permit**
- **City of Edmonds Critical Areas Checklist**

APPENDIX B

NPDES PERMIT

FACT SHEET FOR NPDES PERMIT WA-003186-1

UNOCAL EDMONDS TERMINAL

SUMMARY

This fact sheet is the companion document to the National Pollutant Discharge Elimination System (NPDES) Permit No. WA-003186-1. The Department of Ecology is proposing to issue this permit, which allows the discharge of treated stormwater to surface waters subject to certain restrictions.

This fact sheet explains the nature of the proposed discharge, the Department's decision on limiting pollutants in the wastewater, and the regulatory and technical basis for those decisions.

GENERAL INFORMATION	
Applicant:	Unocal Corporation P. O. Box 2004 Edmonds, WA 98020
Facility Name and Address:	Unocal Edmonds Terminal 11720 Unoco Road, Building C Edmonds, WA 98020
Type of Facility:	Bulk Petroleum Terminal (Closed)
Discharge Location:	Willow Creek Tributary to Puget Sound Outfall 001 Outfall 002 Latitude: 47□ 48' 26" N 47□ 48' 25" Longitude: 122□ 23' 24" W 122□ 23' 24"
Water Body ID Number:	WA-PS-0040
Prepared by:	Jeanne Tran, P.E. Permit Manager, Industrial Unit

TABLE OF CONTENTS

INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), water quality criteria for surface and groundwaters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty (30) days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see
Appendix A--Public Involvement of the fact sheet for more detail on the public notice procedures). Site maps are enclosed in Appendix B.

The fact sheet and draft permit have been reviewed by the Permittee and errors in fact have been corrected. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments (Appendix C) will become part of the file on the permit, and parties submitting comments will receive a copy of the Department's response. Changes to the permit will be addressed in Appendix C--Response to Comments.

BACKGROUND INFORMATION

HISTORY

The Unocal Edmonds Bulk Fuel Terminal comprises approximately 44 acres of land on and adjacent to the northern slope of a hillside and lies within approximately 1,000 feet of the Puget Sound Shoreline, see Figure 2.

The Terminal, which ceased operation in 1991, was used for the bulk storage and distribution of petroleum fuels. The 29-acre lower yard consists of office buildings, former truck loading racks, aboveground piping, aboveground storage tanks, underground storage tanks and vaults, detention basins, and an API oil water separator. Previous operations also included an air-blown asphalt plant, an asphalt-packaging warehouse, and a railcar loading/unloading facility. The 15-acre upper yard consists of 24 aboveground fuel storage tanks, above-grade piping, a garage, and warehouse. The tanks and piping located in the upper yard were emptied and steam cleaned to be rendered gasoline free vapor in 1993.

A remedial investigation was performed between October 1994 and August 1996 indicating that soil and groundwater within the Unocal property are contaminated with petroleum products. Unocal has entered an Agreed Order with Ecology's Toxic Cleanup Program (TCP) to conduct a Remedial Investigation/Feasibility Study to recover free product on the groundwater table, and to develop the remedial actions for the dissolved product in groundwater.

GROUNDWATER

The site is underlain by fill, alluvium, and a sequence of glacial and pre-glacial deposits. Groundwater is primarily found in one site-wide aquifer, at depths generally less than 8 feet below ground surface (bgs) in the lower yard, and 20 to 140 feet bgs in the upper yard. Groundwater flow is generally toward the north to Puget Sound.

STORMWATER DISCHARGE

The upper and lower yards at the Terminal are served by a stormdrain system which ultimately conveys stormwater to the site's API oil water separator for treatment. The system includes a series of catch basins connected by underground concrete pipes, a sump with a pump, the two detention basins, and the API oil water separator.

Petroleum-related chemicals were detected in on-site stormwater, primarily from the lower yard. Stormwater collected from the upper yard through individual catch basins connected in series by underground concrete pipes, is manually drained into one of the lower yard sumps. This water combined with the stormwater is collected from the lower yard, and routed to an API oil water separator prior to entering Detention Basin No. 2 (also known as Midlake). Detention Basin No. 2 is lined with plastic material. Its outfall is identified as Outfall 002 which discharges into Willow Creek, see Figure 3. Outfall 002 is manually controlled by a valve which is normally kept closed except during discharge when Detention Basin No. 2 reaches a certain level, or during heavy storm events.

Stormwater from Detention Basin No. 2 can be overflowed through a spillway into Detention Basin No. 1. Upper yard runoff can be routed directly into Detention Basin No.1 during heavy storm events, as necessary. Detention Basin No. 1 is partially paved with off-specification asphalt material. Detention Basin No. 1 has the appearance of a wetland due to vegetation growth within the pond. Due to shallow groundwater at the site, Detention Basin No. 1 also receives contaminated groundwater through cracks at the bottom of the Basin. Observation and measurements made during the RI study indicated that the water levels in the ditch were higher than water levels in Detention Basin No. 1. The highest water level recorded in Detention Basin No. 1 during the RI was about 3 feet below the top to the berm around the basin.

Occasionally, the treated stormwater from the API separator can be discharged directly into Willow Creek through a series of nonoperating hydrocleaner units, a filter unit, and a holding sump to Outfall 001. The API separator has a designed detention time of XXX minutes.

PERMIT STATUS

The previous general stormwater permit No. SO03-002953 was issued to the facility on July 12, 1999, with an expiration date of November 18, 2000. Due to the fact that the stormwater discharge contains contaminated groundwater, an individual NPDES permit will be required in replacement of the stormwater general permit. Unocal submitted a permit application for an individual permit on September 2, 1999. The application was accepted by the Department on September 1, 2000.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

A Companion Order No. DE 97WQ-N321 was issued along with the General Stormwater Permit No. S03-002953 on January 9, 1998. Unocal has been in compliance with the requirement as specified in the Order. The facility last received an inspection on August 31, 2000.

WASTEWATER CHARACTERIZATION

The Permittee reported the following concentrations for pollutant parameters on their permit application (Form 2C):

Parameter	Reported Concentration
Suspended Solids	57 mg/L
pH	between 6.6 and 7.39 standard units
Benzene	7.61 µg/L
Ethylbenzene	1.06 µg/L
Toluene	0.98 µg/L
Oil & grease	<5.0 mg/L
Arsenic (total)	<10 µg/L
Cadmium (total)	<10 µg/L
Chromium (total)	<10 µg/L
Copper (total)	<10 µg/L
Lead (total)	<10 µg/L
Zinc (total)	98.5 µg/L
Phenols (total)	22.6 µg/L

DESCRIPTION OF THE RECEIVING WATER

The Terminal is situated within 1,000 feet of Puget Sound. Tides in the Edmonds part of Puget Sound range from approximately -3 to 13 feet relative to mean low low water. The Terminal is bounded on the northwest and northeast by an open and uncontrolled drainage ditch (also known as Willow Creek), see Figure 3. The drainage ditch carries surface water into a tidal basin, where water is then conveyed beneath the Burlington Northern Railroad right-of-way via a 48-inch-diameter culvert and on to Puget Sound.

The drainage ditch and the marsh are directly connected to Puget Sound and are tidally influenced. During periods of high tide, flow reversal occurs in the ditch and the marsh partially fills with water. During periods of low tide, the marsh completely drains. Surface water elevations in the ditch around and downstream of Detention Basin No. 1 were higher than groundwater elevations adjacent to the ditch in these areas.

The Terminal discharges stormwater to the drainage ditch or Willow Creek (a tributary of Puget Sound) which is designated as a Class AA. Water quality for Class AA is considered to support characteristic uses such as water supply, stock watering, fish and shellfish rearing, spawning, and harvesting, fish migration, wildlife habitat, recreation, commerce, and navigation.

PROPOSED PERMIT LIMITATIONS

The Clean Water Act 301(b) requires all point sources that discharge to the waters of the U.S. to meet technology-based effluent limitations and state water quality standards for the discharge of pollutants. Federal and State regulations require that effluent limitations set forth in an NPDES permit must be the most stringent of technology- or water quality-based limitations. Technology-based limitations are based upon the treatment methods available to treat specific wastewater. Technology-based limitations are set by regulation (40 CFR, and Chapter 173-220 WAC).

Water quality-based limitations are based upon maintaining the characteristic and beneficial uses of receiving waters (Chapter 173-201A WAC) and assuring that the discharge will comply with the numerical Water Quality Standards. The more stringent of these two limits must be chosen for each of the parameters of concern or an indicator for the parameters of concern.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Federal effluent guidelines have not been promulgated for wastewater discharges resulting from underground storage tank cleanups. Consequently, the technology-based effluent limits of this permit have been developed on a best professional judgment (BPJ) basis in accordance with 40 CFR 125.3. No water quality based-limit is set in this permit because the technology based-limits are more stringent than the water quality standards for Benzene, Ethylbenzene, Toluene, and Xylene (BTEX). The requirement that all wastewater permits issued by the state of Washington impose all known, available and reasonable methods of control and treatment of pollutants (AKART) is satisfied for this permit through the determination of BPJ limits.

The regulation which authorizes discharges to the waters of the state of Washington, Chapter 173-220 WAC, requires that all discharges from point sources apply AKART to reduce the concentrations of pollutants.

EFFLUENT LIMITATIONS

The following technology-based effluent limitations have been proposed for this permit:

Parameter	Maximum Daily Limitation
Benzene	5.0 µg/L
BTEX	100 µg/L
Naphthalenes	160 µg/L
Gasoline Range Organics (GRO), benzene present	800 µg/L
Gasoline Range Organics (GRO), no detectable benzene	1,000 µg/L
Diesel Range Organics (DRO)	500 µg/L
Heavy Oils	500 µg/L
Oily Sheen	No visible sheen

The above effluent limitations are based on the Method A cleanup levels for groundwater under the revised Model Toxics Control Act adopted in February 2001 and on the application of AKART.

No limitation is set for lead at this time. Monitoring-only is required. However, if monitoring data indicates concentrations exceeding 5 µg/L (total recoverable), the Department will require the Permittee to investigate the lead background concentrations in the vicinity within a six-month period after becoming aware of such concentration. If the monitoring data indicates exceedance of the background concentration for lead, then the Department will use the available background information to set a lead limit for the facility.

The monitoring data for these parameters may be evaluated in order to develop performance-based effluent limits for the next permit.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state.

The Department will use the designated classification criteria or this waterbody in the proposed permit. This permit should not cause a degradation of existing water quality.

WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA

The water quality-based effluent limit set in this permit is as follows:

Outfalls	Parameter	Effluent Limit
001, 002	pH	between 6.5 and 8.5 standard units

The Water Quality criteria for pH in a Class "AA" fresh water environment (Willow Creek) is between 6.5 and 8.5 standard units.

MONITORING AND REPORTING

Effluent monitoring, recording, and reporting are required (WAC 173-220-210) to verify the treatment process is functioning correctly and the effluent limitations are being achieved. The monitoring and testing schedule is detailed in the permit under 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.

HUMAN HEALTH

The water quality standards now include 91 numeric human health-based criteria. The effluent limits set in this permit for benzene, ethylbenzene, toluene are well below the numeric human health-based criteria.

WHOLE EFFLUENT TESTING

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing.

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

In accordance with WAC 173-205-040, the Permittee's effluent has been determined to have the potential to contain toxic chemicals. The proposed permit contains requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in chapter 173-205 WAC. The proposed permit requires the Permittee to conduct toxicity testing for one (1) year in order to characterize both the acute and chronic toxicity of the effluent.

If acute or chronic toxicity is measured during effluent characterization at levels that, in accordance with WAC 173-205-050(2)(a), have a reasonable potential to cause receiving water toxicity, then the proposed permit will set a limit on the acute or chronic toxicity. The proposed permit will then require the Permittee to conduct WET testing in order to monitor for compliance with either an acute toxicity limit, a chronic toxicity limit, or both an acute and a chronic toxicity limit. The proposed permit also specifies the procedures the Permittee must use to come back into compliance if the limits are exceeded.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC_{50}, EC_{50}, IC_{25}, etc. Ecology recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

When the WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water toxicity, the Permittee will not be given WET limits and will only be required to retest the effluent prior to application for permit renewal in order to demonstrate that toxicity has not increased in the effluent.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard."

The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of application standards (WAC 173-204-400).

The Department has determined that the discharge from this facility is not likely to contain toxic materials in concentrations which may cause violations of the sediment standards. Thus, sediment monitoring is not required in this permit. Should the characteristics of the discharge change such that violations of the sediment quality standards become more likely, sediment monitoring may be required through either a modification of the permit or through an administrative order.

SPILL CONTROL PLAN

Since no chemical products will be stored on-site and no solid waste is expected to be generated from the remediation operation, a spill and solid waste control plan will not be required in this permit.

TREATMENT SYSTEM OPERATING PLAN

The treatment system will be operated according to procedures and criteria described in an approved operating plan. This plan will be submitted to the Department for review. The plan will, at a minimum:

A. Define the baseline operating conditions and describe the operating parameters and procedures to be used under these conditions.

B. Describe the operating parameters and procedures needed to maintain permit compliance during foreseeable unusual operating conditions.

C. Describe any regularly scheduled maintenance or repair activities at the permitted facilities which would affect the volume or character of the wastes discharged; develop a list including quantities and chemical compositions of any maintenance-related substances (such as cleaners, degreasers, solvents, etc.) that will be used.

The plan may also include an evaluation of influent, intermediate, and final effluent testing results of the treatment system. The purpose of the evaluation would be to identify indicator parameters and monitoring points that would provide for effective compliance monitoring with reduced testing frequencies. If included in the plan, this evaluation should also include a proposed schedule for compliance and operations monitoring.

UPDATED STORMWATER BEST MANAGEMENT PRACTICES PLAN

A Stormwater Best Management Practices (BMP) plan update will be required to be submitted to the Department for review. The plan will address the following source control BMPs: containment and storage of contaminated soils during drilling and construction, provisions for roofs over storage and working areas, and provisions for drainage from the groundwater treatment system area.

WELL CONSTRUCTION DETAILS

All new wells must be constructed in accordance with Chapter 173-160 WAC, part 1 and 3. Figure 7 in Chapter 173-160 WAC illustrates the well construction.

STUDY OF BACKGROUND CONCENTRATION FOR LEAD

If the monitoring data indicates concentrations exceeding 5 µg/L (total recoverable), the Department will require the Permittee to investigate the vicinity's background concentration for lead in groundwater. This data may be used to set a water quality-based lead limit for the facility.

EFFLUENT MIXING STUDY

The Department has estimated the amount of mixing of the discharge within the authorized mixing zone to determine the potential for violations of the Water Quality Standards for Surface Waters (Chapter 173-201A WAC). Condition S4 of this permit requires the Permittee to more accurately determine the mixing characteristics of the discharge. Mixing will be measured or modeled under conditions specified in the permit to assess whether assumptions made about dilution will protect the receiving water quality outside the allotted dilution zone boundary.

OTHER SPECIAL CONDITIONS

The specific requirements listed in permit condition S3. are derived directly from federal regulations in 40 CFR 122.22, 122.41, 122.44, and 122.48.

HUMAN HEALTH

The Department has determined that the applicant's discharge does not contain chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit issuance.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law regulations and have been standardized for all NPDES permits issued by the Department.

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary, to meet Water Quality Standards, or Groundwater Standards, based on new information obtained from sources such as inspections, effluent monitoring.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington.
Unocal Edmonds Terminal site is located in the Snohomish Water Quality Management Area (WQMA). The Department proposes that this permit be issued for a period of five (5) years, with an expiration date of May 30, 2006.

REVIEW BY PERMITTEE

A proposed permit and fact sheet were reviewed by the Permittee for verification of facts.

REFERENCES

1. DMRs from LUST permit cleanup site (TPH, lead).

2. Environmental Protection Agency (EPA) 1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

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

4. METRO reports of monitoring of wastewater discharges at groundwater remediation sites.

5. Model NPDES Permit for Discharges Resulting From the Cleanup of Gasoline Released From Underground Storage Tanks. EPA Office of Water Enforcement and Permits and Office of Underground Storage Tanks. June 1989.

6. NPDES Permit Application submitted by Unocal on September 2, 1999.

APPENDIX A--PUBLIC INVOLVEMENT

The Department has tentatively determined to reissue a permit to the applicant listed above. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public Notice of Application was published on September 4 and 11, 2000, in the *Everett Herald* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) in the *Everett Herald* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 4:30 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

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

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (425) 649-7201, or by writing to the address listed above.

APPENDIX B--SITE MAPS

APPENDIX C--RESPONSE TO COMMENTS

Issuance Date: June 30, 2001
Effective Date: June 30, 2001
Expiration Date: May 30, 2006

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTE DISCHARGE PERMIT No. WA-003186-1

Superseded by AH. 2 of letter, Ecology to Unocal, dated July 31, 2001

State of Washington
DEPARTMENT OF ECOLOGY
(herein after referred to as the Department)
Northwest Regional Office
3190 - 160th Avenue SE
Bellevue, WA 98008-5452

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

UNOCAL CORPORATION
P. O. Box 2004
Edmonds, WA 98020

Facility Location: Unocal Edmonds Terminal 11720 Unoco Road, Building C Edmonds, WA 98020 Snohomish County Cedar/Green WQMA	Receiving Water: Willow Creek Tributary to Puget Sound Discharge Location: Outfall 001: Latitude: 47° 48' 26" N, Longitude: 122° 23' 24" W Outfall 002: Latitude: 47° 48' 25" N, Longitude: 122° 23' 24" W
Water Body I.D. No.: WA-PS-0040	Industry Type: Bulk Petroleum Terminal (closed)

is authorized to discharge in accordance with the special and general conditions which follow.

Kevin C. Fitzpatrick
Water Quality Section Manager
Northwest Regional Office
Washington State Department of Ecology

TABLE OF CONTENTS

GENERAL CONDITIONS

SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions of this permit for additional submittal requirements.

Permit Section	Submittal	Frequency	First Submittal Date
S3.A	Discharge Monitoring Report	Quarterly and when special discharges occur	July 15, 2001
S4.	Acute Toxicity	2/permit cycle in the first year or thereafter as necessary	
S4.	Operation and Maintenance	1/permit cycle	January 1, 2002
S6.A.	Effluent Mixing Study Plan	1/permit cycle	Thirty (30) days prior to initiation of the effluent mixing study
S6.B.	Effluent Mixing Study	1/permit cycle	January 15, 2002
S7.	Proposed Modification to the Stormwater Pollution Prevention Plan	As necessary	December 1, 2004
S7.	Updated Stormwater Pollution Prevention Plan	1/permit cycle	Within thirty (30) days prior to proposed modification
S10.	Study of Background Concentration for Lead and Arsenic	As necessary	Six (6) months after becoming aware of lead discharge concentration greater than 5 μg/L
G17.	Duty to Reapply	1/permit cycle	December 1, 2004

SPECIAL CONDITIONS

S1. EFFLUENT LIMITATIONS

Beginning on the effective date of this permit and lasting through the expiration date, the Permittee is authorized to discharge treated storm water, ground water, and other unanticipated discharges to Willow Creek (a tributary to Puget Sound) at the discharge locations, Outfalls 001 and 002, subject to the following limitations:

EFFLUENT LIMITATIONS[a]

Parameter	Maximum Daily[b]
pH (s.u.)	Between 6.5 and 8.5 standard units
Benzene	5 µg/L
Naphthalenes	160 µg/L
Gasoline Range Organics (GRO), benzene present	800 µg/L
Gasoline Range Organics (GRO), no detectable benzene	1,000 µg/L
Diesel Range Organics (DRO)	500 µg/L
Heavy Oils[c]	500 µg/L
BTEX	100 µg/L
Oily Sheen	No visible sheen

[a] The point of compliance is at the Outfall 001 and Outfall 002, or at any point where a special discharge leaves a holding tank or treatment system prior to discharge to the storm water collection system, or surface water.

Outfall 001 is defined as the sump outlet downstream of the API separator.

Outfall 002 is defined as the outlet of Detention Basin #2 (also known as Midlake).

[b] The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. For other units of measurement, the daily discharge is the average measurement of the pollutant over the day.

[c] Heavy oils means organic compounds measured using NWTPH-Dx. Examples are #6 fuel oil, bunker C oil, hydraulic oil, and waste oil. For further information, please see WAC173-340-900, table 720-1, footnote x.

S2. TESTING SCHEDULE

The Permittee shall monitor the wastewater at Outfall 001 and 002, as defined in S1, footnote a., according to the following schedule:

Tests	Sample Point[1,2]	Sampling Frequency[2]	Sample Type
Flow	Final Effluent	Monthly	Estimated
pH	Final Effluent	Monthly	Grab
Benzene[3]	Final Effluent	Monthly	Grab
Ethylbenzene[3]	Final Effluent	Monthly	Grab
Naphthalenes[3]	Final Effluent	Monthly	Grab
Toluene[3]	Final Effluent	Monthly	Grab
Xylenes[3]	Final Effluent	Monthly	Grab
GRO[3]	Final Effluent	Monthly	Grab
DRO[3]	Final Effluent	Monthly	Grab
Heavy Oils[3]	Final Effluent	Monthly	Grab
Lead[4]	Final Effluent	Monthly	Grab
Arsenic[4]	Final Effluent	Monthly	Grab
Oily Sheen	Final Effluent	Weekly	Visual Inspection

[1] The final effluent sample point is defined as the nearest accessible point after the last holding containment and prior to entering Willow Creek.

[2] All unanticipated discharges shall be sampled to ensure compliance with the limitations that appear in S1 prior to discharge.

[3] These compounds shall be measured using analytical procedures specified in WAC 173-340-830. Refer also to WAC 173-340-900, Table 830-1 and footnotes.

[4] Total Recoverable Lead and Total Recoverable Arsenic shall be measured using EPA Method 239.2 or an equivalent EPA approved method which achieves a detection level below 5 ppb. If the monitoring data indicates concentrations exceeding 15 μg/L for lead or 5 μg/L for arsenic, the Department will require the Permittee to investigate the vicinity's background concentration for lead and/or arsenic in ground water and rain water within six (6) months of becoming aware of such concentrations. If the monitoring data indicates exceedance of the background concentration for lead and/or arsenic, then the Department may use the available background information to set a water quality-based lead limit for the facility.

S3. MONITORING AND REPORTING

A. Reporting

Monitoring shall be started on the effective date of the permit or whenever the first discharge occurs.

This facility is the subject of cleanup actions pursuant to the Model Toxics Control Act. Monitoring shall be done for any water produced during cleanup actions. Discharge of such water shall be considered a special discharge. This water shall be tested and treated to meet all discharge limits prior to discharge. A monitoring report shall be prepared as appropriate for each special discharge.

Monitoring results obtained during the previous three (3) months shall be summarized and reported on the Monthly Discharge Monitoring Report (DMR) Form (EPA 3320-1) and submitted no later than the 30th day of the month following the completed reporting period. **One discharge monitoring report shall be prepared for each month. Reports are due January 15, April 15, July 15, and October 15 of each year. The first report is due July 15, 2001. Discharge monitoring reports shall be prepared for each special discharge as directed by the Department.**

All data shall be kept in an electronic relational database suitable for import into Microsoft Access. The structure of the database shall be approved by Ecology. An updated copy of the database shall be furnished with each discharge monitoring report.

Reports shall be sent to the Department of Ecology, Northwest Regional Office, 3190 – 160th Avenue SE, Bellevue, Washington 98008-5452. One hard copy shall be sent to the attention of Ms. Jeanne Tran, Water Quality Program. Copies of the updated database shall also be sent to the attention of Mr. David South, Toxics Cleanup Program (DSOU461@ecy.wa.gov). Ecology will advise the applicant of any changes in personnel to whom these reports should be directed.

B. Records Retention

This facility is the subject of cleanup actions pursuant to the Model Toxics Control Act. In conformance with the provisions of Agreed Order No. DE 92TC N328, Unocal shall preserve in a readily retrievable fashion, during the pendency of this Order and for ten (10) years from the date of completion of the work performed pursuant to this Order, all records of monitoring information. Should any portion of the work performed by undertaken through contractos or agents of Unocal, then Unocal agrees to include in their contract with such contractors or agents a record retention requirement meeting the terms of this paragraph.

The Permittee shall retain all records of all monitoring information for a minimum of three (3) years. Such information shall include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copy of all reports required by this permit, and record of all data used to complete the application for this permit. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by the Director.

C. Recording of Results

For each measurement or sample taken, the Permittee shall record the following information: (1) the date, exact place and time of sampling; (2) the company and

individual who performed the sampling or measurement; (3) the dates the analyses were performed; (4) who performed the analyses; (5) the analytical techniques or methods used; and (6) the results of all analyses.

D. Representative Sampling

Samples and measurements taken to meet the requirements of this condition shall be representative of the volume and nature of the monitored discharge, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions affecting effluent quality.

E. Test Procedures

All sampling and analytical methods used to meet the monitoring requirements specified in this permit shall, unless approved otherwise by this permit or in writing by the Department, conform to the Guidelines Establishing Test Procedures for the Analysis of Pollutants, contained in 40 CFR Part 136.

F. Laboratory Accreditation

All monitoring data required by the Department shall be prepared by a laboratory registered or accredited under the provisions of, *Accreditation of Environmental Laboratories*, Chapter 173-50 WAC. Flow, temperature, settleable solids, conductivity, pH, and internal process control parameters are exempt from this requirement. Conductivity and pH shall be accredited if the laboratory must otherwise be registered or accredited. The Department exempts crops, soils, and hazardous waste data from this requirement pending accreditation of laboratories for analysis of these media.

G. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by this permit using test procedures specified by Condition S2. of this permit, then the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Permittee's DMR.

H. Noncompliance Notification

In the event the Permittee is unable to comply with any of the terms and conditions of this permit due to any cause, the Permittee shall:

1. Immediately take action to stop, contain, and clean up unauthorized discharges or otherwise stop the noncompliance, correct the problem, and, if applicable, repeat sampling and analysis of any noncompliance

immediately and submit the results to the Department within thirty (30) days after becoming aware of the violation.

2. Immediately notify the Department of the failure to comply.

3. Submit a detailed, written report to the Department within thirty (30) days (five [5] days for upsets and bypasses), unless requested earlier by the Department. The report shall contain a description of the noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

S4. OPERATION AND MAINTENANCE

The Permittee shall, at all times, properly operate and maintain all facilities or systems of treatment and control (and related appurtenances) which are installed to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems, which are installed by a Permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

A. Operations and Maintenance Manual

An Operations and Maintenance (O&M) Manual shall be prepared by the Permittee in accordance with WAC 173-240-150 and be submitted to the Department for approval by January 1, 2002. The O&M Manual shall be reviewed by the Permittee at least annually and the Permittee shall confirm this review by letter to the Department. Substantial changes or updates to the O&M Manual shall be submitted to the Department whenever they are incorporated into the manual.

The approved Operations and Maintenance Manual shall be kept available at the permitted facility and all operators shall follow the instructions and procedures of this manual.

The O&M Manual shall include:

1. Emergency procedures for plant shutdown and cleanup in event of wastewater system upset or failure.

2. Plant maintenance procedures.

The following information shall be summarized in the initial chapter of the O&M Manual. This chapter shall be entitled the "Treatment System Operating Plan."

For the purposes of this NPDES permit, a Treatment System Operating Plan (TSOP) is a concise summary of specifically defined elements of the O&M Manual. The TSOP shall not conflict with the O&M Manual and shall include the following information:

1. A baseline operating condition, which describes the operating parameters and procedures, used to meet the effluent limitations of S1 at the production levels used in developing these limitations.

2. In the event of an upset, due to plant maintenance activities, severe stormwater events, startups or shutdowns or other causes, the plan shall describe the operating procedures and conditions employed to mitigate the upset. The monitoring and reporting shall be described in the plan.

3. A description of any regularly scheduled maintenance or repair activities at the facility which would affect the volume or character of the wastes discharged to the wastewater treatment system and a plan for monitoring and treating/controlling the discharge of maintenance-related materials (such as cleaners, degreasers, solvents, etc.) that will be discharged, and a plan for monitoring/controlling the discharge of maintenance-related materials.

B. Bypass Procedures

Bypass, which is the intentional diversion of waste streams from any portion of a treatment facility, is prohibited, and the Department may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, or 3) is applicable.

1. Bypass for Essential Maintenance without the Potential to Cause Violation of Permit Limits or Conditions.

   Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health as determined by the Department prior to the bypass. The Permittee shall submit prior notice, if possible, at least ten (10) days before the date of the bypass.

2. Bypass Which is Unavoidable, Unanticipated, and Results in Noncompliance of this Permit

   This bypass is permitted only if:

   a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or

substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility.

c. The Department is properly notified of the bypass as required in condition S3E of this permit.

3. Bypass which is Anticipated and has the Potential to Result in Noncompliance of this Permit.

The Permittee shall notify the Department at least thirty (30) days before the planned date of bypass. The notice shall contain: (1) a description of the bypass and its cause; (2) an analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing; (3) a cost-effectiveness analysis of alternatives including comparative resource damage assessment; (4) the minimum and maximum duration of bypass under each alternative; (5) a recommendation as to the preferred alternative for conducting the bypass; (6) the projected date of bypass initiation; (7) a statement of compliance with SEPA; (8) a request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated; and (9) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above shall be considered during preparation of the engineering report or facilities plan and plans and specifications and shall be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

The Department will consider the following prior to issuing an administrative order for this type bypass:

a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.

b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, the Department will approve or deny the request. The public shall be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by the Department under RCW 90.48.120.

C. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

S5. ACUTE TOXICITY

A. Effluent Characterization

The Permittee shall conduct acute toxicity testing on the final effluent (Outfall 001 and Outfall 002) to determine the presence and amount of acute (lethal) toxicity. The two acute toxicity tests listed below shall be conducted on each sample taken for effluent characterization.

Effluent characterization for acute toxicity shall be conducted semiannually for one year. Acute toxicity testing shall follow protocols, monitoring requirements, and quality assurance/quality control procedures specified in this Section.

A dilution series consisting of a minimum of five concentrations (2%, 6.25%, 12.5%, 50%, and 100% effluent) and a control shall be used to estimate the concentration lethal to 50% of the organisms (LC_{50}). The percent survival in 100% effluent shall also be reported.

Testing shall begin no later than October 15, 2001. A written report shall be submitted to the Department within sixty (60) days after the sample date. The summary report shall include a tabulated summary of the individual test results and any information on sources of toxicity, toxicity source control, correlation with effluent data, and toxicity treatability which is developed during the period of testing.

Acute toxicity tests shall be conducted with the following species and protocols:

1) Fathead minnow, *Pimephales promelas* (96-hour static-renewal test, method: EPA/600/4-90/027F)

2) Daphnid, *Ceriodaphnia dubia*, *Daphnia pulex*, or *Daphnia magna* (48-hour static test, method: EPA/600/4-90/027F)

B. Effluent Limit for Acute Toxicity

The Permittee has an effluent limit for acute toxicity if, after completing one year of effluent characterization, either:

1) The median survival of any species in 100% effluent is below 80%, or

2) Any one test of any species exhibits less than 65% survival in 100% effluent.

If an effluent limit for acute toxicity is required by subsection B at the end of one year of effluent characterization, the Permittee shall immediately complete all applicable requirements in subsections C, D, and F.

If no effluent limit is required by subsection B at the end of one year of effluent characterization, then the Permittee shall complete all applicable requirements in subsections E and F.

The effluent limit for acute toxicity is no acute toxicity detected in a test concentration representing the acute critical effluent concentration (ACEC).

In the event of failure to pass the test described in subsection C. of this section for compliance with the effluent limit for acute toxicity, the Permittee is considered to be in compliance with all permit requirements for acute whole effluent toxicity as long as the requirements in subsection D. are being met to the satisfaction of the Department.

The ACEC means the maximum concentration of effluent during critical conditions at the boundary of the zone of acute criteria exceedance assigned pursuant to WAC 173-201A-100. The ACEC will be determined as a component of S6. Effluent Mixing of this permit.

If the Permittee has an effluent limit for acute toxicity and the ACEC is not known, then effluent characterization for acute toxicity shall continue until the time an ACEC is known. Effluent characterization shall be continued until an ACEC has been determined and shall be performed using each one of the tests listed in subsection A on a rotating basis. When an ACEC has been determined, the Permittee shall immediately complete all applicable requirements in subsections C, D, and F.

If no effluent limit is required by subsection B at the end of one year of effluent characterization, then the Permittee shall stop effluent characterization and begin to conduct the activities in subsection E even if the ACEC is unknown.

C. Monitoring for Compliance With an Effluent Limit for Acute Toxicity

Monitoring to determine compliance with the effluent limit shall be conducted biannually for the remainder of the permit term using each of the species listed in subsection A above on a rotating basis and performed using at a minimum 100% effluent, the ACEC, and a control. The Permittee shall schedule the toxicity tests in the order listed in the permit unless the Department notifies the Permittee in writing of another species rotation schedule. The percent survival in 100% effluent shall be reported for all compliance monitoring.

Compliance with the effluent limit for acute toxicity means no statistically significant difference in survival between the control and the test concentration representing the ACEC. The Permittee shall immediately implement subsection D. if any acute toxicity test conducted for compliance monitoring determines a statistically significant difference in survival between the control and the ACEC using hypothesis testing at the 0.05 level of significance (Appendix H, EPA/600/4-89/001). If the difference in survival between the control and the ACEC is less than 10%, the hypothesis test shall be conducted at the 0.01 level of significance.

D. Response to Noncompliance With an Effluent Limit for Acute Toxicity

If a toxicity test conducted for compliance monitoring under subsection C determines a statistically significant difference in response between the ACEC and the control, the Permittee shall begin additional compliance monitoring within one week from the time of receiving the test results. This additional monitoring shall be conducted weekly for four (4) consecutive weeks using the same test and species as the failed compliance test. Testing shall be conducted using a series of at least five effluent concentrations and a control in order to be able to determine appropriate point estimates. One of these effluent concentrations shall equal the ACEC and be compared statistically to the nontoxic control in order to determine compliance with the effluent limit for acute toxicity as described in subsection B. The discharger shall return to the original monitoring frequency in subsection C after completion of the additional compliance monitoring.

If the Permittee believes that a test indicating noncompliance will be identified by the Department as an anomalous test result, the Permittee may notify the Department that the compliance test result might be anomalous and that the Permittee intends to take only one additional sample for toxicity testing and wait for notification from the Department before completing the additional monitoring required in this subsection. The notification to the Department shall accompany the report of the compliance test result and identify the reason for considering the

compliance test result to be anomalous. The Permittee shall complete all of the additional monitoring required in this subsection as soon as possible after notification by the Department that the compliance test result was not anomalous. If the one additional sample fails to comply with the effluent limit for acute toxicity, then the Permittee shall proceed without delay to complete all of the additional monitoring required in this subsection. The one additional test result shall replace the compliance test result upon determination by the Department that the compliance test result was anomalous.

If all of the additional compliance monitoring conducted in accordance with this subsection complies with the permit limit, the Permittee shall search all pertinent and recent facility records (operating records, monitoring results, inspection records, spill reports, weather records, production records, raw material purchases, pretreatment records, etc.) and submit a report to the Department on possible causes and preventive measures for the transient toxicity event which triggered the additional compliance monitoring.

If toxicity occurs in violation of the acute toxicity limit during the additional compliance monitoring, the Permittee shall submit a Toxicity Identification/Reduction Evaluation (TI/RE) plan to the Department within sixty (60) days after test results are final. The TI/RE plan shall be based on WAC 173-205-100(2) and shall be implemented in accordance with WAC 173-205-100(3).

E. Monitoring When There Is No Permit Limit for Acute Toxicity

The Permittee shall test final effluent once in the last summer and once in the last winter prior to submission of the application for permit renewal. All species used in the initial acute effluent characterization or substitutes approved by the Department shall be used and results submitted to the Department as a part of the permit renewal application process.

F. Sampling and Reporting Requirements

1. All reports for effluent characterization or compliance monitoring shall be submitted in accordance with the most recent version of Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* in regards to format and content. Reports shall contain bench sheets and reference toxicant results for test methods. If the laboratory provides the toxicity test data on floppy disk or by other means of transmittal for electronic entry into the Department's database, then the Permittee shall send the electronic file to the Department along with the test report, bench sheets, and reference toxicant results.

2. Testing shall be conducted on grab samples. Samples taken for toxicity testing shall be cooled to 4 degrees Celsius while being collected and shall be sent to the lab immediately upon completion. The lab shall begin the toxicity testing as soon as possible but no later than thirty six (36) hours after sampling was ended.

3. All samples and test solutions for toxicity testing shall have water quality measurements as specified in Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* or most recent version thereof.

4. All toxicity tests shall meet quality assurance criteria and test conditions in the most recent versions of the EPA manual listed in subsection A. and the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If test results are determined to be invalid or anomalous by the Department, testing shall be repeated with freshly collected effluent.

5. Control water and dilution water shall be laboratory water meeting the requirements of the EPA manual listed in subsection A or pristine natural water of sufficient quality for good control performance.

6. The whole effluent toxicity tests shall be run on an unmodified sample of final effluent.

7. The Permittee may choose to conduct a full dilution series test during compliance monitoring in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the ACEC.

8. All whole effluent toxicity tests, effluent screening tests, and rapid screening tests that involve hypothesis testing and do not comply with the acute statistical power standard of 29% as defined in WAC 173-205-020 must be repeated on a fresh sample with an increased number of replicates to increase the power.

S6. EFFLUENT MIXING STUDY

A. General Requirements

The Permittee shall determine the degree of effluent and receiving water mixing which occurs within the mixing zone. The degree of mixing shall be determined during critical conditions, as defined in WAC 173-201A-020 Definitions-"Critical Condition," or as close to critical conditions as reasonably possible.

The critical condition scenarios shall be established in accordance with *Guidance for Conducting Mixing Zone Analysis* (Ecology, 1996). The dilution ratio shall be measured in the field with dye using study protocols specified in the *Guidance,* Section 5.0 "Conducting a Dye Study," as well as other protocols listed in subpart C. Protocols. The use of mixing models is an acceptable alternative or adjunct to a dye study if the critical ambient conditions necessary for model input are known or will be established with field studies; and if the diffuser is visually inspected for integrity or has been recently tested for performance by the use of tracers. The *Guidance* mentioned above shall be consulted when choosing the appropriate model. The use of models is also required if critical condition scenarios that need to be examined are quite different from the set of conditions present during the dye study.

Validation (and possibly calibration) of a model may be necessary and shall be done in accordance with the *Guidance* mentioned above - in particular, subsection 5.2 "Quantify Dilution." The resultant dilution ratios for acute and chronic boundaries shall be applied in accordance with directions found in Ecology's *Permit Writer's Manual* (1994) - in particular Chapter VI.

A Plan of Study shall be submitted to the Department for review thirty (30) days prior to initiation of the effluent mixing study.

B. Reporting Requirements

If the Permittee has information on the background physical conditions or background concentration of chemical substances (for which there are criteria in Chapter 173-201A WAC) in the receiving water, this information shall be submitted to the Department as part of the Effluent Mixing Report.

The results of the effluent mixing study shall be included in the Effluent Mixing Report, which shall be submitted to the Department for approval no later than January 15, 2002.

If the results of the mixing study, toxicity tests, and chemical analysis indicate that the concentration of any pollutant(s) exceeds or has a reasonable potential to exceed the State Water Quality Standards, Chapter 173-201A WAC, the Department may issue a regulatory order to require a reduction of pollutants or modify this permit to impose effluent limitations to meet the Water Quality Standards.

The Permittee shall use some method of fixing and reporting the location of the outfall and mixing zone boundaries (i.e., triangulation off the shore, microwave navigation system, or using Loran or Global Positioning System (GPS) coordinates). The method of fixing station location and the actual station locations shall be identified in the report.

C. Protocols

The Permittee shall determine the dilution ratio using protocols outlined in the following references, approved modifications thereof, or by another method approved by the Department:

- Akar, P.J. and G.H. Jirka. 1990. Cormix2: An Expert System for Hydrodynamic Mixing Zone Analysis of Conventional and Toxic Multiport Diffuser Discharges. USEPA Environmental Research Laboratory, Athens, GA. Draft, July 1990.

- Baumgartner, D.J., W.E. Frick, P.J.W. Roberts, and C.A. Bodeen, 1993. *Dilution Models for Effluent Discharges.* USEPA. Pacific Ecosystems Branch, Newport, OR.

- Doneker, R.L. and G.H. Jirka. 1990. *Cormix1: An Expert System for Hydrodynamic Mixing Zone Analysis of Conventional and Toxic Submerged Single Port Discharges.* USEPA, Environmental Research Laboratory, Athens, GA. EPA/600-3-90/012.

- Ecology, 1994. *Permit Writer's Manual*, Water Quality Program, Department of Ecology, Olympia WA 98504, July, including addenda through October 1996.

- Ecology, 1996. *Guidance for Conducting Mixing Zone Analyses*, Permit Writer's Manual, (Appendix 6.1), Water Quality Program, Department of Ecology, Olympia WA 98504, October.

- Kilpatrick, F.A., and E.D. Cobb. 1985. Measurement of Discharge Using Tracers. Chapter A16. *Techniques of Water-Resources Investigations of the USGS, Book 3, Application of Hydraulics.* USGS, U.S. Department of the Interior. Reston, VA.

- Wilson, J.F., E.D. Cobb, and F.A. Kilpatrick. 1986. Fluorometric Procedures for Dye Tracing. Chapter A12. *Techniques of Water-Resources Investigations of the USGS, Book 3, Application of Hydraulics.* USGS, U.S. Department of the Interior. Reston, VA.

S7. UPDATED STORMWATER POLLUTION PREVENTION PLAN

The Permittee shall submit to the Department an update to the existing Stormwater Pollution Prevention Plan (SWPPP) with the permit reapplication required in General Condition G17.

The Permittee shall modify the existing SWPPP whenever there is a change in design, construction, operation, or maintenance which causes the SWPPP to be less effective in controlling pollutants. Whenever the description of potential pollutant sources or the pollution prevention measures and controls identified in the SWPPP are inadequate, the SWPPP shall be modified, as appropriate, within two (2) weeks of such determination. The proposed modifications to the SWPPP shall be submitted to the Department at least thirty (30) days in advance of implementing the proposed changes in the plan unless Ecology approves immediate implementation. The Permittee shall provide for implementation of any modifications to the SWPPP in a timely manner.

S8. STUDY OF BACKGROUND CONCENTRATION FOR LEAD AND ARSENIC

If monitoring data for lead indicates concentrations exceeding 15 µg/L for lead and/or 5 µg/L for arsenic (ppb total recoverable), the Permittee shall conduct a study of the vicinity's background concentration for lead and/or arsenic in groundwater within six (6) months of discovering such background concentrations. Once the study is approved by the Department, the monitoring data for lead and/or arsenic will be used to compare with the background concentration, and subsequently, a lead and/or arsenic limit will be determined for the facility.

S9. MIXING ZONES

After AKART has been fully implemented, should the Permittee still not be able to meet the effluent limits set forth in Special Condition S1 and S8, the Permittee may apply for establishment of a mixing zone.

GENERAL CONDITIONS

G1. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to the Department shall be signed and certified.

A. All permit applications shall be signed by either a responsible corporate officer of at least the level of vice president of a corporation, a general partner of a partnership, or the proprietor of a sole proprietorship.

B. All reports required by this permit and other information requested by the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the Department.

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

C. Changes to authorization. If an authorization under paragraph B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph B.2 above must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G2. RIGHT OF INSPECTION AND ENTRY

The Permittee shall allow an authorized representative of the Department, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a discharge is located or where any records must be kept under the terms and conditions of this permit.

B. To have access to and copy - at reasonable times and at reasonable cost - any records required to be kept under the terms and conditions of this permit.

C. To inspect - at reasonable times - any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.

D. To sample or monitor - at reasonable times - any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G3. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated either at the request of any interested person (including the Permittee) or upon the Department's initiative. However, the permit may only be modified, revoked and reissued, or terminated for the reasons specified in 40 CFR 122.62, 122.64 or WAC 173-220-150 according to the procedures of 40 CFR 124.5.

A. The following are causes for terminating this permit during its term, or for denying a permit renewal application:

1. Violation of any permit term or condition.
2. Obtaining a permit by misrepresentation or failure to disclose all relevant facts.
3. A material change in quantity or type of waste disposal.
4. A determination that the permitted activity endangers human health or the environment or contributes to water quality standards violations and can only be regulated to acceptable levels by permit modification or termination [40 CFR part 122.64(3)].
5. A change in any condition that requires either a temporary or permanent reduction or elimination of any discharge or sludge use or disposal practice controlled by the permit [40 CFR part 122.64(4)].
6. Nonpayment of fees assessed pursuant to RCW 90.48.465.
7. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.

B. The following are causes for modification but not revocation and reissuance except when the Permittee requests or agrees:

1. A material change in the condition of the waters of the state.

2. New information not available at the time of permit issuance that would have justified the application of different permit conditions.

3. Material and substantial alterations or additions to the permitted facility or activities which occurred after this permit issuance.

4. Promulgation of new or amended standards or regulations having a direct bearing upon permit conditions, or requiring permit revision.

5. The Permittee has requested a modification based on other rationale meeting the criteria of 40 CFR part 122.62.

6. The Department has determined that good cause exists for modification of a compliance schedule, and the modification will not violate statutory deadlines.

7. Incorporation of an approved local pretreatment program into a municipality's permit.

C. The following are causes for modification or alternatively revocation and reissuance:

1. Cause exists for termination for reasons listed in A1 through A7, of this section, and the Department determines that modification or revocation and reissuance is appropriate.

2. The Department has received notification of a proposed transfer of the permit. A permit may also be modified to reflect a transfer after the effective date of an automatic transfer (General Condition G8) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new Permittee.

G4. REPORTING A CAUSE FOR MODIFICATION

The Permittee shall submit a new application, or a supplement to the previous application, along with required engineering plans and reports whenever a material change to the facility or in the quantity or type of discharge is anticipated which is not specifically authorized by this permit. This application shall be submitted at least sixty (60) days prior to any proposed changes. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not relieve the Permittee of the duty to comply with the existing permit until it is modified or reissued.

G5. PLAN REVIEW REQUIRED

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications shall be submitted to the Department for approval in accordance with Chapter 173-240 WAC. Engineering reports, plans, and specifications shall be submitted at least one hundred eighty (180) days prior to the planned start of construction unless a shorter time is approved by Ecology. Facilities shall be constructed and operated in accordance with the approved plans.

G6. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit shall be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G7. DUTY TO REAPPLY

The Permittee shall apply for permit renewal at least one hundred eighty (180) days prior to the specified expiration date of this permit.

G8. TRANSFER OF THIS PERMIT

In the event of any change in control or ownership of facilities from which the authorized discharge emanate, the Permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Department.

A. Transfers by Modification

Except as provided in paragraph B below, this permit may be transferred by the Permittee to a new owner or operator only if this permit has been modified or revoked and reissued under 40 CFR 122.62(b)(2), or a minor modification made under 40 CFR 122.63(d), to identify the new Permittee and incorporate such other requirements as may be necessary under the Clean Water Act.

B. Automatic Transfers

This permit may be automatically transferred to a new Permittee if:

1. The Permittee notifies the Department at least thirty (30) days in advance of the proposed transfer date.

2. The notice includes a written agreement between the existing and new Permittee's containing a specific date transfer of permit responsibility, coverage, and liability between them.

3. The Department does not notify the existing Permittee and the proposed new Permittee of its intent to modify or revoke and reissue this permit. A modification under the subparagraph may also be minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the written agreement.

G9. REDUCED PRODUCTION FOR COMPLIANCE

The Permittee, in order to maintain compliance with its permit, shall control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

G10. REMOVED SUBSTANCES

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

G11. DUTY TO PROVIDE INFORMATION

The Permittee shall submit to the Department, within a reasonable time, all information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee shall also submit to the Department upon request, copies of records required to be kept by this permit [40 CFR 122.41(h)].

G12. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G13. ADDITIONAL MONITORING

The Department may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G14. PAYMENT OF FEES

The Permittee shall submit payment of fees associated with this permit as assessed by the Department.

G15. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars ($10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars ($10,000) for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation.

G16. UPSET

Definition – "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations 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, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that:
1) an upset occurred and that the Permittee can identify the cause(s) of the upset;
2) the permitted facility was being properly operated at the time of the upset;
3) the Permittee submitted notice of the upset as required in condition S3.E; and
4) the Permittee complied with any remedial measures required under S5 of this permit.

In any enforcement proceeding the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G17. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G18. DUTY TO COMPLY

The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G19. TOXIC POLLUTANTS

The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G20. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this Condition, punishment shall be a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four (4) years, or by both.

G21. REPORTING PLANNED CHANGES

The Permittee shall, as soon as possible, give notice to the Department of planned physical alterations or additions to the permitted facility, production increases, or process modification which will result in: 1) the permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b); 2) a significant change in the nature or an increase in quantity of pollutants discharged; or 3) a significant change in the Permittee's sludge use or disposal practices. Following such notice, this permit may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G22. REPORTING ANTICIPATED NONCOMPLIANCE

The Permittee shall give advance notice to the Department by submission of a new application or supplement thereto at least one hundred and eighty (180) days prior to commencement of such discharges, of any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility or activity which may result in noncompliance with permit limits or conditions. Any maintenance of facilities, which might necessitate unavoidable interruption of operation and degradation of effluent quality, shall be scheduled during non-critical water quality periods and carried out in a manner approved by the Department.

G23. REPORTING OTHER INFORMATION

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

G24. REPORTING REQUIREMENTS APPLICABLE TO EXISTING MANUFACTURING, COMMERCIAL, MINING, AND SILVICULTURAL DISCHARGERS

The Permittee belonging to the categories of existing manufacturing, commercial, mining, or silviculture must notify the Department as soon as they know or have reason to believe:

A. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following "notification levels:"

1. One hundred micrograms per liter (100 μg/l).

2. Two hundred micrograms per liter (200 μg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 μg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony.

3. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7).

4. The level established by the Director in accordance with 40 CFR 122.44(f).

B. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following "notification levels:"

1. Five hundred micrograms per liter (500μg/L).

2. One milligram per liter (1 mg/L) for antimony.

3. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7).

4. The level established by the Director in accordance with 40 CFR 122.44(f).

G25. COMPLIANCE SCHEDULES

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date.

APPENDIX C

DETERMINATION OF NONSIGNIFICANCE AND SEPA CHECKLIST

WAC 197-11-970 Determination of nonsignificance (DNS).

DETERMINATION OF NONSIGNIFICANCE

Description of proposal MTCA Interim Actions at Unocal Edmonds Terminal

Proponent Unocal Corporation

Location of proposal, including street address, if any Unocal Edmonds Bulk Fuel Terminal
11720 Unoco Road
Edmonds, WA 98020

Lead agency Washington State Department of Ecology

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030 (2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

☐ There is no comment period for this DNS.

☐ This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

☒ This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date below. Comments must be submitted by ..... July 11, 2001

Responsible official Steven M. Alexander

Position/title NWRO Section Manager, Toxics Cleanup Program Phone. 425-649-7054

Address 3190 160th Avenue SE, Bellevue, WA 98008

Date. June 11, 2001 Signature Steven M. Alexander

(OPTIONAL)

☐ You may appeal this determination to (name) _____
at (location) _____
no later than (date) _____
_____ by (method) .....

You should be prepared to make specific factual objections.
Contact _____ to read or ask about the procedures for SEPA appeals.

☒ There is no agency appeal.

WAC 197-11-960 Environmental checklist.

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable: MTCA Interim Actions at Unocal Edmonds Terminal

2. Name of applicant: Unocal Corporation

3. Address and phone number of applicant and contact person: Dr. Mark Brearley 425-640-7610
   Unocal Corporation
   PO Box 2004, Edmonds, WA 98020

4. Date checklist prepared: 5/29/01

5. Agency requesting checklist: WA Department of Ecology

6. Proposed timing or schedule (including phasing, if applicable):

Interim action for "lower yard" area of Terminal is scheduled to begin August 2001; interim action for "upper yard" area of Terminal scheduled to commence Spring 2002.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No other interim actions planned at this time. Additional MTCA remedial actions will be performed at the site as part of final site cleanup.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Draft Interim Action Report, Unocal Edmonds Terminal. Prepared for Unocal Corporation by Maul Foster & Alongi, Inc. May 29, 2001, in progress.

Draft Remedial Investigation Report, Unocal Edmonds Bulk Fuel Terminal. Prepared for Unocal Corporation by EMCON. October 19, 1998.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No other applications pending at this time.

10. List any government approvals or permits that will be needed for your proposal, if known.

City of Edmonds Grade and Fill Permit

City of Edmonds Critical Areas Checklist

WA Department of Ecology NPDES Permit

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

Pursuant to chapter 173-340 WAC, Model Toxics Control Act (MTCA), Unocal proposes to perform interim remedial actions to reduce potential threats to human health and the environment and to provide additional information for a feasibility study and subsequent design of a cleanup action for the site. Specifically, petroleum-contaminated soil will be removed from the upper yard area of the Terminal and shipped off site for thermal treatment or disposal; heavy-metal-contaminated surface soil will be removed from areas of the upper and lower yard and shipped off site for disposal; and free petroleum product and associated petroleum contaminated soil will be removed from select areas of the lower yard and shipped off site for recycling, treatment and/or disposal.

The Unocal Edmonds Terminal is approximately 47 acres: the upper yard is approximately 25 acres and the lower yard approximately 22 acres. Petroleum-contaminated soil will be removed from an estimated 115,000 square feet of the upper yard; estimated soil volume is 15,000 cubic yards and estimated excavation depths range from 2 to 5 feet below ground surface. Metals-contaminated surface soil will be removed from an estimated 75,000 square feet of the upper and lower yard; estimated soil volume is 1,400 cubic yards; average excavation depth is 0.5 feet. Petroleum-contaminated soil will be removed from an estimated 40,500 square feet of the lower yard; estimated soil volume is 11,500 cubic yards; estimated excavation depth is 7.5 feet below ground surface. It is anticipated that approximately half this soil volume (5,750 cubic yards) will be returned to the lower yard excavations. Prior to backfilling, excavations in the lower yard will remain open for approximately 1 month to allow for removal of free/floating petroleum product. Product collecting in the excavations will be recovered by skimming and transferred into a temporary tank for subsequent shipment off site. Groundwater removed from the excavations during skimming will be transferred to a temporary tank. After testing for suitability, the groundwater will be discharge to an on-site oil/water separator. Volume of product/groundwater to be removed from the lower yard excavations is estimated at 2,000 gallons.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The Unocal Edmonds Terminal is located at 11720 Unoco Road in Edmonds, WA; Section 23, and the northwest quarter of the northeast quarter of Section 26, Township 27 North, Range 3 East, W.M., in Snohomish County, WA.

Site plan (showing upper and lower yard) and vicinity map/topographic map are attached.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

B. ENVIRONMENTAL ELEMENTS

1. **Earth**

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other . . . . . Lower yard is flat; upper yard is hilly.

b. What is the steepest slope on the site (approximate percent slope)? < 2% in lower yard; portions of upper yard >30%

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

The site is underlain by fill, alluvium, and a sequence of glacial and pre-glacial deposits. In the lower yard, grade fill consists primarily of sand and gravel mixtures, with small amounts of silt. Finer-grade fill is also present; it varies in composition, but generally consists of sand and silt mixtures with varying amounts of gravel, organic material and miscellaneous debris. In the upper yard, fill material consists primarily of fine- to medium-grained sand or silt and sand mixtures, with traces of some gravel.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Surface indications of unstable surface soil in limited areas of the upper yard.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

See Item 11. project description for approximate soil quantities and area involved. For lower yard interim action, an estimated 5,750 cubic yards of clean, imported fill will be required; surface will be graded to existing contours. Source of fill not yet identified. For the upper yard interim action, the surface will be roughly graded into surrounding contours (no imported fill).

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Potential erosion during upper yard construction if work occurs during rainy periods. Erosion will be controlled per a sedimentation and erosion control plan.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Pavement and buildings currently cover approximately 8 % of the site. The interim actions will not change this percentage; i.e., no additional imperious cover will be placed as part of the interim actions.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Prepare and implement a sedimentation and erosion control plan; measures will include seeding upper yard excavation areas; use of filter fabric fences and straw bale barriers; storm drain inlet protection. Lower yard excavation areas will be re-graveled.

i. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

During construction, dust, truck emissions and petroleum hydrocarbon odors may be emitted. No anticipated emissions after project completion.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

None.

c. Proposed measures to reduce or control emissions or other impacts to air, if any: Use of water spray as necessary to control dust during excavation, backfill and grading; air monitoring to check hydrocarbon emissions.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Willow Creek runs along northeast, north and northwest property boundary and discharges into Puget Sound. Union Oil Marsh is located immediately to the northeast of the site.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Lower yard excavations will occur within approximately 25 feet of the Willow Creek drainage ditch along the northwest property boundary.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

Does not apply.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

Does not apply.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

Does not apply.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

See Item 11. project description regarding incidental withdrawal of groundwater from lower yard excavations. No water will be discharged to groundwater.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

Does not apply.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Storm water runoff is currently controlled and conveyed through the site via a system of catch basins, drain lines , pumps and two detention basins. Storm water runoff is ultimately discharged to Willow Creek pursuant to an NPDES permit. The storm water drainage system is not expected to be altered by the interim actions, except for protection (or removal/replacement) of approximately 380 feet of drain line and 3 catch basins in the area of the lower yard interim action.

2) Could waste materials enter ground or surface waters? If so, generally describe.

Does not apply.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Impacts to storm water runoff will be controlled by timing of the construction activity (drier months); preparation and implementation of a sedimentation and erosion control plan; and use of the existing storm water system. Storm water runoff is currently conveyed to on-site detention basins. Should soil particulate become entrained in storm water runoff, detention (settling) will be provided by the basins (and also controlled through other measures such as fabric filter fences and straw bale barriers).

4. Plants

a. Check or circle types of vegetation found on the site:

__X__ deciduous tree: alder, maple, aspen, other
__X__ evergreen tree: fir, cedar, pine, other
__X__ shrubs
_____ grass
_____ pasture
_____ crop or grain
__X__ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
_____ water plants: water lily, eelgrass, milfoil, other
_____ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

No vegetation to be removed or altered in the lower yard. Shrubs or deciduous trees (alder) may be removed or altered in the upper yard.

c. List threatened or endangered species known to be on or near the site. No threatened or endangered species identified on or near site during 1995 wildlife survey.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Does not apply.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other: otter.

fish: bass, salmon, trout, herring, shellfish, other: (coho and chum salmon); sculpin; three-spined stickleback.

b. List any threatened or endangered species known to be on or near the site.

No threatened or endangered species identified on or near site during 1995 wildlife survey, except bald eagle territory located primarily south of the site and extending into the south end of the site. Bald eagles have since been removed from Federal list.

c. Is the site part of a migration route? If so, explain.

Do not know.

d. Proposed measures to preserve or enhance wildlife, if any:

Does not apply.

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Does not apply.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Does not apply.

7. **Environmental health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

Risk of exposure to construction workers (dermal contact, ingestion, inhalation) by dust, petroleum hydrocarbons, or metals-contaminated soil. Risks to be controlled by site-specific health and safety plan, including dust control and air monitoring.

1) Describe special emergency services that might be required.

Fire response services associated with lower yard interim action; medical facility services as necessary in case of worker exposures noted above.

2) Proposed measures to reduce or control environmental health hazards, if any:

Workers will have received Hazardous Waste Operations and Emergency Response (HAZWOPER) training. Workers will follow a site-specific health and safety plan, including use of protective clothing as required. Air monitoring will be performed during the lower yard interim action. Visual monitoring of fugitive dust.

b. **Noise**

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Does not apply.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Short-term noise associated with operation of heavy equipment to excavate and load/unload soil and fill, and with truck traffic onto, around, and from the site. Expected hours of construction: 7:30 a.m. to 5:00 p.m., Monday through Friday. No long-term noise associated with the project.

3) Proposed measures to reduce or control noise impacts, if any:

Limit hours of work to daytime/business hours. Noise mitigated by substantial, unoccupied buffer properties.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?

Site is a former bulk fuel terminal. Current use is for office purposes, only. Use of property to the north/northeast is open space (Union Oil Marsh); residential to the south; Deer Creek Salmon Hatchery at the southeast corner of the site; State Route 104 and residential use to the east; and BNSF railway/Port of Edmonds marina to the west.

b. Has the site been used for agriculture? If so, describe.

No.

c. Describe any structures on the site.

Upper yard: 23 aboveground, empty storage tanks; two sheds; garage; and warehouse.

Lower yard: three buildings; two former truck loading racks; two detention basins; one oil/water separator.

d. Will any structures be demolished? If so, what?

Does not apply.

e. What is the current zoning classification of the site?

Waterfront Commercial.

f. What is the current comprehensive plan designation of the site?

Comprehensive plan designation is Master Plan Development. Guidelines from the Downtown Waterfront Plan suggest the lower yard as Waterfront Transportation and the upper yard as Multiple Family Use.

g. If applicable, what is the current shoreline master program designation of the site?

Does not apply.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Detention Basin No. 1 was characterized in a 1995 study as a disturbed, emergent wetland. An eastern portion of the lower yard (along Willow Creek and part of the Union Oil Marsh wetland complex) was characterized as wetland. Portions of the upper yard were characterized as steep slope (>30%).

i. Approximately how many people would reside or work in the completed project?

Does not apply.

j. Approximately how many people would the completed project displace?

Does not apply.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Does not apply.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

Project itself (interim remedial action) will increase compatibility with projected land uses.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

Does not apply.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Does not apply.

c. Proposed measures to reduce or control housing impacts, if any:

Does not apply.

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Does not apply.

b. What views in the immediate vicinity would be altered or obstructed?

Does not apply.

c. Proposed measures to reduce or control aesthetic impacts, if any:

Does not apply.

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Does not apply.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Does not apply.

c. What existing off-site sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light and glare impacts, if any:

Does not apply.

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?

Does not apply.

b. Would the proposed project displace any existing recreational uses? If so, describe.

Does not apply.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Does not apply.

13. **Historic and cultural preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

None known.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

None known.

c. Proposed measures to reduce or control impacts, if any:

None.

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Site is served by State 104 and Pine Street.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

Does not apply.

c. How many parking spaces would the completed project have? How many would the project eliminate?

Does not apply.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

Does not apply.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

Does not apply.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

Does not apply.

g. Proposed measures to reduce or control transportation impacts, if any:

Does not apply.

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

Does not apply.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Does not apply.

16. **Utilities**

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Does not apply.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: Gary E. Gunderson

Date Submitted: 5-30-01

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Potential discharge of groundwater to on-site oil/water separator and then to Willow Creek; potential emissions of dust, petroleum hydrocarbons; temporary on-site storage of petroleum product recovered from lower yard excavations; production of noise from construction equipment, trucks.

Proposed measures to avoid or reduce such increases are:

Air monitoring will be performed to monitor hydrocarbon emissions during the lower yard interim action. Visual monitoring of fugitive dust. Use of water spray as necessary to control dust during excavation, backfill and grading.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

No likely affects to animals, fish or marine life. Potential impacts to plants (shrubs, deciduous trees) which may require removal for the upper yard interim action.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

No proposed measures to protect plants (shrubs, deciduous trees).

3. How would the proposal be likely to deplete energy or natural resources?

Does not apply.

Proposed measures to protect or conserve energy and natural resources are:

Does not apply.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Proposal will not use environmentally sensitive areas. No effects to environmentally sensitive areas are identified or anticipated.

Proposed measures to protect such resources or to avoid or reduce impacts are:

Does not apply.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Project itself (interim remedial action) will increase compatibility with projected land uses.

Proposed measures to avoid or reduce shoreline and land use impacts are:

Does not apply.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Does not apply.

Proposed measures to reduce or respond to such demand(s) are:

Does not apply.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

No conflicts known.